STRIPE HOG SH5500

OPERATIONS MANUAL

HOG™ TECHNOLOGIES

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WARNING

INCORRECT USE OF HIGH PRESSURE WATERBLASTING EQUIPMENT MAY CAUSE SERIOUS INJURY OR EVEN DEATH.

INEXPERIENCED PERSONNEL ATTEMPTING TO USE THIS EQUIPMENT MAY CAUSE EXTENSIVE DAMAGE TO CERTAIN COMPONENTS, BYSTANDERS, OR PERIPHERAL PROPERTY

DO NOT USE THIS EQUIPMENT WITHOUT PROPER SUPERVISION AND TRAINING.

ALL OPERATING AND MAINTENANCE PERSONNEL MUST BE THOROUGHLY TRAINED IN SAFE OPERATION BY A HOG TECHNOLOGIES CERTIFIED TRAINER, IN THE INSTALLATION AND MAINTENANCE OF THIS EQUIPMENT, AND PROVIDED WITH ADEQUATE SUPERVISION.

BEFORE ATTEMPTING TO CONNECT, OPERATE, OR REPAIR THIS EQUIPMENT, THOROUGHLY READ THESE INSTRUCTIONS AND ANY SAFETY WARNING OR INSTRUCTION PAMPHLETS INCLUDED WITH YOUR SHIPMENT.

FOR ANY QUESTIONS CONCERNING SAFE OPERATIONS AND MAINTENANCE PROCEDURES, CONTACT YOUR HOG TECHNOLOGIES REPRESENTATIVE PRIOR TO USE.

(772) 223-7393 OR (877) 964-7312
HOG TECHNOLOGIES
WWW.HOGTECHNOLOGIES.COM

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Thank You for choosing the Stripe Hog® SH5000. We believe you have made a great choice.

Hog Technologies prides itself on providing quality equipment and superior Customer Service on a global scale. It is our pleasure to serve the needs of waterblasting service providers through a variety of venues on every inhabited continent on the planet. Each one of our customers provides a unique opportunity to learn, grow, and develop our experience. As one of our customers, your relevant input is greatly appreciated. We value your opinion and will work hard to implement positive change at every opportunity.

Whether this is your first purchase from us or another one of a series, we want you to know that each and every person on the Hog Technologies team is committed to providing you with the highest level of quality available. From design to assembly, from sales to customer support, there couldn't be a team more anxious to serve you with enthusiasm and genuine concern. We are still human however, and sometimes details get past us that have to be dealt with. On the rare occasion that this happens, we will work diligently and quickly to keep your equipment operating and producing results for you. Every team member is at your disposal at any moment throughout the year to resolve any and all issues that would hinder your machine from production. The long and prosperous life of the equipment you purchase from us is our number one priority. That is why we have prepared this operations manual for you.

Please take the time to read this operations manual before attempting to operate your waterblasting system. This is an important aid in the operation and maintenance of your new equipment. The information is intended as a guide and cannot cover every question you may have about your Stripe Hog nor can itf cover every operating situation. We encourage you to contact Hog Technologies for any additional information you might need.
We provide first class support to our customers for all of the equipment we sell. We maintain a well-stocked inventory of parts and accessories in addition to technical staff with the experience to satisfy all of your support questions. Please contact us at (001) 772-223-7393 or online at www.hogtechnologies.com. We have also developed a website specifically geared to customer service related issues www.stripehogsupport.com.

Thank you again for being our valued customer.

Yours for a prosperous future,

The Hog Technologies Team

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This manual has been written to include a number of safety instructions to assure the safe assembly, operation and maintenance of your Waterblasting Equipment. These instructions are in the form of **DANGER, WARNING, and CAUTION** statements. The following definitions apply:

CAUTION

HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN MINOR PERSONAL INJURY OR PRODUCT AND PROPERTY DAMAGE.

WARNING

HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

DANGER

IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

All instructions given in this book are as seen from the rear looking forward. Common industry terminology is used throughout the manual.

IMPORTANT NOTE: Your Waterblasting equipment uses internal combustion engines and flammable fuel. Every precaution has been taken by Hog Technologies to reduce the risks associated with possible injury and damage from fire or explosion, but your own precaution and good maintenance procedures are necessary to ensure the safe operation of your equipment.

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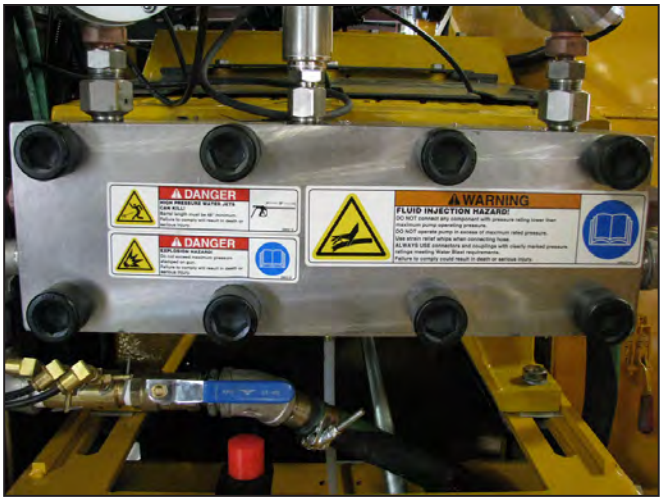
Let's start with Safety

High pressure, waterblasting equipment can cause serious injury or even death if it is not operated or maintained properly. Safety is the personal responsibility of every individual in and around the SH5500. This manual has been written to include a number of safety instructions to help assure the safe operation and maintenance of all personnel and the SH5500 equipment. This is not an exhaustive text nor is it meant to be. Rather it is an aide to help you the reader form a basis to consider what some of the safety issues are. You must be responsible to constantly consider what the safety issues are for you and those who are within range of any and all safety risks regarding its operations. We have incorporated a method of highlighting notable safety instructions. These instructions are in the form of a General Safety Section as well as individual CAUTION, WARNING and DANGER STATEMENTS. There are also CAUTION, WARNING AND DANGER LABELS located on some Stripe Hog components. You should read these warnings carefully and make sure you understand the nature of the hazard, the precautions and recommended procedures required to ensure your safety as well as those around you.



Caution and Warning Labels on High Pressure Pump

Water Filter Warning Label

Major Component Operation Manuals

The suppliers of some of the major components such as truck chassis, tractors, engines, pumps, and drive units, provide their own owner's manuals which have been included with your equipment. You should read the information in this manual and the manuals of other suppliers completely and have a thorough understanding of all component systems and their proper operation before operating your equipment.

REMEMBER - IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOUR EQUIPMENT IS SAFE FOR YOU AND YOUR CREW. ALWAYS EXERCISE GOOD COMMON SENSE WHEN INSTALLING OR REPAIRING EQUIPMENT AND WHILE OPERATING THE SH5500.

Warranty

The Hog Technologies Limited Warranty Statement is included with this manual. It has been written to be clearly stated and easily understood. If you have any questions after reading the warranty, please contact the Customer Service Department.

Hog Technologies, the truck chassis manufacturer, and the suppliers of major components maintain their own manufacturer's warranty and service facilities. Hog Technologies automatically validates your warranty at the time of purchase and does not require a warranty registration card. However, the manufacturers of some major components require a completed warranty registration card to validate their warranty. It is important that you properly complete any warranty registration cards included with your Stripe Hog and mail them back to the manufacturer to register your ownership. This should be done within 15 days of the date of purchase and before the unit is put into service.

PLEASE NOTE: All warranted parts will be shipped via RMA to Hog Technologies for inspection before credits will be issued. If there is no

part available for Hog Technologies to inspect then there will be no credit issued for the damaged part. Other arrangements must be made in writing and authorized by Hog Technologies prior to changing the part in question.

IMPORTANT:
The terms and conditions of the Hog Technologies Limited Warranty are outlined in the warranty statement included with this manual. The manufacturer will automatically honor the warranty to the original purchaser for 15 days from the date of purchase. However, during that 15 day period, owners must comply with the steps outlined in the warranty statement to validate their warranty.

All manufacturers are required by the US Government to notify first time owners in the event any defect is discovered "which creates a substantial risk of personal injury to the public." It is essential that we have your warranty registration card complete with your name and mailing address in our files so that we can comply with the law if it should become necessary.

Hog Technologies Customer Service will assist you in filling in the serial numbers and other data required on your registration card if you experience difficulty. Your Warranty Registration Card will be added to our permanent files.

Product Changes

Hog Technologies is committed to the continuous improvement of our products. As a result, some of the equipment described in this manual or pictured in the catalog may be changed or may no longer be available.

All information, illustrations, and specifications contained in this manual are based on the latest product information available at the time of publication.

Hog Technologies reserves the right to make changes at anytime, without notice, in colors, materials, equipment, specifications, and models.

If you have questions about the equipment on your Stripe Hog, please contact the Customer Service Department.

Service

All warranty repairs must be authorized by Hog Technologies to be eligible for reimbursement. Should a problem develop that is related to faulty workmanship or materials, as stated in the Limited Warranty, you should contact the Customer Service Department to arrange for assistance and prior approval for the necessary repair.

It is the owner's responsibility to contact Customer Service for prior authorization for warranty service. An RMA (Return Materials Authorization) will be issued by Hog Technologies for the parts in question. All warranty work, shipping and materials will be initially invoiced to the customer until Hog Technologies technicians determine the cause of failure. In the event it is determined to be faulty equipment and or workmanship an appropriate credit will be issued against the charges. Note that Hog Technologies will not issue a credit for parts that are not made physically available for inspection by its technicians. No substitutes, such as but not limited to, pictures, written descriptions, and judgments made by personnel other than authorized Hog Technologies Technicians are acceptable in lieu of the physical parts. Faulty diagnosis and repairs by unauthorized technicians or methods will not be covered by warranty.

We are committed to providing the highest level of support for all of the equipment we sell. We look forward to a long and mutually rewarding relationship with you. Please contact us with any questions or concerns. Our Customer Service Department is available by calling 011 772 223 7393

SH5500 Specifications

LENGTH
(varies slightly depending on truck chassis) ..... 27 ft / 8.223 m

WIDTH
(varies slightly depending on truck chassis) ..... 8.5 Ft / 2.6 m

WIDTH
(mirrors folded in) ..... 7.2 ft / 2.2 m

HEIGHT ..... 7.9 Ft / 2.5 m

EMPTY WEIGHT
(estimated w/ fuel, water & vacuum tanks empty) ..... 17,700 lbs / 8,029 kg

WEIGHT LOADED
(estimated W/ fuel, water & vacuum tanks full) ..... 22,700 lbs / 10,297 kg

VACUUM/DEBRIS TANK VOLUME ..... 660 gal / 2,500 ltr

CLEAN WATER TANK ..... 600 gal / 2,271 ltr

BLOWER ..... Dresser Roots U-RAI 59u

BLOWER CFM ..... 718 cfm

MAXIMUM SYSTEM VACUUM ..... 15 INHGV

UHP PUMP ..... Jetstream 3600

UHP PUMP GPM ..... 6 gpm / 23 ltr

MAXIMUM UHP Pressure ..... 40,000 PSI / 2,722 bar

BLOWER DRIVE BELT ..... Gates Poly Chain 14MGT - 1568-20 Part # 60209-001

BLOWER DRIVE BELT TENSION (new) ..... 76 to 80 Hz

BLOWER DRIVE BELT TENSION
(used - over 20 hours) ..... 65 TO 69 Hz

UHP PUMP DRIVE BELT ..... Gates Poly Chain 14 MGT - 3850-90 Part # 60232-001

UHP PUMP DRIVE BELT TENSION (new) ..... 51 TO 54 Hz

UHP PUMP DRIVE BELT TENSION (used) ..... 44 TO 47 Hz

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1.1 General Safety

Safety and Operations Training

Only Hog Technologies Trained and Certified personnel should be allowed to setup, operate, or maintain this equipment. All personnel working with or around this equipment should be made aware that the water jets or streams of water from leaks can cause serious bodily injury. Ultra High Pressure injection injuries can be life threatening and even simple injection injuries can cause lifelong disabilities. Read and follow all Cautions, Warnings, and Danger signs posted in all related manuals and on the equipment. Do not operate this equipment if you have not received full training in the safety, operations, and maintenance of this equipment by a Hog Technologies Certified Instructor and received a Certificate of Completion. A Certificate of Attendance is not an acceptable substitute for certification. Stay up to date with the latest technology and knowledge. Make sure you are signed up for the Stripe Hog Support website and your email address is on file to receive bulletins and updates as they become available. Advanced courses are available to increase your skill, understanding, and production rates.

Know and Follow all OEM Maintenance Procedures

Hog Technologies incorporates components manufactured by other vendors into the SH5500. This manual is not meant to represent all of the OEM (Original Equipment Manufacturer's) operating instructions or maintenance procedures. A copy of each component's Owners / Operations Manual is made available with the delivery of each machine. Read each one and understand how to use it before operating it. Copies will be made available upon request by one of the contact methods included in the contact section of this manual. Included in this SH5500 Operations and Training Manual you will find instructions and charts for the proper maintenance and operations of the SH5500 at the time it was written. It is possible that an individual OEM has changed their specifications and/or procedures and that update may not be reflected here.

Work Area Safety

Remember, safety is first! Only set up to work in areas properly protected from traffic and other hazards. Outfit all operators with proper safety gear such as Hard Hats, safety glasses, gloves, ear protection with at least 29 db protection rating, etc..

Ultra High Pressure waterblasting systems generate noise levels above 90 db. Hearing protection is required in accordance with OSHA Standards.

Mounting and Dismounting

There are ladders and hand holds provided for safely mounting and dismounting the equipment. Know where they are and Use Them. Face the equipment and always maintain at least three points of contact with the equipment. Never mount or dismount facing away from the truck or equipment. Never jump down from the equipment. If necessary, use a ladder or other climbing device suited for safely climbing onto or off of the equipment and follow standard safety procedures.

Use Only Products Intended for Ultra High Pressure Waterblasting equipment

Know the minimum burst rating of all equipment being used and never exceed the rated operating pressure of the lowest rated component. This system is designed at the time of sale to operate at 40,000 psi (2750 bars). The original components have a minimum burst rating of 60,000 psi in compliance with OSHA Standards.

Never Alter a Hog Technologies Product

Do not alter any product without written consent from the manufacturer. Any alterations will automatically void all warranty and could have serious consequences including bodily harm or death.

Water Supply

Use only clean water in any Ultra High Pressure system. DO NOT accept water drawn from retention ponds, canals, or other non-potable sources.

Read and know the Instructions

Read and follow all manufacturers' instructions prior to using any Hog Technologies product. Contact Hog Technologies should any questions arise. Take the instructions seriously. If they are written here they are important to follow.

Inspect the Equipment before using it

Inspect the condition of all components prior to use. Do not use any item that is in questionable condition. Use only components which are marked with the recommended operating pressure. Never

exceed the operating pressure of the weakest component in the system.

Check Connections
Check the condition of the connection threads prior to connecting fittings or hoses. Use anti-seize compound on all fittings and hoses to prevent “galling”, as galling will destroy the threads and essentially the fittings and or connecting ends. Never attempt to tighten fittings while under pressure.

Tightening Connections
Properly tighten all high pressure connections. Snug plus 15% will properly seal all UHP fittings.

Purge System
Before attaching spray bars to the Hog Head assembly, engage the pump at low speed and close the Dump Valve to force all water to the Through Shaft to flush out any debris or foreign materials. Any dirt or debris in the system can clog nozzle orifices and cause system pressure to spike excessively, cause accelerated wear or cause immediate damage of the orifices. Damaged orifices will cause reduced pressure and poor performance and may in turn damage the substrate.

Test System
With the Spray Bar installed and all nozzles properly matched and tightened, operate the system at low pressure to check for nozzle cohesivity and or leaks on the Spray Bar or nozzle seats. Should any repairs or adjustments be necessary, disengage the UHP Pump to relieve all pressure before making any required repairs or adjustments.

Set System Pressure
With the system operating properly, set your pressure according to the methods described by the pump

Use the Minimum Pressure Required
Do not exceed the operating pressure of the system’s lowest pressure-rated component. All equipment pressure rating and warning tags should be left intact.

Be Prepared
If the equipment malfunctions or a malfunction is suspected, immediately stop all blasting activity and relieve all pressure in the system before attempting repairs. Always follow manufacturer’s repair instructions. Only use thoroughly trained personnel to perform maintenance or repairs.

Hog Head

Low Pressure Test
Following Repairs and upon starting a cold system, operate the system at low pressure for a test. Bring the equipment up to operating pressure slowly.

Freezing Conditions
Because the system uses water for operations it is susceptible to freeze damage which can be debilitating and costly. Make sure you properly protect your equipment during freezing temperatures. Warm the hydraulic oil and components to 60o Fahrenheit (16o Celsius) before attempting to achieve full operating pressure or operating the equipment. Proper protection measures can be found on the Stripe Hog Support site at www.stripehogsupport.com under the training tab or by calling the Customer Service Dept at (772) 223-7393 and in the procedures section of this manual. Do not take short-cuts they can be very costly.

Store Components Properly
Protect all components from damage during storage and travel. For example, Spray Bars should be stored with the nozzles pointed up and should never be allowed to be turned nozzles down in order to prevent the nozzles from getting contaminated with dirt which can cause premature wear.

Injection Risk
Any Fluid under pressure poses the risk of injection injury to personnel. Injection wounds can be very dangerous even when the fluid is clean. Injection wounds must be treated immediately by a doctor who is trained in dealing with these injuries. Never check for leaks in hoses or connections with your

High Cohesive Nozzle Flow Chart FLOW - GPM @ Pressure Indicated					
Orifice Dia./ins	20KPSI (1379 Bar)	26KPSI (1723 Bar)	30KPSI (2068 Bar)	36KPSI (2482 Bar)	40KPSI (2758 Bar)
0.005	0.08	0.09	0.09	0.10	0.11
0.006	0.11	0.12	0.13	0.15	0.15
0.007	0.15	0.17	0.18	0.20	0.21
0.008	0.19	0.22	0.24	0.26	0.28
0.009	0.25	0.28	0.30	0.33	0.35
0.010	0.30	0.35	0.37	0.41	0.43
0.011	0.37	0.42	0.45	0.49	0.52
0.012	0.44	0.50	0.54	0.59	0.62
0.013	0.51	0.59	0.63	0.69	0.73
0.014	0.60	0.68	0.73	0.80	0.84
0.015	0.68	0.78	0.84	0.92	0.97

hands. Use a sheet of paper or other device to locate a suspected leak. Never attempt to tighten fittings while they are under pressure.

NEVER PLACE ANY PART OF YOUR BODY IN FRONT OF OR IN CLOSE PROXIMITY TO HIGH PRESSURE WATER STREAMS

1.2 Blasting Safety

Safety First – Always!

Be sure the work area is clear before engaging the 40K Pump. Never operate the 40K Pump when people are within 10' of the Blast Head. Never point the head at people or allow people to be within 20' in front of the head while off of the ground and the 40 K Pump operating.

WARNING

INJURIES FROM ULTRA HIGH PRESSURE WATER INJECTION CAN BE VERY SERIOUS AND OFTEN RESULT IN AMPUTATION OR DEATH. ALWAYS MAKE SURE ALL PERSONNEL ARE A SAFE DISTANCE FROM THE WORK AREA BEFORE THE PRESSURE PUMP IS ENGAGED. NEVER PUT HANDS, FEET OR ANY PART OF YOUR BODY IN OR NEAR THE HIGH PRESSURE STREAM. TURN OFF UHP IF ANYONE GETS CLOSE TO THE HEAD.

Check Hog Head

Check the Hog Head for smooth and proper operation before each shift. Ensure that the nozzles, Spray Bars and hose fittings are not leaking at the beginning of each shift and several times throughout the shift. Make sure the Spray Bar covers are in place and secured before each shift.

Check Stripe Hog Control Components

Check all switches and control panel devices to ensure each is working properly before beginning operations. Do not use equipment if any device is malfunctioning.

WARNING

ULTRA HIGH PRESSURE BLASTING CAN CAUSE DEBRIS TO BE PROJECTED UNEXPECTEDLY IN AND AROUND THE WORK AREA THAT CAN CAUSE SEVERE EYE INJURY. MAKE SURE ALL PERSONNEL STAY WELL CLEAR OF THE BLASTING AREA AND USE HARD HATS, EYE AND EAR PROTECTION.

Check the Pressure While Not Blasting
The pressure should drop below 500 psi (34 bars) after the STOP switch is pressed. If it stays higher you must check the Dump Valve Shut-Off Cartridge. Do not use the equipment until the repair is made.

Know Your Surroundings
Know your surroundings well – i.e. truck, hoses, people, walls, moving vehicles, traffic, live traffic lanes, etc.

Never Blast While Stopped
Always make sure to stop blasting before stopping the truck. Blasting while the machine is stopped will damage the road surface.

1.3 Nozzle Safety
Check Flow Rating
Know the flow rate of the UHP Pump. Because the UHP Pump is a positive displacement pump it develops a specific pressure at a specific flow rate. A combination of nozzles must be used that does not exceed the flow rate for a given pressure. Use the above chart to calculate the flow rate of a given combination of nozzles and make adjustments as necessary to achieve the pressure you desire. Worn out or "Blown" nozzles use more water and reduce the possibility of achieving your desired pressure.

Check Pressure Rating
Use only nozzles with a manufacturer's minimum burst rating of 60,000 psi.

Check Nozzle Stream
After installing new nozzles and before installing the Spray Bar Protectors you must check the nozzles at operating pressure to make sure there are no leaks and the streams are "Needle Sharp". Refer to the Nozzle Cohesivity Chart to decide if the new nozzles should be replaced or not. It is common to replace 10% of new nozzles due to undesired nozzle streams.

Use Anti-seize
Use plenty of Anti-seize on each nozzle and make sure they go into the Spray Bar easily. Never force the nozzle into the socket as it will permanently damage the threads. Never use power tools to run the nozzles in or out. Always turn the nozzles by finger as much as possible. If the threads gall you should use a back and forth motion to slowly extract it from the Spray Bar. Never use more than 20 ft lbs of torque.

Installing Nozzles
Insert the nozzle into the Spray Bar finger tight. Using a 3/8" socket tighten the nozzle about 15% more. Do not over-tighten. If the nozzle won't seal this way the seat may be damaged and must be reconditioned.

Clogged Nozzles
The orifices of the nozzles are so small that they can be clogged by particles too small for the human eye to see. You must take great precaution to keep the nozzles clean or they will be clogged immediately upon starting the machine. Clogged nozzles should be discarded and replaced. Trying to unclog the orifice usually results in damaging or dislodging the sapphire and destroying the nozzle. Clean, careful habits will save lots of time and prevent clogged nozzles.

Remove a Nozzle from Service if:

A. Nozzle is split or damaged

B. Nozzle is clogged

C. Nozzle Stream is fanned

D. Nozzle cannot hold pressure or is suspected to be weak

E. Nozzle Hex Head is rounded off

F. Nozzle Threads are damaged

1.4 Hose Safety
Check Pressure Rating
Use only hoses with a Minimum Burst Rating of 60,000 psi (4,136 bars)

Minimum Radius
Never bend the hose tighter than the minimum radius as given by the manufacturer. Smaller hoses can be bent tighter than larger ones. If the minimum radius is exceeded the hose will fail quickly at that point. You should discard any hose that has exceeded the minimum radius. When an Ultra High Pressure Hose ruptures it can be extremely dangerous to personnel in close proximity.

Leaking Fittings
Never tighten leaking hose fittings while they are under pressure. There is a risk of injection injury. Turn off the Pump then tighten the fittings before continuing. Leaks in hose connections can destroy the hose within minutes.

Hose care
Protect the hose from sharp objects, abrasive surfaces, and wheel traffic.

Retire a Hose from Service if:
A. Cover is damaged and reinforcing wire is exposed

B. Cover is loose, has blisters, or bulges

C. Hose has been crushed or kinked

D. End Fittings show signs of damage, slippage, or leakage

E. Hose has been exposed to pressures of 2 times the operating pressure rating

F. Hose has been stressed or stretched

Check the Dump Valve Return Line
The hose used for the return line on the Dump Valve must be of large enough diameter and pressure rating to accept the full flow of the pressurized water released when the valve is opened and facilitate an instantaneous pressure drop in the system without bursting. Inspect this line periodically to ensure it is in good condition. Replace when it becomes compromised in any way, chaffed, cut, dry-rotted, cracked or leaking.

1.5 High Pressure Fitting Safety
Fitting Ratings
Use high pressure fittings with a rating of 60,000 psi (4137 Bar.)

Check Fittings
Do not use fittings that have been cross threaded or have damaged threads.

Fitting Connections
Use anti-seize compound on ***all*** hose and fitting connections to prevent galling. Do NOT use anti-seize on the seating area of any connections.

1.6 Dumping Safety
A) Always dump on level ground, never uneven or sloped ground.

B) Always choose solid ground, not soft sand or wet soil.

C) Never allow personnel under raised tank without safety supports in place.

D) Always be careful to avoid any pinch points which could cause injury.

E) Always drain all the liquid from the debris tank before dumping the solids.

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Stripe Hog Systems

SH5500 Stripe Hog

2.1 Truck Chassis

Overview

The Stripe Hog SH5500 waterblasting system is mounted on a truck chassis. The operation and maintenance requirements for the engine, drive train and chassis components are unique to the manufacturer and the selected options. Each truck chassis manufacturer provides owners information manuals with their product. It is important that you read the manuals carefully and become familiar with the proper care and operation of engine, drive system, chassis, safety equipment and all components of your truck chassis.

Warranty registration forms are included with the information manuals. All requested information on these forms should be filled out completely and submitted to the dealer or manufacturer as soon as possible.

Truck Electrical System

Your truck can be equipped with either a 12-volt or 24-volt DC electrical system depending on your location and the chassis manufacturer. All truck chassis are equipped with two heavy duty main circuit breakers located below the hood on the driver's side, just forward of the battery. The circuit breakers protect the DC circuits that provide electrical power to the cab control panels and the electric solenoids that activate the functions of the PTO, high pressure waterblasting system, hydraulic system and other electrical equipment installed by Hog Technologies.

The circuit breakers are equipped with a yellow indicator/reset lever that indicates the status of the breaker (ON or OFF) and is used to reset the breaker if it trips. This is a heavy duty circuit breaker that typically trips only when there is a fault in the system. If it trips, you should find and correct the problem before resetting the breaker. The breaker is reset by turning the yellow lever to the "ON" position. Contact Hog Technologies Customer Service if you need assistance correcting a problem with the Stripe Hog electrical system. There is also a fuse panel inside the main control

switch panel in the cab. The fuses in this panel protect the circuits activated by the joystick and control panel switches.

Refer to the information manual for your truck chassis for information on the electrical system on your vehicle.

Video Systems (Optional)

Video systems are optional features that enable better visibility for the operator while blasting operations are underway. The video system can also provide improved visibility while backing the vehicle. Refer to the truck and video manufacturers information for instructions on operating and maintaining video systems.

Skip Meter

Most trucks are equipped with a “Skip Meter” that records the distance traveled while in Work Mode. When the meter is activated, an inductive sensor records the revolutions of the truck drive shaft and converts the readings into linear feet or meters. The data is recorded and saved until the operator deletes it.

There are two toggle switches on the front of the meter. One toggle switch turns the meter ON or OFF, the other toggle switch is used to start the meter when blasting operations begin and stop the meter when operations stop or are paused. Menu buttons select the meter to read in feet or meters and various recording and data modes. An operating manual for the Skip Meter has been included with your Stripe Hog that provides detailed information on its operation and available data modes.

Typical Main Circuit Breaker
Located Below the Hood, Forward of the Battery

Skip Meter and Video Screen

Typical Skip Meter Inductive Pickup on Drive Shaft

Tool Boxes

Heavy duty, lockable tool boxes are located on the truck chassis. The tool boxes are used for the storage of hoses, fittings, extra parts and tools. Instructions for routine maintenance and adjusting the latches are located on labels attached to the inside of the each door.

2.2 Truck Power System and PTO

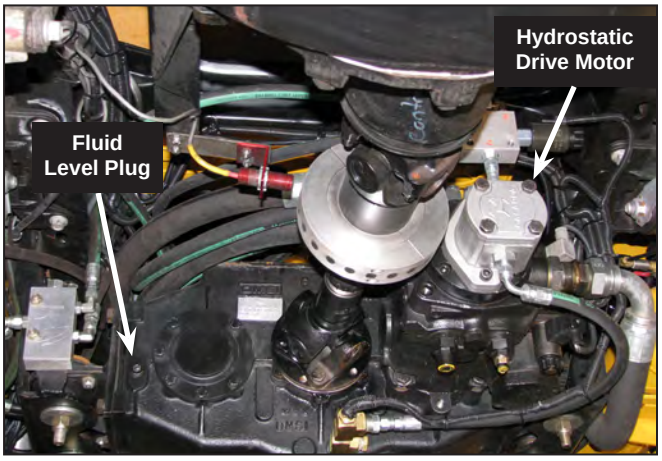
All major components of the Stripe Hog are powered by the truck engine. The primary drive system has two modes, Drive Mode and Work Mode. Drive Mode connects the drive shafts from the transmission directly to the differential and is the normal mode for highway driving. Work Mode disconnects the transmission from the differential and connects it to the transmission Power Take-OFF (PTO), the OMSI Drive and the hydraulic systems that power the hydrostatic truck drive and all waterblasting features and components.

Controls in the cab allow the operator to switch quickly between Drive Mode and Work Mode. A specially designed gear box called the "OMSI Drive" and the Power Take-Off (PTO) on the truck transmission facilitate this operation. The OMSI Drive transfers the energy in the drive shaft from the differential to special belts and pulleys that power the high pressure water pump and vacuum blower. It also provides power to the hydraulic pump that powers the hydrostatic drive system. The transmission PTO transfers drive train energy to the hydraulic pump that powers the Hog Head and waterblasting hydraulic systems. Pneumatically activated control levers on the OMSI Drive and truck transmission shift the unit from Drive Mode to Work Mode when the PTO switches are activated.

An electric air compressor, located on the passenger side of the chassis, below the clean water tank, provides the compressed air for the pneumatic control actuators. The compressor is completely automatic and always activated unless it is turned OFF by the switch on the pressure control sensor near the compressor.

The OMSI Drive gear box has specific lubrication requirements. The fluid level must be checked weekly to ensure the gear box is full and there are no leaks. The fluid level is monitored by removing the oil level plug on the OMSI Drive main gearbox. The oil level should be maintained within .5" (1.3 cm) of the plug threads. Refer to the OMSI Drive operating and maintenance manual for additional information on checking fluid the level and required routine maintenance.

Typical OMSI Drive



OMSI Drive Fluid Level Plug & Hydrostatic Drive

Shifting the Drive Modes

Changing from Drive Mode to Work Mode and back again is orchestrated by using the clutch, gear shift, and the PTO switches on the Waterblasting joystick control panel and the truck dashboard. The normal vehicle drive train is disabled and the hydrostatic drive system moves the truck whenever the PTO switches are engaged.

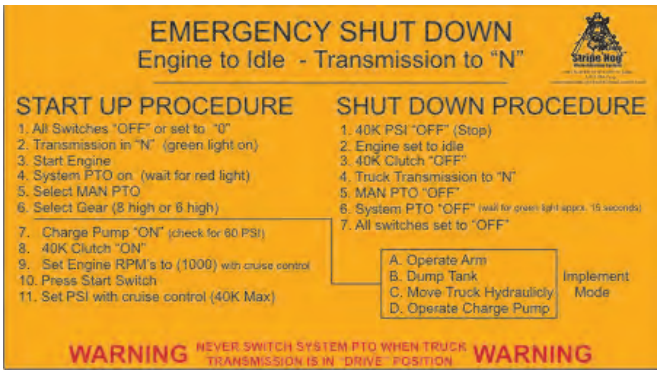
The system should only be engaged into Work Mode when the Stripe Hog is on a job site and ready for operations. The truck must be stopped with the engine at idle, the transmission in neutral and the clutch depressed, before the transmission and OMSI Drive PTO switches can be shifted from Drive Mode (OFF) to Work Mode (ON.) In-cab instructions are visible to assist in the start-up and shut-down procedures for the operation of the unit. The instructions are specific to each unit

as there are differences between truck chassis, transmissions and drivetrains. There are also significant differences between foreign and domestic (USA) truck chassis.

When Work Mode is selected the operator must depress the clutch and engage the manual transmission in third gear to provide the proper gear ratio for the transmission and OMSI Drive PTO systems. When the OMSI Drive PTO switch is ON, the engine transmission is disconnected from the differential and the hydrostatic drive system moves the truck. The TRUCK FWD/REV rocker switch in the control panel is used to select forward or reverse. The TRUCK SPEED dial controls the truck speed in forward or reverse (0 - 7 mph.) Engine RPM is controlled by the speed dial on the Remote Engine Control panel on the truck dashboard. The Remote Engine Control is activated or deactivated by an ON/OFF toggle switch on the panel. Additionally, it can be quickly disengaged by pressing the brake pedal.

Always make sure the TRUCK FWD/REV rocker switch in the control panel is in the neutral position and the truck speed dial is set to 0 before engaging the OMSI Drive PTO (PTO switch on the control Panel) to avoid the possibility for the truck to surge unexpectedly in forward or reverse when the hydrostatic drive is engaged.

Indicator lights in the transmission PTO switch panel and the control panel switches illuminate when the function is activated. The lights in the PTO switches are lit when the PTO systems are engaged.



Typical In-Cab Instruction Label

INSTRUCTION LABEL SHOWN IS A SAMPLE AND MAY NOT BE THE SAME AS THE ACTUAL IN-CAB INSTRUCTIONS ON YOUR STRIPE HOG

Control Panel Switches and Joystick

Work Mode Engine Throttle Control

Transmission PTO Switch

The PTO switches and lights are OFF when the PTO systems are disengaged and the truck is in normal driving mode. The PTO switches are ON and the lights are illuminated when the PTO systems are engaged for work mode.

When disengaging the system, it is important to "LISTEN" for disengagement, indicating the waterblast system is inoperable. This is necessary to ensure none of the waterblasting equipment functions are operable during normal driving of the truck.

WARNING

THE TRUCK COULD SURGE FORWARD OR BACKWARD UNEXPECTEDLY WHEN WORK MODE IS SELECTED IF THE TRUCK FWD/REV SWITCH IS IN FORWARD OR REVERSE AND/OR THE SPEED CONTROL DIAL IS NOT SET TO 0. ALWAYS MAKE SURE THE TRUCK SPEED CONTROL DIAL IS SET TO 0 AND THE TRUCK FWD/REV SWITCH IS SET TO NEUTRAL BEFORE ENGAGING "WORK MODE."

WARNING

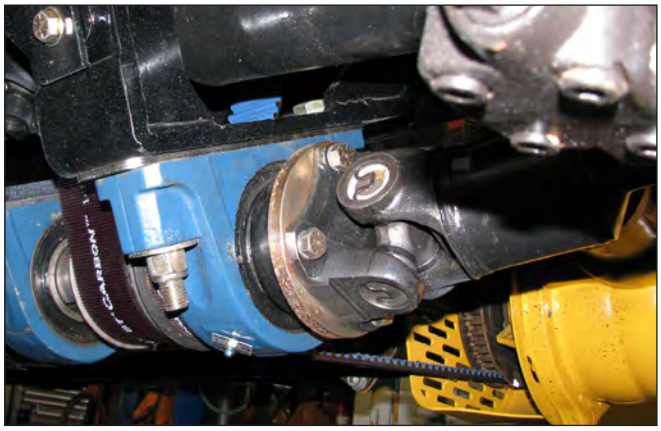
IT IS NOT POSSIBLE FOR THE OPERATOR TO SEE PEOPLE OR OBSTACLES THAT ARE IMMEDIATELY BEHIND THE TRUCK IF YOUR UNIT IS NOT EQUIPPED WITH A REAR VIDEO CAMERA. ALWAYS PUT THE TRUCK IN PARK, SET THE PARKING BRAKE AND CHECK BEHIND IT BEFORE DRIVING IN REVERSE. IF YOU HAVE AN ASSISTANT, HAVE HIM STAND AT THE REAR OF THE TRUCK AND DIRECT YOU.

Transmission PTO

The transmission Power Take-Off (PTO) provides power to a system of hydraulic pumps that provide hydraulic power to the Hog Head, Hog Arm and other waterblasting hydraulic systems. It is controlled by the PTO switch in the truck dashboard. An indicator light in the switch panel illuminates when the PTO is engaged. Refer to the PTO caution on the dash board and always depress the clutch on manual transmissions before engaging the PTO.

Refer to the transmission PTO operating manual for additional information on the transmission PTO engagement system.

Transmission PTO Engagement Caution



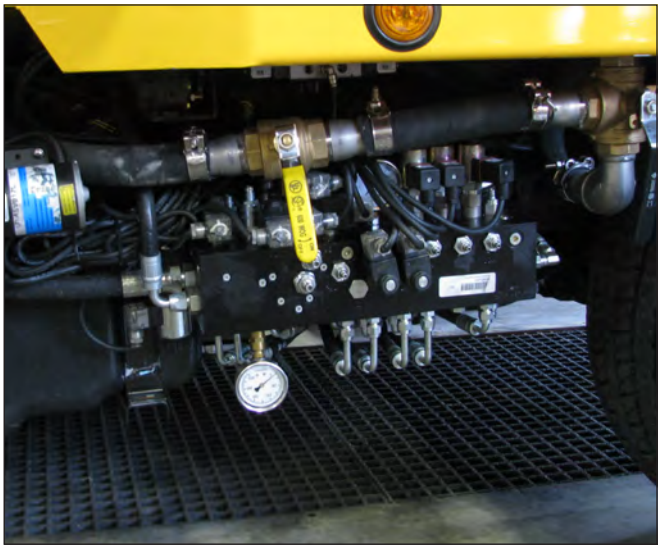
Typical Drive Belt Configuration for PTO Clutch Powered UHP Pump and Vacuum Blower
(Your belt configuration may be slightly different than the configuration shown above)

2.3 Primary Drive Belts

The primary drive belts that connect the OMSI Drive to the high pressure pump and vacuum blower are special carbon fiber industrial belts that are designed for high horsepower applications. The ribbed drive belts are matched to grooved pulleys and have very little stretch. Therefore, they typically don't require adjustment often and proper belt tension is extremely important when adjustment is required. The belts are strong enough to cause severe damage to bearings, shafts and other components if they are set too tight. Additionally, if a belt is too loose, it can ride on top of the grooves and thus become too tight.

The drive belts for the high pressure pump and vacuum blower are different and, therefore, have different tension specifications. Additionally, new belts have a different tension specification than

Hydraulic System Reservoir and Fluid Level & Temperature Gauge



Hydraulic System Solenoid Valves and Gauges

used belts (drive belts with 20 hours or more). Instructions for adjusting the primary drive belts and tension specifications are included in the General Maintenance section of this manual.

WARNING

THE PRIMARY DRIVE BELTS CAN CAUSE SEVERE DAMAGE TO PULLEYS, SHAFTS AND BEARINGS IF THEY ARE ADJUSTED TOO TIGHT OR MISALIGNED. THIS CAN CAUSE SEVERE DAMAGE TO DRIVE SYSTEM COMPONENTS AND INJURY TO PERSONNEL IF DAMAGED COMPONENTS ARE THROWN FROM THE MACHINE. ALWAYS MAKE SURE THE BELTS ARE PROPERLY ALIGNED AND SET TO THE BELT MANUFACTURER'S SPECIFICATIONS WHEN THEY REQUIRE ADJUSTMENT. NEVER OVERTIGHTEN THE BELTS.

Make sure you refer to the belt tension specifications in the Maintenance section of this manual or the belt manufactures information manual when adjusting the belt tension and never overtighten them.

2.4 Truck Hydraulic Systems

Waterblasting System Hydraulics

The waterblasting hydraulic system is activated by the PTO switch in the truck dashboard and powered by the truck engine and transmission Power Take Off (PTO). It is equipped with a pump, large reservoir/cooling tank and in-line filters. An oil cooler with a thermostatically activated fan cools the hydraulic fluid during operation. Electric solenoid valves, activated by switches in the control panel and joystick, direct hydraulic pressure to the various components. The hydraulic oil level and temperature is monitored by a site gauge and thermometer on the side of the reservoir.

The system is equipped with "Spin On" filter cartridges that protect the system from debris. Pressure gauges on the hydraulic manifold and near the filter alert the operator when a filter is dirty and requires changing.

The Waterblasting hydraulic system powers the Hog Head, hydraulic Hog Arm, UHP system charge water pump and the cylinders that tilt the debris tank during dumping. All movement of the Hog Arm and the rotation of the spray bar is activated and controlled by the hydraulic system.

Hydrostatic Drive Hydraulic System

The hydraulic pump, mounted to the front of the OMSI Drive, provides the hydraulic power for the truck hydrostatic drive system that moves the truck while in Work Mode. It is powered by the truck engine and primary drive shaft connecting transmission to the OMSI drive. The hydrostatic drive system is activated by the PTO switch on the control switch panel and controlled by the Truck FWD/Rev switch and Truck Speed dial.

Hydraulic oil is provided by the large reservoir/cooling tank and a thermostatically activated fan cools the hydraulic fluid during operation. Electric solenoid valves, activated by the Truck FWD/REV switch and Truck Speed dial control the fluid flow in the system. A "Spin On" filter cartridge protects the system from debris. A pressure gauge near the filter alerts the operator when the filter is dirty and requires changing.

2.5 Fluid Cooler Placement

The SH5500 is equipped with coolers for the engine, transmission, drive train components and hydraulic system. The coolers are located in front of the radiator in the engine compartment, in several locations on the chassis, on special brackets located behind the cab near the high pressure pump, on top of the vacuum filter canister, inside the vacuum filter canister and in the clean water tank.

The compact size of the SH5500 has made it the second most popular waterblasting Unit we produce. It is great for small jobs, easy transportation, under the Federal CDL qualifications, and very efficient. Because it is so compact a special consideration must be made in its design to remove the heat. This is done amazingly well using 5 uniquely designed coolers. The main sources of heat are the high horsepower Ford diesel engine, the Ford manual transmission, the OMSI Gearbox, and the Hydraulic Pumps. This incredibly efficient package maintains the respective components at their optimum temperatures to ensure their normal service life.

The following is the name of the coolers, their function and location.

1. Heat Exchanger (some models)
   a. This unit uses the cool water in the Clean Water Tank to remove the heat from the Engine Coolant without mixing them. It is a rectangular shaped, plate style cooler that is located in the front of the truck, behind the bumper.

2. Hog head hydraulic Coil Cooler
   a. This cooler wraps around the outside perimeter of the Vacuum Filter inside the Vacuum canister. It takes advantage of the moist air and rapid movement to remove vast amounts of heat from the Hydraulic Fluid.

3. The OMSI gearbox Cooler
   a. This Unit has its own thermally controlled fan and is located on top of the vacuum canister behind the Cab on the passenger side. The OMSI transmission in this chassis has been up-fitted by the manufacturer with a circulation pump to provide the oil flow necessary.

Hog Head hydraulic Coil Cooler

OMSI Drive Oil Cooler with Thermostatically Controlled Fan and In-Line Filter

Hydraulic Oil Cooler

4. Hydraulic Oil Cooler
   a. This cooler is the main hydraulic oil cooler. It is activated by the PTO Switch on the Joystick Box. The fan will run constantly once the PTO switch has been turned on. It is assisted by the Coil Cooler.

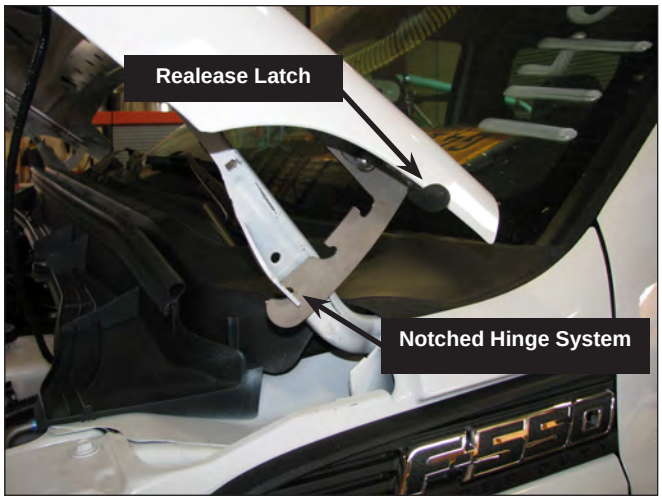
The coolers loose efficiency if they become dirty. It is important to inspect the coolers at least once a week and clean them as necessary. This is particularly important with the oil coolers located in the engine compartment near the radiator. Because these coolers are located near the Hog Head, dirt and debris that gets by the Hog Head during blasting operations can build up more quickly in these coolers. As the debris accumulates the efficiency of the coolers is reduced. If the coolers are not cleaned regularly, debris can buildup to the point where the coolers become ineffective, causing the fluid and components to overheat. This can result in extreme damage to components protected by the coolers.

You should pay particular attention to the engine radiator and the oil coolers mounted in front of it. Accumulated debris in the radiator or the oil coolers can reduce air flow through the radiator, causing the engine and drive train components to overheat. This could result in severe engine and drive train damage.

2.6 Hood Ventilation System

A special notched hinge system allows the truck hood to be raised which dramatically improves air flow around the engine, radiator and engine compartment oil coolers while in work mode. It is extremely important for the hood to be raised to provide proper cooling whenever work mode is engaged. In some situations, the engine and other key components can overheat if the hood is left in the driving position.

The hood should be raised just before engaging work mode and lowered to the driving position and properly latched before returning the truck to drive mode.



Special Notched Hood Hinge System and Release Latch

Hood Released to Safety Latch and Raised to First Notch on Drivers Side

Use the following procedure to raise the hood for work mode operation.

1. With the truck at the job site and ready for work mode, turn the engine off and release the hood latch. The hood should open slightly to the safety latch position. Do not release the safety latch to completely open the hood.

2. With the hood slightly open and secured by the safety latch, raise the rear drivers side of the hood to notch 1 by simultaneously pushing the release lever next to hinge toward the rear of the truck and lifting the rear of the hood. Align the hinge mechanism with notch 1 and push the lever toward the front of the truck to seat the hinge in the notch. Note that there are three notches. The top notch is the full down drive mode notch. The center and bottom notches are notch 1 and notch 2 respectively. You should only raise the driver's side of the hood one notch at a time to prevent possible damage to the hinges.

3. Make sure the drivers side hinge is securely set in notch 1 and follow the same procedure to raise the passenger side hinge to notch 2 (the bottom notch).
4. Raise the driver's side to notch 2.
5. Double the check hinges to make sure each side is set completely in notch 2.
6. Check the front of the hood to confirm that it is secured with the safety latch. The hood is now in the ventilation position and ready for work mode.

Note:
The hood can be opened to access the engine compartment with the hinges set to ventilation or drive position.

7. Reverse the process to return the hood to the driving position.

WARNING

NEVER OPERATE THE TRUCK IN DRIVE MODE AT SPEEDS EXCEEDING 15 MPH WITH THE HOOD RAISED TO THE VENTILATION POSITION. THE HOOD IS NOT DESIGNED TO BE OPERATED AT HIGHWAY SPEEDS IN THIS POSITION. WIND PRESSURE AND BUFFETING EXPERIENCED AT HIGHWAY SPEEDS COULD CAUSE DAMAGE TO THE HINGES AND/OR HOOD LATCH WHICH COULD RESULT IN THE HOOD OPENING SUDDENLY AND HITTING THE WINDSHIELD. THIS WILL CAUSE SEVERE DAMAGE TO THE TRUCK AND COULD CAUSE INJURY TO THE DRIVER AND PASSENGERS. THE OPEN HOOD COULD ALSO BLOCK THE DRIVER'S VISIBILITY WHICH COULD RESULT IN AN ACCIDENT. ALWAYS MAKE SURE THE HOOD IS LOWERED TO THE DRIVE POSITION AND IS SECURELY LATCHED IN THE FULL CLOSED POSITION BEFORE OPERATING THE TRUCK ABOVE 15 MPH.

Hood in Ventilation Position and Ready for Work Mode

Hood Latched in Full Closed / Drive Mode Position

Truck Mounted Hog Head

2.7 Truck Mounted Hog Head

The Hog Head and Hog Arm are mounted to the front of the chassis, just forward of the bumper. The hydraulic system provides the power for all functions of the Hog Arm and the hydraulic motor that rotates the spray bar on the Hog Head.

The high pressure water pump provides ultra high waterblasting pressure to the spray bar and the vacuum blower provides the vacuum to carry dirty water and debris to the debris tank. A joystick and control switch panel in the cab control all functions of the Hog Head and control arm. The Hog Head is a single blast head design mounted on the Hog Arm.

Auxiliary connectors for high pressure water and DC power are located on the bumper near the Hog Head. The connection provides high pressure water and DC power for Waterblasting accessories or Hog Tools that can be powered by the SH5500 systems.

Hog Head Hydraulic System

The hydraulic system is powered by the truck engine. The truck must be in work mode with the transmission PTO engaged before the hydraulic system will operate. The control panel and joystick in the cab control all hydraulic functions of the Hog Arm. The Hog Head can be moved up and down, right and left or can be set to float, which allows the Hog Head to freely move up and down with the contour of uneven surfaces. When the Hog Arm is raised to the full up position, it will automatically lock. This lock is a safety feature that prevents the Hog Arm from being lowered accidentally while the vehicle is operating in Drive Mode.

The operator must release the Hog Arm lock manually before it can be lowered. Make sure the truck is stopped with the parking brake set before manually releasing the Hog Arm lock.

Typical Control Switch and Joystick Panel W/ Speed Dials and Pressure Gauges
The panel on your unit may be slightly different

Note:
If the lock will not release, the hydraulic system will have to be engaged and the hog head raised to relieve the strain on the lock. Additionally, the lock handle should be secured with a plastic tie wrap or other type of fastener to ensure it cannot accidentally release while driving.

Control Panel and Joystick

All functions and features of the waterblasting system are activated by labeled switches in the control panel. There are also switches that activate the hydrostatic drive forward and reverse, work lights and strobe lights. Accessory switches activate the optional video system or other optional accessories that may be installed by Hog Technologies. Individual fuses in a fuse panel located inside the control panel protect the circuits activated by the switches.

There is no power available to the control panel until the PTO switch is activated. The PTO switch uses power from the truck's ignition system to energize a relay inside the control panel which then provides power to the individual rocker switches that control other functions.

There are LED lights in the control panel switches. The lights illuminate when the function activated by the switch is engaged. If no features are activated by accessory switches, they will be wired in reserve for equipment or options that may be installed at a later date.

When the PTO systems are engaged in Work Mode, the engine RPM is controlled with the Remote Engine Control. Typically the RPM is set to provide the desired water pressure and vacuum for the current operation. Tapping the brake pedal or turning the control toggle switch OFF will im-

mediately deactivate the Remote Engine Control and return the engine to idle.

The Remote Engine Control will only operate when the truck is work mode. It is automatically deactivated when the transmission PTO is disengaged. The Hog Arm, truck speed (hydrostatic drive in "Work Mode"), and spray bar rotation speed are controlled by the joystick and speed dials in the control panel. Separate digital gauges monitor the vacuum, charge pressure and ultra high pressure (UHP) in the waterblasting system.

The joystick controls the Hog Arm. Move it forward to lower the arm, pull it back to raise it. Move it to the right and the hog arm moves right, move it left and the arm moves left. The "trigger" on joystick controls which stage of the Hog Arm moves right and left with the joystick. When the "trigger" is not activated, the joystick controls the 1st stage of the arm and moves the entire Hog Arm right and left. When the "trigger" is activated, the joystick moves only the 2nd stage of the Hog Arm (the portion forward of the center hinge) for more precise positioning of the Hog Head. When the joystick is released, the handle automatically returns to center and the Hog Arm stops in that position. A rocker switch in the panel activates and deactivates the Hog Head FLOAT feature that enables the Hog Head to float freely over uneven contours.

The Truck Speed dial rotates to control the speed of the truck (0-7 MPH) while in "Work Mode" (hydrostatic drive engaged.) The Head Rotation dial controls the speed of the Hog Head spray bar. Rotating the dial clockwise increases speed and rotating it counterclockwise reduces speed. Setting the Truck Speed dial to 0 will stop the truck motion, setting the Head Rotation dial to 0 will stop the rotation of the spray bar.

Hog Head

The Hog Head is attached to the end of the Hog Arm. There is one blasting head supported by a chassis with four heavy duty castors that support the Hog Head at a preset height and prevent the spray bar and shroud from contacting the pavement. Spacers on each caster adjust the height of the Hog Head. Adjustment may be required to maintain proper clearance by adding spacers as the castor wheels wear.

Hog Head, Casters and Wear Brush

The wear brush is clamped to the blast head shroud and provides a partial seal between the Hog Head and the pavement. The wear brush regulates vacuum air flow into the Hog Head and reduces the amount of debris and water exiting the blast head during waterblasting operations. The wear brush is a important safety feature of the Hog Head and must be adjusted as it wears and replaced as necessary. It should always be adjusted so the brushes are making light contact with the pavement.

To adjust the wear brush, lower the Hog Head to the ground and note the gap between the wear brush and the pavement. Raise the Hog head, loosen the clamp on the blast head and slide the wear brush enough to eliminate the gap. Tighten the clamp and recheck. Readjust if necessary.

Note:
Always make sure to check the Hog Head for smooth and proper operation before each shift. Do not use equipment that has not been checked thoroughly.

The spray bar is rotated by a thru-shaft hydraulic motor. The rotation speed is controlled by the Head Rotation dial in the joystick panel. The center of the rotating shaft is drilled to allow high pressure water to pass through the shaft to the spray bar. A special swivel seal assembly provides a positive seal for the connection to the high pressure hose while allowing the thru-shaft

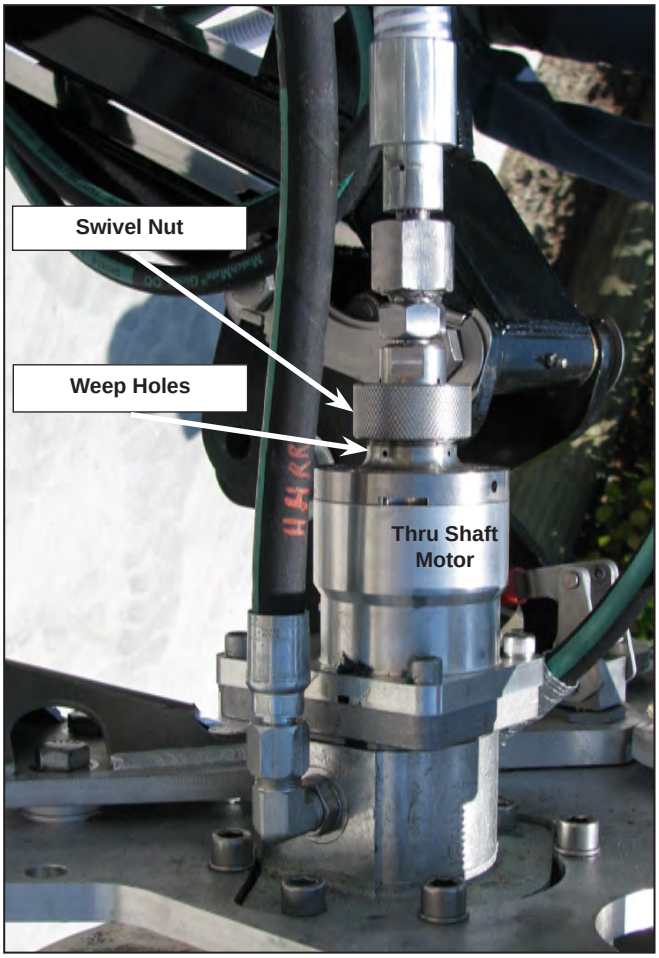
to turn freely. The hose is secured to the rotating shaft housing by the swivel nut. The swivel nut is hand tightened. If the nut becomes loose, the hose will wobble and damage the swivel seal. Additionally, if the swivel nut is overtightened by using a pipe wrench or pliers, the swivel seal will be damaged. The swivel nut must be checked daily to ensure it is tight and that the swivel seal is not leaking. Any water dripping from the weep holes just below the swivel nut while the system is pressurized indicates the seal is leaking and must be replaced. Operating the Hog Head with a leaking swivel seal will cause complete failure of the seal, stopping blasting operations and could cause severe damage to the thru-shaft motor.

The spray bar is a quick change design. Spray bars are available in 6", 8", 10", 14", widths. Aggressive and non-aggressive patterns are available for all heads.

If you are new to waterblasting equipment, Hog Technologies offers a variety of spray bar and nozzle configurations to meet the requirements of most paint and rubber removal projects. Examples of available spray bar configurations are included in the Appendix section of the this manual. You can also contact Hog Technologies Customer Service for assistance in selecting the right spray bars for your project.

To change a spray bar, hold the shaft by inserting a 3/4" wrench into the slot at the bottom of the thru-shaft housing, located just above the blast head shroud. Twist the spray bar counterclockwise by hand until it is free of the shaft. Purge the blast head at low pressure, then apply anti-seize to the threads, insert a new brass button seal and install the new spray bar by turning it clockwise slowly until it seats. Then tighten it by turning the spray bar another 15%. Make sure you remove the wrench when the installation is complete.

Note:
Before attaching the new spray bar to the Hog Head Assembly, engage pump at low pressure to purge the system. Any dirt or debris in the system can clog nozzle orifice's and cause system pressure to spike excessively causing damage to components or the rupture discs on the UHP pump to burst. Refer to the Stripe Hog Training DVD or online at www.stripehogsupport.com for detailed information on changing the spray bar.



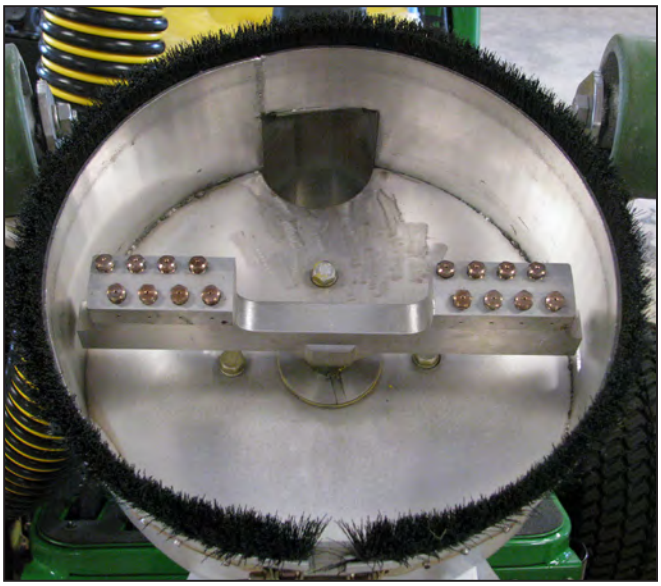
Typical Thru-Shaft Motor and Swivel Nut

Swivel Seal on Thru-Shaft Motor

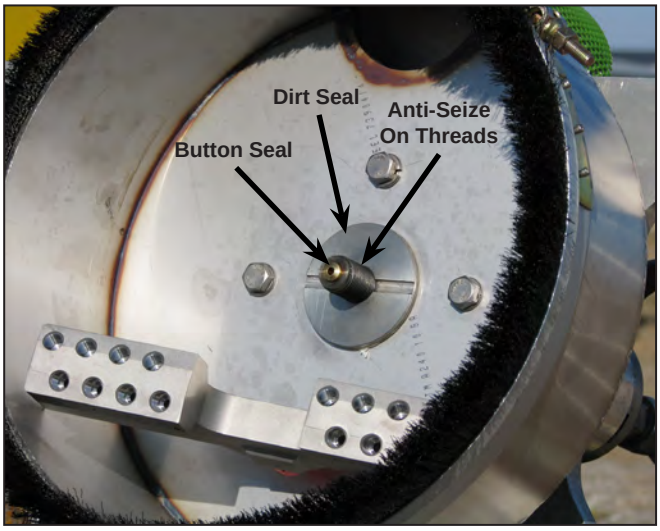
The dirt shield that protects the thru-shaft is located between the spray bar and blast head shroud. It consists of a special felt seal that is held against the bottom of the blast head shroud by a stainless steel flat washer threaded on the shaft. The felt seal should be inspected and adjusted whenever the spray bar is removed. The dirt shield should be replaced if it is damaged or worn and be adjusted "finger tight." If it is too tight it will prevent the spray bar from rotating.

With the spray bar installed, operate the pump at low pressure to check for nozzle accuracy and leaks on the spray bar or nozzles. Water dripping from any of the weep holes in the side of the spray bar indicates that a nozzle is not seated properly. Leaks at the nozzle seats or thru-shaft threads must be corrected before beginning high pressure operations or the spray bar and/or thru-shaft will be ruined. Should any repairs or adjustments be necessary, disengage the pump to relieve all pressure before making any required repairs or adjustments.

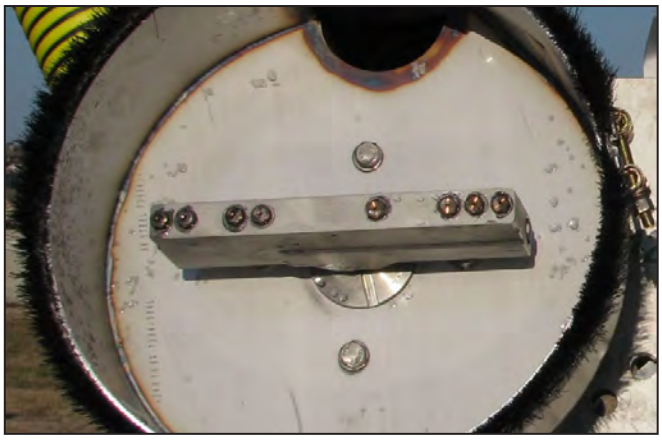
Each spray bar is equipped with a spray bar protector that is held in place with one or two cotter pins, depending on the size of the spray bar. The spray bar protector shields the nozzles and spray bar from damage caused by debris during blasting operations. Never waterblast without the spray bar protector installed. Spray bars and nozzles are expensive and the life of the nozzles and spray bars will be dramatically shortened without the spray bar protector.



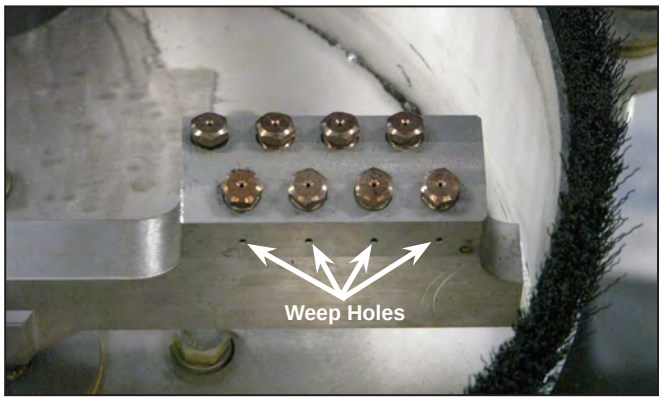
16 Nozzle Spray Bar



Spray Bay Removed and Dirt Shield
Button Seal on Thru-Shaft and Anti-Seize on Threads



Spray Bar and Nozzles Installed
Anti-Seize on Nozzle and Spray Bar Threads



Spray Bar with Nozzles Installed and Weep Holes

CAUTION

NEVER BLAST WHEN STOPPED. DAMAGE TO ROAD SURFACE WILL OCCUR IF BLASTING CONTINUES WHEN THE STRIPE HOG IS BROUGHT TO A STOP.

2.8 Waterblast System

The ultra high waterblasting system consists of a water storage tank, charge pump, ultra high pressure (UHP) pump, high pressure hoses and the Hog Head. Switches and the joystick in the control panel located in the cab enable the operator to control all aspects of the high pressure blasting system from the cab of the truck.

Each manufacturer of the high pressure waterblasting system components provides an information and operating manual with its product. It is extremely important that you read the manuals and become familiar with the proper care and operation of the components before operating the waterblasting system.

WARNING

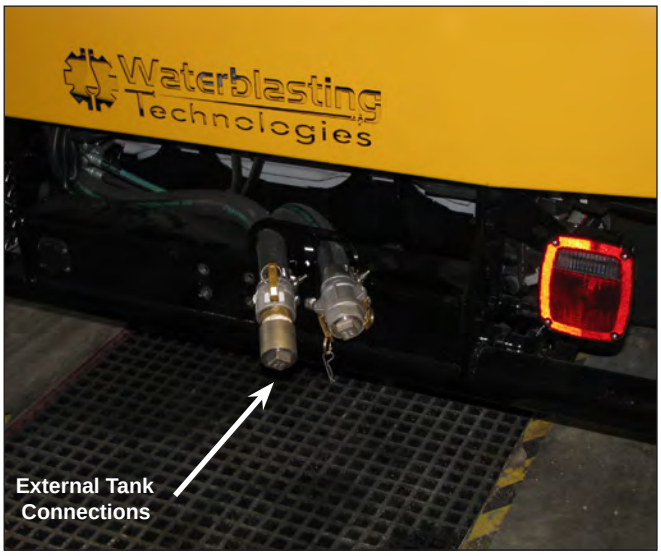
HIGH PRESSURE WATER FROM SPRAY JETS OR RUPTURED HOSES CAN CAUSE SEVERE INJURY OR EVEN DEATH. ALWAYS BE SURE WORK AREA IS CLEAR OF PEOPLE, HANDS, FEET, ETC., BEFORE ENGAGING THE 40K CLUTCH/ HIGH PRESSURE SWITCH FOR THE STRIPE HOG.

Clean Water Tank

The clean water tank is mounted to the chassis just forward of the debris tank and made of plastic to reduce corrosion and provide a supply of clean, fresh water to the charge pump. A site tube on the side of the tank indicates the water level and a valve on the passenger side, just below the tank allows for quick draining. A hose and quick connect coupler at the rear of the truck provides a connection to an optional trailer mounted water tank to provide additional water and dramatically increase working time between refills. A three-way valve in the intake hose allows the operator to select to use the trailer tank, the main tank or both tanks simultaneously. To avoid water supply problems to the charge water and UHP pumps, always make sure the valve is set to the desired position before waterblasting operations begin.

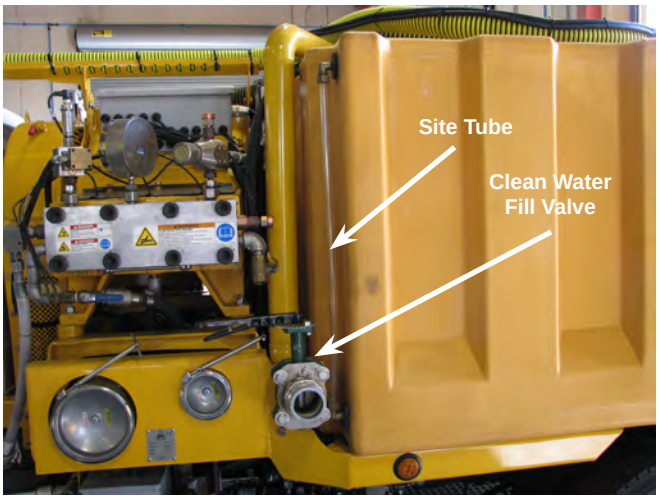
Spray Bar with Spray Bar Protector Installed

Clean Water Tank



External Hose Connections for Clean Water Tank and Debris Tank

Clean Water Tank Three Way Valve



Clean Water Fill Valve and Site Tube

Note:
It is important that the three-way valve be set to select only the main tank when not using a trailer mounted tank. If the valve is set to select the trailer tank or to use both tanks simultaneously, the charge pump will suck air and not provide water to the UHP pump. This can cause severe damage to both pumps.

The fill connection accommodates large hoses, such as a fire hose, that are typically connected to a metered fire hydrant to expedite the filling of the tank. The valve at the fill connection must be turned ON to fill the tank and turned OFF when filling is complete. Make sure to flush the fill source with twice the water flow as used to fill the tank to reduce the risk of debris entering the clean water tank.

The tank should be flushed frequently with clean, fresh water to prevent the accumulation of debris that may accidently enter the tank during filling. It must be thoroughly cleaned if the tank was filled from a contaminated water source or if the source was not properly flushed prior to filling. A ladder on the rear of the debris tank provides access to the top and a large hatch provides access to the inside of the tank for inspection or to facilitate cleaning, if necessary.

Clean Water Tank Access Hatch

WARNING

ENTERING THE WATER TANK CAN BE DANGEROUS, PARTICULARLY IN HOT WEATHER. PERSONNEL ENTERING THE TANK ARE SUBJECT TO SLIPS AND FALLS, POOR VENTILATION, HEAT EXHAUSTION, OR OTHER INJURIES COMMON TO WORKING IN CONFINED SPACES WITH LIMITED VENTILATION. NO ONE SHOULD ENTER THE FRESHWATER TANK WITHOUT NOTIFYING A COWORKER OR ANOTHER PERSON FIRST. THE PERSON WORKING INSIDE THE TANK SHOULD ALSO KEEP THE TRUCK IGNITION KEYS WITH HIM TO ENSURE THE UNIT CANNOT BE ACCIDENTALLY DRIVEN WITH HIM OR HER INSIDE. ANOTHER TEAM MEMBER SHOULD ALWAYS STAY IN CONSTANT COMMUNICATION WITH THE PERSON INSIDE THE TANK TO ENSURE THEY ARE SAFE AND BE ABLE TO PROVIDE ASSISTANCE IF NECESSARY.

Charge Water System

The water tank provides clean fresh water to the low pressure charge pump. The charge pump is hydraulically powered and activated by the Charge Pump switch in the control panel. It delivers water to Ultra High Pressure Pump and should maintain a minimum of 40 PSI (2.8 Bar) on the Charge Pressure gauge located in the control panel. A green LED light in the switch illuminates when the charge pump is activated.

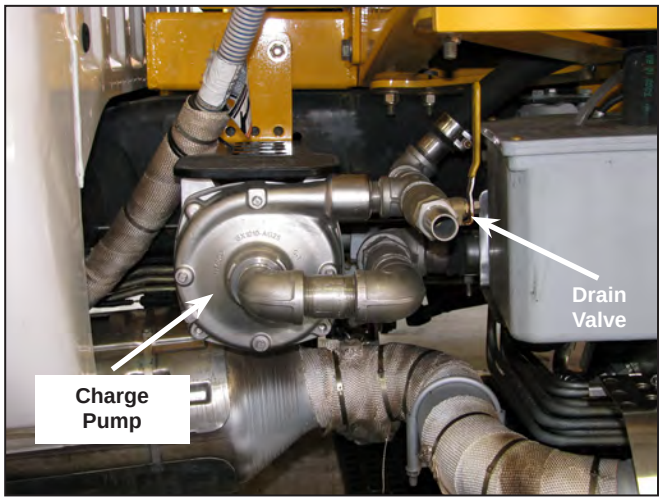
Note:
The UHP pump can cavitate if the charge water pressure drops below 25 PSI (1.7 Bar.) Cavitation can cause severe damage to the UHP pump and should never be allowed to occur. You should always monitor the charge water pressure and never operate the UHP pump when the charge water pressure drops below 30 PSI (2.1 Bar.)

The charge pump impeller will be damaged if the pump is allowed to run dry for more than a few seconds. Always monitor the water level in the clean water tank and make sure you have enough water for the intended shift. Never operate the charge water pump when the water tank is low on water and always stop blasting, turn off the charge pump and disengage the OMSI Drive PTO immediately when low water or low charge pressure is observed.

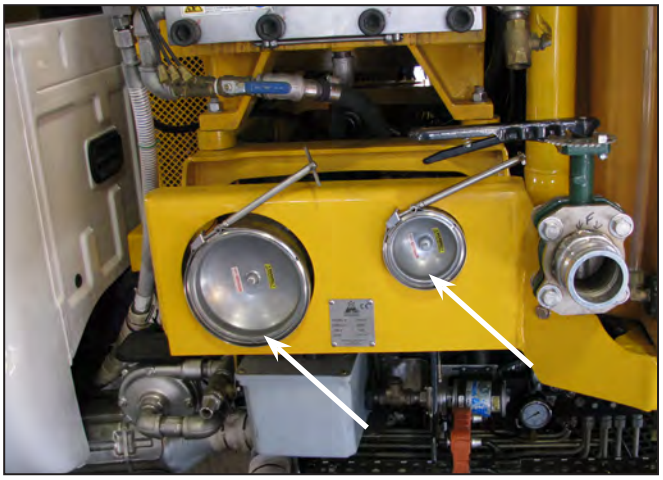
Water supply problems to the charge pump can also be indicated by the sound of the pump. Fluctuating pump RPM, inconsistent high pitch wines, and fluctuating charge water pressures are indications of a water supply problem to the charge pump. You should be familiar with the normal sound of the pump and stop blasting if the sound changes. Find and correct the problem before waterblasting operations resume.

Two filters in the supply line between the charge pump and high pressure pump remove any small debris that may accidentally find its way into the water supply tank. The first filter is a 10 micron (Nominal) filter to trap larger particles and the second filter is a 1 micron (Absolute) filter to trap small particles that pass through the first filter.

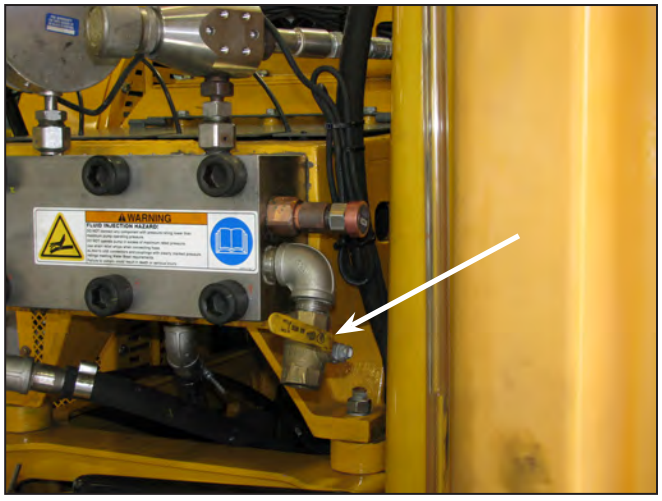
The filters are critical to the proper operation of the high pressure blasting system and should be checked frequently and replaced as necessary. Dirty charge water filters are the number one reason for low charge water pressure that can cause the UHP pump to cavitate and reduce the



Charge Pump and Drain Valve



Charge Water Filters
Large Filter is 10 Micron (Nominal) Bag Type Filter
Small Filter is 1 Micron (Absolute) Cartridge Type Filter

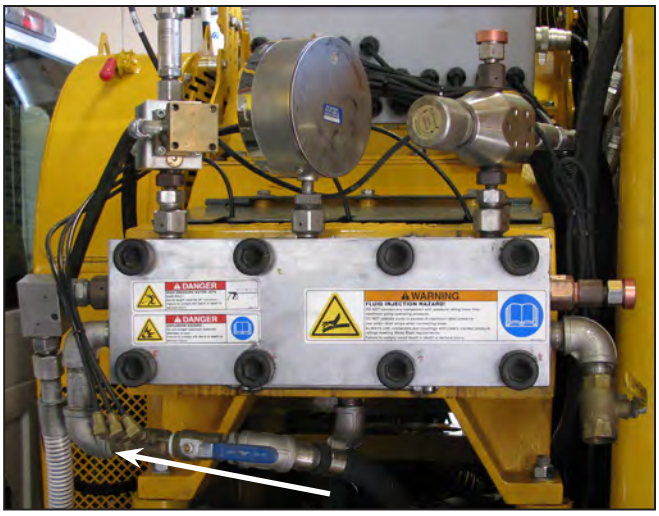


Charge Water/Low Pressure Purge/Flush Valve

flow of lube water to the packing seals in the UHP pump. Therefore it is normal and recommended that the filters be checked frequently and changed whenever the charge water pressure drops below 40 PSI (2.8 Bar.)

Please remember that the filters can be under pressure. Always make sure the charge pump is off, the OMSI PTO disengaged and the pressure has been bled from the system before removing the filter caps. You should also make sure to thoroughly flush the filter canisters and charge water system when the filters are changed and before activating the UHP pump.

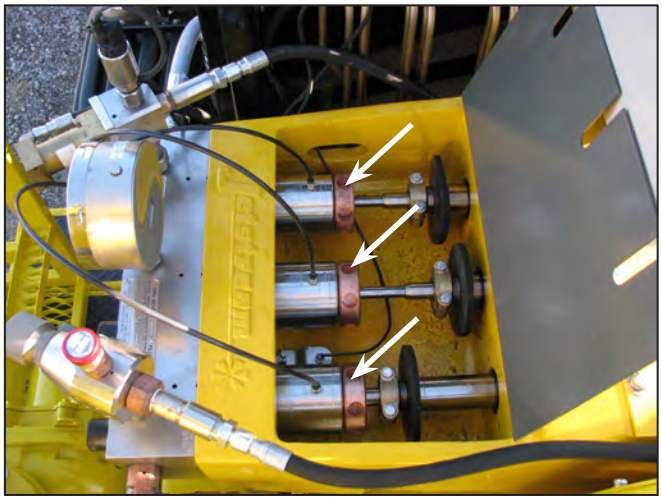
A valve located on the low pressure (charge water) side of the pump can be opened to flush the charge water side of the pump if the system becomes contaminated. This valve is also used to assist in purging the system after a filter change or adding anti-freeze in cold weather operations. A supply of clean fresh water is critical to the proper operation of a high pressure waterblasting system. You should only use clean fresh water from a potable water source, usually a fire hydrant, and make sure to keep supply hoses and the area around the tank fill valve clean. Never use water drawn from retention ponds, canals or other non-potable sources.



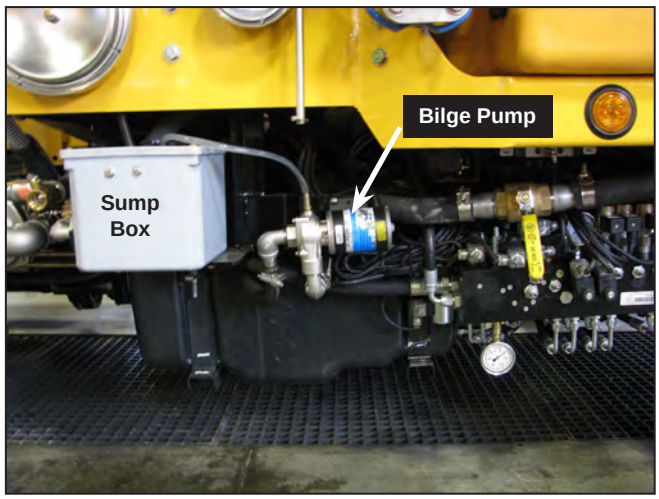
Packing Lube Water Lines & Metering Valves

Packing Lube Water and Bilge Pump

Lube and cooling water for the plunger packing is provided by three cooling lines connected to a manifold in the charge water supply line near the pump connection. A metering valve for each line controls the flow of water to the packing. Lube water is supplied whenever the engine and charge pump are operating.


Packing Glands and Lube Water Lines

The water flow to the packing should be checked at the beginning of each shift by monitoring the flow of water from each packing with the PTO engaged, the charge pump activated and the engine at idle. There should be a noticeable flow of water from each packing. If necessary, use the metering valves to adjust the flow. If no water is flowing from any of the packing glands, find and correct the problem before operating the pump. Refer to the high pressure pump operation manual for more information on adjusting the packing lube water.



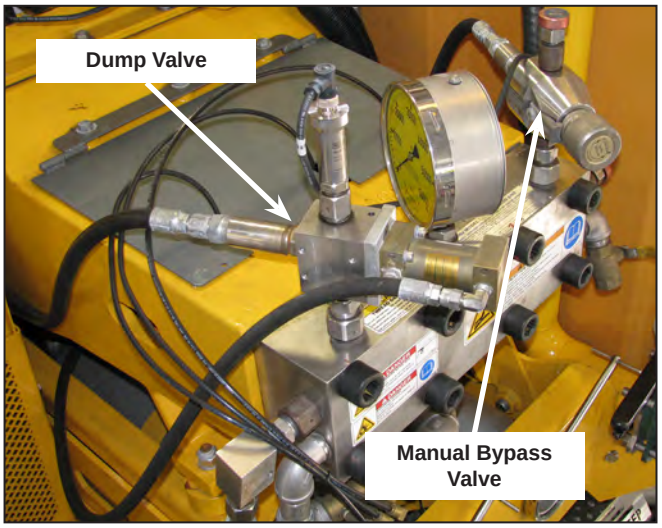
Bilge Pump and Sump Box

Packing lube water is drained from the high pressure pump by a bilge pump drain system. The system is completely automatic and activated whenever the OMSI Drive PTO switch is ON. A

fuse in the control switch panel protects the bilge pump circuit from an overload.

Water drains from the high pressure pump by gravity to a sump box equipped with an automatic switch that is connected to the bilge pump. When the water level in the sump box raises enough to activate the automatic switch, the bilge pump is activated and pumps the water from the sump box to the debris tank. When the water level in the sump box is lowered, the switch will turn the pump off.

The sump automatic switch and inside of the sump box are accessed by removing the sump box lid. It is important to periodically remove the lid to inspect the switch and clean out accumulated debris that can restrict water flow to the pump.



UHP Pump, Dump Valve and Manual Bypass Valve

Ultra High Pressure System

Clean, fresh water is supplied to the high pressure pump by the charge pump. The high pressure pump is powered by the main truck engine through the OMSI Drive PTO that is activated by the PTO switch in the control panel. The OMSI PTO switch also activates the solenoid which enables the hydraulic rotation of the spray bar that is controlled by the Head Rotation dial. The transmission PTO switch on the truck dash activates the hydraulic system. Green LED lights in the console switches illuminate to indicate the pump and spray bar hydraulic rotation are activated. When the system is activated, the Dump Valve switch activates or turns off the high pressure water to the Hog Head spray nozzles.

When the high pressure is turned off by the switch, the diverter valve (Dump Valve,) located on the UHP pump is activated to divert the water from the Hog Head pressure lines to the bypass line and back to the clean water tank. The Dump Valve is a safety feature that enables the high pressure water supply to the blast head to be immediately reduced to less than 500 PSI (34.474 Bar) at any time without causing damage to the high pressure lines and components.

Maximum operating pressure for the UHP pump of 40,000 PSI (2,758 Bar) @ 8.5 gallons (32 Liters) per minute is achieved at maximum engine RPM. (typically 2300 RPM) The water pressure is monitored by the High Pressure gauge on the pump and a digital gauge in the control panel. High pressure is controlled by the RPM of the engine and/or by adjusting the manual bypass valve on the pump. Since engine RPM also controls the level of vacuum, adjusting the pressure using the manual bypass valve is beneficial when maximum engine RPM is required for vacuum and less than maximum waterblasting pressure or gallons per minute is desired for the material being removed or the waterblasting tools being used.

The UHP system is activated by engaging the OMSI Drive PTO and setting engine RPM to the desired operating pressure setting (typically 1800 RPM - 2300 RPM max.) There may be some variation of this depending on the engine and other components unique to your unit. When setting pressure ALWAYS ensure that the system pressure drops to less than 500 PSI (34.475 Bar) immediately when the Dump Valve switch is turned off. If this does not relieve system pressure immediately to below 500 PSI when released, do not use the equipment until repairs are made to the dump valve.

The high pressure pump is a positive displacement pump that requires a constant water supply at a minimum of 30 PSI (2.1 Bar) from the charge water system to operate properly. Always make sure there is enough water in the tank before engaging the PTO systems to activate the UHP and charge pumps. Pressure gauges for the charge water system are near the water filters and on the control panel. Pressure gauges for the UHP system are located on the UHP pump and on the control panel. The gauges should be monitored frequently whenever waterblasting operations are underway. If the pressure rises or drops outside of the normal operating range in either system, stop waterblasting operations immediately, turn off the charge pump and disengage the PTO. Then find

and correct the problem before resuming blasting operations.

Note:
A pressure switch in the charge water supply line near the UHP pump monitors charge water pressure and automatically shuts down the UHP system by disengaging the OMSI Drive PTO if the charge water pressure drops below 25 PSI (1.7 Bar.) This is a safety feature to prevent damage to the UHP pump from cavitation caused by low charge water pressure.

Rupture Discs

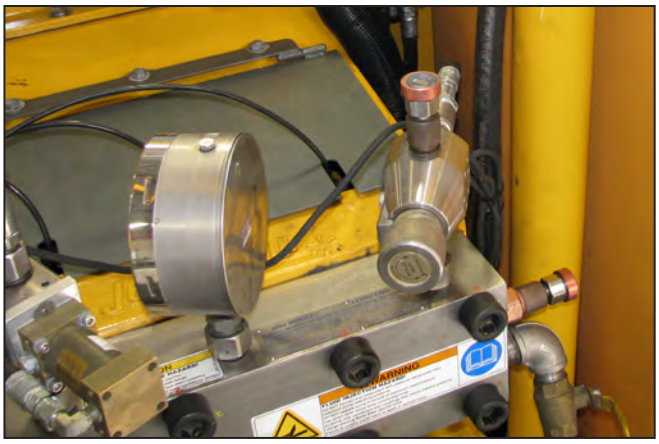
Rupture discs are installed on the high pressure side of the UHP pump to protect the waterblasting system against unusually high spikes in pressure. The discs are designed to burst and immediately relieve pressure when the system water pressure exceeds the disc burst pressure. If a rupture disc bursts it will have to be replaced before waterblasting operations can resume, therefore, you should keep spare rupture discs of the proper pressure rating on hand. You should test the system at low pressure and correct the problem that caused the disc to burst before resuming high pressure operations.

Rupture disc burst pressure ratings are unique to each unit and critical to operator safety. Refer to the label on the rupture disc assembly or contact Waterblasting Customer Service for the correct rupture disc rating for your equipment. Never install a rupture disc with a burst pressure rating higher than recommended.

WARNING

EXCESSIVE PRESSURE IN THE HIGH PRESSURE BLASTING SYSTEM CAN CAUSE EXTENSIVE DAMAGE TO EQUIPMENT AND SEVERE INJURY OR EVEN DEATH TO PERSONNEL. IF A RUPTURE DISC BURSTS IT USUALLY INDICATES A PROBLEM THAT NEEDS TO BE CORRECTED BEFORE WATERBLASTING OPERATIONS CAN RESUME. NEVER INSTALL RUPTURE DISCS WITH A HIGHER BURST RATING THAN RECOMMENDED.

The filters in the charge pressure line immediately before the UHP pump remove any debris prior to the water entering the high pressure system. These filters prevent damage caused by debris in the high pressure system and are critical to the proper operation of the waterblasting system. They should be checked frequently and replaced as necessary, typically daily or when the charge water pressure drops below 40 PSI (2.8 Bar.) Even the smallest debris can cause severe damage to components in the ultra high pressure system.



Rupture Discs and Manual Bypass Valve

Rupture Disk Labels

Refer to the Charge Water System in this section for information on the water filters and the pump manufacturer's operating manual for instructions on operating and maintaining the Ultra High Pressure Pump. You should also refer to the Stripe Hog Training video available on DVD or online at www.stripehogsupport.com for additional instructions on maintaining the high pressure pump.

Each manufacturer of the major UHP waterblasting system components provides an information and operating manual with its product. It is extremely important that you read the manuals and become familiar with the proper care and operation of the components before operating the waterblasting system.

WARNING

HIGH PRESSURE WATER FROM SPRAY JETS OR RUPTURED HOSES CAN CAUSE SEVERE INJURY OR EVEN DEATH. ALWAYS BE SURE WORK AREA IS CLEAR OF PEOPLE, HANDS, FEET, ETC., BEFORE ENGAGING THE PTO AND THE HIGH PRESSURE SWITCH FOR THE STRIPE HOG.

High Pressure Hoses and Fittings

The SH5500 waterblasting system operates at ultra high pressures of up to 40,000 PSI (2,758 Bar). Therefore, it is critical that the operator and maintenance personnel inspect the high pressure hoses, fittings, nozzles and other components frequently. A visual inspection of the high pressure system should be conducted each day before operating the unit. Any hose or component that is questionable or shows any sign of deterioration, wear or leakage should be replaced immediately and before operating any waterblasting equipment. A more thorough inspection of all high pressure pumps and components should be conducted at each routine service interval.

Check the condition of threads prior to connecting any fittings or hoses. Use an anti-seize compound on all fitting and hose threads to prevent "galling." Galling is the term for thread damage that occurs from heat build up in the threads of stainless steel fittings as they are tightened. Galling will destroy the threads and lockup the fittings before they are tight, destroying the fittings and/or hose ends, rendering them unusable. Be careful not to get anti-seize on the seating area of any fitting.

Always test the system with the Hog Head up following repairs or at the start of each shift by operating the system at low pressure first. Then slowly bring the equipment up to operating pressure while carefully monitoring the replaced components.

WARNING

REFER TO THE GENERAL SAFETY SECTION OF THIS MANUAL FOR A LIST OF PRECAUTIONS TO BE OBSERVED WHEN OPERATING OR SERVICING ULTRA HIGH PRESSURE EQUIPMENT. USE ONLY THOROUGHLY TRAINED PERSONNEL TO PERFORM MAINTENANCE OR REPAIRS ON THE HIGH PRESSURE SYSTEM.

Take care of Your Hoses. Protect the hoses from contact with sharp objects, abrasive surfaces and foot or wheel traffic. Add additional anti-chaffing material to protect hoses when necessary. Never operate the high pressure system with a hose that is questionable.

When replacing damaged or worn hoses, check the burst rating marked on the hose. Do not use a high pressure hose that does not have a listed burst rating or with a burst rating of less than 54,000 PSI (3,723 Bar).

Retire a Hose from Service if:

A) Cover is damaged and reinforcing wires are exposed to rust and corrosion;

B) Cover is loose, has blisters or bulges;

C) Hose has been crushed or kinked;

D) End fitting shows evidence of damage, slippage or leakage;

E) Hose has been exposed to pressures of 2 times the operating pressure.

F) Hose has been kinked, stressed or stretched.

High Pressure Nozzles and Spray Bar

Each nozzle delivers a stream of water at extremely high pressure. The size and intensity of the stream is determined by orifice size in the nozzle. The performance ranges from least aggressive to most aggressive.

Nozzles typically last 12-16 hours of blast time, however, you could experience shorter or longer nozzle life, depending on the type of surface being blasted. They should be inspected before the start of each shift or when the operator notices a change in performance while waterblasting.

Nozzles are easy to replace and different nozzle sizes in a variety of spray bar configurations can be selected to accommodate the material to be removed and the type of substrate. The nozzle flow chart and spray bar configuration diagrams located in the Safety Information and Appendix sections of this manual will provide assistance in choosing the best nozzles for the job. As the operator becomes more experienced, nozzle selection becomes easier. You can also contact Hog Technologies Customer Service for assistance in selecting the proper spray bar and nozzle configuration for your job.

To check the nozzles on the Hog Head spray bar, raise the hog head, set the parking brake, activate

the high pressure system and set the operating pressure to a safe level. Make sure the head rotation speed dial is set to 0 so the spray bar does not rotate. Staying well clear of the water jets, visually inspect the spray pattern of each nozzle. If the spray is tight with a cohesive stream for 1/2 - 1 1/2 inches from the nozzle, it is good.

Remove Nozzle from Service if:

A) Nozzle is split or damaged;

B) Nozzle is clogged;

C) Nozzle water spray is fanned out;

D) Nozzle's ability to hold pressure is suspect;

E) Nozzle's hex head is worn excessively from blasting.

F) Nozzle threads are damaged.

Refer to the Stripe Hog Training video available on DVD or at www.stripehogsupport.com for instructions on changing nozzles.

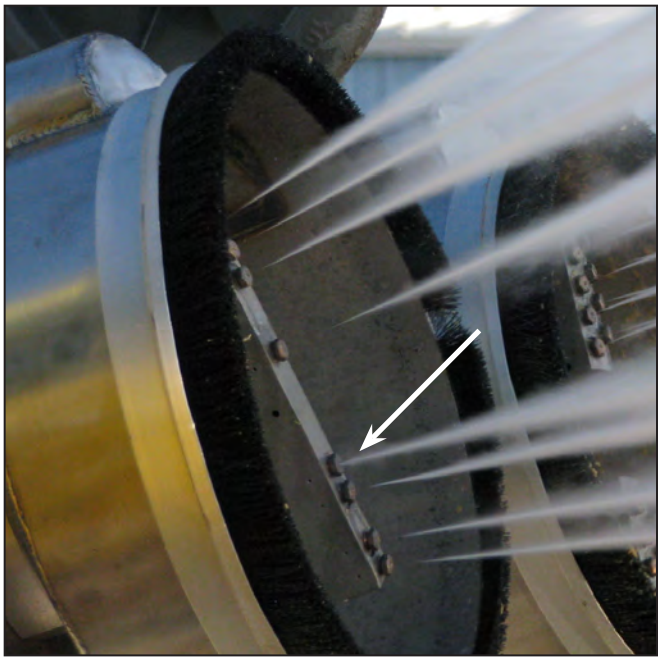
DANGER

THE HIGH PRESSURE STREAM FROM THE SPRAY NOZZLES CAN CAUSE SEVERE INJURY OR DEATH IF IT COMES IN CONTACT WITH HANDS, FEET OR ANY PART OF A PERSON'S BODY. IT CAN ALSO PROJECT LOOSE DEBRIS IN THE AREA OF THE HOG HEAD WITH ENOUGH FORCE TO CAUSE SERIOUS INJURY, PARTICULARLY TO THE EYES. HIGH PRESSURE WATER CAN TEAR OFF SKIN AND INJECT WATER DIRECTLY INTO THE BLOOD STREAM WHICH CAN BE FATAL. ALWAYS DEACTIVATE THE HIGH PRESSURE SYSTEM BEFORE RAISING THE HOG HEAD AND MAKE SURE THE AREA IS CLEAR OF PEOPLE, HANDS AND FEET BEFORE ENGAGING THE PTO AND DUMP VALVE SWITCH FOR THE HIGH PRESSURE SYSTEM TO CHECK THE NOZZLES WITH THE HOG HEAD RAISED.

When replacing nozzles make sure to check the flow and pressure rating and use only nozzles with a manufacturer's pressure rating of at least the pump's operating pressure or a burst rating of no less than 54,000 PSI (3,723 Bar.) We recommend that you only use nozzles, high pressure hoses and fittings supplied by Hog Technologies to ensure the nozzles and other components are compatible with your Ultra High Pressure Waterblasting System.

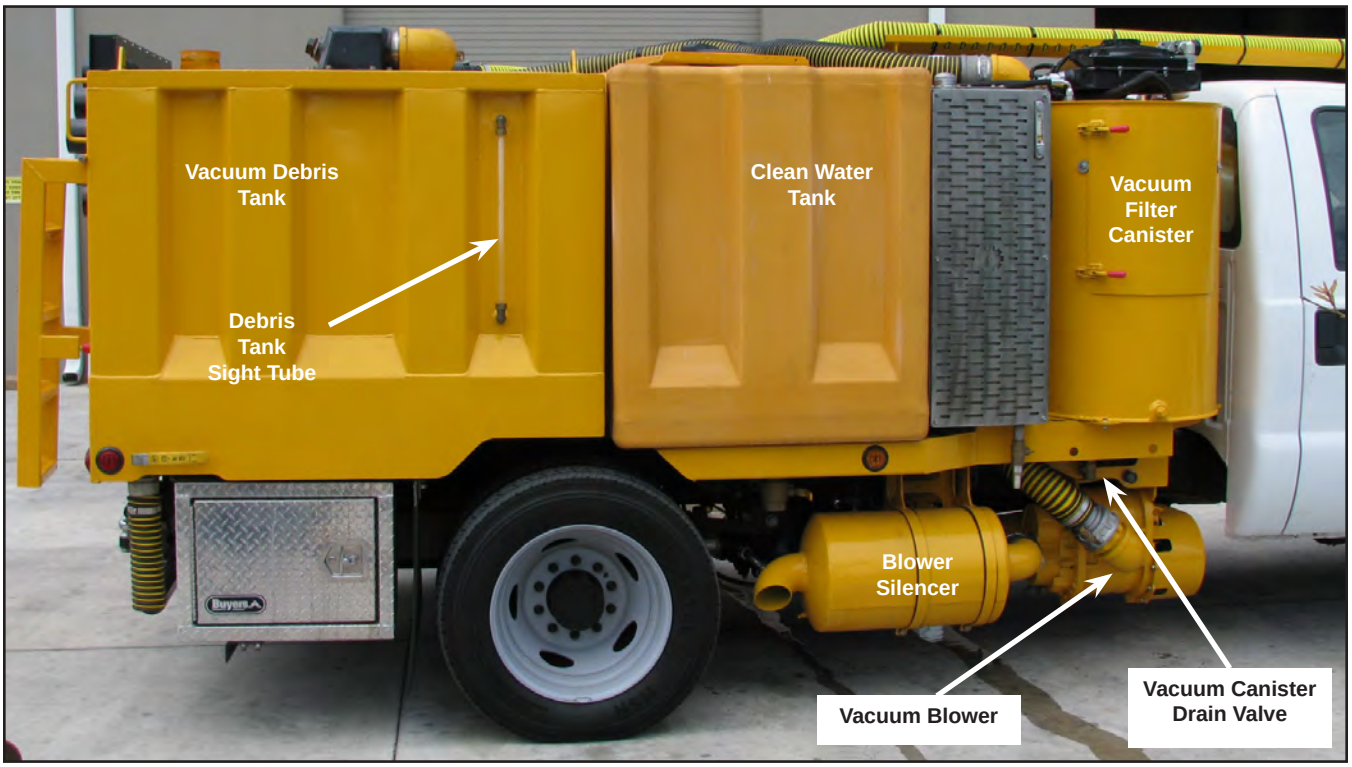
Prior to installation, make sure the nozzles have no clogged orifices. Also, check to ensure nozzles are sharp and not worn. To prevent galling, make sure to apply anti-seize to the threads before installing the replacement nozzle and be careful not to get anti-sieze on seating area of the nozzles.

Good Nozzles



Bad Nozzle

Note:
To increase the life of the spray bars and nozzles, always remember to install the spray bar shield after testing the nozzles and before beginning blasting operations.



Vacuum Blower System

2.9 Vacuum System

Vacuum System

The vacuum system is powered by the main truck engine and is activated whenever the OMSI Drive PTO is engaged. The blower creates vacuum in the filter canister, debris tank, vacuum hoses and Hog Head. A filter located in the filter canister protects the blower.

Flexible hoses with quick disconnect fittings provide vacuum to the truck Hog Head. Special swivel brackets allow the hose to move with the Hog Head.

The blower bearings require lubrication daily using special grease specified by the blower manufacturer. Refer to the Lubrication Chart in the General Maintenance section of this manual and the blower manufacturer's manual for lubrication specifications and additional information on the operation and maintenance of the blower.

The vacuum is monitored by a digital gauge in the control panel or an optional gauge on the debris tank. It is adjusted by increasing or decreasing the engine RPM. Thus, maximum vacuum, -7 PSI (-.5 Bar,) is typically achieved at 2300 RPM (Maximum engine operating RPM.) A relief valve (Kunkle Valve) on top of the vacuum filter canister will automatically open if it senses excessive vacuum in the system. Always test this valve and all vacuum hose connections at the start of each shift to ensure the valve is operating properly and there are no vacuum leaks in the system.

Filter Canister and Vacuum Filter

The blower components have extremely small tolerances and must be protected from the debris. The vacuum filter should be cleaned daily. The canister is equipped with a door in the side that provides easy access to the filter and a means to

inspect the canister for excessive debris, water or to clean the filter. There is a manual drain valve at the bottom to remove water from the canister as needed. Make sure the vacuum system is shutdown before opening the canister door or attempting to drain the water and never leave the drain valve open when the vacuum system is operating.

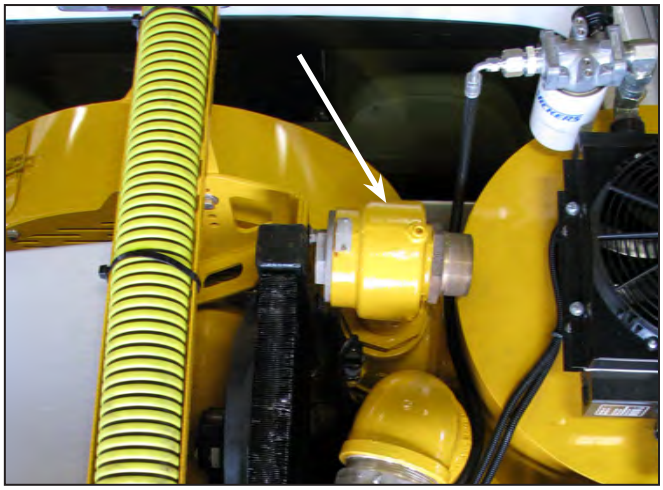
Note:
Make sure the drain valve is closed, the canister door seal is clean and the door is properly latched before operating the vacuum system. The system will not be able to develop enough vacuum if the canister door is not sealed and latched or the drain valve is open.

It is normal for some water to travel to the vacuum filter canister, therefore, it should be drained each time the debris tank is drained or at least once every 2 hours of operation. Remember that excessive water in the canister can pass through the filter and cause severe damage to the blower. Always make sure the OMSI PTO is disengaged to stop the vacuum blower before draining the filter canister and always close the drain valve when draining is complete.

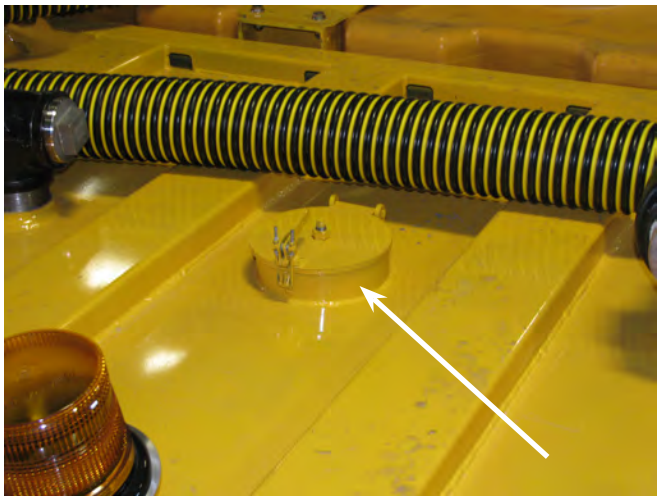
Vacuum Hoses

The primary vacuum hose runs from the cutoff ball valve connection on top of the debris tank to the vacuum hose connection on the vacuum filter canister. Another 4" debris suction vacuum hose runs from the debris inlet elbow on the top of the debris tank to the Hog Head. The hoses are equipped with quick connectors at the Hog Head end that allows additional 4" vacuum hoses to be added or for servicing Hog Head vacuum hoses and components. Other quick connectors provide access to other components of the vacuum system.

Consistent and proper vacuum is important to the proper operation of the vacuum system. Debris buildup, kinks, damage or leaks will cause a reduction in vacuum at the blasting head, reducing the efficiency of operation or cause operations to stop completely. Many problems with vacuum hoses are caused by damage or kinks. You should avoid tight bends and maximize the radius of all hose curves to minimize the chance of a kink. It is very important to protect the hoses from contact with sharp objects, abrasive surfaces, foot or wheel traffic and to inspect the hoses daily to ensure there is no damage, signs of chaffing or kinks.



Vacuum Relief (Kunkle) Valve



Opening Inspection Port on Top of Debris Tank

The inside walls of vacuum debris suction hoses develop wear points caused from the high velocity of abrasive debris traveling inside the hoses. The wear points are most prevalent in the outside radius of tight bends near the blast head and where the debris hose rises above the truck cab. The life of the hoses in these areas can be extended by rotating the hoses 1200 once each week.

Some types of debris will buildup on the inside walls of the vacuum debris suction hoses to the point where it restricts debris flow in the system and reduces vacuum at the blast head. Debris buildup inside the hoses can be removed by tapping the outside walls with a dead blow hammer while the system is operating at maximum vacuum. This will flex the hose walls and cause the debris to break off and be sucked into the debris tank.

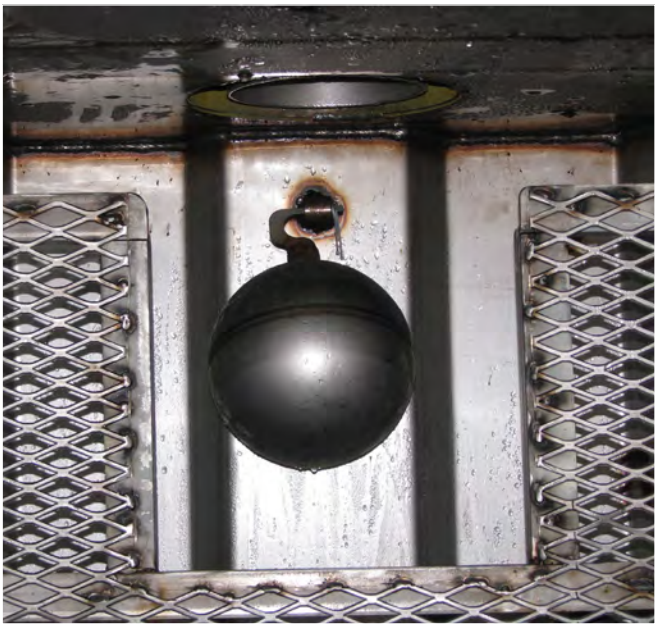
Damaged vacuum hose can be repaired by cutting out the damaged area and splicing in new hose. Temporary repairs can be made using duct tape.

Wear Points in Vacuum Hose

Vacuum / Debris tank

The vacuum/debris tank is constructed from stainless steel panels that provide corrosion resistance and low maintenance. There is a stainless steel cutoff ball valve that automatically shuts off the vacuum flow if the tank becomes full, protecting the blower system. This valve reduces the possibility of excessive water from damaging the blower. If the cutoff ball valve shuts off the vacuum flow, the vacuum relief valve on the vacuum filter canister will automatically open and reduce the vacuum to near 0 to prevent damage to the vacuum system.

A special filter bag (debris bag) is mounted on retaining pins near the top the stainless steel liner in the debris tank. The vacuum system creates vacuum in the tank and debris mixed with water from the Hog Head and vacuum intake hose flows directly into the debris bag where solid debris and particles over 100 microns are trapped. The filtered water exits the filter bag and flows into the debris tank where it accumulates until it is drained by the drain valve at the bottom of the tank or pumped out by the dirty water pump out system. The filter system allows for quick draining and easy disposal of filtered waste water while retaining the solids, enabling the operator to regain tank capacity.



Cutoff Ball Valve

A site tube on the side of the debris tank indicates the recovered water level and an opening inspection port on top of the debris tank is used to monitor the solid waste level. A 4” ball valve allows for quick draining of the tank. Some water can travel to the vacuum filter canister, therefore, it should be drained each time the operator stops the machine or at least once every 2 hours of operation.

The filtered waste water is usually clean enough to dump in swales alongside the road, vacant fields and designated areas at airports. It should never be dumped directly into lakes and ponds or any standing water. Always check with the authorities to ensure you are dumping within local guidelines. The filter bag is biodegradable and designed to slide out of the tank with the debris during dumping. When installing a new bag, make sure to attach the loops at the top of the filter bag on the rear, horizontal side of the hooks in the tank. Do not wrap the loops around vertical section of the hooks. The hooks and loops hold the bag in position during operation and are designed to release the bag and allow it to automatically slide out with the debris during dumping. The bag will not stay in the proper position during operation and may not release properly during dumping if it is not installed properly.

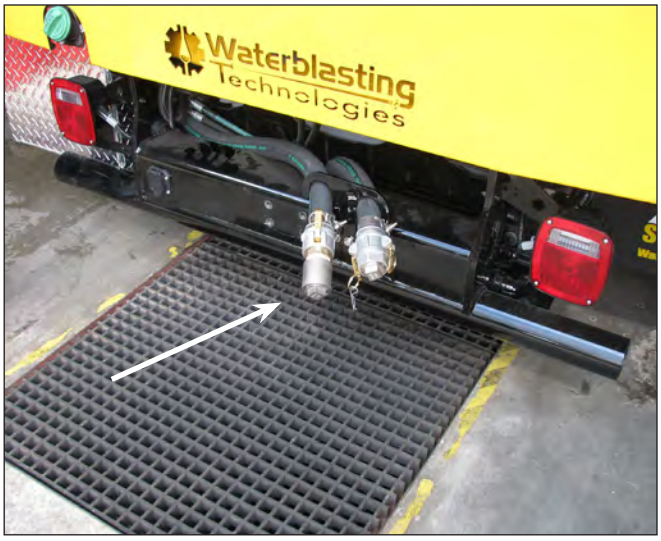
WARNING

AN IMPROPERLY INSTALLED DEBRIS BAG MAY NOT RELEASE PROPERLY DURING DUMPING. THIS CAN CAUSE THE LINER TO SEPARATE FROM THE DEBRIS TANK, DAMAGING THE TANK AND/OR CAUSE SEVERE INJURY TO PERSONNEL. ALWAYS MAKE SURE THE DEBRIS BAG IS INSTALLED PROPERLY AND THAT ALL PERSONNEL STAY WELL CLEAR OF THE TRUCK AND DEBRIS TANK DOOR WHEN DUMPING OPERATIONS ARE UNDERWAY.

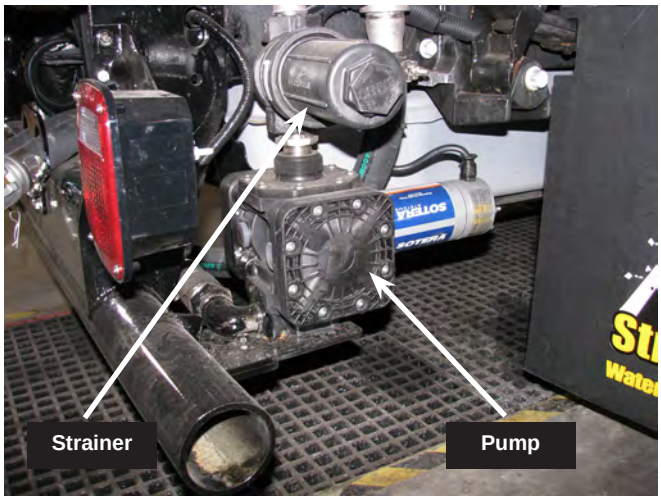
Dirty Water Pump Out System

A special debris pump and a float switch system is used to remove dirty water from the debris tank. The system is activated by the Water Divert switch in the cab control panel. When the system is activated, another Debris Pump switch on rear of the tank is used to select either NORMAL or DISCHARGE modes.

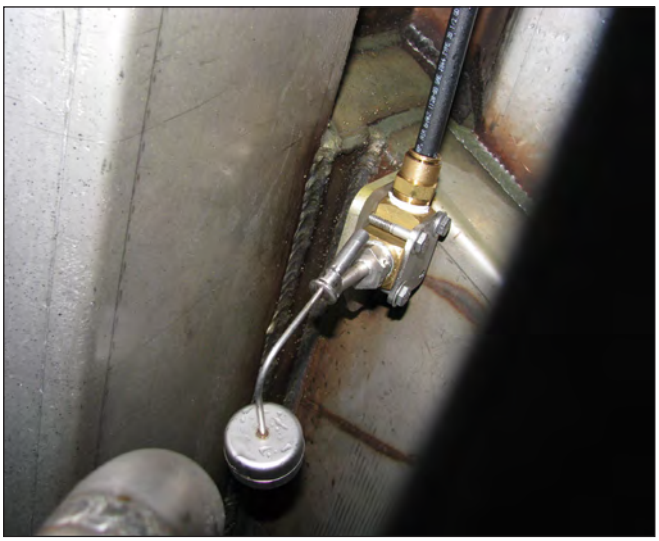
When Normal mode is selected, an automatic float switch controls the water level in the debris tank by activating the pump and moving water from the debris tank to an external tank attached to the outlet hose at the rear of the truck or on the ground, when legal to do so. The automatic float switch is mounted on the forward wall of the debris tank. When the system is activated and the dirty water reaches a predetermined level, the float switch will activate the debris pump and begin pumping dirty water out of the debris tank. The float switch will drop when the water level is lowered below the switch and automatically turn off the pump.



Debris Tank and Clean Water Tank Remote Tank Connectors



Debris Pump and Strainer



Discharge Pump Automatic Float Switch and Pump Pickup in debris Tank

Debris Pump Discharge Switch

When Discharge mode is selected, the automatic float switch is bypassed and the pump will continue to run until most of the water is removed from the tank and the switch is manually returned to the Normal position. The discharge flow from the pump must be continuously monitored while operating the system in Discharge mode and the switch set back to the Normal position when pumping is complete. To avoid damage to the pump, always return the Discharge Pump switch to Normal as soon the tank is empty and never leave the switch in Discharge mode.

The debris water pump is a heavy duty, diaphragm pump. It is protected from large debris that could damage the pump by an in-line strainer on the intake side. The strainer canister is equipped with a valve for back flushing or draining the canister. The screen should be removed and cleaned periodically or if it becomes clogged. The back flushing option can be used to restore water flow if necessary. Always make sure the vacuum blower is deactivated and set the Water Divert switch to the OFF position when cleaning or back flushing the strainer. Refer to the General Maintenance section of this manual for instructions on cleaning or back flushing the strainer.

The debris tank water level and pump out system must be monitored periodically during operation and cleaned as necessary. If the intake hose should become restricted or the pump fails, the manual 4" valve at the bottom of the tank can be used to drain the tank provided there is no vacuum in the system.

It is important that the Water Divert switch is turned ON with the Debris Pump switch set to Normal to activate the pump and float switch when automatic water level control in the debris tank is desired. Always turn the Water Divert switch ON just prior to activating the vacuum system and turn the switch OFF just after shutting down the truck or when pumping dirty water from the tank is not desired.

Hydraulic Lift Remote Control

Debris Tank Tilted for Dumping

Dumping Debris

Solid debris (larger than 100 microns) is separated from the waste water by the filter and needs to be dumped when the debris tank is near full. Hydraulic rams on below the tank lift the passenger side, causing the tank to tilt for easy dumping.

To dump the solid debris, position the truck for dumping and make sure it is on level, solid ground. Put the truck in neutral, set the engine speed to idle, engage the parking brake and disengage the OMSI Drive PTO. This will deactivate the UHP pump and vacuum blower. Depress the clutch, turn the transmission PTO switch ON and put the transmission in third gear. Make sure the TRUCK FWD/REV switch is in neutral and the TRUCK SPEED dial is set to O. Release the clutch to activate the waterblasting hydraulic system. Make sure the Water Divert switch is ON and set the Debris Pump switch to Discharge. Pump as much water out of the tank as possible. Then remove the two clamps at the bottom of the debris tank door by turning them counter clockwise. Put pressure against the door to hold it closed as the last clamp is removed. The door is held open by a gas spring that will open the door automatically as soon as the last clamp is removed. It is normal for some water to pour out as the door opens so you should be prepared to step back as the last clamp is removed.

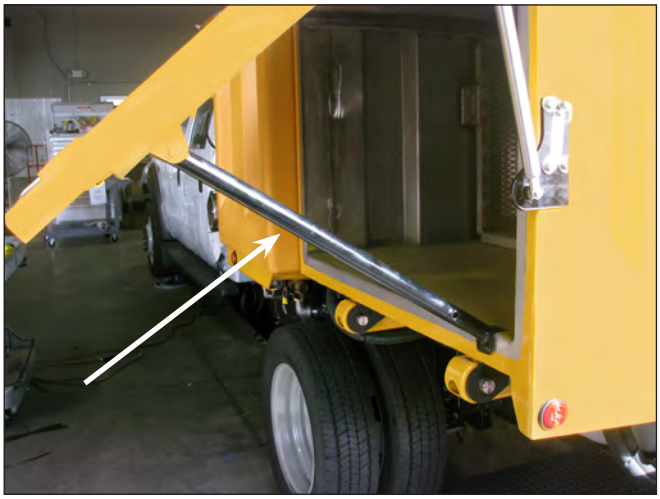
Attach the cord for the hydraulic system remote control to the receptacle in the passenger side tool box. While you and all other personnel stand well clear of the debris tank, press the white up button to raise the tank and dump the debris. As the tank raises, the filter bag will slide out with the debris. If the debris does not slide out, use a high pressure jet rod to break up the debris until it is all removed. Never use the hydraulics to bounce the tank in an effort to remove debris. The system is not designed to be bounced and you could damage the debris tank or hydraulic system if you bounce it.

When dumping is complete, press the black down button and slowly lower the tank. Monitor all hoses and components as the tank is lowered and be prepared to stop if a hose becomes pinched or a component is misaligned. When the tank is lowered, disengage the PTO, put the transmission in neutral and shutdown the engine.

Support the door in the full open position with the safety strut. Then use a hose to clean the tank, liner thoroughly with fresh water. Make sure to the clean the automatic float switch for the pump out system and the cutoff ball valve.

When the tank is clean install a new filter bag. Check that the bag is installed properly and that the debris pump intake line is not blocked. Also make sure the automatic float switch and cutoff ball valve are free.

Then thoroughly clean the door seal, close the door and secure it with the clamps. Make sure to tighten the door clamps evenly to ensure a tight seal. When the door is closed and clamped, start the engine and engage the OMSI PTO to activate the vacuum system. Then increase the engine RPM to achieve maximum vacuum and pull the door against the seal. Check that the door clamps are still tight. Retighten if necessary.



Safety Strut

Check the seal area for leaks. If vacuum is leaking around the door, the problem could be that the door didn't close properly, there is debris on the seal, or the seal is damaged. Find and correct the problem before operating the system. Return the engine to idle speed and disengage the PTO.

Note:
The system will not be able to develop enough vacuum if the debris tank or canister doors are not sealed and closed properly or a drain valve is open.

DANGER

TO AVOID SEVERE DAMAGE TO THE TRUCK OR SERIOUS INJURY TO PERSONNEL, ALWAYS FOLLOW THESE GUIDELINES BEFORE RAISING THE TANK TO DUMP DEBRIS:

- ✓ MAKE SURE THE HYDROSTATIC DRIVE SPEED DIAL IS SET TO 0, THE TRUCK FWD/REV SWITCH IS IN NEUTRAL AND THE PARKING BRAKE IS SET
- ✓ DRAIN ALL WATER FROM THE DEBRIS TANK.
- ✓ MAKE SURE THE UNIT IS ON FLAT, SOLID GROUND. NEVER ATTEMPT TO DUMP ON SOFT GROUND OR UNEVEN TERRAIN.
- ✓ MAKE SURE THERE ARE NO OVERHEAD POWER LINES THAT COULD COME IN CONTACT WITH THE DEBRIS TANK ARE NEAR THE DUMPING AREA.
- ✓ HAVE ALL PERSONNEL STAND WELL CLEAR OF THE UNIT AND DEBRIS TANK DOOR. THE OPERATOR SHOULD USE THE REMOTE CONTROL AND BE WELL CLEAR.
- ✓ LIFT THE TANK SLOWLY AND MONITOR HOSES AND COMPONENTS AS IT IS RAISED. BE PREPARED TO IMMEDIATELY LOWER THE TANK IF THERE IS A PROBLEM.
- ✓ NEVER USE THE HYDRAULIC SYSTEM TO JERK THE DEBRIS TANK WHILE DUMPING THE DEBRIS. JERKING THE TANK IS UNSAFE AND CAN DAMAGE THE UNIT AND/OR CAUSE THE TANK FALL.
- ✓ LOWER THE UNIT SLOWLY WHEN DUMPING OPERATIONS ARE COMPLETE.
- ✓ SECURE THE REAR DOOR OR THE DEBRIS TANK WITH A SAFETY STRUT BEFORE ENTERING THE DEBRIS TANK OR SERVICING ANY COMPONENT. NEVER RELY ON THE HYDRAULICS ALONE TO SUPPORT TANK IN THE TILTED POSITION WHILE SERVICING COMPONENTS.

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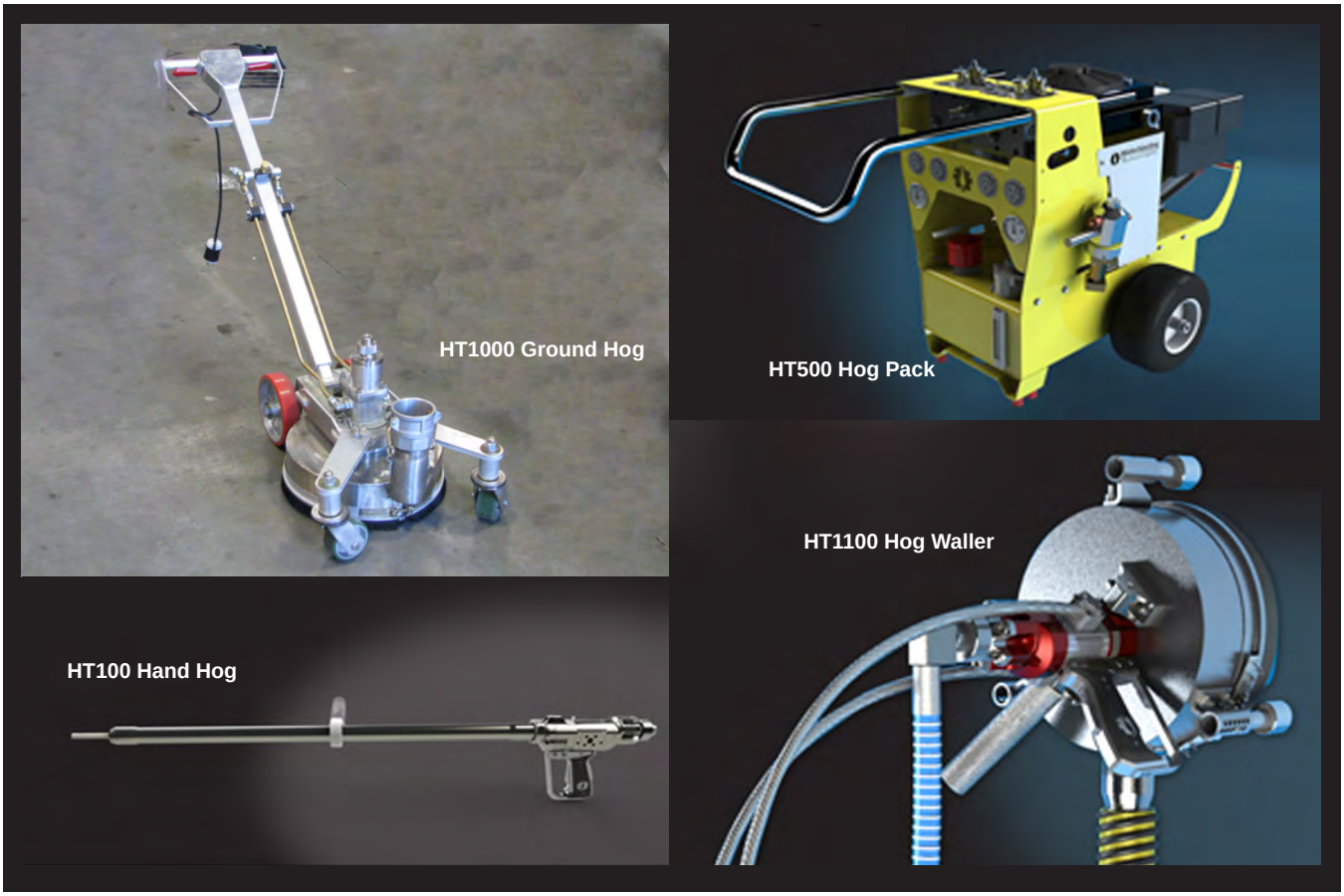
Waterblasting Hog Tools



3.1 Hog Tools (Optional)

Hog Technologies builds a variety of useful attachments called Hog Tools that can be used with the SH5500. The most common tools are the HT1100 Hog Waller, HT1000 Ground Hog and the HT100 Hand Hog. These tools connect to the electrical and hydraulic quick disconnect couplers just behind the Hog Arm and to the truck UHP and vacuum systems.

This section provides a brief overview of how these tools work with the SH5500 for your information. An operating manual that ships with each Hog Tool provides more detailed information on the operation, safety and maintenance. Handheld, ultra high pressure waterblasting tools can be extremely dangerous if they are not used properly and all safety precautions followed. You should read the operating manual for each tool and completely understand the operation, maintenance and all safety precautions before operating the tool.

WARNING

INJURIES FROM ULTRA HIGH PRESSURE WATERBLASTING CAN BE VERY SERIOUS AND RESULT IN FATAL INJURIES. PROPER OPERATION OF HIGH PRESSURE WATERBLASTING TOOLS IS ESSENTIAL, PARTICULARLY WITH HANDHELD UNITS BECAUSE THE OPERATOR IS CLOSE TO THE BLAST HEAD.

THE FOLLOW PRECAUTIONS APPLY:

- **ALWAYS FOLLOW SAFETY GUIDELINES LISTED THE HOG TOOL OPERATION MANUALS.**
- **MAKE SURE ALL SUPPORT PERSONNEL ARE A SAFE DISTANCE FROM THE WORK AREA BEFORE THE PRESSURE PUMP IS ENGAGED.**
- **MAKE SURE THAT THE OPERATOR HAS READ THE MANUAL FOR THE TOOL AND HAS BEEN TRAINED IN THE PROPER USE OF HANDHELD WATERBLASTING EQUIPMENT.**
- **MAKE SURE THE OPERATOR AND ALL PERSONNEL ARE EQUIPPED WITH REQUIRED SAFETY EQUIPMENT INCLUDING HARD HATS, GLOVES, EYE AND EAR PROTECTION, ETC.**
- **NEVER PUT HANDS, FEET OR ANY PART OF YOUR BODY IN OR NEAR THE HIGH PRESSURE STREAM.**
- **NEVER ALLOW AN INEXPERIENCED PERSON TO OPERATE A HANDHELD, HIGH PRESSURE WATERBLASTING TOOL WITHOUT PROPER TRAINING.**

3.2 Hog Tool Waterblast Systems

General

When a Hog Tool is connected to the auxiliary connections, the Waterblasting electrical system senses that a tool is connected and allows the levers on the tool to control the dump valve and hydraulic pressure to the blast head thru-shaft motor. The truck hydraulic system provides the hydraulic power that rotates the spray bar on the Hog Tool. The truck UHP pump and vacuum system provides water pressure and vacuum.

Hydraulic and electrical Systems

Hydraulic hoses with quick disconnect fittings are connected the to the truck hydraulic system. The hydraulic manifold on the truck controls the oil flow and regulates the pressure. Switches and/or control knobs on the Hog Tool provide the operator with control of the hydraulically activated features.

A 12-Volt DC harness runs from the outlet plug on the front of the truck to a plug on the tool and allows the switch lever on the tool to activate the spray head rotation.

High Pressure Waterblasting System

The High Pressure water line runs from the UHP pump and dump valve on the SH5500 to the Hog Tool. The manual bypass valve on the UHP pump and engine RPM is used to adjust the volume and pressure supplied to the tool.

When the SH5500 is connected to a Hog Tool, the high pressure water is controlled by a lever on the tool handle. The control lever activates a switch that sends electrical current to the dump valve on the UHP pump to engage or disengage high water pressure water at the blasting head on the tool.

When the system is activated, it operates much like the truck mounted high pressure water system. The tools must be moving before the high pressure is activated and all waterblasting safety precautions apply.

High pressure hoses and fittings can be dangerous if a hose bursts or a fitting fails during high pressure blasting. Outfit the Hog Tool operator with proper safety apparel. Hard hat, safety shield or glasses, gloves, ear protection, etc.

DANGER

THE SINGLE BLASTING HEAD ON THE TRACTOR OR ANY OTHER HOG TOOL WILL BE OVERPOWERED BY THE SH5500 HIGH PRESSURE PUMP IF THE SYSTEM IS NOT ADJUSTED TO THE REDUCED VOLUME FOR A SINGLE BLASTING HEAD. FAILURE TO ADJUST THE SYSTEM WILL PROVIDE TOO MUCH PRESSURE TO THE SPRAY HEAD THAT WILL CAUSE THE RUPTURE DISCS TO BLOW AND COULD CAUSE SEVERE DAMAGE TO THE UHP SYSTEM AND/OR INJURY TO THE OPERATOR OR CREW WHEN THE SYSTEM IS ACTIVATED.

WHEN SWITCHING THE UNIT FROM THE MAIN HOG HEAD TO EQUIPMENT WITH A SMALLER BLASTING HEAD, ALWAYS ENGAGE THE TRUCK OMSI DRIVE PTO WITH THE ENGINE AT IDLE AND TURN THE DUMP VALVE ON. GRADUALLY INCREASE THE RPM WHILE ADJUSTING THE MANUAL BYPASS VALVE UNTIL THE DESIRED PRESSURE AND VACUUM FOR THE BLASTING HEAD IS ACHIEVED. THIS PROCEDURE MUST BE DONE BEFORE THE TRACTOR OR HOG TOOL IS USED AND MUST NEVER BE OVERLOOKED.

3.3 Hog Tool Vacuum Systems

The HT1100 Hog Waller and HT1000 Ground Hog are equipped with blast heads that are designed to be attached directly to the SH5500 vacuum system. When the system is activated, it performs much like the vacuum system when it is connected to the truck blast head. Vacuum is supplied whenever the engine on the SH5500 is running and the OMSI Drive PTO is engaged.

Stripe Hog Operation

Control Panel and Joystick

4.1 Emergency Shutdown

Truck Emergency Shutdown

1. PRESS THE BRAKE PEDAL TO DISENGAGE REMOTE ENGINE CONTROL AND DROP ENGINE RPM TO IDLE SPEED.
2. IMMEDIATELY DEPRESS THE CLUTCH, PUT TRUCK TRANSMISSION IN "N" (NEUTRAL) AND SHUTDOWN THE ENGINE. THIS WILL INSTANTLY SUSPEND OPERATIONS OF THE ENTIRE SYSTEM.
3. WHEN THE SITUATION PERMITS, RETURN ALL SWITCHES TO THE "OFF" POSITION AND ALL DIALS TO THE "0" SETTING.

4.2 SH5500 Start Up/Shutdown

Before operating the Stripe Hog check the fluid levels in the truck engine, transmission and hydraulic system. A thorough understanding of the component systems and their operation is essential to the proper operation the Stripe Hog. This manual and the associated manufacturers' information is provided to enhance your knowledge of the Stripe Hog. Make sure you have read them carefully and fully understand the operation of the unit.

You should walk around the unit and visually inspect the Hog Head, high pressure hoses, hydraulic hoses, vacuum hoses, and all waterblasting system components for obvious signs of leaks, wear and deterioration. Do not operate the unit until all questionable components are repaired or replaced.

The startup and shutdown procedures described in this section are for a typical truck chassis equipped with a manual transmission. This information is provided as a general guide and overview of the process for educational purposes. The exact procedure for your truck may be different, depending on the chassis and options selected. Hog Tech-

nologies includes a quick reference card in the cab of the truck, usually attached to the driver's side sun visor that provides the proper startup and shutdown procedures for your truck.

Note:
Always check the Hog Head nozzles and spray bar for wear and damage before each shift. Refer to High Pressure Hoses and Nozzles in Section 2.7 (Water Blasting Systems) for information on inspecting spray bar and nozzles).

Note:
The pavement will be damaged immediately if high pressure blasting is activated without the Hog Head moving. Always make sure truck, tractor or Hog Tool is moving before supplying high pressure to the Hog Head.

Pre-start Inspection Check List:

1. Inspect all hoses for chaffing and signs of wear.
2. Check fuel levels and make sure you have enough for the shift.
3. Check engine and all systems fluid levels. Refer to the truck and OMSI Drive operating manuals.
4. Check all waterblasting and vacuum components for oil leaks, damaged or loose bolts and parts.
5. Inspect the Hog Head for loose components and damage.
6. Check vacuum canister for water and the vacuum filter. Drain water or clean filter as required.
7. Check the vacuum blower and UHP pump drive belt tension and alignment.
8. Check clean water tank level and fill if necessary.
9. Drain debris tank water and check debris level. Empty if necessary.
10. Walk around truck and visually check all components and look for obvious problems.

Typical Startup Procedure:

1. Set the parking brake and make sure all switches and dials are in the "OFF" position or set at "0".

Transmission PTO Control Switch

Remote Engine Control

2. Raise the hood hinge system to the work mode/ventaltion position.
3. Be sure the truck Transmission is in "N", (NEUTRAL) position.
4. Depress the clutch and start truck engine.
5. With the clutch pedal depressed, engage the transmission PTO to activate waterblasting hydraulic system, then put the transmission in third gear.
6. Activate the PTO and Charge Pump switches in the control switch panel to activate the OMSI drive, UHP system, vacuum system, and hydrostatic drive.
7. Release the clutch. Make sure the charge pump operating pressure is above 40 PSI (2.8 Bar).

At this point all waterblasting functions, including the hydraulic system and hydrostatic drive, are activated and the truck is considered in Work Mode.

CAUTION

THE UHP PUMP WILL BE DAMAGED IF THE OMSI DRIVE PTO IS ENGAGED WITHOUT ACTIVATING THE TRANSMISSION PTO AND CHARGE PUMP.

MAKE SURE THE TRANSMISSION PTO AND CHARGE PUMP SWITCHES ARE ACTIVATED TO PROVIDE WATER TO THE UHP PUMP FOR COOLING AND LUBRICATION WHENEVER THE OMSI DRIVE PTO IS ENGAGED. NEVER ACTIVATE THE OMSI PTO WITHOUT ACTIVATING THE TRANSMISSION PTO AND CHARGE PUMP.

8. Use the dial on the Engine Remote Control to set the RPM for the desired blasting pressure. The RPM of the vacuum system is set in conjunction with the 40K PSI pump RPM. 1800-2300 RPM
9. Use Dump Valve switch on the control panel to activate high pressure at the spray bar.
10. Check the nozzle spray pattern and the spray bar weep holes for leaks.
11. Check all High pressure hose fittings and the Hog Head for leaks.
12. With the pressure set and the spray bar and nozzles working properly, turn OFF the Dump Valve switch, then lower the Hog Head.
13. Release the truck parking brake - truck cannot move hydraulically unless brake is released.
14. Use the Head Rotation speed dial to set the initial spray bar rotation speed.
15. Use the Truck Speed dial in the control panel to set the desired truck speed.
16. With the truck moving, press the Dump Valve switch and begin blasting operations.

WARNING

ANY CONTACT WITH HIGH PRESSURE WATER IS VERY DANGEROUS AND CAN BE FATAL! USE EXTREME CAUTION RAISING OR MOVING HOG HEAD & ARM ASSEMBLY IF HIGH PRESSURE IS ENGAGED.

CAUTION

ENGAGING THE DUMP VALVE AND HIGH PRESSURE WITHOUT THE SPRAY BAR ROTATING AND THE TRUCK MOVING WILL CAUSE IMMEDIATE DAMAGE TO THE PAVEMENT. NEVER ACTIVATE THE DUMP VALVE SWITCH WHEN THE TRUCK IS STOPPED AND/OR THE SPRAY BAR IS NOT ROTATING.

Shutdown Procedure:

1. Shutdown High Pressure by turning OFF the Dump Valve switch.
2. Allow the vacuum blower to operate for a couple of minutes after shutting down the high pressure and charge water pumps to clear waste water from hoses and dry out blower system.
3. Raise the Hog Head to the full "UP" and locked position.
4. Reduce the engine speed to idle.
5. Press the clutch pedal and disengage the OMSI PTO.
6. Put the Truck Transmission in "N" (NEUTRAL).
7. Turn the PTO and Charge Pump switches to "OFF".
8. Turn all other switches and dials on the control panels to "OFF" or "0".
9. Make sure the Hog Arm locking lever is engaged and secure it with a safety strap to ensure the locking lever cannot accidentally be released during transportation.
10. Lower the hood hinge system to the driving/full closed and latched position.

WARNING

IT IS VERY IMPORTANT THAT BOTH PTO SWITCHES ARE FULLY DISENGAGED TO ENSURE THAT NONE OF THE FUNCTIONS WILL OPERATE ACCIDENTALLY.

11. Drain waste water from the vacuum canister. Close the valve when draining is complete.
12. When the truck is parked, set the parking brake and allow the engine to run for several minutes to cool internal components, then shut off the engine.

4.3 Waterblasting Operations

Before you start the job, you should evaluate the pavement you will be working on, the material to be removed, and choose the appropriate spray bar and/or nozzles best suited for the job. You should also consider the desired or expected profile of the blasted surface in your selection. There are many variables that affect blasting efficiency, productivity and the profile of the blasted surface. As the operator becomes more experienced, the selection process becomes more refined and easier.

Generally, large, high volume (.015 - .017) nozzles are the most aggressive and provide faster results, but more potential for damage and a course profile. High volume nozzles should be used only on strong pavement (concrete or newer pavement). Small, low volume (.007 - .011) nozzles are less aggressive and will provide somewhat slower results but less damage potential and a smoother profile. Low volume nozzles are well suited for weak pavement (older or damaged pavement). Low volume nozzles are typically a better choice for inexperienced operators on any surface.

Hog Technologies offers an on-site training program that dramatically reduces the learning curve and increases productivity. If you are new to Waterblasting, we highly recommend that you consider this factory training for your operators. You can also contact Hog Technologies Customer Service department for assistance in choosing spray bars and nozzles or more information regarding the factory training program.

Waterblasting Guidelines:

Evaluate the Pavement and Select a Spray Bar

- Strong pavement withstands high aggression spray bars. This is generally concrete or new asphalt.
- Cracked pavement is weak and will require lighter aggression spray bars.
- Brittle pavement is a challenge and will require lighter aggression spray bars and reduced pressure.
- Consider spray bar width. Choose a spray bar 2” wider than the line being removed to provide steering tolerance plus slight over spray to reduce the need to back up and re-do sections.

Do’s

- Pre-clean the work area with a power broom before blasting.
- Stop blasting before stopping the truck. Blasting with the unit stopped will damage the pavement and Hog Head.
- Stop blasting before changing direction.
- When in doubt, choose a less aggressive spray bar. It is always best to error on the side of caution.
- Adjust the forward speed and head rotation to remove 95% of the paint in a single pass to eliminate a second pass and more potential for damage.
- Adjust the pressure for the pavement. Typically blast pressures between 32,000 and 38,000 PSI are used.
- Check and clean the vacuum filter frequently to ensure strong vacuum pressure while blasting. A dirty filter and low vacuum will leave excessive paint chips and debris on the pavement slowing productivity.
- Check the pavement frequently and watch the outer edges of the lines for damage. Continuously make adjustments as required.

Don’ts

- Do not allow untrained personnel to operate Stripe Hog equipment.
- Do not continue blasting with a damaged nozzle. It can cause damage, waste water, reduce the power of other nozzles and slow production.
- Avoid running the Hog Head wheels on rumble strips. Always adjust the Hog Arm to keep the wheels off the rumble strips.
- Do not blast directly on sealed joints in the pavement. Especially weather stripping on bridges or airfields.
- Do not blast over pavement markers. Markers can damage the blast head and spray bars and should be removed prior to blasting.
- Do not blast over damaged or uneven pavement that can damage the blast head and spray bar.

- Do not allow the debris tank to become over-filled. This can cause an unexpected shutdown of the vacuum system. Monitor the tank and empty it before it is full.
- Do not allow the charge pump to run out of water. Water is a lubricant and cools the charge and high pressure pumps. They will be damaged if they run dry. Always monitor the water level in the clean water tank and refill when it gets low.

4.4 Operating in Freezing Conditions

Shutdown

1. Allow the vacuum blower to operate for a couple of minutes after shutting down the high pressure and charge water pumps to clear waste water from hoses and dry out blower system.
2. Make sure the clean water and debris tanks are drained immediately at the end of each shift.
3. All system hoses and the Hog Head assembly should be drained of all water and/or filled with an anti-freeze solution. (non alcohol)
4. For the 40K water blaster, refer to pump manufacturer's procedures for maintaining equipment in freezing climates.
5. Open the drain valve at the charge water pump and allow the hoses and pump to completely drain. With the valve still open, activate the pump briefly to pump out any remaining water, about a cupful. Then close the valve.
6. Remove the debris pump strainer and run the pump briefly to drain the pump hoses. Then clean and reinstall the strainer.
7. Pour 2 gallons of anti-freeze into the high pressure pump stuffing box sump so it will drain to the bilge pump sump system. Allow the bilge pump to run until anti-freeze is visible at the bilge pump hose fitting in the debris tank.
8. Drain the vacuum canister immediately at the end of each shift.
9. Follow all other instructions in the Warm Weather Shutdown Procedure.

CAUTION

IF YOU OPERATE AT FREEZING TEMPERATURES OR EVEN TEMPERATURES BELOW 60 DEGREES FAHRENHEIT (16 DEGREES CELSIUS), IT WILL BE NECESSARY TO OPERATE THE SYSTEM, INCLUDING ENGAGING THE BLOWER AND HIGH PRESSURE PUMP, AT IDLE SPEED ONLY UNDER LOAD, UNTIL OIL HEATS UP ABOVE 60 DEGREES FAHRENHEIT (160 CELSIUS).

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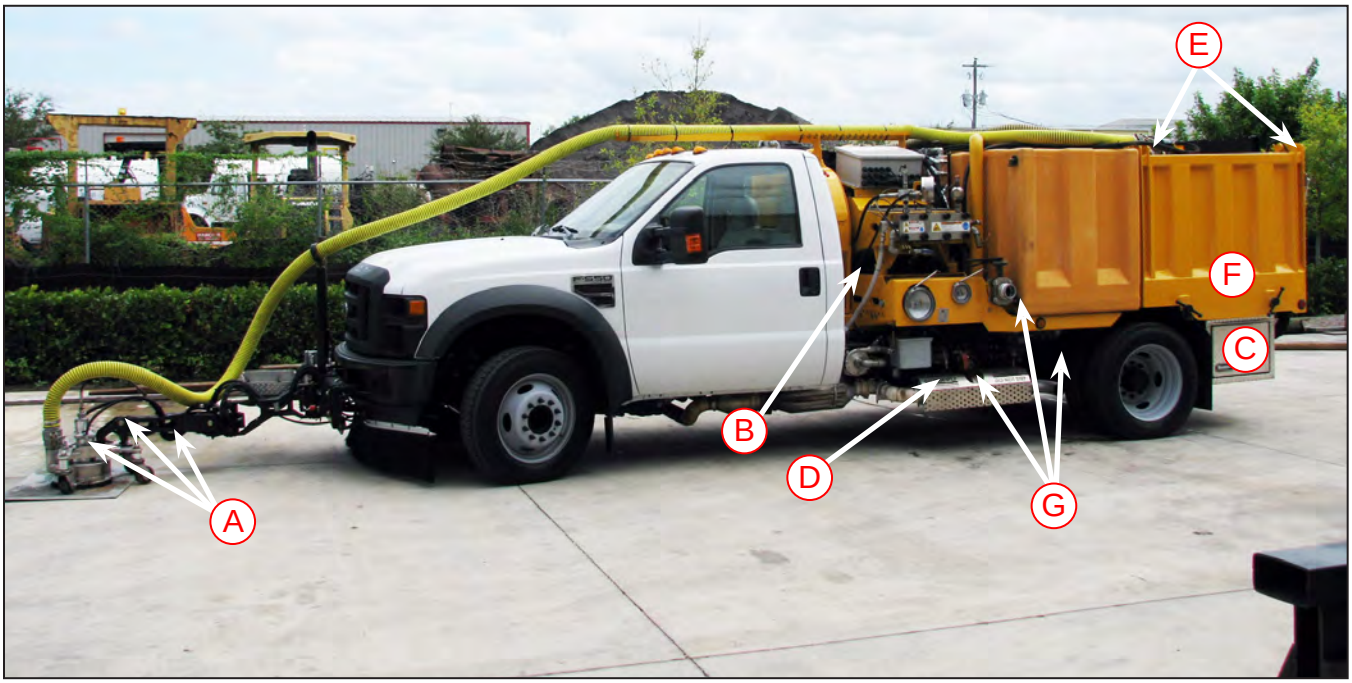
General Maintenance



Drivers Side Lubrication Points

A. Hog Head and Hog Arm	E. Grease Debris Tank Door Hinge Pins
B. Lubricate Belt Tension Bolts for Blower and UHP Pump	F. Lubricate Debris Tank Door Clamps
C. Oil Tool Box Door Hinges and Latches	G. Lubricate All Ball Valves
D. Grease Drive Shaft Splines & Universal Joints	H. Grease Debris Tank Tilt Hinge Pins

5.1 Lubrication

You should become familiar with the location of all components that require frequent lubrication and include them in the routine maintenance schedule. Some of these lubrication points require specialized lubricants. Refer to the Lubrication Chart in this section and the component manufacturer's operating manuals for lubrication specifications and maintenance schedules.

5.2 Truck Maintenance

Engine and Chassis

Proper engine and chassis maintenance is essential to the proper performance and reliability of the Stripe Hog truck. You should perform all recommended maintenance according to the manufacturers' specifications. Maintenance schedules and procedures are outlined in the truck owner's manual. They should be followed exactly.

Tool Boxes

- Periodically lubricate all hinges and latch assemblies with a light oil.
- Periodically clean and coat gasket materials with silicone to help keep them pliable.
- Adjust latches as necessary.

Hydraulic Cylinders Hinge Fittings

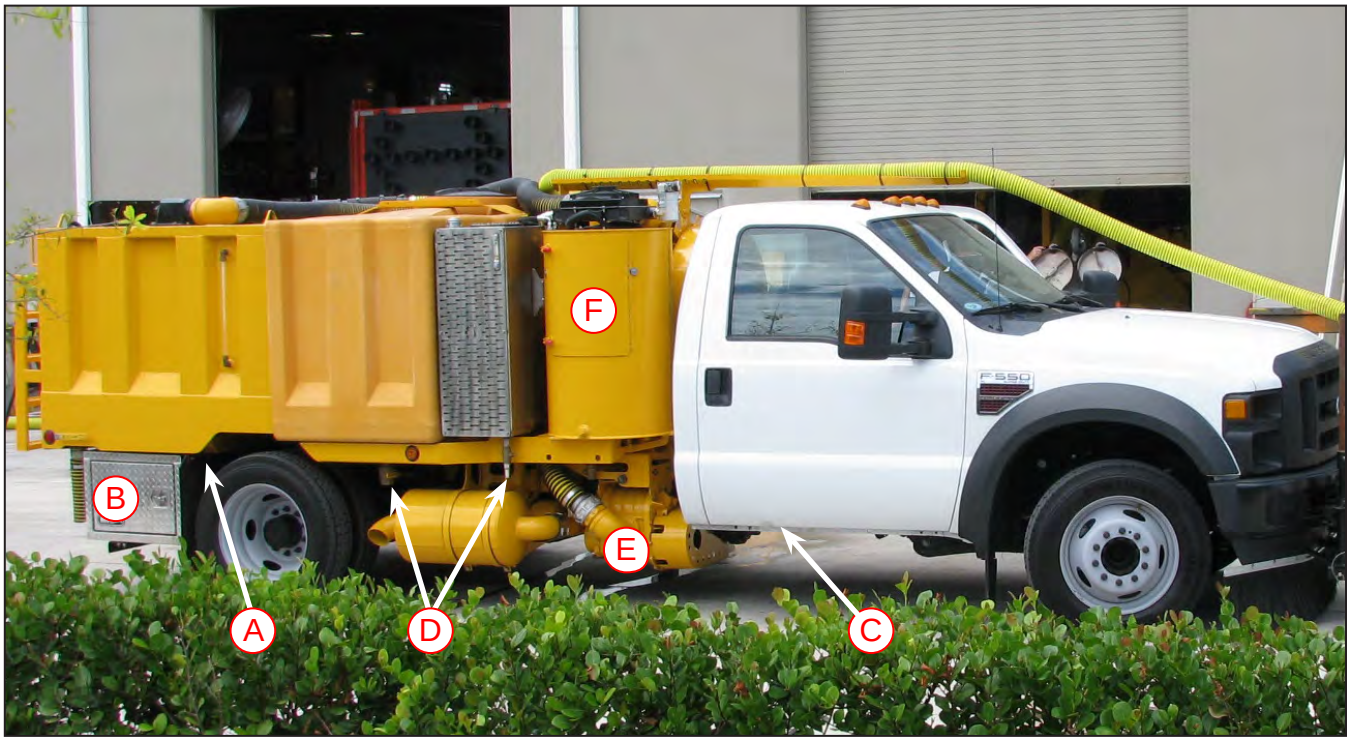
Grease the hinge fittings for the hydraulic cylinders with a general purpose grease weekly.

Pulley Pillow Block Bearings

Grease weekly. (below passenger side of cab)

OMSI Drive PTO

Maintaining the fluid levels and performing routine maintenance is extremely important in OMSI Drive system. Maintenance schedules for the OMSI Drive are outlined in the OMSI Drive operating manual included with your SH5500. They should be followed exactly.



Passenger Side Lubrication Points

A. Grease Hydraulic Lift Cylinder Hinge Pins	D. Lubricate All Ball Valves
B. Lubricate Tool Box Hinges and Latches	E. Grease Blower Pulley End Bearings
C. Grease Pulley Pillow Block Bearings	F. Lubricate Vacuum Canister Hinges and Latches

Refer to the Lubrication Chart in this section for lubrication specifications

Weekly:

- Check fluid level in the OMSI Drive and inspect for signs of leakage. The fluid level is checked by removing the plug on the drivers side rear of the OMSI Drive. The fluid level should be maintained within .5" (1.3 cm) of the plug threads. Refer to the pictures in this section for the fluid level plug location and add fluid as required.
- Inspect components for loose bolts and universal joints.

Periodic Maintenance:

- Grease drive shaft splines and universal joints monthly.
- Change fluid in OMSI Drive components as recommend in the operators manual.

OMSI Drive Gearbox-Fluid Level Plug Location

5.3 UHP Pump & Vacuum

Blower Drive Belts

The primary drive belts that connect the OMSI Drive PTO to the UHP pump and vacuum blower are special carbon fiber industrial belts that are designed for high horsepower applications.

The ribbed drive belts are matched to grooved pulleys and have very little stretch. Therefore, they typically don't need to be adjusted often and proper belt tension is extremely important when adjustment is required. The belts are strong enough to cause severe damage to bearings, shafts and other components if they are set too tight. Additionally, if a belt is too loose, it can ride on top of the grooves in the pulleys and become too tight.

Make sure you follow the instructions and set the tension to proper specifications when adjusting the drive belts. Never overtighten them.

WARNING

OVERTIGHTENED DRIVE BELTS CAN CAUSE SEVERE DAMAGE TO PULLEYS, SHAFTS AND BEARINGS IF THEY ARE ADJUSTED TOO TIGHT OR MISALIGNED. ALWAYS MAKE SURE THE BELTS ARE PROPERLY ALIGNED AND SET TO THE MANUFACTURES SPECIFICATIONS WHEN THEY REQUIRE ADJUSTMENT AND NEVER OVERTIGHTEN THE BELTS.

Drive Belt Inspection and Maintenance

Daily:

- The belts must be inspected before each shift for damage, tension and alignment.

Periodic Maintenance:

- Check drive belt tension, pulleys and belt alignment monthly. Adjust or replace as required.
- Check and grease pillow drive pulley pillow block bearings.

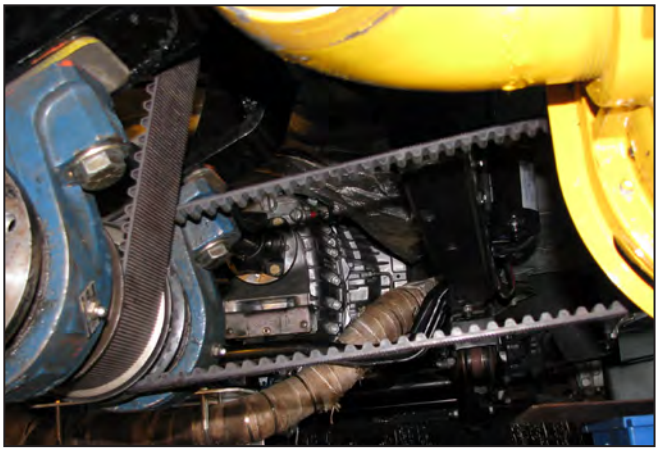
Checking Belt Tension

The proper way to check belt tension is to use a tension tester. While a simple spring scale type tester will do the job, the more sophisticated Sonic Tension Meter is recommended.

Sonic Tension Meter Method

The Sonic Tension Meter detects the vibration frequency in the belt span, and converts that measurement into the actual static tension in the belt.

Pillow Block Bearings and Grease Fittings



Typical SH5500 Drive Belt Configuration
(The belts on your truck may be slightly different)

Checking belt tension using a sonic tension meter:

Begin by entering the belt unit weight, belt width, and the span length. To measure the span vibration, press the "Measure" button on the meter, tap the belt span, and hold the microphone approximately 1/4" (.6mm) away from the back of the belt. The Sonic Tension Meter will display the static tension vibration frequency.

If the frequency is lower than the minimum recommended frequency, the belt should be tightened. If it is higher than the maximum recommended frequency the belt should be loosened.

Note:

The procedure in this example is for the Gates Sonic Tension Meter shown. Sonic meters from different manufacturers will require procedures unique those meters.

Sonic Meter Belt Tension Frequency Specifications:

UHP Pump Belt Tension Frequency
New Belt = 51-54 Hz

Used Belt
(more than 20 hours of operation) = 44-47 Hz

Blower Belt Tension Frequency
New Belt = 76-80 Hz

Used Belt
(more than 20 hours of operation) = 65-69 Hz

Refer to the belt manufacturer's manual for additional maintenance information on the drive belts.

Drive Belt Adjustment

The UHP pump and vacuum blower are on adjustable mounts. A threaded adjusting bolt on the vacuum blower mount is used for adjusting the blower drive belt. Two adjusting bolts on the pulley end of the UHP pump mounting frame are used to adjust the UHP drive belt.

Typical Gates Sonic Tension Meter

Drive Belt Adjustment Procedure:

Blower

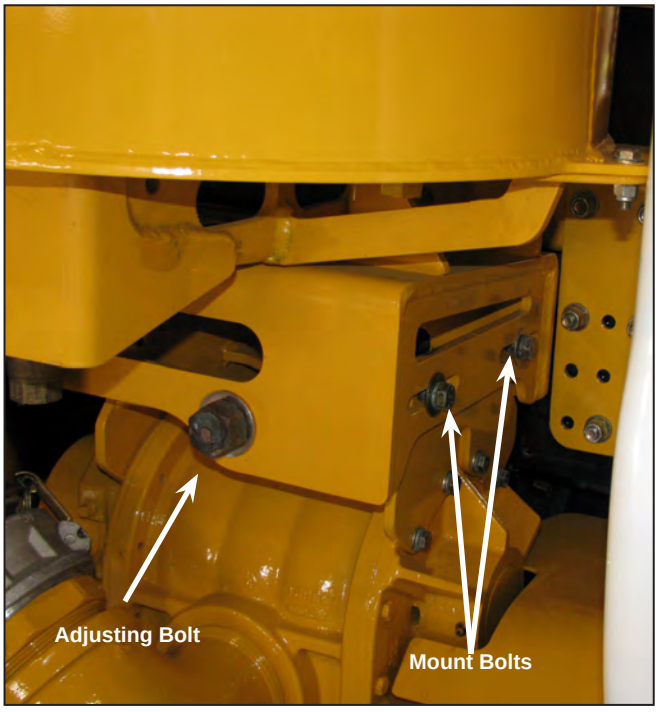
1. Loosen the four bolts in the slotted holes on the mounting plate just enough to allow the plate to move. Make sure not to loosen them too much.
2. Rotate the adjusting bolt on the blower mount to adjust the belt to the proper specification. Use a spring scale tester or sonic tension meter to achieve proper tension.
3. Check the pulley alignment with a straight edge against the outside face of the drive and driven pulleys to make sure the pulleys are parallel.

Vacuum and UHP Pump Drive Belt Adjustment Bolt Locations

4. Tighten the bolts in the slotted holes.

Important:
Tighten the mount bolts in the slotted holes and recheck the belt tension and alignment. Readjust as necessary to achieve correct belt tension and/or alignment.

5. Start the engine and engage the OMSI Drive PTO at idle speed for 30 seconds.
6. Disengage the PTO and shutdown the engine.
7. Check that the belt is riding on the center of the pulleys. If it is not centered and riding hard on either side of the pulleys, the blower will have to be aligned by moving the mount slightly in the slotted bolt holes. Repeat alignment and tension steps until the belt is set to the proper tension and centered on the pulleys.
8. Tighten the mounting bolts securely.

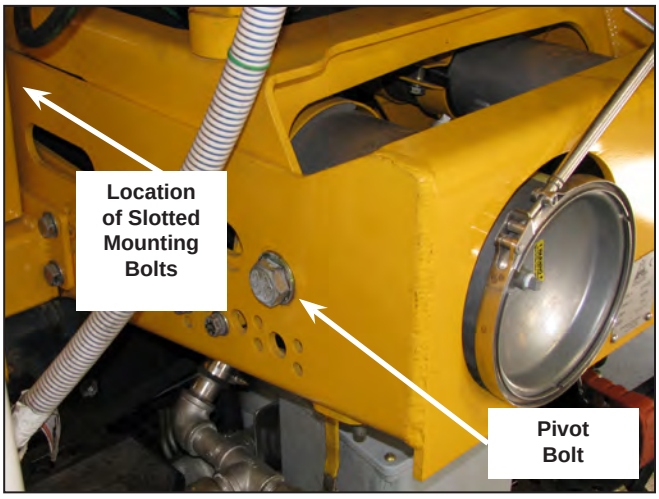


Vacuum Blower Drive Belt Adjusting Bolt & Slotted Mount Holes and Bolts

UHP Pump

1. Loosen the two rear pivot bolts slightly on the driver's side of the pump mounting frame. Loosen the two bolts in the slotted holes on the passenger side of the pump mount just enough to allow the frame to move. Make sure not to loosen them too much.
2. Rotate the adjusting bolts, on each side of the pump frame near the slotted bolts, equally to adjust the belt to the proper specification. Use a spring scale tester or sonic tension meter to achieve proper tension.

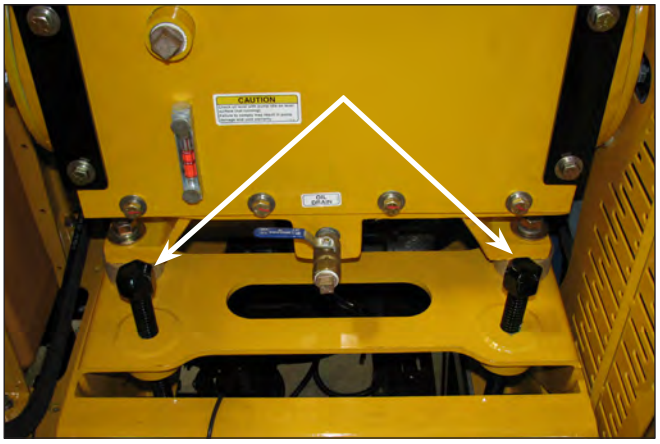
Note:
The adjusting bolts are located between the UHP and the vacuum canister. They must be accessed from above using a long extension.



UHP Pump Pivot Bolts
& Location of Slotted Mounting Frame Bolts

3. Check the pulley alignment with a straight edge against the outside face of the drive and driven pulleys to make sure the pulleys are parallel.

Important:
Tighten the mount bolts on the slotted holes and recheck the belt tension and alignment. Readjust as necessary to achieve correct belt tension and / or alignment.



UHP Pump Adjusting Bolts

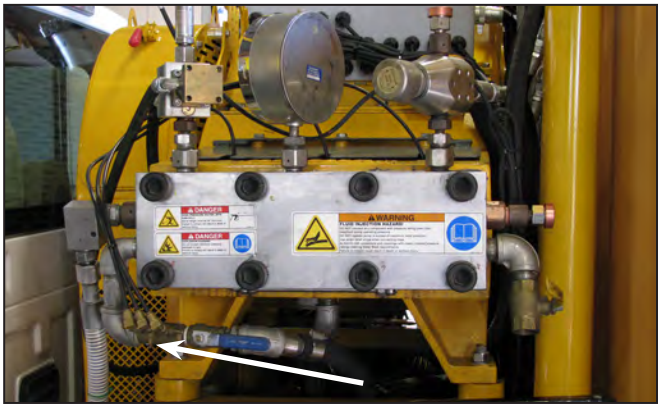
4. Tighten the bolts in the slotted holes. Then tighten the pivot bolts.
5. Start the engine and engage the OMSI Drive PTO at idle speed for 30 seconds.
6. Disengage the PTO and shutdown the engine.
7. Check that the belt is riding on the center of the pulleys. If it is not centered and riding hard on either side of the pulleys, the UHP pump will have to be aligned slightly using the mounting frame adjusting bolts. Repeat alignment and tension steps until the belt is set to the proper tension and centered on the pulleys.
8. Tighten the mounting bolts securely.

Note:
Apply grease to the threads of the blower and UHP pump adjusting bolts each time the belts are adjusted to help prevent corrosion and ensure the adjusting bolts will turn when adjustment is required.

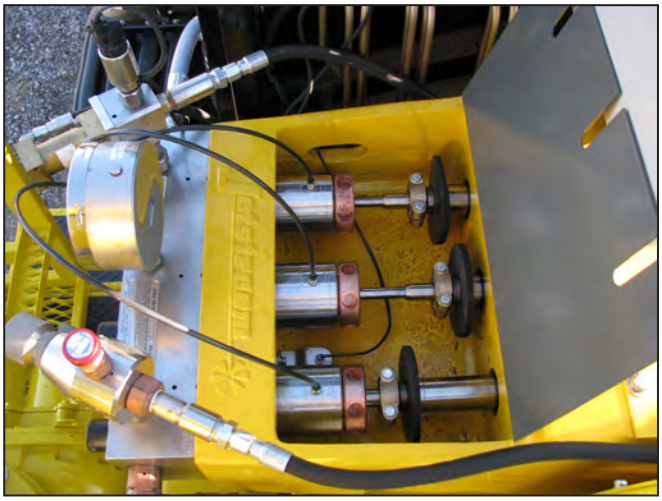
UHP Pump Belt and Pulley

5.4 High Pressure Blasting System & Charge Pump

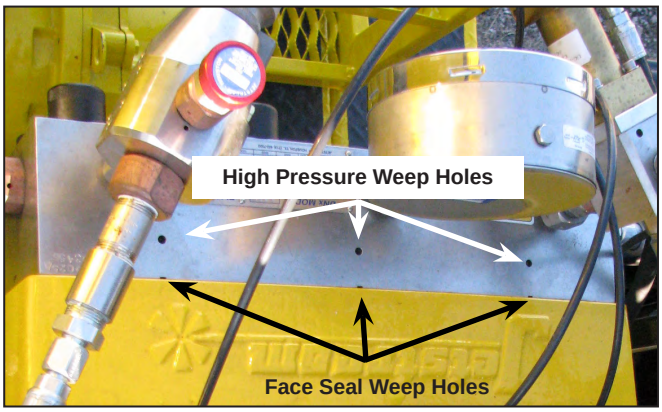
The 40K UHP pump operates at very high pressures and has specific lubrication and maintenance requirements. Refer to the Lubrication Chart in this section and the pump manufacturer's operating and maintenance manual for lubrication specifications and maintenance schedules.



UHP Pump and Packing Lube Metering Valves



UHP Pump Packing Lube Lines and Sump



UHP Pump Weep Holes

UHP System Inspection and Maintenance

Daily:

- Check for obvious loose mounting nuts and bolts.
- Check all hoses, fittings, valves and seals for leaks and proper operation daily. Repair or replace leaking or malfunctioning components before operating the system.
- There are filters in the water system immediately before the high pressure pump to remove any particulates from the water prior to entering the UHP pump. These filters should be changed when dirty or when the charge pump pressure is 30 PSI (2.1 Bar) or less. The filters are typically replaced daily.
- Make sure cooling water is flowing to the plunger packing seals when the charge water is activated. Constant water flow is essential to lubricate and cool the seals.
- Make sure the cooling water sump and drain are clean to provide proper drainage.
- Check for water dripping from UHP Pump weep holes during high pressure test. Water dripping from the square holes indicates the face seals are leaking. Water leaking from round holes indicates the high pressure seals are leaking. Find and correct the problem before waterblasting.
- Test the dump valve for proper operation daily. Never operate the system if the dump valve is not working properly.
- Check the bypass valve and make sure it is operating properly.

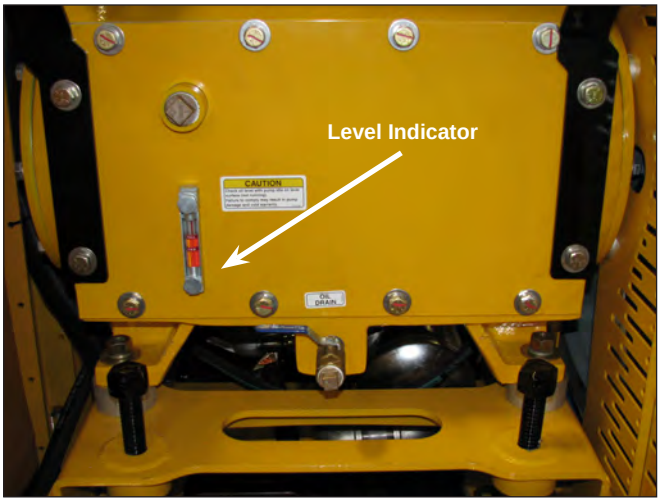
Periodic:

- Service the pump as recommended in the pump operating manual. Change crankcase lubricating oil after the first 100 hours and every 500 hours thereafter.

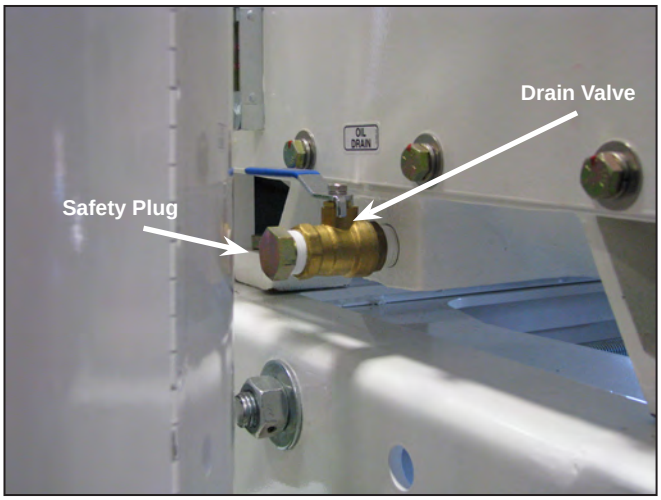
Important:

Make sure to install the safety plug in crankcase drain valve when draining is complete. The safety plug prevents crankcase oil from draining if the valve is accidentally opened.

- Check pulley clearances and drive belt tension at least once each month.
- Check and tighten all mounting bolts and hardware.
- Inspect all hoses and fittings weekly for signs of deterioration, chaffing and leaks. Repair or replace as necessary.



UHP Pump Oil Sump Level Indicator and Oil Fill



Typical UHP Pump Crankcase Drain Valve and Safety Plug

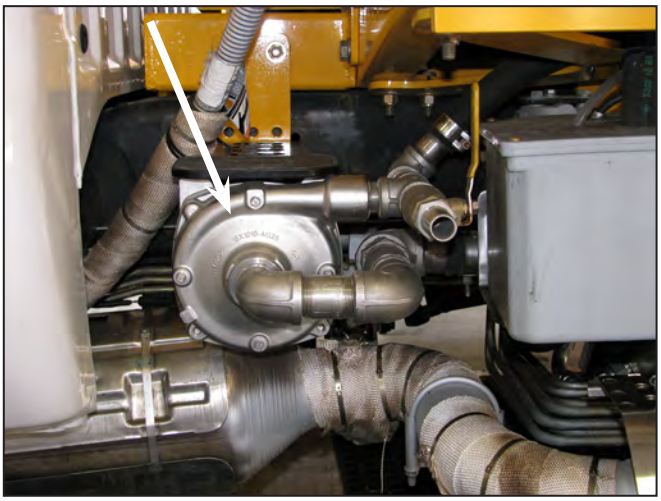
- Inspect and lubricate ball valves periodically. Make sure to open and close all ball valves at least once each month to keep them free and operating properly.
- Inspect and lubricate the manual bypass valve to keep it operating properly.

Charge Pump

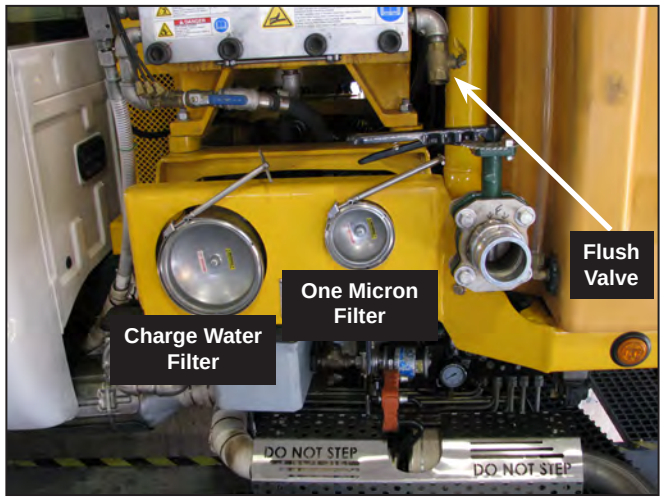
Information and owner's manuals for the charge water system components are included with this manual. Refer to this information for additional operation and service data.

- Periodically inspect the charge pump, hoses and fittings for leaks and signs of wear or deterioration. Any questionable or leaking components should be repaired or replaced before operating the system.
- If the Charge Pump pressure is lower than 30 PSI (2 Bar), replace both of the filters between the charge pump and the high pressure pump.
- To change the filters, make sure the system is not engaged and the switches for the charge water pump and PTO's are off. If necessary, relieve the pressure in the system. Refer to the filter installation and maintenance guide included with this manual for detailed information on replacing the filter elements.

Be sure to activate the charge pump and flush the low pressure side of the UHP pump and charge water system using the flush valve before operating the UHP pump after changing the filters.



Charge Pump

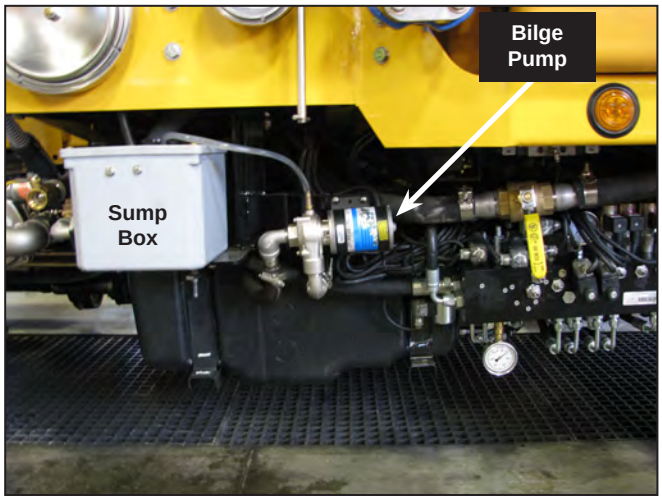


Charge Water Filters and Flush Valve

Bilge Pump

The bilge pump returns packing cooling and lube water from the UHP pump to the debris tank. It is a centrifugal pump that requires little maintenance. It can run dry for short periods without damage, but prolonged dry operation will cause the seals to overheat and damage the pump.

Information and owner's manuals for the bilge drain system components are included with this manual. Refer to this information for additional operation and service data.



Typical Bilge Pump and Sump Box

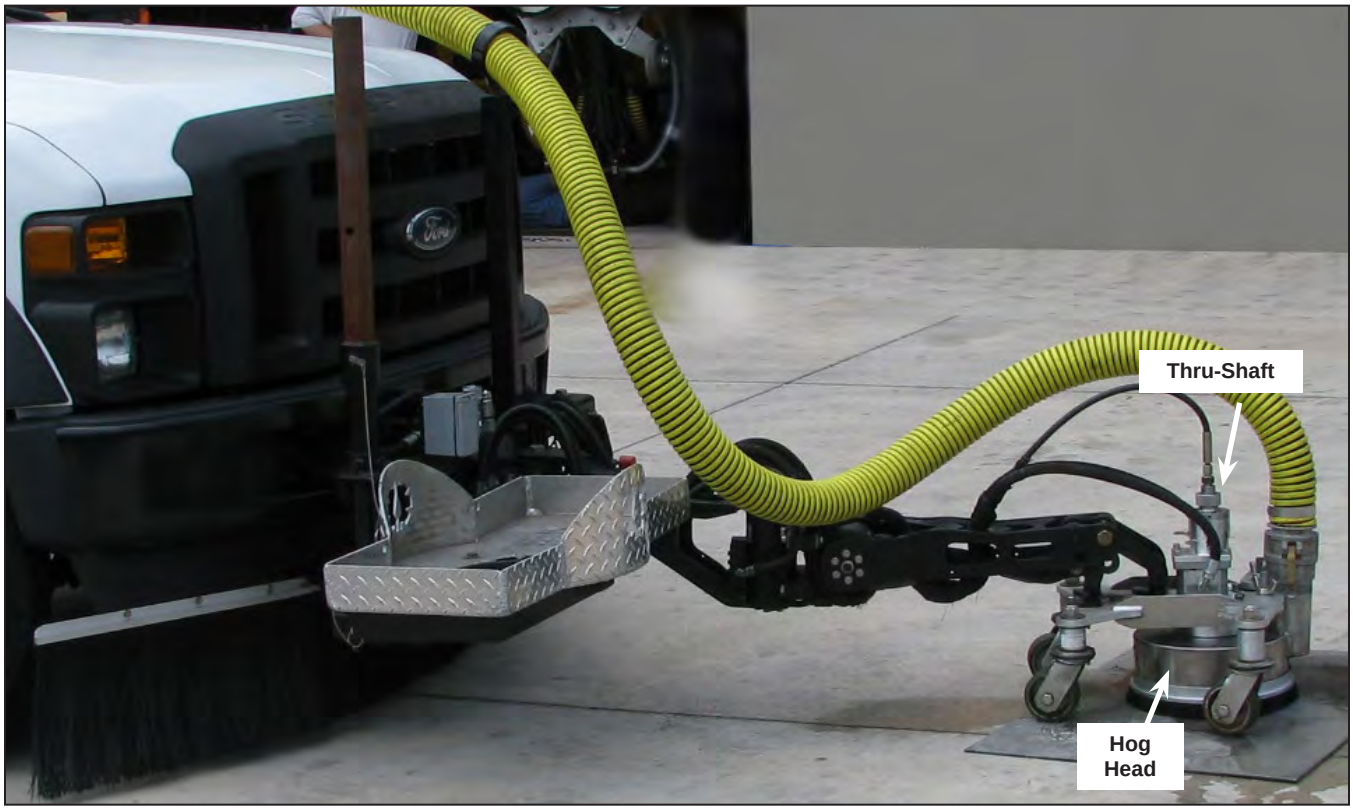
Inspection and Routine Maintenance:

Daily:

- Inspect the cooling water sump in the UHP pump daily and clean any debris that may restrict drainage to the bilge pump system.
- Inspect the drain hoses and sump system for loose fittings and leaks daily.
- The bilge pump is activated by an automatic float switch in the drain sump. Monitor the operation of the bilge pump system at the start of each shift to make sure the pump and automatic switch are operating properly.

Periodic:

- Remove the lid for the bilge drain sump box and clean debris that may reduce drainage to the bilge pump or interfere with the operation of the float switch weekly.



Truck Mounted Hog Head

5.5 Hog Head & Hog Arm Maintenance

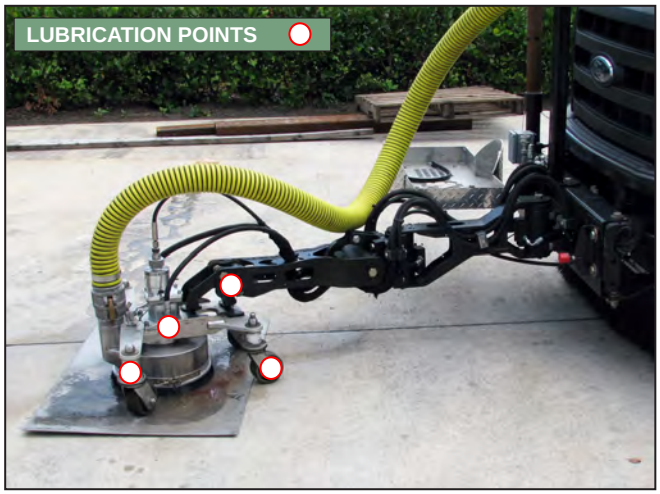
Hog Head

The Hog Head must be inspected daily and serviced as required.

The following service procedures apply.

Daily:

- Grease the thru-shaft bearings daily with the lube specified in the lubrication chart.
- Check the wear brush for wear and proper adjustment. Adjust and replace as necessary.
- Check all bolts and wheel nuts for anything loose.
- Check hydraulic and high pressure hoses for deterioration and wear. Correct problems or replace questionable components before waterblasting.
- Check hydraulic connections for leaks – tighten if necessary.
- Test and inspect the nozzles and spray bar for proper operation and leaks. Correct any problems or questionable components before waterblasting.
- Check the swivel seal weep holes for leaks.



Truck Mounted Hog Arm & Hog Head Lubrication Points

- Test the dump valve for proper operation daily. Never operate the system if the dump valve is not working properly.

Periodic:

- Check wheel casters for height and excessive wear. Add shims to adjust if necessary.
- Clean and grease wheels and caster assemblies weekly.

Hog Arm

Daily:

- Check all bolts and nuts. Tighten if necessary.
- Check the Hog Arm lock mechanism and make sure it is latched properly when the truck mounted Hog Arm is in the full up position.
- Check hydraulic and high pressure hoses for deterioration and wear daily. Replace hoses and fittings as necessary.

Periodic:

- Clean and grease Hog Arm bearing assemblies weekly.
- Lubricate Hog Arm lock mechanism weekly.

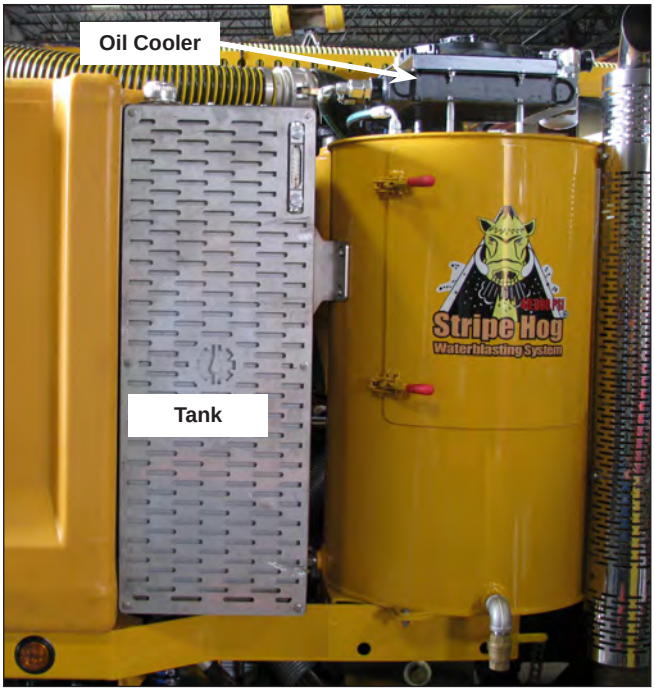
Refer to the Lubrication Chart and System Maintenance Matrix in this section for lubrication specifications and maintenance schedules.

5.6 Hydraulic System Maintenance

Hydraulic Pump

The hydraulic pump operates at very high pressures and has specific maintenance requirements. You should perform all recommended maintenance according to the pump manufacturers' specifications.

- Check the hydraulic oil level each day or immediately following the repair of a blown hose, leaking fitting or any hydraulic system service. Use only hydraulic oil meeting the manufacturer's specifications. Refer to the Lubrication Chart in this section and the pump manufacturer's operating and information manual for information on the hydraulic system and oil specifications.
- Check all hoses, fittings, valves and seals for leaks and proper operation daily. Repair or replace leaking or malfunctioning components before operating the system.
- Change the filter in the return line near the hydraulic oil reservoir. The filter removes any debris that may enter the system and should be changed as necessary or specified by the pump manufacturer.
- Check the pressure gauge on the high pressure filter and make sure it is well within the safe zone. Change the filter cartridge when the pressure is above the safe zone.
- Inspect the cooling fins on the oil cooler and clean as necessary. The cooler is critical in maintaining acceptable oil temperatures in the hydraulic system and must be kept clean to maintain efficiency.



Hydraulic Tank and Oil Cooler

Typical Hydraulic Manifold System

- Monitor the cooling fan operation and make sure it is activating when necessary, sounds normal and pulls a strong flow of air through the cooler.

Refer to the Lubrication Chart in this section for hydraulic fluid specifications.

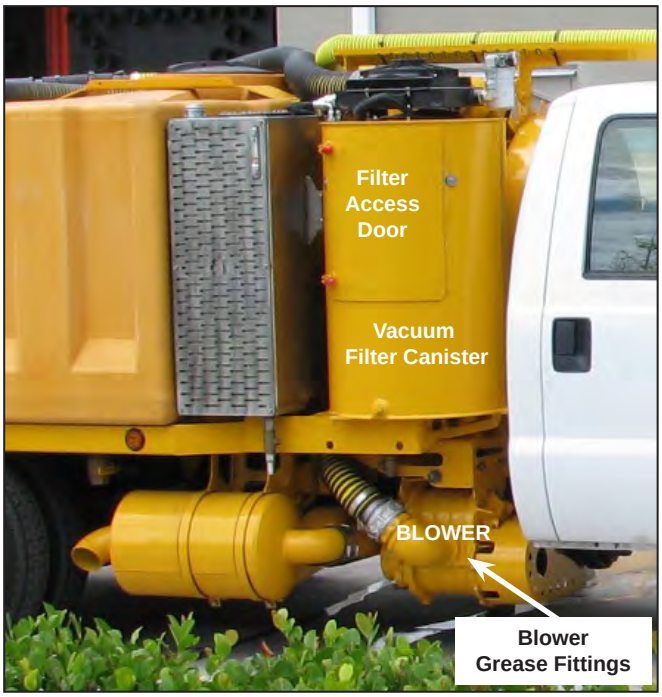
5.7 Vacuum System & Debris tank

Blower and Filter Canister

The vacuum blower has specific lubrication and maintenance requirements. Refer to the vacuum blower manufacturer's operating manual for lubrication specifications and maintenance schedules.

Be sure vacuum filter is always in good operating condition so it fully protects the blower from collecting vacuumed debris internally. If debris ever gets into the blower impellers, use a paint or lacquer thinner or other non-corrosive cleaner to remove any residue build-up inside. It will be necessary to remove the silencer in order to clean the blower. Remember that if large debris gets into the blower, it can cause severe damage to the blower.

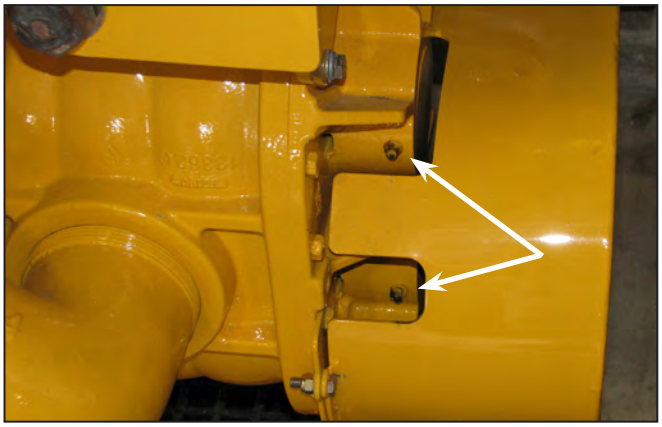
Refer to the Lubrication Chart in this section and the blower manufacturer's operating manual for lubrication specifications and maintenance schedules.



Vacuum Blower System

Inspection and Routine Maintenance:
Daily:

- Check for obvious loose mounting nuts and bolts.
- Grease blower drive end and idler pulley bearings with the lube specified by the blower manufacturer.
- Check the vacuum canister door seal to ensure good vacuum sealing. Clean or replace the seal if necessary.
- Clean the filter before each shift and drain the filter canister at least once every 2 hours of operation for optimal performance. Filters may be cleaned with a pressure washer up to 2000 PSI (138 bars). A mild solvent solution may be used to clean thermoplastic or tar residue from the filter surface. Be sure the filter media is never damaged leaving holes or thin areas that could allow vacuumed water or debris to get into the vacuum blower or silencer. Clean, secure filtration is necessary to keep your vacuum blower in good operating condition. Inspect the filter for deterioration and replace if necessary.



Blower Pulley End Grease Fittings

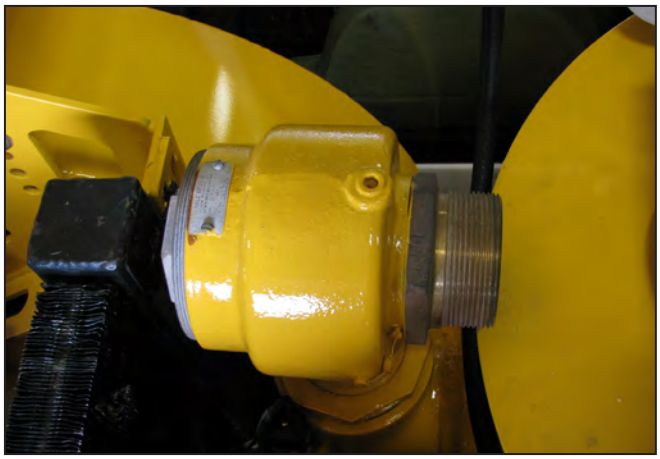
Vacuum Filter and Access Door

Periodic Maintenance:

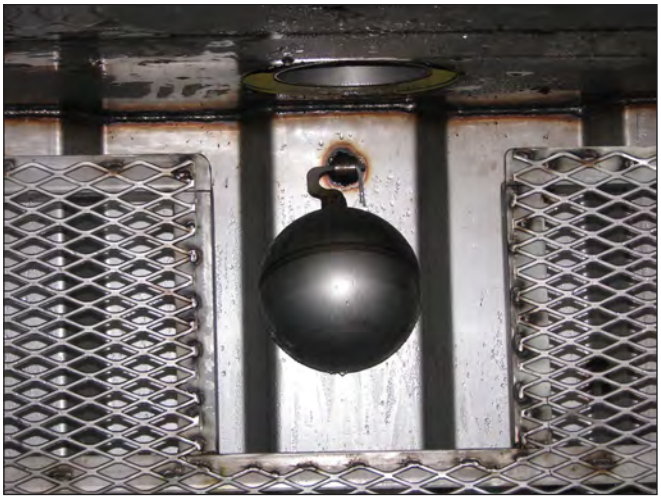
- Change blower lubricating oil after the first 50 hours and every 500 hours thereafter. Service the blower as recommended in the blower operating manual.

Important:
Make sure to install the safety plug in crankcase drain valve when draining is complete. The safety plug prevents crankcase oil from draining if the valve is accidentally opened.

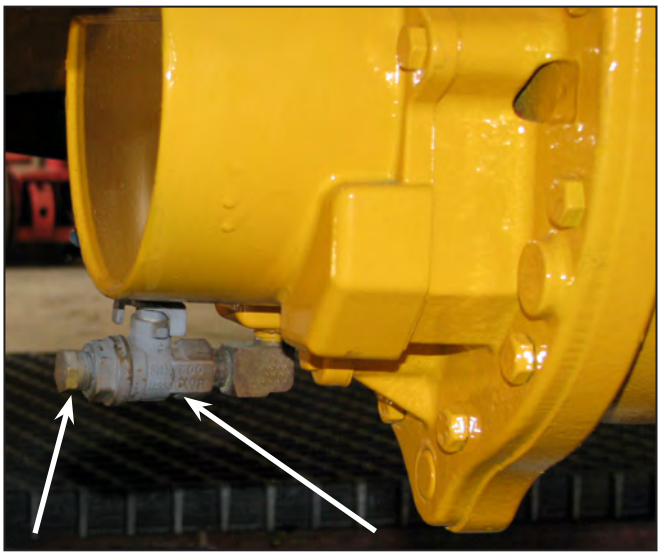
- Check pulley clearances and drive belt tension at least once each month.
- Check and tighten all mounting bolts and hardware.
- Lubricate filter canister inspection door hinges regularly.
- Check vacuum canister door seal and replace if necessary. Coat the seal periodically with silicone to help keep it pliable.
- Inspect and lubricate drain ball valves periodically. Make sure to open and close all ball valves at least once each month to keep them free and operating properly.
- Inspect, clean and lubricate the vacuum relief valves to keep them operating properly.
- Inspect all hoses and fittings weekly for signs of deterioration, chaffing and leaks. Repair or replace as necessary.



Vacuum Relief Valve (Kunkle Valve) on Vacuum Filter Canister



Cutoff Ball Valve



Blower Crankcase Drain Valve and Safety Plug

Debris Tank

Debris Tank and Hoses

Daily:

- Check vacuum hoses regularly for deterioration or cracking. Replace any damaged hoses with new hoses.
- Check hose cam-lock fittings for damage and missing O-rings. Replace as needed.
- Check water hoses and connections. Replace if damaged or leaking.
- Check view tubes for cracks or damage and clean or replace as necessary.
- Check debris tank door seal to ensure good vacuum sealing and clean if necessary.
- Grease debris tank door hinges and clamp threads regularly.
- Inspect and lubricate ball valves periodically.
- Inspect the cutoff ball valve and automatic float switch each time the tank is dumped to ensure they are free, not damaged or cracked and operating properly.
- Make sure the intake fitting for the debris pump is not plugged. Clean intake as necessary.
- Inspect Hydraulic lift components and hinge pins to ensure they are tight and in good condition.

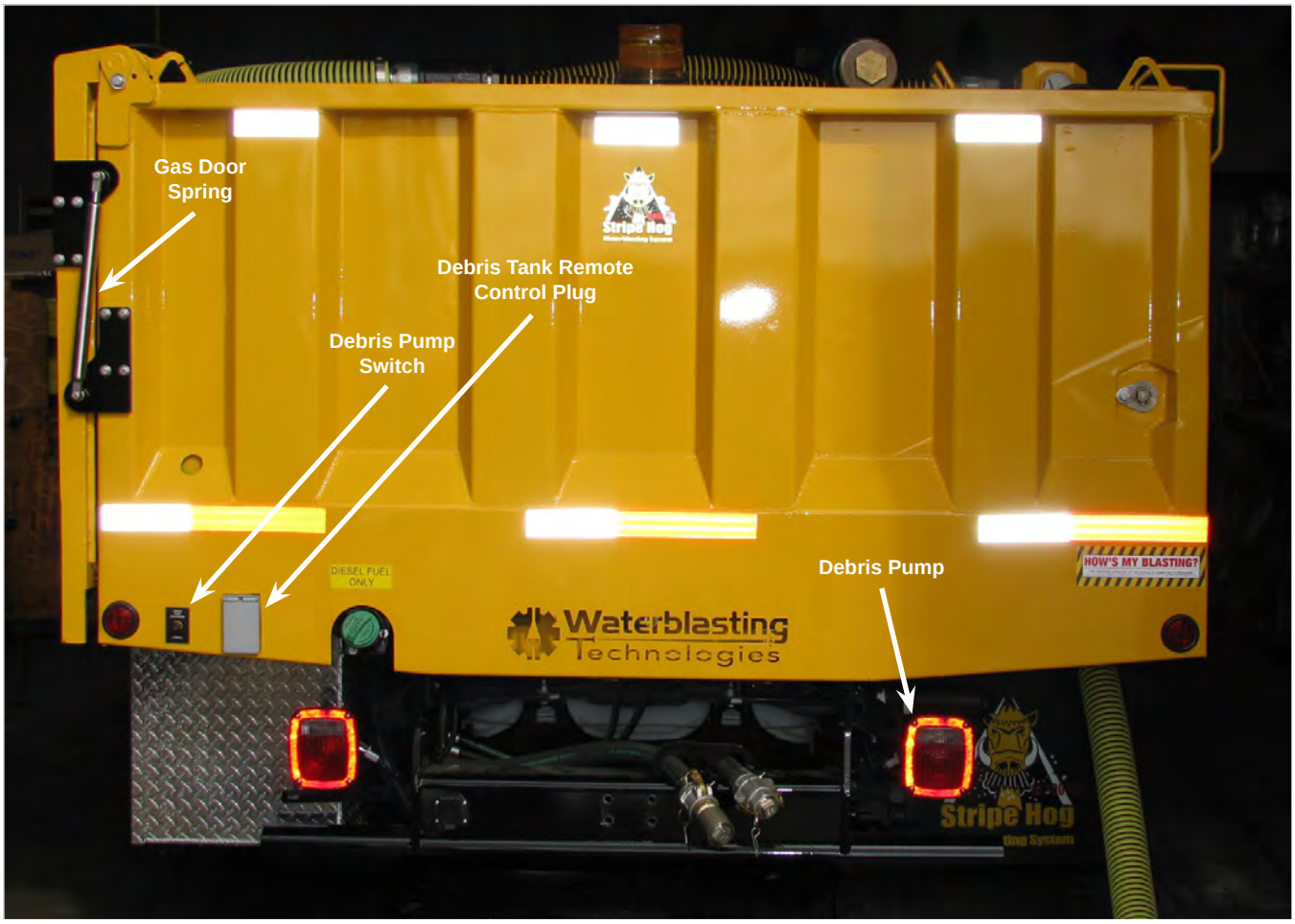
Open Debris Tank Door and Safety Strut

Periodic Maintenance:

- Inspect debris tank door seal to ensure good vacuum sealing and clean if necessary. Coat the seal periodically with silicone to help keep it pliable.
- Grease debris tank door hinges. Check the stainless steel cutoff ball valve that automatically shuts off the vacuum flow if the tank becomes full. Make sure it is free and not cracked or damaged. Clean or replace if necessary.
- Grease the hydraulic lift hinge pins and fittings weekly.
- Inspect safety strut. Make sure the hinge pins are tight and lubricate pins weekly.
- Lubricate the debris door gas spring pivot hinge pins weekly.
- Inspect and lubricate ball valves. Make sure to open and close all ball valves at least once each month to keep them free and operating properly.
- Check vacuum hoses regularly for deterioration or cracking. Replace any damaged hoses with new hoses.
- Rotate vacuum hoses in high wear locations weekly to increase their life.
- Inspect the debris liner for worn and broken parts. Clean and replace parts as necessary to keep the liner operating properly.

Debris Tank Door Clamps

Hydraulic Cylinders and Lubrication Points

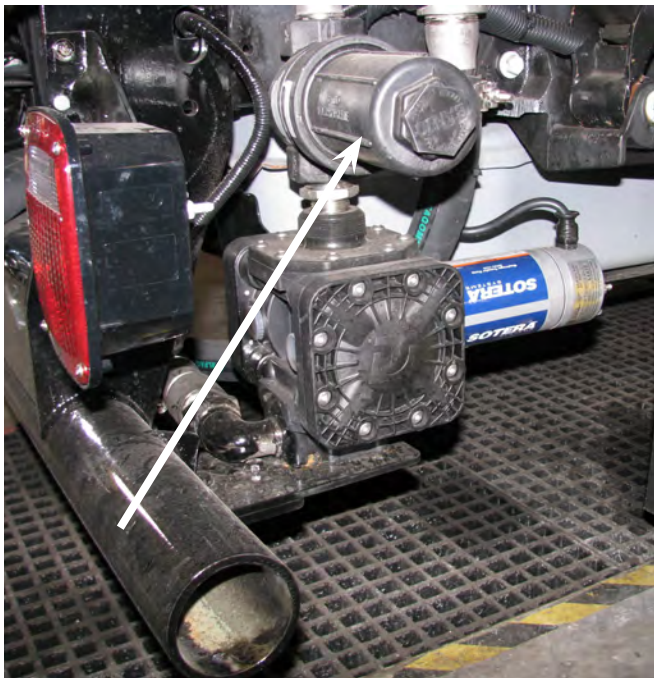


Debris Pump Location Below Debris Tank

Debris Pump and Strainer:
The debris pump is a self priming, heavy duty diaphragm pump that moves dirty water from the debris tank to an external tank or on the ground. The pump requires no routine maintenance, however, the strainer must be cleaned at least daily or when the flow of dirty water becomes restricted.

Cleaning the Debris Pump Strainer:

1. Turn the divert switch in the cab control panel OFF.
2. Deactivate the vacuum and waterblasting systems.
3. Rotate the strainer canister counterclockwise to release it. Then remove the canister.
4. Remove and clean the screen with fresh water.
5. Thoroughly flush out the filter canister.

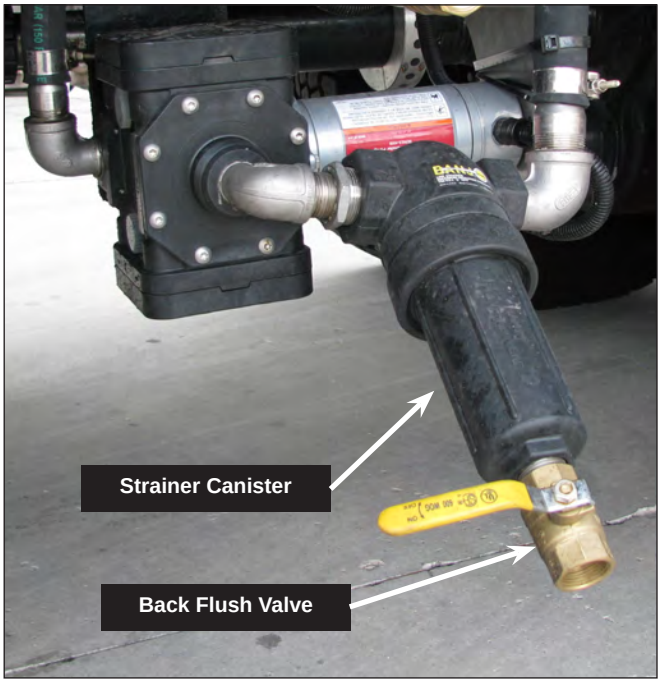


Actual Debris Pump Strainer Attached to Pump

6. Lubricate the O-ring lightly with silicon or Teflon grease and reinstall the screen and canister.
7. The pump will automatically prime when it is restarted by the float switch in the debris tank.

Back Flushing the Debris Pump Strainer:

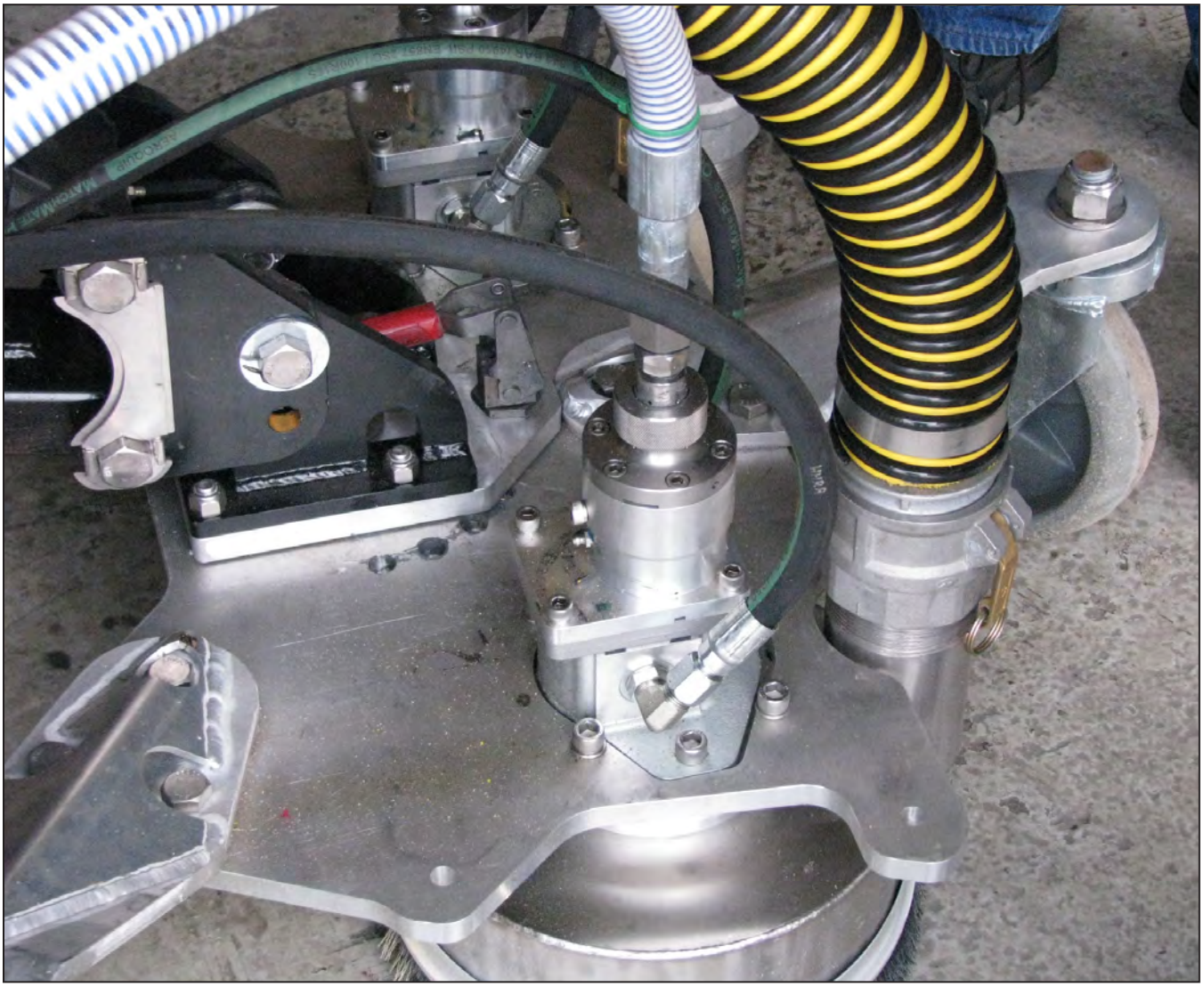
1. Make sure the dirty water level in the debris tank is at least 10” (25 cm) above the bottom of the tank.
2. Deactivate the vacuum and waterblasting systems.
3. Open the back flush valve on the bottom of the pump strainer.
4. Allow the water to flow until the muck is flushed from the strainer canister and screen.
5. Close the valve.



Typical Debris Pump, Strainer and Back Flush Valve (Pump & strainer shown is not the unit used on the SH5500. It is similar and for educational purposes.)

5.8 Lubrication Chart

Lubrication Chart			
Equipment	**Component**	**Intervals**	**Lubricant Specifications**
Truck Engine	Oil and Filter	Refer to truck operating manual	Refer to truck operating manual
Truck Transmission	Oil and Filter	Refer to truck operating manual	Refer to truck operating manual
Truck Differential	Differential Oil	Refer to truck operating manual	Refer to truck operating manual
Omsi Drive	Main Gearbox	After 1st 100 Hours Then every 600 Hours	Mobile Non Detergent 80w90
Hydraulic System	Hydraulic Oil Reservoir	Every 600 Hours	Napa – Aw68
Roots Vacuum Blower	Blower Crankcase Oil	After 1st 50 Hours Then Every 500 Hours	ISO VG 320 Roots Oil High Temp – Synthetic
Roots Vacuum Blower	Pulley End Bearings ***(Grease fittings)***	Daily ***(4 pumps each fitting)***	Shell Darina EP NLGI Grade #2 Grease - Product Code 71522
Jetstream Pump	Grease Points	Weekly	Mobil PolyRex EM Grease
Jetstream Pump	Crankcase Oil	After 1st 100 hours Then Every 500 Hours	High Grade 80w90 Gear Oil
NEVER RUN BLOWER OR JETSTEAM PUMP UNDER LOAD IF CRANKCASE OIL TEMPERATURE IS BELOW 60 DEGREES F (16 DEGREES C) **START ENGINE AND IDLE FOR 10 MINUTES UNDER LOAD UNTIL OIL WARMS ABOVE 60 DEGREES F (16 DEGREES C)**			
Hog Head	Thru-Shaft Motor Bearings	Daily	Mobil PolyRex EM Grease ***No Substitutes***
Hog Head	Chassis Wheels and Casters	Daily	Mobil PolyRex EM Grease
Hog Arm	Hog Arm Bearing Assemblies	Weekly	Mobil PolyRex EM Grease
Hog Arm	Hog Arm Hinges and Other Grease Fittings	Weekly	Mobil PolyRex EM Grease
Unit General Grease Points	Hydraulic Ram Pivots – Door Hinges – Waste Tank Tilt Pins – ETC.	Weekly ***More Frequently if Required***	Mobil PolyRex EM Grease
Unit General Lubrication Points	Vacuum Door Hinges – Ball Valves – Latches – ETC.	Weekly ***More Frequently if Required***	General Purpose Oil
This chart is a guide only and should never be used to supersede individual manufacturer's specifications. Please refer to your equipment manuals.			



6.1 Thru-Shaft Motor Bearing Pre-Load

The bearing preload setting in the thru-shaft hydraulic motor that spins the spray head is critical to the proper operation of the thru-shaft motor. The bearings are carefully preset at the factory. Then, each motor is run for several hours to break-in the bearings and components. When break-in is complete, the bearing preload is reset and the motors are tested again on the truck and with pressure applied. This normally ensures trouble free operation of the thru-shaft motors and they don't require further adjustment.

Even though every effort is made at the factory to ensure the through shaft motors are properly broken-in and will provide trouble free operation, there are situations where the bearing preload will need to be reset after the truck has been operating in the field for a period of time. Setting the bearing preload is not difficult and will not take much time. The following instructions will guide you through the bearing preload process and provide the information you need to do the job properly and in the shortest possible time.

The Instructions provide information on the tools and materials you will need as well as the step by step process. You can save time by reading the instructions completely before beginning and making sure you have all the tools and supplies you will need readily available.

If you have any questions or require assistance, please don't hesitate to contact Hog Technologies Customer Service at 772-223-7393.

Tools and Materials Required

Tools

2 - Medium Sized Flat Blade Screwdrivers

1 - Medium Sized Channel Lock Pliers

1 - 3/4" (19mm) Open End Wrench

1 - 15/16" (24mm) Open End Wrench

1 - 15/16" (24mm) Box End Wrench

1 - 15/16" (24mm) Deep Well Socket

1 - 1 1/8" (28mm) Deep Well Socket

1 - 1/2" Drive Rachet Wrench

1 - 1/2" Drive Torque Wrench

1 - Spanner socket (weldment tool)
(Supplied in your Truck Tool Kit)

1 - 6 mm Allen Wrench

Supplies

- Anti-Seize
- Grease Gun and Multi-Purpose Grease
- Rags or Paper Towels
- 9396K21 O-ring (Supplied in Spare Parts Kit)

Note:
Use anti-seize compound on bolt and thru-shaft threads and threaded hose connections to prevent galling.

WARNING

INJURIES FROM ULTRA HIGH PRESSURE WATERBLASTING IS VERY SERIOUS AND CAN RESULT IN A FATALITY. ALWAYS MAKE SURE ALL PERSONNEL ARE A SAFE DISTANCE FROM THE WORK AREA BEFORE THE PRESSURE PUMP IS ENGAGED. NEVER PUT HANDS, FEET OR ANY PART OF YOUR BODY IN OR NEAR THE HIGH PRESSURE STREAM.

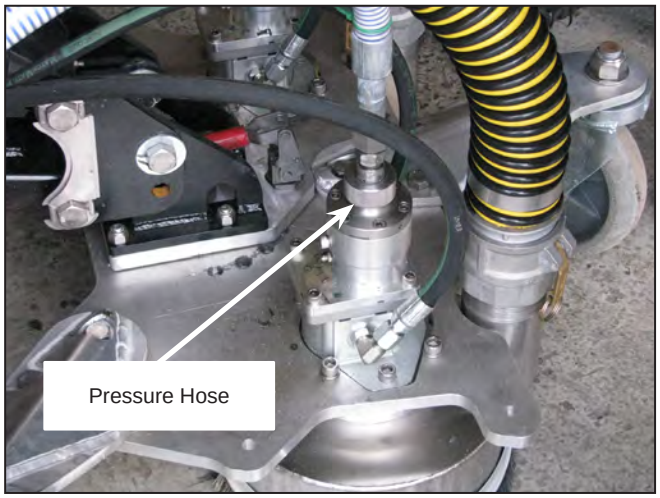


Figure 1: High pressure hose on top of the thru-shaft motor

Figure 2: High pressure hose removed

Step 1

Remove the High Pressure Hose

Remove the high pressure hose from the top of the thru-shaft motor by tuning the hand nut at the base of the hose counterclockwise. If the hand nut is too tight to turn by hand, use the channel lock pliers to free it, then continue loosening it by hand. Figure 1 and 2.

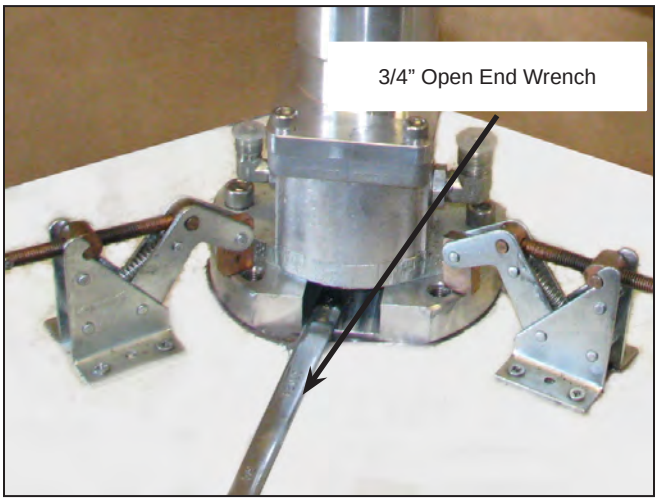


Figure 3: Thru-shaft motor on work bench showing position of slot and 3/4" open end wrench.

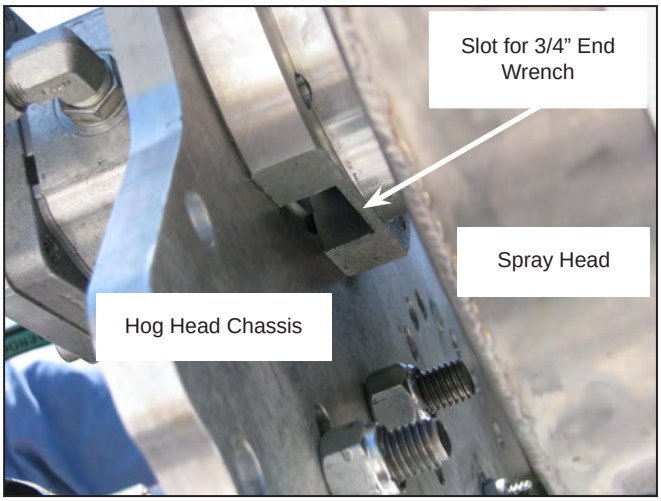


Figure 4: Location of slot in thru-shaft motor mounted on hog head for 3/4" open end wrench.

Step 2

Insert Wrench to Hold Thru-Shaft

Insert the 3/4" (19mm) open end wrench through the slot in the base of the thru-shaft motor. The slot is located between the hog head chassis and the spray head. Figure 3 and 4.

Figure 5: Use two medium flat head screwdrivers to remove the thrust housing cap. Note that the bolts are loose and left in place to prevent thrust housing cap from falling and being damaged during removal.

Step 3

Remove Thrust Housing Cap

Use a 6mm Allen wrench to remove the 6 Allen head bolts that secure the thrust housing cap to the thrust housing. Make sure to leave each bolt loose and turned 3 threads in as shown in figure 5. The loosened bolts will allow the cap to be removed and prevent the possibility of the cap falling once it is free from the thrust housing.

Use the two medium sized, flat head screwdrivers and insert them into the slots at each side of the base of the thrust housing cap. Slowly and carefully twist the screwdrivers to work the cap evenly off the thrust housing until it is free. Figure 5.

Note that the O-ring seal in the thrust housing cap will provide some resistance until it is clear of the thrust housing. The cap will tend to "pop" slightly when the O-ring clears the base.

Once the thrust housing cap is free, remove the Allen bolts and the cap.

Inspect the cap and O-ring seal for damage. Replace O-ring if necessary and place the cap assembly in a safe, clean location. Figure 6.

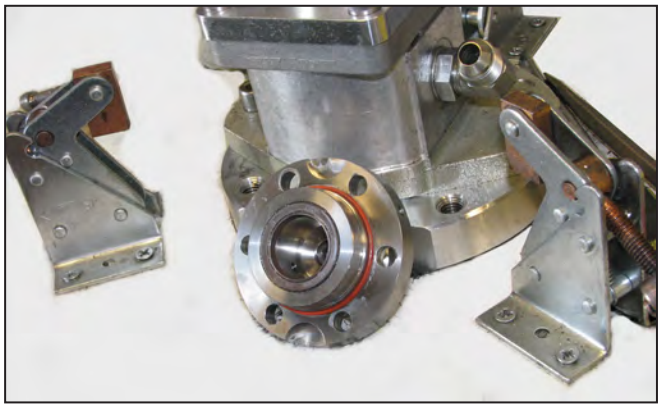


Figure 6: Thrust housing cap removed. Note the O-ring seal and the slots for the screwdrivers. Make sure the cap and O-ring is in good condition and clean.

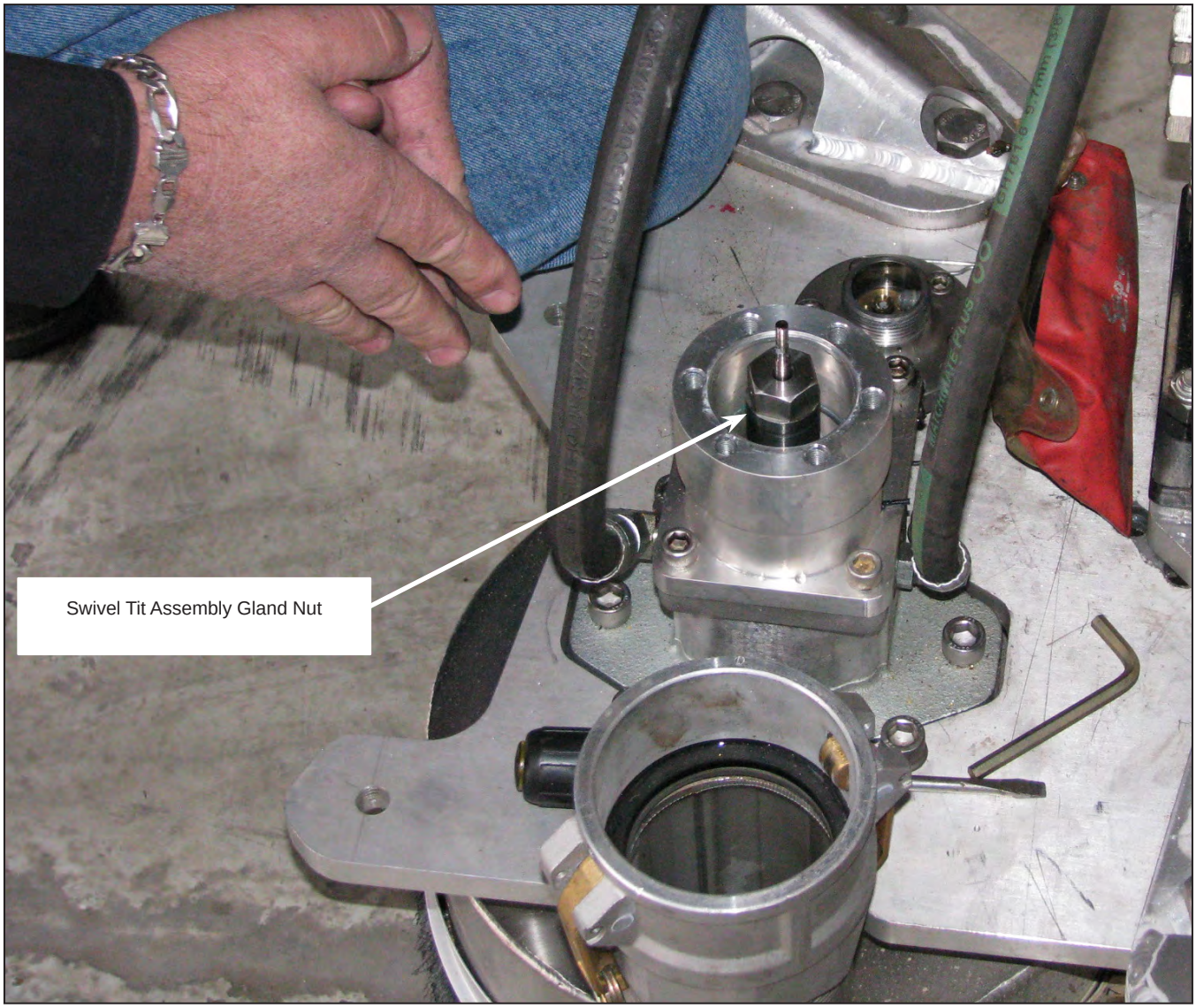


Figure 7: Swivel Tit assembly/gland nut to be removed by turning counterclockwise with a 15/16" deep well socket or box end wrench.

Step 4

Remove Swivel Tit Assembly/Gland Nut

While holding the thru-shaft with the 3/4" (19mm) open end wrench through the slot in the motor base, use a 15/16 (24mm) deep well socket or box end wrench to remove the swivel tit assembly/ gland nut by turning it counterclockwise. Inspect the swivel tit assembly and set it in a safe, clean location. Figure 7 and 8.

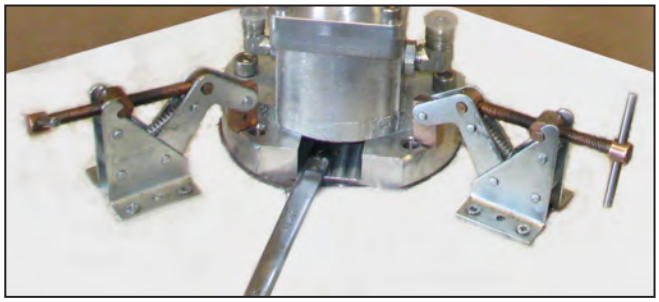


Figure 8: 3/4" (19mm) open end wrench holding thru-shaft and preventing it from turning while removing swivel tit assembly/gland nut.

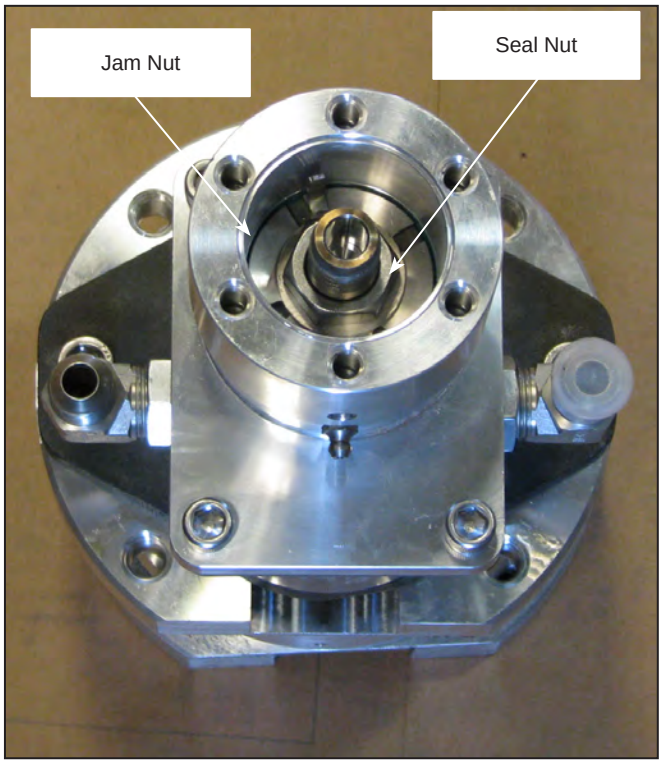


Figure 9: Jam nut and seal nut. Make sure to loosen Jam nut 4 full turns first.

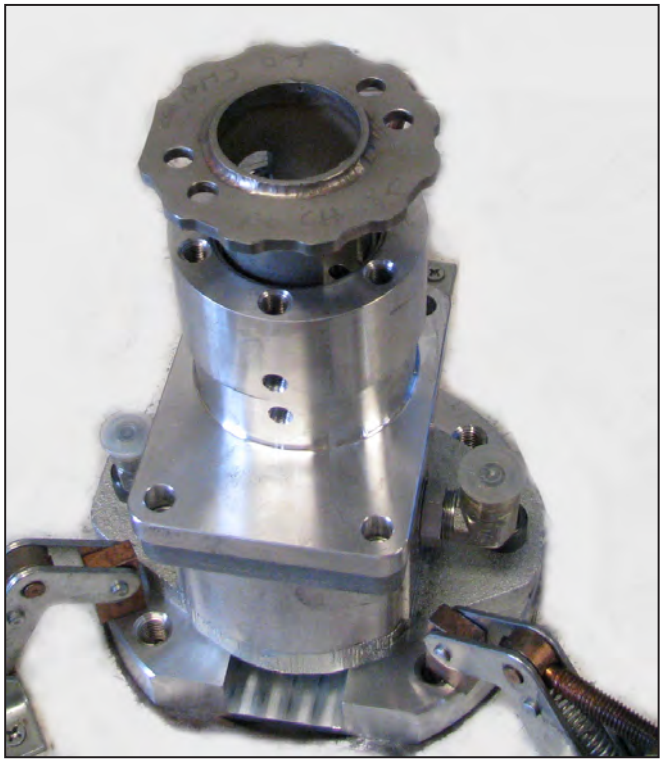


Figure 10: Use spanner socket (weldment tool) to turn seal nut.

Step 5

Loosen Jam Nut and Set the Bearing Preload

While holding the thru-shaft with the 3/4" (19mm) open end wrench through the slot in the motor base, use a 1 1/8" (28mm) deep well socket to loosen the jam nut by turning it counterclockwise. Loosen the jam nut 4 full turns and stop. Figure 8 and 9.

While holding the thru-shaft with 3/4" (19mm) open end wrench, use the spanner socket (weldment) tool to Loosen the seal nut 2 full turns. Then put a rag on the spanner socket for padding and tighten the seal nut as tight as you can by hand to set the bearing. Figure 8 and 10.

Once the bearing is set, loosen the seal nut 2 full turns.

Hold the thru-shaft firmly with the 3/4" (19mm) open end wrench and use the spanner socket to hand tighten the seal nut until it is "snug." ***Do not over-tighten!!*** Figure 8 and 10.

Then hold the thru-shaft firmly with 3/4" open end wrench so it doesn't move at all and set the bearing preload by carefully loosening the spanner socket and seal nut one bolt hole. Then thread 2 - 3/8" thrust housing cap bolts through the holes in the spanner socket and into the threaded holes in the thrust housing to hold the spanner socket in that position. Figure 11.

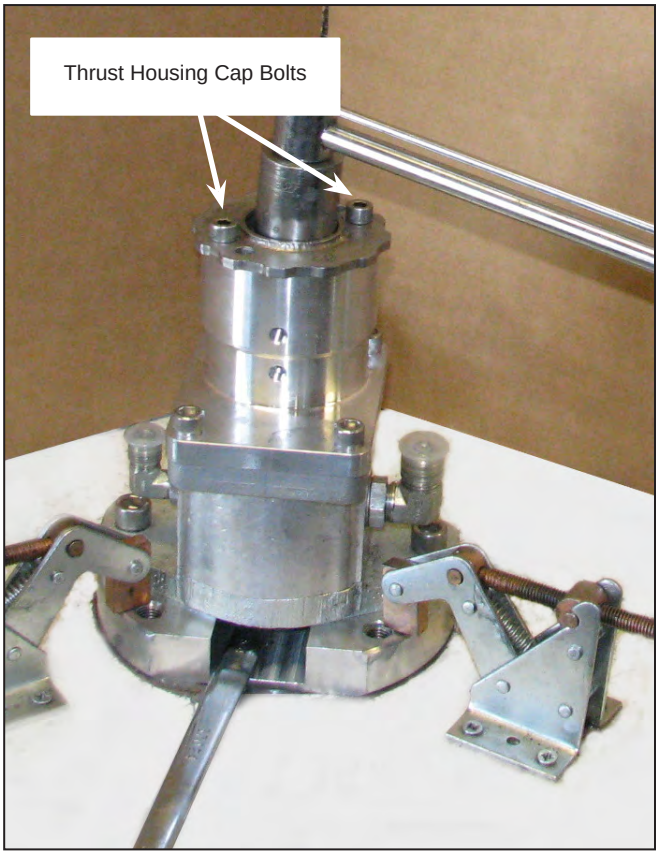


Figure 11: Spanner socket secured with thrust housing cap bolts.

WARNING

WHEN LOOSENING THE SPANNER SOCKET AND SEAL NUT ONE BOLT HOLE TO SET THE BEARING PRELOAD OR WHEN TIGHTENING THE JAM NUT, IT IS CRITICAL THAT THE THRU-SHAFT IS HELD FIRMLY WITH THE 3/4" (19MM) OPEN END WRENCH SO THAT IT DOES NOT MOVE AT ALL. IF THE WRENCH AND THRU-SHAFT MOVE DURING THIS PROCEDURE, THE BEARING PRELOAD WILL BE INCORRECT AND THE THRU-SHAFT MOTOR WILL NOT OPERATE PROPERLY.

IF THE THRU-SHAFT MOVES DURING WHILE SETTING THE BEARING PRELOAD, YOU MUST REPEAT STEP 5 TO ENSURE PROPER BEARING PRELOAD.

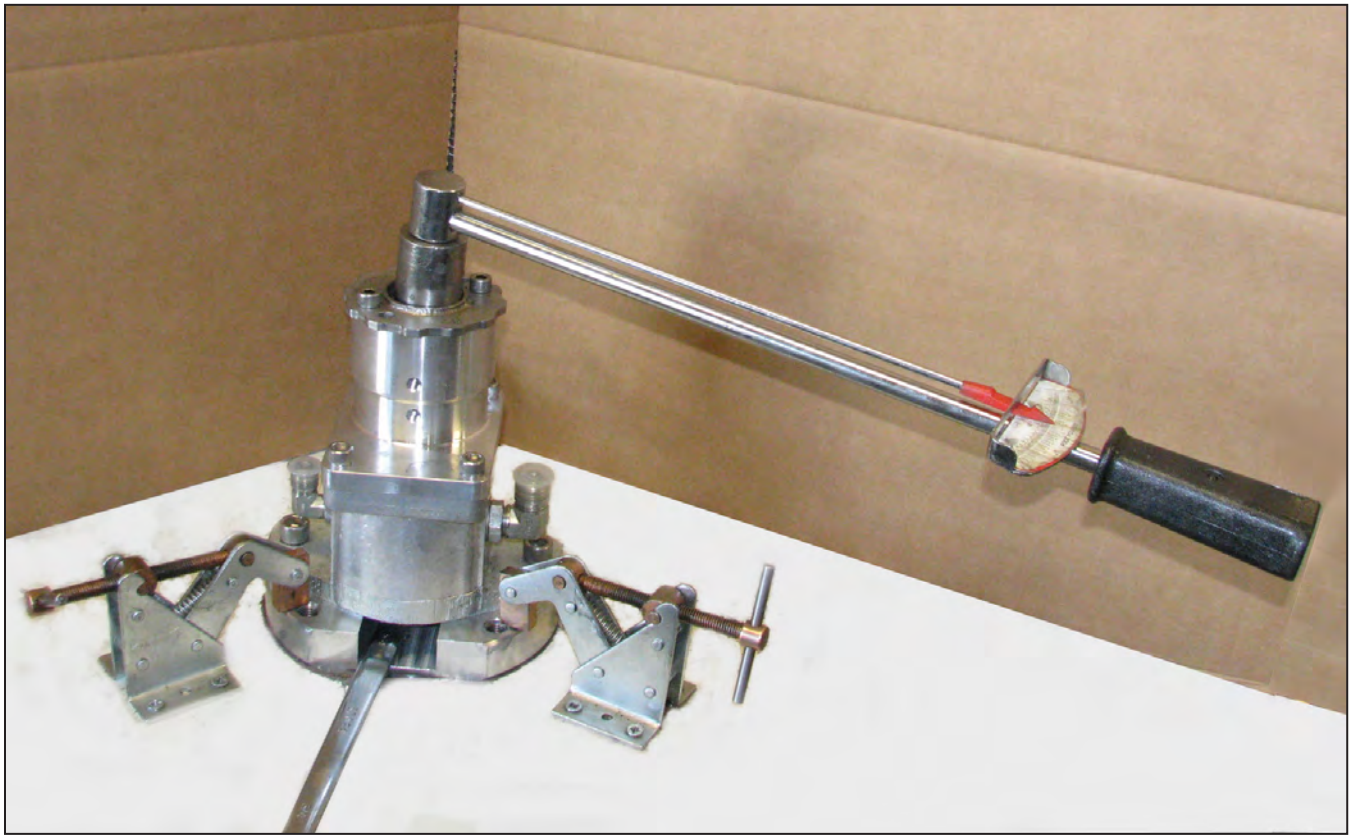


Figure 12: Thrust housing cap bolts securing the spanner socket are snug and a torque wrench and 1 1/8" deep well socket is used to tighten the jam nut to 50 Ft lbs.

Step 6
Set the Jam Nut Torque and Remove Spanner socket (Weldment Tool)

Tighten the bolts holding the spanner socket to "snug."

While holding the thru-shaft with the 3/4" (19mm) open end wrench through the slot in the motor base and the spanner socket held with the thrust housing cap bolts, use a 1 1/8" (28mm) deep well socket and a torque wrench to tighten the jam nut to 50 ft lbs. Figure 12. ***Make sure the thru-shaft and 3/4" (19mm) open end wrench do not move at all during this procedure!!***

Remove the thrust housing cap bolts from the spanner socket and remove it from the housing. Now it is safe to move the thru-shaft.

Figure 13: O-ring seal at the top of the thru-shaft greased and the threads below the seal coated with anti-seize.

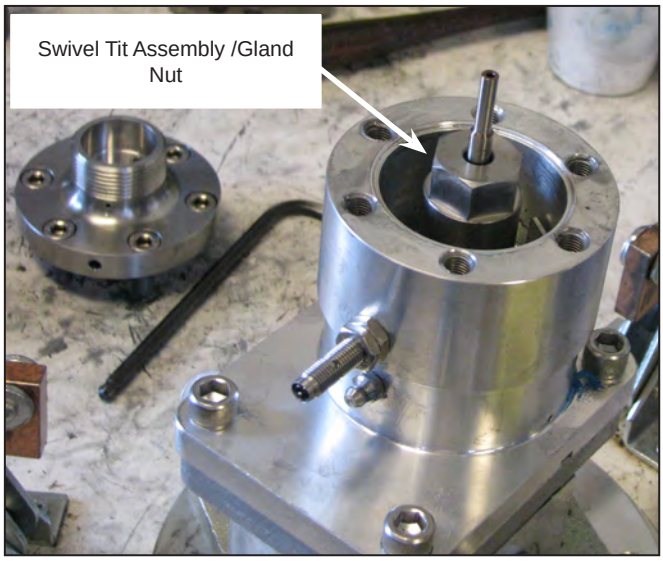


Figure 14: Swivel tit assembly/gland nut installed on the thru-shaft and torqued to 50 Ft lbs.

Step 7

Install the Swivel Tit Assembly/Gland Nut.

Inspect the O-ring seal near the top of the thru-shaft and make sure it is not damaged. Replace the O-ring if it shows any sign of nicks, cuts, deterioration or wear. Then apply a light layer of grease to the O-Ring. The grease will help the swivel tit assembly slide over the O-ring and reduce the possibility for the O-ring to be pushed out of the seat or damaged as the swivel tit assembly is installed. Figure 13.

Apply anti-seize to the thru-shaft threads. The anti-seize is extremely important and will prevent the stainless steel threads on the shaft and swivel tit assembly from galling and seizing. ***If anti-seize is not used and the threads seize, the thru-shaft and the swivel tit assembly will be ruined and the thru-shaft motor will have to be completely disassembled and rebuilt!!***

While holding the thru-shaft with the 3/4" (19mm) open end wrench, install the swivel tit assembly/gland nut and hand tighten. Then use a 15/16" (24mm) deep well socket and a torque wrench to tighten swivel tit assembly/gland nut to 50 ft lbs. Figure 14.

Step 8

Install the Thrust Housing Cap.

Inspect the O-ring seal in the thrust housing cap. Replace the O-ring if it shows any sign of nicks, cuts, deterioration or wear. Then apply light layer of grease to the O-Ring. The grease will help the cap assembly slide into the torque housing and reduce the possibility for the O-ring to be pushed out of the seat or damaged as the assembly is installed. Figure 15.

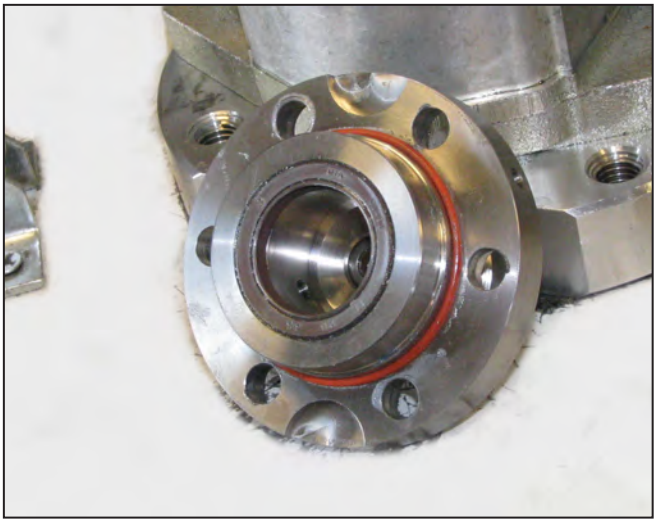


Figure 15: Inspect and grease the O-ring seal on the thrust housing cap.

Step 8 (cont)
Set the thrust housing cap on top of the thrust housing and carefully press it into the housing. Align the bolt holes in the cap to the threaded holes in the thrust housing. Apply Anti-seize to the 3/8" Allen bolts and hand tighten using a crisscross pattern. Use the 6mm Allen wrench to tighten the thrust housing cap bolts to "snug" using a crisscross pattern. Figure 16.

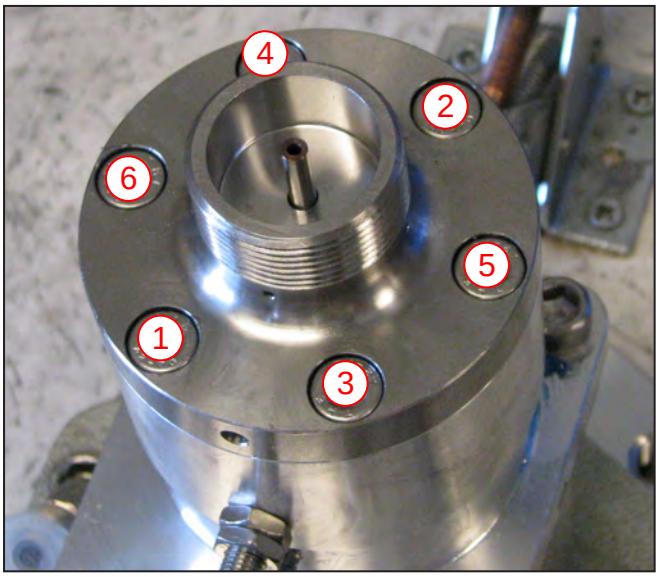


Figure 16: Apply anti-seize to the thrust housing bolts and tighten them in a crisscross pattern to "snug" using a 6mm Allen wrench.

Figure 17: Apply anti-seize to the thrust housing threads and install the high pressure water line.

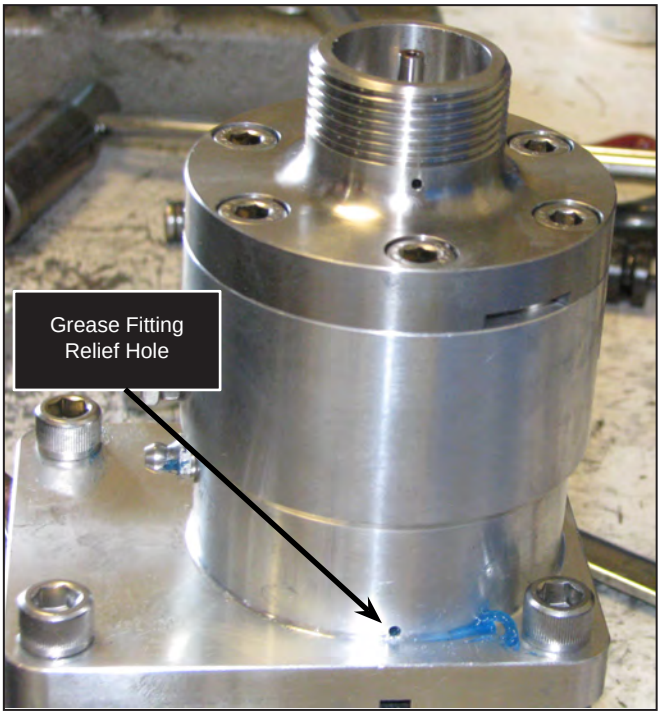


Figure 18: Thru-shaft bearing grease fitting and grease relief holes in thrust housing base.

Step 9
Install the High Pressure Water Hose and Grease the Thru-Shaft Bearings.
Apply anti-seize to the threads on the top of the thrust housing cap and install the high pressure water hose. Hand tighten the hand nut on the pressure hose.

Use a grease gun and apply grease to the thru-shaft bearing until grease comes out of the relief hole on the side of the thrust housing.

Step 10

Run the Thru-Shaft Motor Without Water Pressure, Then Under Full Water Pressure.

Remove all tools and materials from the hog head and raise it to the full up position.

Activate the hydraulic system and run the thru-shaft motor at maximum rpm for 15 minutes. ***Make sure not to apply water pressure during this step.***

Running motor without water pressure will fully test the thru-shaft motor operation and allow the bearings and seals to work themselves in. If the spray bar does not turn initially, use a 2' piece of wood or a broom handle to rotate the spray head counterclockwise to get it started. Figure 19.

If the thru-shaft motor is assembled properly, it will start on its own each time it is activated from this point forward. If it continues to stall on start up, contact Hog Technologies Customer Service for assistance.

Once the initial run up is complete and with the spray head still turning at maximum rpm, make sure all personnel are well clear of the spray head and apply full water pressure. Run the thru-shaft motor for another 15 minutes. Figure 20.

When testing is complete and with the unit still running at maximum pressure, check the weep holes in the thrust housing cap just below the high pressure hose connection for water leakage. If water is dripping from the holes, the swivel seal in the hose fitting will need to be changed. If no water is dripping from the weep holes and the spray bar is still rotating at maximum rpm, your unit is ready to be put back into service. Figure 21.

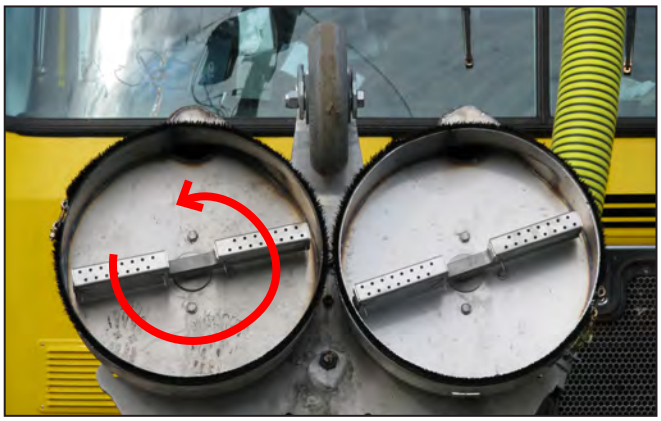


Figure 19: Counterclockwise spray head rotation. Operate 1st 15 minutes at maximum rpm with no water pressure.

Figure 20: Operate another 15 minutes at maximum rpm and full water pressure.

WARNING

INJURIES FROM ULTRA HIGH PRESSURE WATERBLASTING ARE VERY SERIOUS AND CAN RESULT IN A FATALITY. ALWAYS MAKE SURE ALL PERSONNEL ARE A SAFE DISTANCE FROM THE WORK AREA BEFORE THE PRESSURE PUMP IS ENGAGED. NEVER PUT HANDS, FEET OR ANY PART OF YOUR BODY IN OR NEAR THE HIGH PRESSURE STREAM.

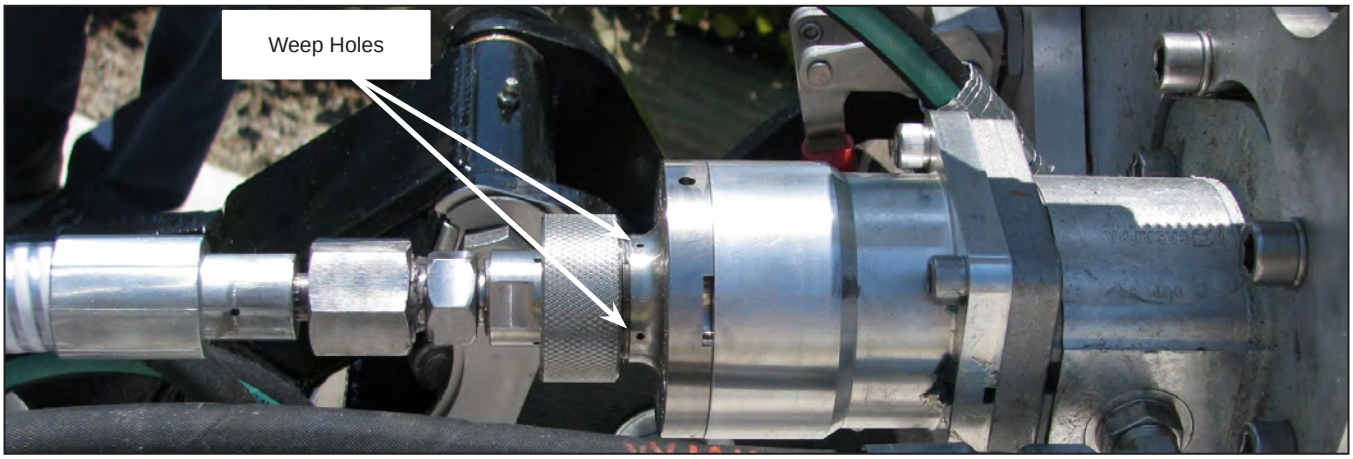
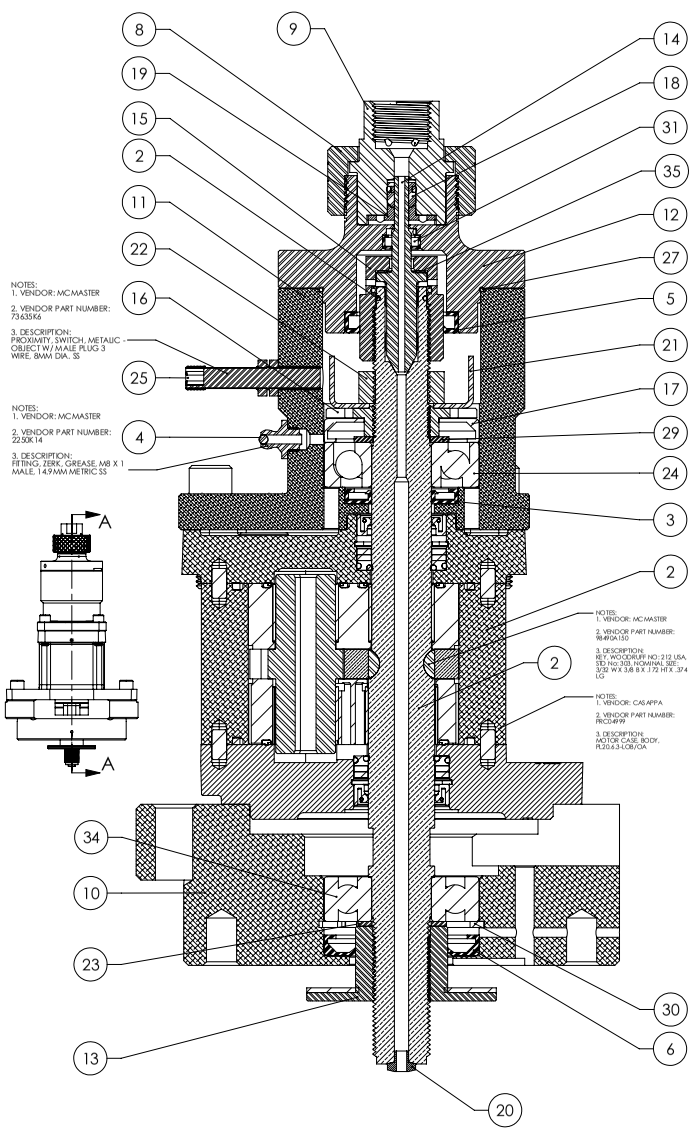


Figure 21: Check for water dripping from weep holes just below the high pressure water hose connection.



WATERBLASTING TECHNOLOGIES REVISIONS				
REV.	ZONE	DESCRIPTION	DATE	ENG APPROVAL
01	-	INITIAL CHECK-IN	7/25/2008	DG
02	-	REVISED TO REFLECT CHANGES ON THE ASSEMBLY	10/24/2008	DG
B	-	OVEALL REVIEW	12/3/2010	DG

(35) **USE ONLY ACCORDING TO ENGINEERING RECOMMENDATIONS**

ITEM NO.	20025-001/QTY.	ENG. PART NUMBER	PART NUMBER	DESCRIPTION	VENDOR
1	4	1173541	1173541	SHCS, 3/8-16 X 1-1/4, SS	
2	1	20026-001	20026-001	MOTOR, THRU SHAFT, HOG HEAD, ROTATION, CASAPPA	VARIOUS
3	1	203800ADL	203800ADL	SEAL 20 X 38 X 5MM	MOTION
4	1	2250K14	2250K14	FITTING, ZERK, GREASE, M8 X 1 MALE, 14.9MM METRIC SS	MCMASTER
5	1	283807ADL	283807ADL-VITON	SEAL 28 X 38 X 7MM	MOTION
6	1	315207ADL	MP1006FC	SEAL 31 X 52 X 7MM	MOTION
7	1	50097-001	MP1006FG-1	SEAL, FELT, GASKET, DIRT .063 THICKNESS	WATERBLASTING
8	1	50098-001	MP6504	DETAIL, NUT, SWIVEL	MP MANUFACTRING
9	1	50099-001	MP6524	DETAIL, ADAPTER, SWIVEL, SEAL	MP MANUFACTRING
10	1	50100-001	CS1000-TS1	DETAIL, ADAPTER, FLANGE, THRU SHAFT, HOG HEAD	MP Manufacturing
11	1	50101-001	CS1000-TS2	DETAIL, HOUSING, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP Manufacturing
12	1	50102-001	CS1000-TS3	DETAIL, COVER, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP MANUFACTURING
13	1	50103-001	MP1006A	DETAIL, SHIELD, DIRT, THRU SHAFT, HOG HEAD	MP MANUFACTURING
14	1	50105-001	CS1000-SHT2	DETAIL, TIT, SWIVEL, HOG HEAD 0.0860 BORE	VARIOUS
15	1	50106-001	CS1000-SHT3	DETAIL, NUT, GLAND, THRU SHAFT, HOG HEAD	MP MANUFACTURING
16	1	50107-001	CS1000-TSN3	DETAIL, NUT, SEAL, GREASE, THRU SHAFT, HOG HEAD	MP MANUFACTURING
17	1	5154T69	5154T69	SEAL 25 X 52 X 8MM	MCMASTER
18	1	52052-001	MP2253	SEAL, SWIVEL	
19	1	52100-001	MP2752	RING, BACKUP, BRASS	SMU
20	1	52102-001	MP1008	SEAL, BRASS BUTTON	VARIOUS
21	1	70153-001	CS1000-TSN4	FABRICATION, WASHER, COUNTER, THRU SHAFT, HOG HEAD	WEST GATE SHEET METAL
22	1	70837	70837	NUT, JAM, 3/4-16 SS	FASTENAL
23	1	72273-001	72273-001	FABRICATION, SPACER, DIRT SHIELD, THRU-SHAFT	DONOVANS
24	1	7304WN	7304WN	BEARING, ANGULAR CONTACT BALL, 20x52x15 MED 7300WN SERIES	
25	1	73635K6	73635K6	PROXIMITY, SWITCH, METALIC - OBJECT W/ MALE PLUG 3 WIRE, 8MM DIA. SS	MCMASTER
26	1	9396K103	9396K103	O-RING, SILICONE, 11/16" ID X 13/16" OD X 1/16"Ø, AS568A DASH NUMBER 017	MCMASTER
27	1	9396K113	9396K113	O-RING, 2 X 2-1/8 X 1/16 WIDTH, SILICONE (AS568A)	MCMASTER
28	1	9396K21	9396K21	O-RING, SILICONE, 9/16" ID X 11/16" OD X 1/16"Ø, AS568A DASH NUMBER 015	MCMASTER
29	1	97063A124	97063A124	SHIM, ROUND, 3/4 X 1-1/4 X .075	MCMASTER
30	1	B27.7M-3BM1-52	B27.7M-3BM1-52	RING, INTERNAL RETAINING, STEEL, 52MM	
31	1	BR1001	BR1001	SEAL, UPPER, SWIVEL SHAFT	MOTION INDUSTRIES
32	6	MS2580025A2000	MS2580025A2000	SCREW, SHCS, M8-1.25 x 25MM, SS	
33	2	MS2650025A20000	MS2650025A20000	SCREW, SHCS, M12-1.75 X 25MM, SS	
34	1	SKF-6304-FULL	SKF-6304-FULL	BEARING, RADIAL, 20 X 52 X 15, TWO SEALS	
35	1	60266-001	60266-001	WASHER, BRASS, COMPRESSION, SWIVEL TIT .375in ID x .625in OD. x .025in Thick Rockwell B77	MCMASTER

Waterblasting Technologies
3341 S.E. SLATER STREET
STUART, FLORIDA 34997
(772) 223-7393

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-	-	
-	-	
-	-	
-	-	
-	-	
N/A	-	
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONS ±1/32
ANG: MACH ± 0°30' BEND ± 2°
DECIMALS .XX ± .01
.XXX ± .005
HOLE Ø .XX ± .005
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5M
MATERIAL N/A
FINISH N/A
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	DG	7/15/2008
CHECKED	DG	-
ENG APPR.	DG	02/26/08
MFG APPR.	-	-
Q.A.	-	-

PERP ⊥ .003/IN
STRAIGHTNESS — .005/IN
FLATNESS ▱ .005/IN
THREADS:
EXTERNAL - CLASS 2A
INTERNAL - CLASS 2B
MACHINED SURFACES: 63 U.O.S

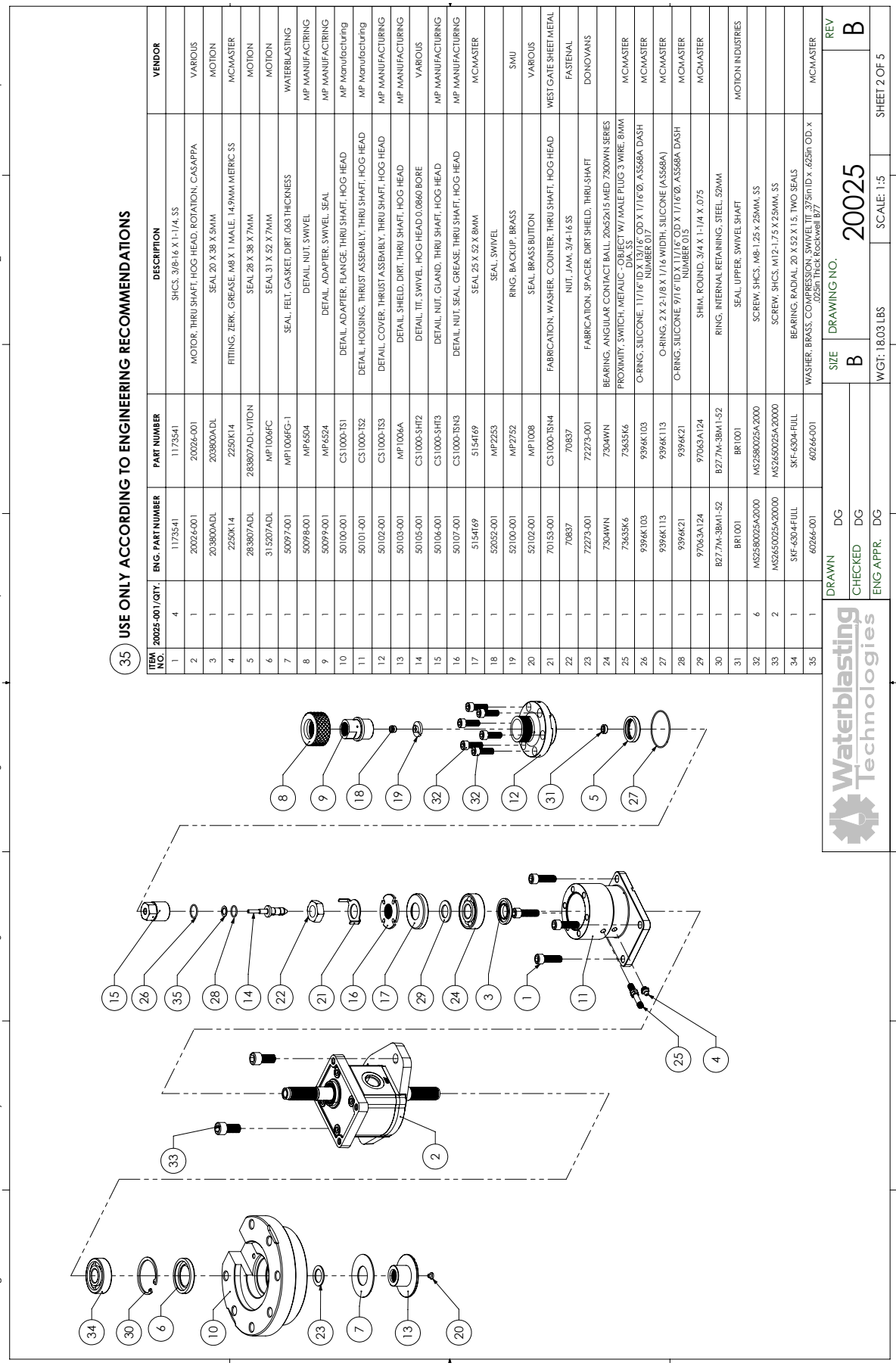
TITLE: ASSEMBLY, HEAD, THRU, SHAFT, HOG HEAD

PART NO. 20025-001

SIZE	DWG. NO.	REV
B	20025	B

OLD PART NO. CS1000-TS

SCALE: 2:3 | WGT: 18.03 LBS | SHEET 1 OF 5



(35) USE ONLY ACCORDING TO ENGINEERING RECOMMENDATIONS

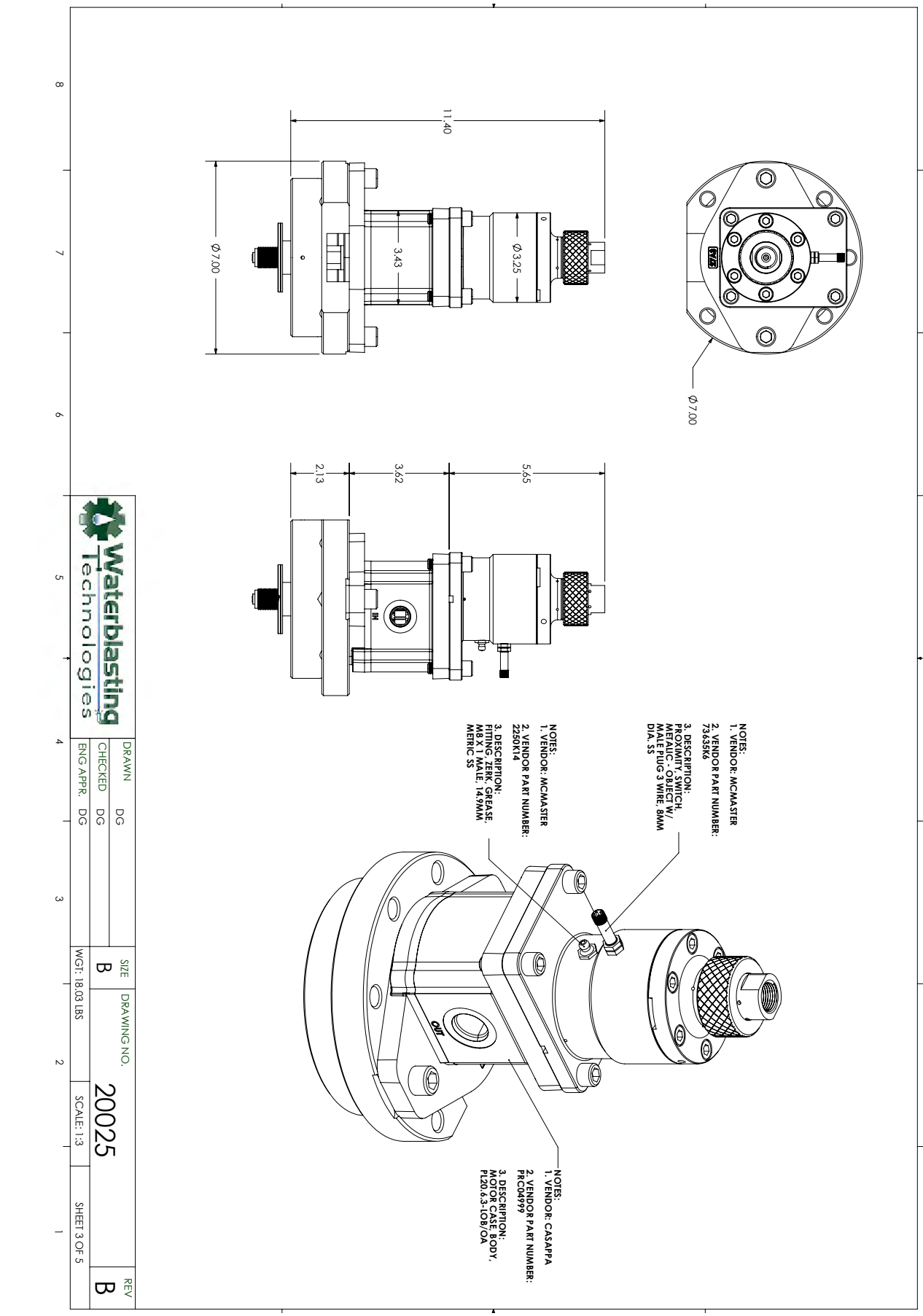
ITEM NO.	20025-001/QTY.	ENG. PART NUMBER	PART NUMBER	DESCRIPTION	VENDOR
1	4	1173541	1173541	SHCS, 3/8-16 X 1-1/4, SS	
2	1	20026-001	20026-001	MOTOR, THRU SHAFT, HOG HEAD, ROTATION, CASAPPA	VARIOUS
3	1	203800ADL	203800ADL	SEAL 20 X 38 X 5MM	MOTION
4	1	2250K14	2250K14	FITTING, ZERK, GREASE, M8 X 1 MALE, 14.9MM METRIC SS	MCMASTER
5	1	283807ADL	283807ADL-VITON	SEAL 28 X 38 X 7MM	MOTION
6	1	315207ADL	MP1006FC	SEAL 31 X 52 X 7MM	MOTION
7	1	50097-001	MP1006FG-1	SEAL, FELT, GASKET, DIRT .063 THICKNESS	WATERBLASTING
8	1	50098-001	MP6504	DETAIL, NUT, SWIVEL	MP MANUFACTRING
9	1	50099-001	MP6524	DETAIL, ADAPTER, SWIVEL, SEAL	MP MANUFACTRING
10	1	50100-001	CS1000-TS1	DETAIL, ADAPTER, FLANGE, THRU SHAFT, HOG HEAD	MP Manufacturing
11	1	50101-001	CS1000-TS2	DETAIL, HOUSING, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP Manufacturing
12	1	50102-001	CS1000-TS3	DETAIL, COVER, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP MANUFACTURING
13	1	50103-001	MP1006A	DETAIL, SHIELD, DIRT, THRU SHAFT, HOG HEAD	MP MANUFACTURING
14	1	50105-001	CS1000-SHT2	DETAIL, TIT, SWIVEL, HOG HEAD 0.0860 BORE	VARIOUS
15	1	50106-001	CS1000-SHT3	DETAIL, NUT, GLAND, THRU SHAFT, HOG HEAD	MP MANUFACTURING
16	1	50107-001	CS1000-TSN3	DETAIL, NUT, SEAL, GREASE, THRU SHAFT, HOG HEAD	MP MANUFACTURING
17	1	5154T69	5154T69	SEAL 25 X 52 X 8MM	MCMASTER
18	1	52052-001	MP2253	SEAL, SWIVEL	
19	1	52100-001	MP2752	RING, BACKUP, BRASS	SMU
20	1	52102-001	MP1008	SEAL, BRASS BUTTON	VARIOUS
21	1	70153-001	CS1000-TSN4	FABRICATION, WASHER, COUNTER, THRU SHAFT, HOG HEAD	WEST GATE SHEET METAL
22	1	70837	70837	NUT, JAM, 3/4-16 SS	FASTENAL
23	1	72273-001	72273-001	FABRICATION, SPACER, DIRT SHIELD, THRU SHAFT	DONOVANS
24	1	7304WN	7304WN	BEARING, ANGULAR CONTACT BALL, 20x52x15 MED 7300WN SERIES	
25	1	73635K6	73635K6	PROXIMITY, SWITCH, METALIC - OBJECT W/ MALE PLUG 3 WIRE, 8MM DIA, SS	MCMASTER
26	1	9396K103	9396K103	O-RING, SILICONE, 11/16" ID X 13/16" OD X 1/16"Ø, AS568A DASH NUMBER 017	MCMASTER
27	1	9396K113	9396K113	O-RING, 2 X 2-1/8 X 1/16 WIDTH, SILICONE (AS568A)	MCMASTER
28	1	9396K21	9396K21	O-RING, SILICONE, 9/16" ID X 11/16" OD X 1/16"Ø, AS568A DASH NUMBER 015	MCMASTER
29	1	97063A124	97063A124	SHIM, ROUND, 3/4 X 1-1/4 X .075	MCMASTER
30	1	B27-7M-3BM1-52	B27-7M-3BM1-52	RING, INTERNAL RETAINING, STEEL, 52MM	
31	1	BR1001	BR1001	SEAL, UPPER, SWIVEL SHAFT	MOTION INDUSTRIES
32	6	MS25800025A2000	MS25800025A2000	SCREW, SHCS, M8-1.25 x 25MM, SS	
33	2	MS26500025A20000	MS26500025A20000	SCREW, SHCS, M12-1.75 X 25MM, SS	MCMASTER
34	1	SKF-6304-FULL	SKF-6304-FULL	BEARING, RADIAL, 20 X 52 X 15, TWO SEALS	MCMASTER
35	1	60266-001	60266-001	WASHER, BRASS, COMPRESSION, SWIVEL TIT, .375in ID x .625in OD x .025in Thick, Rockwell B77	MCMASTER

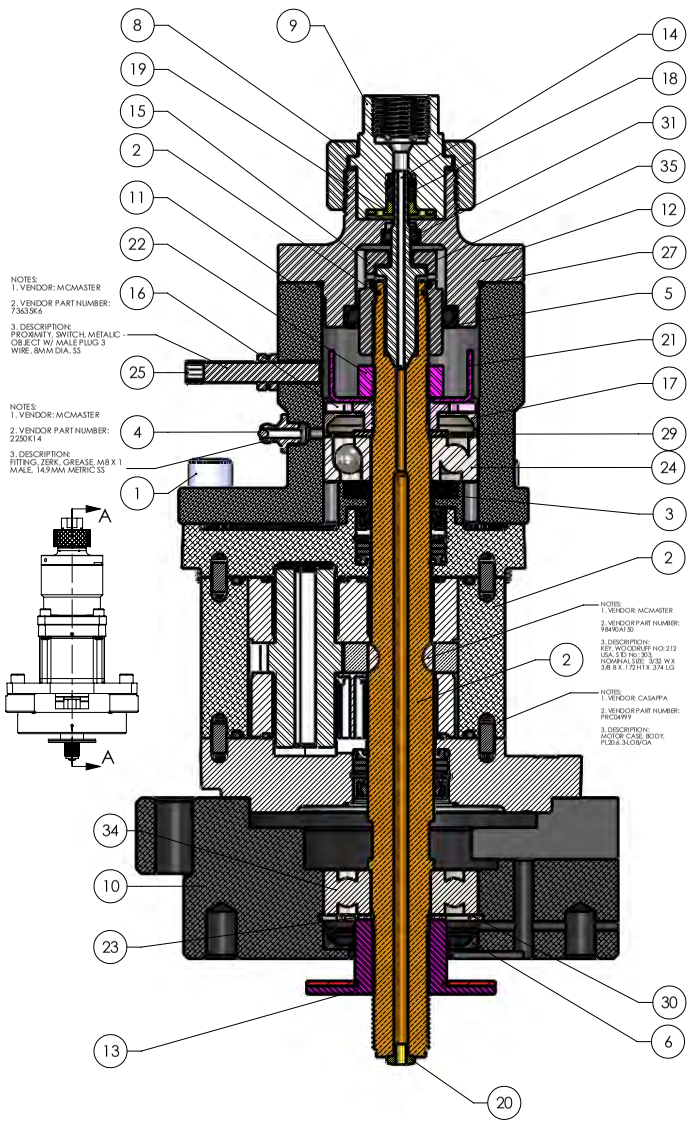
Waterblasting Technologies

DRAWN DG
CHECKED DG
ENG APPR. DG

SIZE B
DRAWING NO. 20025
REV B

WGT: 18.03 LBS
SCALE: 1:5
SHEET 2 OF 5


11.40
Ø7.00
3.43
Ø3.25
Ø7.00
5.65
3.62
2.13
NOTES:
1. VENDOR: MCMASTER
2. VENDOR PART NUMBER:
7363SK6
3. DESCRIPTION:
PROXIMITY SWITCH,
METALLIC - OBJECT W/
MALE PLUG 3 WIRE, 8MM
DIA. SS
NOTES:
1. VENDOR: MCMASTER
2. VENDOR PART NUMBER:
2250K14
3. DESCRIPTION:
FITTING, ZERK, GREASE,
M8 X 1 MALE, 14.9MM
METRIC SS
NOTES:
1. VENDOR: CASAPPA
2. VENDOR PART NUMBER:
PRC04999
3. DESCRIPTION:
MOTOR CASE, BODY,
PL20.6.3-LOB/OA
Waterblasting Technologies
DRAWN DG
CHECKED DG
ENG APPR. DG
SIZE B
DRAWING NO. 20025
REV B
WGT: 18.03 LBS
SCALE: 1:3
SHEET 3 OF 5



35 **USE ONLY ACCORDING TO ENGINEERING RECOMMENDATIONS**

ITEM NO.	20025-001/QTY.	ENG. PART NUMBER	PART NUMBER	DESCRIPTION	VENDOR
1	4	1173541	1173541	SHCS, 3/8-16 X 1-1/4, SS	
2	1	20026-001	20026-001	MOTOR, THRU SHAFT, HOG HEAD, ROTATION, CASAPPA	VARIOUS
3	1	203800ADL	203800ADL	SEAL 20 X 38 X 5MM	MOTION
4	1	2250K14	2250K14	FITTING, ZERK, GREASE, M8 X 1 MALE, 14.9MM METRIC SS	MCMASTER
5	1	283807ADL	283807ADL-VITON	SEAL 28 X 38 X 7MM	MOTION
6	1	315207ADL	MP1006FC	SEAL 31 X 52 X 7MM	MOTION
7	1	50097-001	MP1006FG-1	SEAL, FELT, GASKET, DIRT .063 THICKNESS	WATERBLASTING
8	1	50098-001	MP6504	DETAIL, NUT, SWIVEL	MP MANUFACTRING
9	1	50099-001	MP6524	DETAIL, ADAPTER, SWIVEL, SEAL	MP MANUFACTRING
10	1	50100-001	CS1000-TS1	DETAIL, ADAPTER, FLANGE, THRU SHAFT, HOG HEAD	MP Manufacturing
11	1	50101-001	CS1000-TS2	DETAIL, HOUSING, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP Manufacturing
12	1	50102-001	CS1000-TS3	DETAIL, COVER, THRUST ASSEMBLY, THRU SHAFT, HOG HEAD	MP MANUFACTURING
13	1	50103-001	MP1006A	DETAIL, SHIELD, DIRT, THRU SHAFT, HOG HEAD	MP MANUFACTURING
14	1	50105-001	CS1000-SHT2	DETAIL, TIT, SWIVEL, HOG HEAD 0.0860 BORE	VARIOUS
15	1	50106-001	CS1000-SHT3	DETAIL, NUT, GLAND, THRU SHAFT, HOG HEAD	MP MANUFACTURING
16	1	50107-001	CS1000-TSN3	DETAIL, NUT, SEAL, GREASE, THRU SHAFT, HOG HEAD	MP MANUFACTURING
17	1	5154T69	5154T69	SEAL 25 X 52 X 8MM	MCMASTER
18	1	52052-001	MP2253	SEAL, SWIVEL	
19	1	52100-001	MP2752	RING, BACKUP, BRASS	SMU
20	1	52102-001	MP1008	SEAL, BRASS BUTTON	VARIOUS
21	1	70153-001	CS1000-TSN4	FABRICATION, WASHER, COUNTER, THRU SHAFT, HOG HEAD	WEST GATE SHEET METAL
22	1	70837	70837	NUT, JAM, 3/4-16 SS	FASTENAL
23	1	72273-001	72273-001	FABRICATION, SPACER, DIRT SHIELD, THRU-SHAFT	DONOVANS
24	1	7304WN	7304WN	BEARING, ANGULAR CONTACT BALL, 20x52x15 MED 7300WN SERIES	
25	1	73635K6	73635K6	PROXIMITY, SWITCH, METALIC - OBJECT W/ MALE PLUG 3 WIRE, 8MM DIA. SS	MCMASTER
26	1	9396K103	9396K103	O-RING, SILICONE, 11/16" ID X 13/16" OD X 1/16"Ø, AS568A DASH NUMBER 017	MCMASTER
27	1	9396K113	9396K113	O-RING, 2 X 2-1/8 X 1/16 WIDTH, SILICONE (AS568A)	MCMASTER
28	1	9396K21	9396K21	O-RING, SILICONE, 9/16" ID X 11/16" OD X 1/16"Ø, AS568A DASH NUMBER 015	MCMASTER
29	1	97063A124	97063A124	SHIM, ROUND, 3/4 X 1-1/4 X .075	MCMASTER
30	1	B27.7M-3BM1-52	B27.7M-3BM1-52	RING, INTERNAL RETAINING, STEEL, 52MM	
31	1	BR1001	BR1001	SEAL, UPPER, SWIVEL SHAFT	MOTION INDUSTRIES
32	6	MS2580025A2000	MS2580025A2000	SCREW, SHCS, M8-1.25 x 25MM, SS	
33	2	MS2650025A20000	MS2650025A20000	SCREW, SHCS, M12-1.75 X 25MM, SS	
34	1	SKF-6304-FULL	SKF-6304-FULL	BEARING, RADIAL, 20 X 52 X 15, TWO SEALS	
35	1	60266-001	60266-001	WASHER, BRASS, COMPRESSION, SWIVEL TIT .375in ID x .625in OD. x .025in Thick Rockwell B77	MCMASTER

Waterblasting Technologies
3341 S.E. SLATER STREET
STUART, FLORIDA 34997
(772) 223-7393

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-	-
-	-
-	-
-	-
-	-
N/A	-
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONS ±1/32
ANG: MACH ± 0°30' BEND ± 2°
DECIMALS .XX ± .01
.XXX ± .005
HOLE Ø .XX ± .005
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5M
MATERIAL N/A
FINISH N/A
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	DG	7/15/2008
CHECKED	DG	-
ENG APPR.	DG	02/26/08
MFG APPR.	-	-
Q.A.	-	-

PERP ⊥ .003/IN
STRAIGHTNESS — .005/IN
FLATNESS ▱ .005/IN
THREADS:
EXTERNAL - CLASS 2A
INTERNAL - CLASS 2B
MACHINED SURFACES: 63 U.O.S

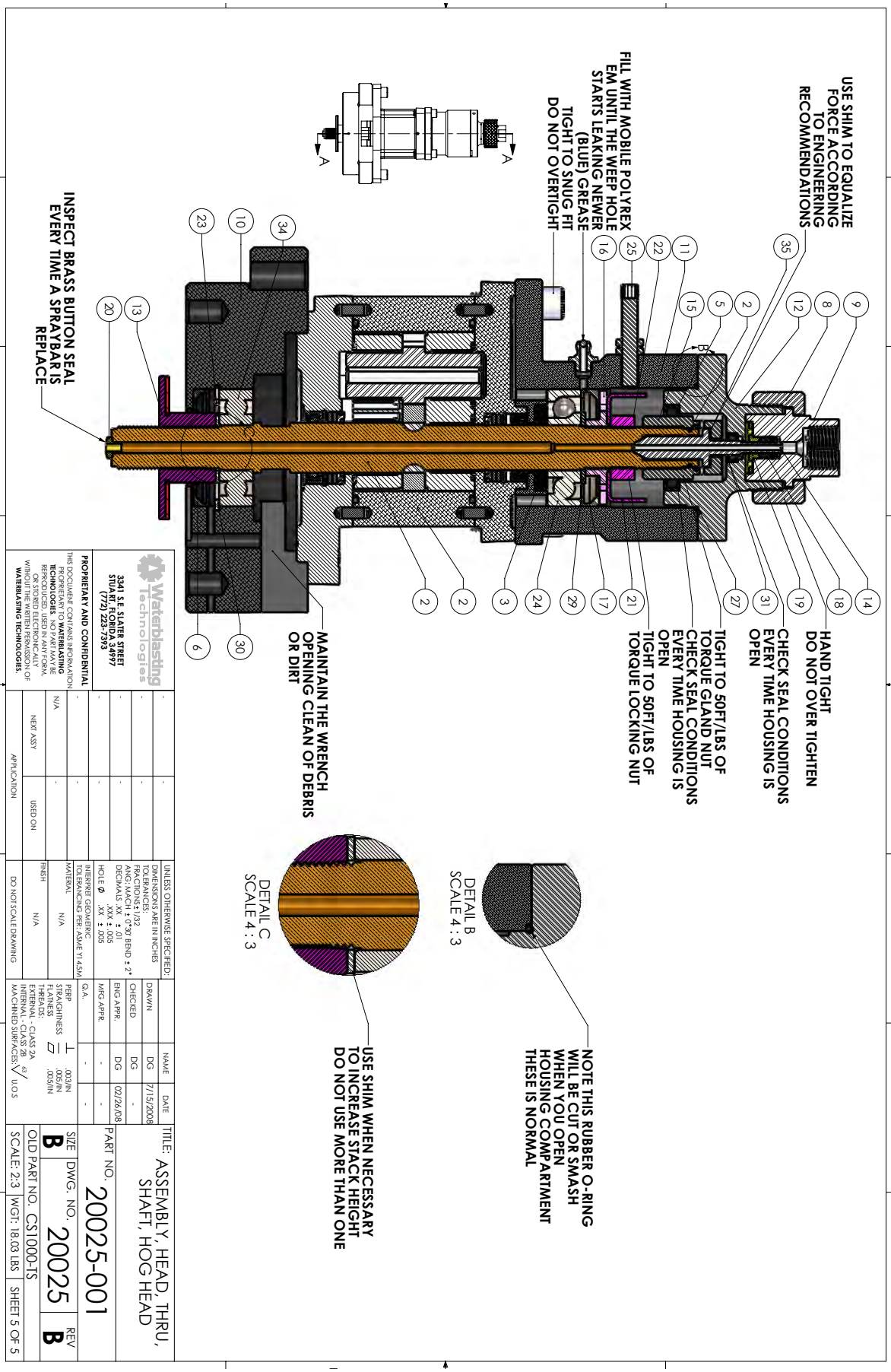
TITLE: ASSEMBLY, HEAD, THRU, SHAFT, HOG HEAD

PART NO. 20025-001

SIZE	DWG. NO.	REV
B	20025	B

OLD PART NO. CS1000-TS

SCALE: 2:3	WGT: 18.03 LBS	SHEET 4 OF 5


USE SHIM TO EQUALIZE FORCE ACCORDING TO ENGINEERING RECOMMENDATIONS
FILL WITH MOBILE POLYREX EM UNTIL THE WEEP HOLE STARTS LEAKING NEWER (BLUE) GREASE
TIGHT TO SNUG FIT DO NOT OVERTIGHT
INSPECT BRASS BUTTON SEAL EVERY TIME A SPRAYBAR IS REPLACE
HAND TIGHT DO NOT OVER TIGHTEN
CHECK SEAL CONDITIONS EVERY TIME HOUSING IS OPEN
TIGHT TO 50FT/LBS OF TORQUE GLAND NUT
CHECK SEAL CONDITIONS EVERY TIME HOUSING IS OPEN
TIGHT TO 50FT/LBS OF TORQUE LOCKING NUT
MAINTAIN THE WRENCH OPENING CLEAN OF DEBRIS OR DIRT
DETAIL B SCALE 4 : 3
NOTE THIS RUBBER O-RING WILL BE CUT OR SMASH WHEN YOU OPEN HOUSING COMPARTMENT THESE IS NORMAL
DETAIL C SCALE 4 : 3
USE SHIM WHEN NECESSARY TO INCREASE STACK HEIGHT DO NOT USE MORE THAN ONE
A
A
B
B
Waterblasting Technologies
3341 S.E. SLATER STREET
STUART, FLORIDA 34997
(772) 223-7393
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UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONS ± 1/32
ANG. MACH ± 0°30' BEND ± 2°
DECIMALS .XX ± .01
.XXX ± .005
HOLE Ø .XX ± .005
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5M
MATERIAL N/A
FINISH N/A
DO NOT SCALE DRAWING
NEXT ASSY
USED ON
APPLICATION
DRAWN DG 7/15/2008
CHECKED DG -
ENG APPR. DG 02/26/08
MFG APPR. - -
Q.A. - -
PERP .003/IN
STRAIGHTNESS .005/IN
FLATNESS .005/IN
THREADS: EXTERNAL - CLASS 2A
INTERNAL - CLASS 2B
MACHINED SURFACES 63 U.O.S
TITLE: ASSEMBLY, HEAD, THRU, SHAFT, HOG HEAD
PART NO. 20025-001
SIZE B
DWG. NO. 20025
REV B
OLD PART NO. CS1000-TS
SCALE: 2:3
WGT: 18.03 LBS
SHEET 5 OF 5

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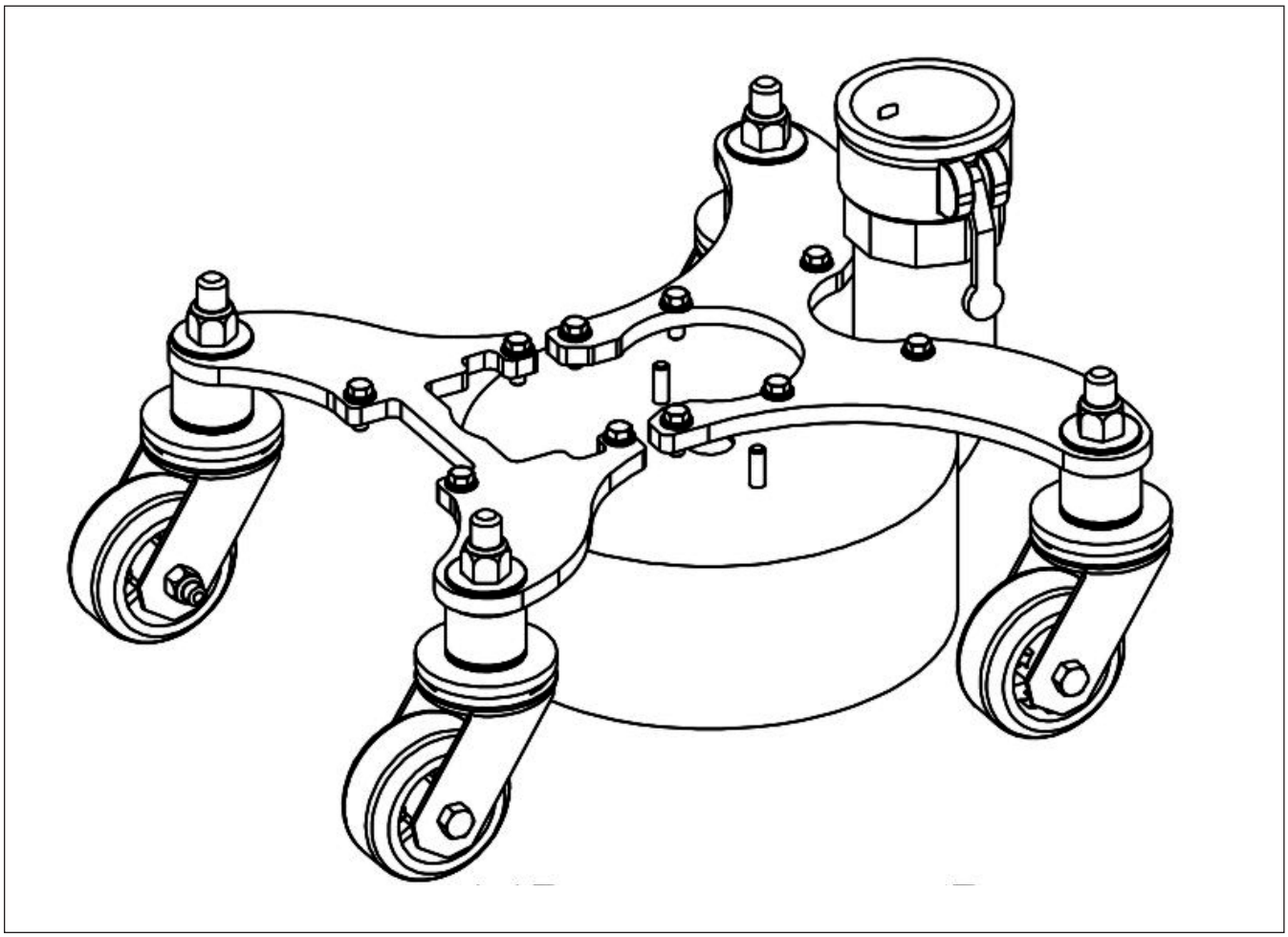
INTENTIONALLY

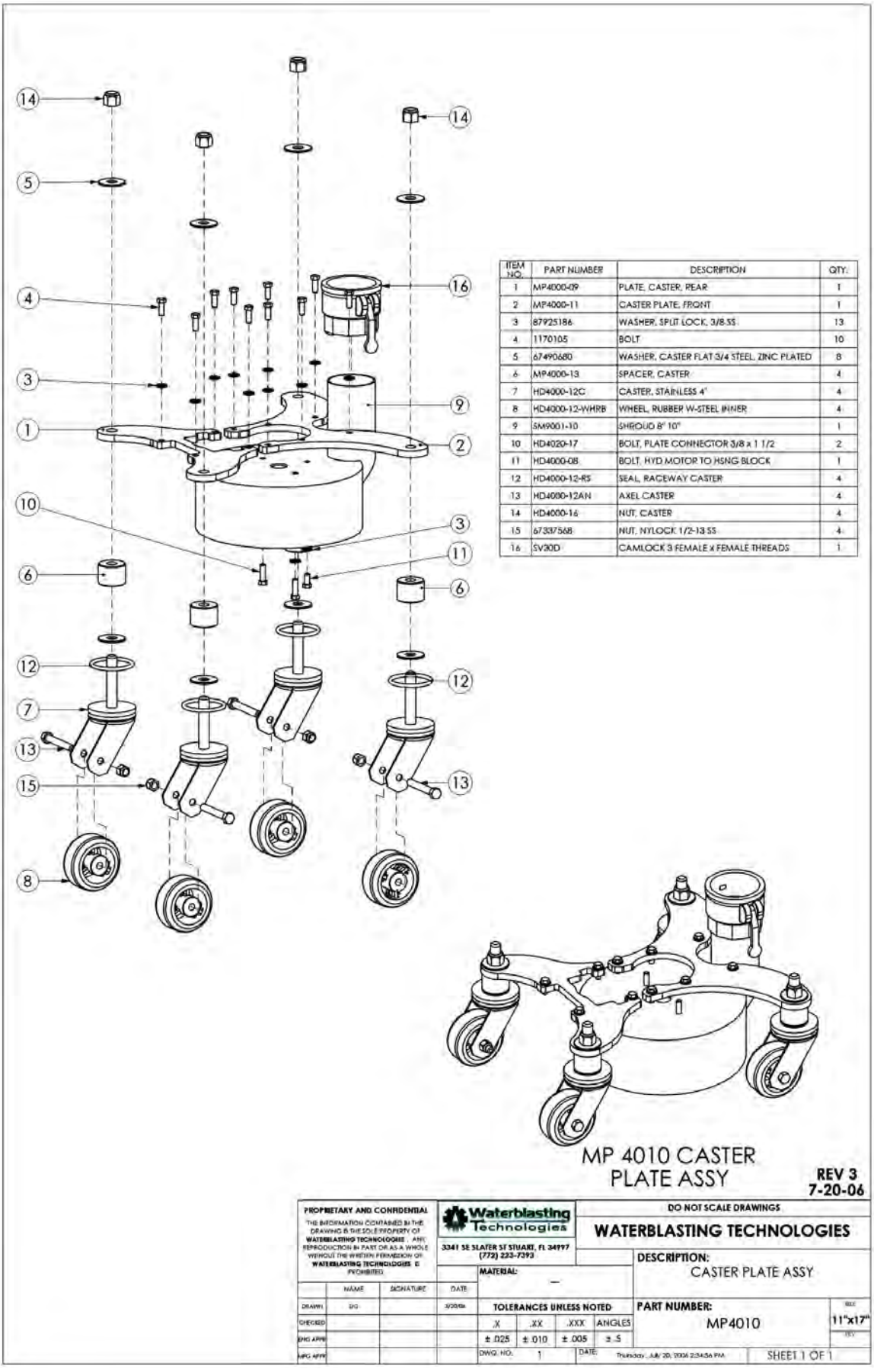
6.2 Caster Wheel Care – Hog Head Assembly

(MP4010 Caster Plate Assy. Diagram)

1. Grease wheels and caster bearings daily.
2. If necessary, remove bearing seal to clean bearings in casters. Use degreaser or brake cleaner to remove dirt and paint debris.
3. Replace worn wheels as wear will affect blasting and mobility of Hog Head.



Typical SH5500 Hog Head Assembly Caster Wheels



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	MP4000-09	PLATE, CASTER, REAR	1
2	MP4000-11	CASTER PLATE, FRONT	1
3	87925186	WASHER, SPLIT LOCK, 3/8 SS	13
4	1170105	BOLT	10
5	67490680	WASHER, CASTER FLAT 3/4 STEEL, ZINC PLATED	8
6	MP4000-13	SPACER, CASTER	4
7	HD4000-12C	CASTER, STAINLESS 4"	4
8	HD4000-12-WHRB	WHEEL, RUBBER W-STEEL INNER	4
9	SM9001-10	SHROUD 8" 10"	1
10	HD4020-17	BOLT, PLATE CONNECTOR 3/8 x 1 1/2	2
11	HD4000-08	BOLT, HYD MOTOR TO HSNG BLOCK	1
12	HD4000-12-RS	SEAL, RACEWAY CASTER	4
13	HD4000-12AN	AXEL CASTER	4
14	HD4000-16	NUT, CASTER	4
15	67337568	NUT, NYLOCK 1/2-13 SS	4
16	SV30D	CAMLOCK 3 FEMALE x FEMALE THREADS	1

MP 4010 CASTER
PLATE ASSY

REV 3
7-20-06

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DO NOT SCALE DRAWINGS

WATERBLASTING TECHNOLOGIES

	NAME	SIGNATURE	DATE
DRAWN	DG		3/20/06
CHECKED			
ENG APPR			
MFG APPR			

MATERIAL: —

TOLERANCES UNLESS NOTED

.X	.XX	.XXX	ANGLES
± .025	± .010	± .005	± .5

DESCRIPTION: CASTER PLATE ASSY

PART NUMBER: MP4010

REV

11"x17"

DWG. NO. 1

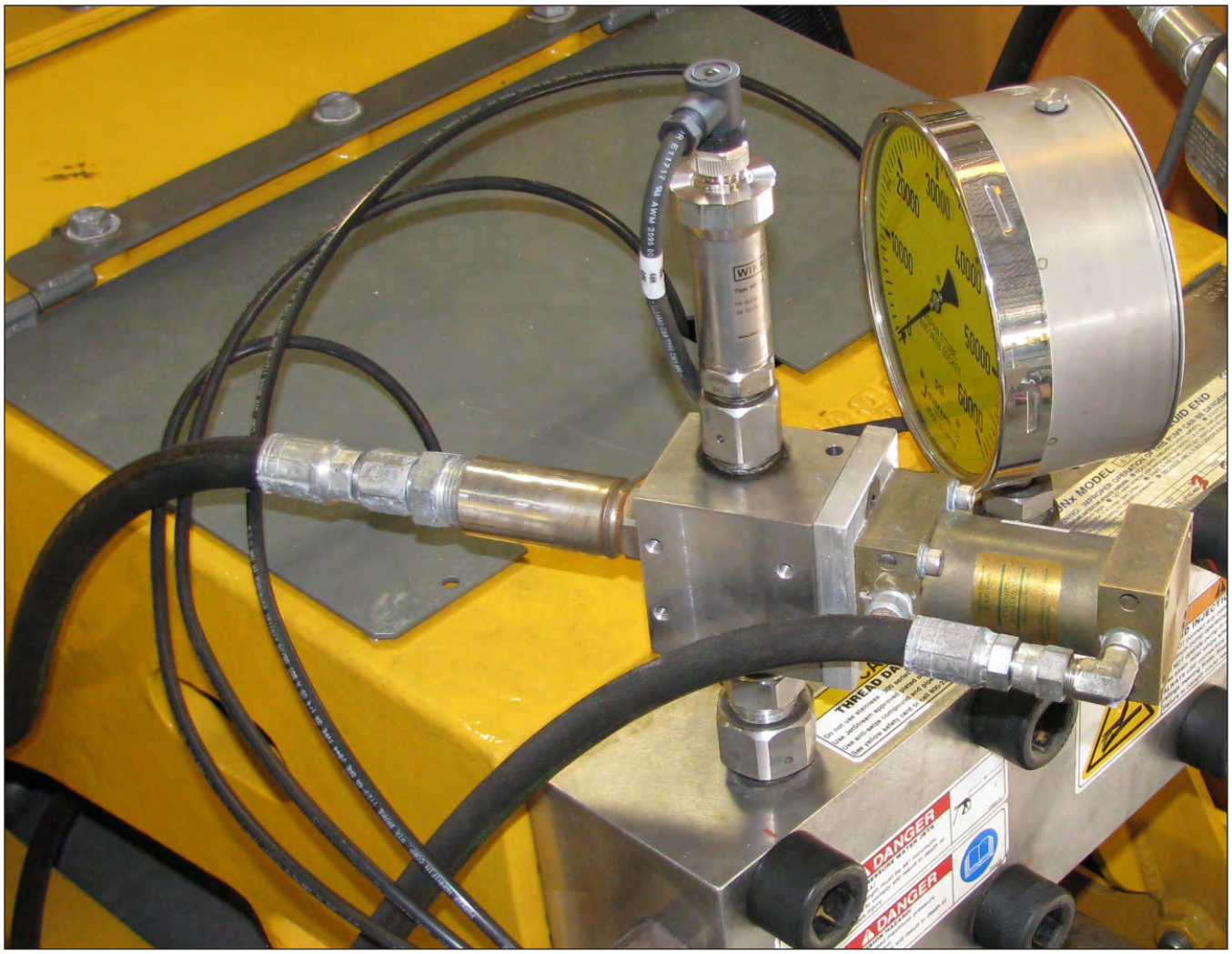
DATE: Thursday, July 20, 2006 2:34:56 PM

SHEET 1 OF 1

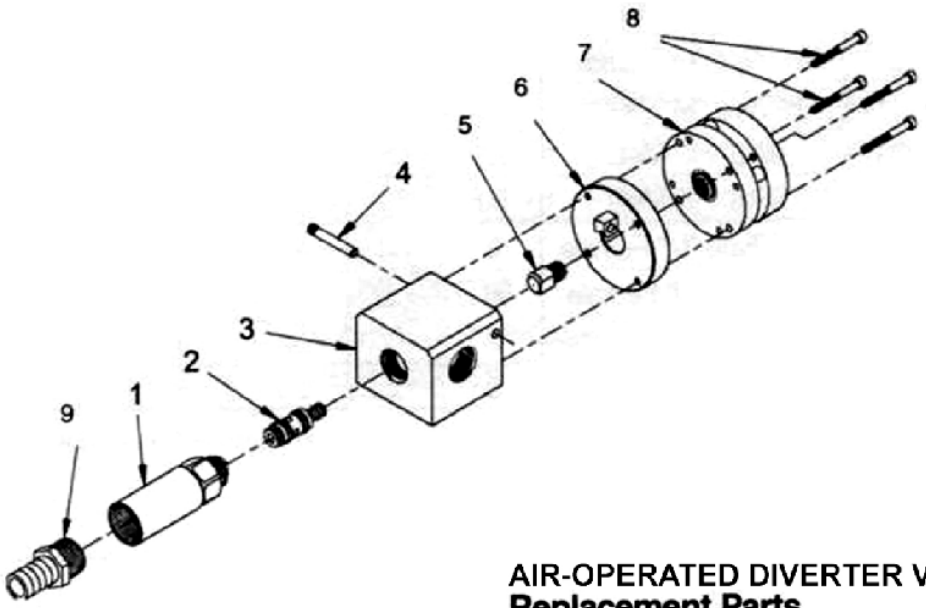
6.3 Shutoff (Dump) Valve Repair

(Truck Air Operated Diverter Valve Diagram)

1. Remove diffuser tube (1) with cartridge (2). Remove cartridge (2) from slotted end and replace with a new cartridge (2). Replace diffuser tube (1) into valve body (3).
2. Periodic maintenance of air actuator is necessary. Remove cap screws (8) to disassemble air cylinder (7). Clean thoroughly, check o-rings, apply silicone lubricant and reassemble.



Typical Air Operated Shutoff (Dump) Valve



AIR-OPERATED DIVERTER VALVE
Replacement Parts

Item	Part Number	Description
1	K51865	Diffuser
2	K53476	C-40 Cartridge
3	K53547	Body
4	K26454	Pin
5	K53425	Pusher
6	K53424	Mounting Plate
7	K27252	Air Cylinder
8	K27108	Capscrew
9	K25797	Hose Fitting

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DO NOT SCALE DRAWINGS

WATERBLASTING TECHNOLOGIES

	NAME	SIGNATURE	DATE
DRAWN			
CHECKED			
ENG APPR			
MFG APPR			

MATERIAL:

DESCRIPTION:
AIR-OPERATED DIVERTER VALVE

TOLERANCES UNLESS NOTED

.X	.XX	.XXX	ANGLES
± .025	± .010	± .005	± .5

PART NUMBER:

SIZE 11"x17"

REV.

DWG. NO. 1

DATE: Friday, April 14, 2006 52949 PM

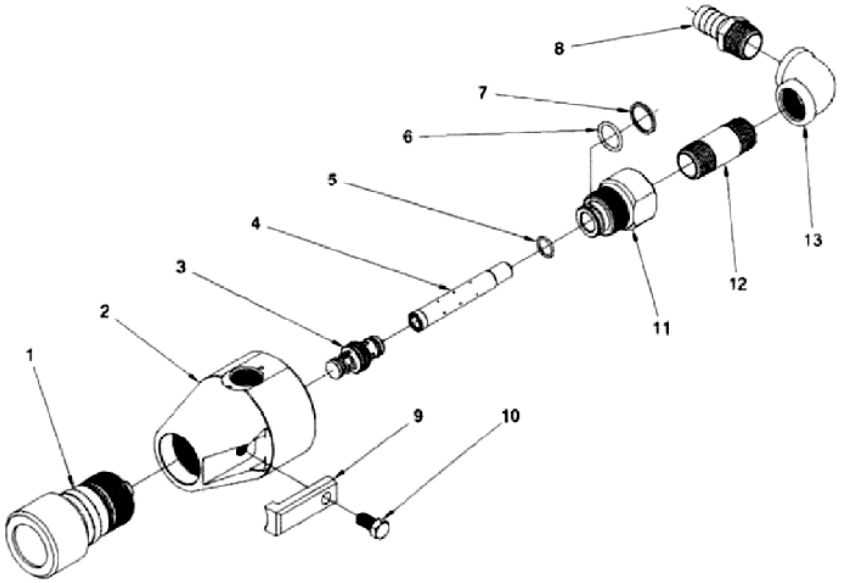
SHEET 1 OF 1

6.4 Manual Bypass Valve Repair

(Bypass Valve Assy. Diagram)

1. Remove outlet adapter (11). Pull cartridge (3) out. If cartridge (3) is stuck together and not releasing pull the pin and cartridge body apart to inspect the seats for cuts and other damage. Replace the cartridge as necessary.
2. Check diffuser (4) for damage or wear from bypass water.
3. Check all O-rings, replace any that are damaged. Lubricate all O-rings with silicone lubricant.
4. Replace cartridge (3) and reassemble to the bypass valve body (2) making sure to anti-seize all stainless steel threads.

Manual Bypass Valve



BYPASS VALVE

Replacement Parts

Item #	Part Number	Description
1	K52145	Adjustment Knob
2	K53714	Body
3	K53726	Cartridge
4	K53727	Diffuser
5	K26453	O-Ring
6	K27642	O-Ring
7	K53725	Back-Up Ring
8	K25797	Hose Fitting
9	K50796	Locking Arm
10	K25594	Capscrew
11	K53720	Outlet Adapter
12	K27645	Nipple
13	K27646	Elbow
Not Shown	K25933	Outlet Hose (Order in Feet)

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DO NOT SCALE DRAWINGS

WATERBLASTING TECHNOLOGIES

DESCRIPTION: BYPASS VALVE

MATERIAL:

PART NUMBER:

SIZE 11"x17"

REV.

	NAME	SIGNATURE	DATE
DRAWN			
CHECKED			
ENG APPR			
MFG APPR			

TOLERANCES UNLESS NOTED

.X	.XX	.XXX	ANGLES
± .025	± .010	± .005	± .5

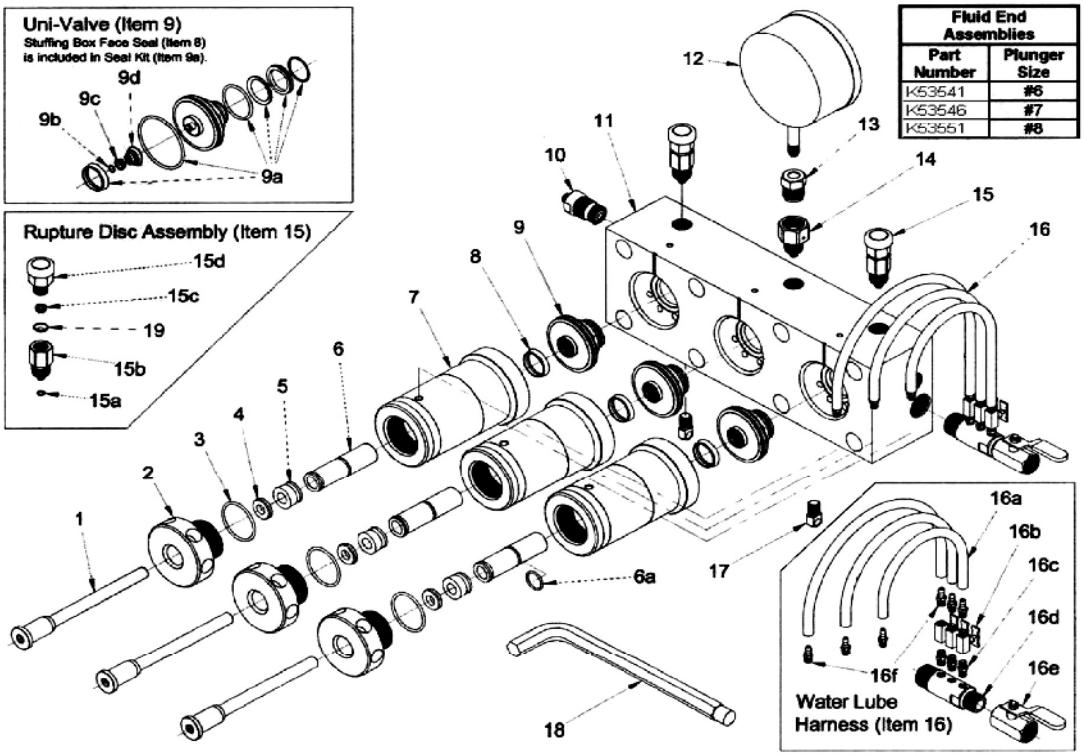
DWG. NO. 1

DATE: Friday, April 14, 2006 52919 PM

SHEET 1 OF 1

Drawings and Supplies

FLUID END REPLACEMENT PARTS



Item	Part Number	Description
1	K53562	#6 Plunger
	K53563	#7 Plunger
	K53564	#8 Plunger
2	K54102	Gland Nut
3	K26465	O-Ring
4	K27480	#6 Guide Bushing
	K27481	#7 Guide Bushing
	K27482	#8 Guide Bushing
5	K54117	#6 Packing
	K54118	#7 Packing
	K54119	#8 Packing
6	K54097	#6 Sleeve
	K54098	#7 Sleeve
	K54099	#8 Sleeve
6a	K26522	O-Ring
7	K54100	Stuffing Box
8	K54126	Stuffing Box Seal
9	K53496	Uni-Valve

Item	Part Number	Description
9a	K54144	Seal Kit
9b	K28803	Retaining Ring
9c	K53493	Spring Retainer
9d	K27510	Spring
10	K53672	Adapter, Pump Discharge x 9/16" Type "M" Male
	K53673	Adapter, Pump Discharge x 7/8" Type "M" Male
	K53990	Adapter, Pump Discharge x 3/8" HP Female
	K53989	Adapter, Pump Discharge x 9/16" HP Female
11	K53457	Manifold
12	K27489	Gage, 0-60,000 PSI
13	K28091	Anti-Vibration Gland Set
14	K53573	Adapter, Male Port x 9/16" HP Female
15	K53506	Rupture Disc Holder

Item	Part Number	Description
15a	K27503	O-Ring
15b	K53577	Base
15c	K53579	Hold-Down Ring
15d	K53580	Cap
16	K53796	Water Lube Harness
16a	K26470	Hose (Order in Feet)
16b	K27476	Needle Valve
16c	K26466	Nipple
16d	K53793	Lube Manifold
16e	K27102	Ball Valve
16f	K26875	Hose Fitting
17	K51660	Trunnion
18	K50890	Pump Wrench
19	K28576	Disc, 35,000 PSI Burst
	K28577	Disc, 40,000 PSI Burst
	K28616	Disc, 45,000 PSI Burst
	K27485	Disc, 50,000 PSI Burst
	K27486	Disc, 56,000 PSI Burst

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DO NOT SCALE DRAWINGS

WATERBLASTING TECHNOLOGIES

DESCRIPTION: FLUID END REPLACEMENT PARTS

	NAME	SIGNATURE	DATE
DRAWN			
CHECKED			
ENG APPR			
MFG APPR			

MATERIAL:

TOLERANCES UNLESS NOTED

.X	.XX	.XXX	ANGLES
± .025	± .010	± .005	± .5

PART NUMBER:

SIZE 11"x17"

REV.

DWG. NO. 1

DATE: Friday, April 14, 2006 5:29:19 PM

SHEET 1 OF 1

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Troubleshooting Guide

Problem

HOG HEAD

Noises and Vibrations:
- Loose blower belts or pump belts - adjust or replace belts
- Blower or drive belts out of alignment - align and adjust belts
- Hog Head rotation extremely high - turn head rotation dial counterclockwise to reduce head speed

Hog Arm won't raise:
- Float mode activated - disengage float function
- Hydraulics not engaged - engage PTO to activate hydraulic system
- Hydraulic fluid low - add fluid to the hydraulic fluid reservoir
- Hose or fitting broken or leaking - tighten loose fitting or replace broken hose or fitting

Head doesn't spin or spins slowly
- Hydraulics not engaged - make sure PTO is engaged to activate hydraulic system
- Debris packed around thru-shaft or spray bar - clean thru-shaft or spray bar
- Hog Head shroud is concave and not convex - repair or replace shroud
- Flow control is shut off - turn on flow ball valve
- Electric connection is unplugged or no voltage to coil - check that LED light on coil is lit and repair circuit or replace coil as necessary

WATER LEAKS

Hose fitting indicator port leaking:
- Fitting Loose - tighten fitting or replace hose and fitting

Fluid end manifold leaking at rectangular hole in manifold block:
- Stuffing box seal is worn out - replace stiffing box ring seal

Fluid end manifold leaking at round hole on top of manifold block:
- Valve seals worn - replace valve seal or valve

Weep holes dripping at high pressure hose connection on thru-shaft motor:
- Loose swivel nut - hand tighten swivel nut
- Leaking swivel seal - remove spent seal, check shaft nipple, clean thoroughly and replace with new seal
- Cracked swivel or thru-shaft - remove shaft assembly and disassemble to inspect shaft and replace if damaged or cracked on nipple end

Problem

HIGH PRESSURE SYSTEM PROBLEMS

Low inlet pressure - 25 PSI or less:

- Dirty nominal and absolute filters are clogged with particulate - change filter bag and cartridge
- Low or no inlet water pressure - check to see that water charge pump is on and fresh water valve to charge pump is open
- Empty water tank - fill tank with water
- Clogged or damaged impeller on pump - disassemble pump face and clean impeller or replace with a new impeller
- Cracked water line allowing air to be sucked in - check and find any leaks and repair
- Three way valve set to wrong position - check valve position
- Low hydraulic fluid flow to charge pump - check hydraulic fluid level and flow
- Debris in water line from tank - flush or replace with new line

Low outlet pressure - in High Pressure system:

- Insufficient engine RPM - raise RPM of engine
- Warn or blown nozzles - change nozzles
- Oversized nozzles - refer to chart to correct nozzle pattern
- Leaks - hoses, fittings, nozzles, pump valves or seals - tighten or replace, check valves for heat indicating internal bypass
- Worn or missing button seal between spray bar and shaft - replace with new button seal
- Air lock in fluid end - remove rupture disc assembly or side port fitting, engage pump and run up to high RPM to remove air from the manifold
- Low inlet water pressure - change dirty water filters - cartridge & bag (also 20 micron in recycle mode)
- Low or no inlet water pressure - check to see that water charge pump is on and valve to charge pump is open
- Leaking packing - determine which is leaking and change, flush and replace
- Leaking or cracked valves - check face of manifold for heat to find leaking valve and replace or rebuild
- Diverter valve (dump valve) cartridge leaking - remove return hose and check cartridge, if leaking remove diffuser tube and replace cartridge
- By-pass valve cartridge leaking - remove diffuser tube and replace cartridge
- Leaking swivel seal - remove spent seal, check shaft nipple, clean thoroughly and replace with new seal
- Cracked swivel or thru-shaft - remove shaft assembly and disassemble to inspect shaft and replace if damaged or cracked on nipple end

Fluctuation or pulsing of 40K gauge or inlet pressure gauge:

- Valve may be pitted or cracked - remove valve and check seats for damage - replace or rebuild
- Leaking packing - determine which is leaking and change, flush and replace

Problem

VACUUM SYSTEM PROBLEMS

Vacuum Loss or Failure:

- Vacuum blower is not engaged - activate OMSI PTO to activate vacuum system
- Vacuum RPM not high enough - adjust RPM higher
- Vacuum filter dirty & clogged - rinse with hose or replace if too badly clogged
- Worn or improperly adjusted shroud brush - adjust or replace brush
- Broken vacuum hose or fitting - inspect hoses & fittings and replace any parts damaged
- Vacuum line plugged with debris - remove clogged hose, flush to remove blockage or replace with new hose if necessary
- Slipping or damaged vacuum belt - tighten belt or replace if worn badly
- Debris tank door leaking air or water - Compressor is not inflating seal - check compressor and repair if necessary. Seal is dirty - clean seal. Seal is damaged - replace damaged seal.
- Debris tank 4” dump valve open - clear valve of any debris and close tightly; if valve still leaks, it may be necessary to replace worn valve
- Relief valve stuck open - lubricate plate & stem and work it in and out to be sure it is free
- Vacuum filter canister door seal leaking - replace seal to eliminate vacuum leak
- Vacuum filter canister drain ball valve leaking or open - clean valve of any debris; if it is still leaking, it may be necessary to replace worn valve

Relief valves stuck open & whistling:

- A blockage in vacuum hose between the tank and the Hog Head - locate and remove blockage
- Clogged vacuum filter - Clean or replace vacuum filter and clean canister tank bottom
- High water/debris level lifting shut-off ball in debris tank - Empty water from debris tank and dump debris - clean shut-off ball to keep it from sticking shut, replace debris bag, clean door seal and close

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SH5500 Specifications

LENGTH
(varies slightly depending on truck chassis) ..... 27 ft / 8.223 m

WIDTH
(varies slightly depending on truck chassis) ..... 8.5 Ft / 2.6 m

WIDTH
(mirrors folded in) ..... 7.2 ft / 2.2 m

HEIGHT ..... 7.9 Ft / 2.5 m

EMPTY WEIGHT
(estimated w/ fuel, water & vacuum tanks empty) ..... 17,700 lbs / 8,029 kg

WEIGHT LOADED
(estimated W/ fuel, water & vacuum tanks full) ..... 22,700 lbs / 10,297 kg

VACUUM/DEBRIS TANK VOLUME ..... 660 gal / 2,500 ltr

CLEAN WATER TANK ..... 600 gal / 2,271 ltr

BLOWER ..... Dresser Roots U-RAI 59u

BLOWER CFM ..... 718 cfm

MAXIMUM SYSTEM VACUUM ..... 15 INHGV

UHP PUMP ..... Jetstream 3600

UHP PUMP GPM ..... 6 gpm / 23 ltr

MAXIMUM UHP Pressure ..... 40,000 PSI / 2,722 bar

BLOWER DRIVE BELT ..... Gates Poly Chain 14MGT - 1568-20 Part # 60209-001

BLOWER DRIVE BELT TENSION (new) ..... 76 to 80 Hz

BLOWER DRIVE BELT TENSION
(used - over 20 hours) ..... 65 TO 69 Hz

UHP PUMP DRIVE BELT ..... Gates Poly Chain 14 MGT - 3850-90 Part # 60232-001

UHP PUMP DRIVE BELT TENSION (new) ..... 51 TO 54 Hz

UHP PUMP DRIVE BELT TENSION (used) ..... 44 TO 47 Hz

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Checklists

Pre-Start Inspection

1. Inspect all hoses for chaffing and signs of wear.
2. Check fuel levels and make sure you have enough for the shift.
3. Check engine and all systems fluid levels. Refer to the truck and OMSI Drive operating manuals.
4. Check all waterblasting and vacuum components for oil leaks, damaged or loose bolts and parts.
5. Inspect the Hog Head for loose components and damage.
6. Check vacuum canister for water and the vacuum filter. Drain water or clean filter as required.
7. Check the vacuum blower and UHP pump drive belt tension and alignment.
8. Check clean water tank level and fill if necessary.
9. Drain debris tank water and check debris level. Empty if necessary.
10. Walk around truck and visually check all components and look for obvious problems.

Note:
If you operate at freezing temperatures or even temperatures below 60 degrees Fahrenheit (16⁰ Celsius), it will be necessary to operate the system, including engaging the blower and high pressure pump, at IDLE speed only under load, until oil heats up above 60 degrees Fahrenheit (16⁰ Celsius).

Warm Weather Shutdown

1. Shutdown High Pressure by turning OFF the Dump Valve switch.
2. Allow the vacuum blower to operate for a couple of minutes after shutting down the high pressure and charge water pumps to clear waste water from hoses and dry out blower system.
3. Raise the Hog Head to the full "UP" and locked position.
4. Reduce the engine speed to idle.
5. Press the clutch pedal and disengage the transmission PTO.
6. Put the Truck Transmission in "N" *(NEUTRAL)*.
7. Turn the PTO and Charge Pump switches to "OFF".
8. Turn all other switches and dials on the control panels to "OFF" or "0".
9. Make sure the Hog Arm locking lever is engaged and secure it with a safety strap to ensure the locking lever cannot accidentally be released during transportation.

IT IS VERY IMPORTANT THAT BOTH PTO SWITCHES ARE FULLY DISENGAGED TO ENSURE THAT NONE OF THE FUNCTIONS WILL OPERATE ACCIDENTALLY.

8. Drain waste water from the vacuum canister. Close the valve when draining is complete.
9. When the truck is parked, set the parking brake and allow the engine to run for several minutes to cool internal components, then shut off the engine.

Freezing Conditions Shutdown

1. Allow the vacuum blower to operate for a couple of minutes after shutting down the high pressure and charge water pumps to clear waste water from hoses and dry out blower system.
2. Make sure the clean water and debris tanks are drained immediately at the end of each shift.
3. All system hoses and the Hog Head assembly should be drained of all water and/or filled with an anti-freeze solution. (non alcohol)
4. For the 40K water blaster, refer to pump manufacturer's procedures for maintaining equipment in freezing climates.
5. Open the drain valve at the charge water pump and allow the hoses and pump to completely drain. With the valve still open, activate the pump briefly to pump out any remaining water, about a cupful. Then close the valve.
6. Remove the debris pump strainer and run the pump briefly to drain the pump hoses. Then clean and reinstall the strainer.
7. Pour 2 gallons of anti-freeze into the high pressure pump stuffing box sump so it will drain to the bilge pump sump system. Allow the bilge pump to run until anti-freeze is visible at the bilge pump hose fitting in the debris tank.
8. Drain the vacuum canister immediately at the end of each shift.
9. Follow all other instructions in the Warm Weather Shutdown Procedure.

Note:

If you operate at freezing temperatures or even temperatures below 60 degrees Fahrenheit (16 degrees Celsius), it will be necessary to operate the system, including engaging the blower and high pressure pump, at IDLE speed only under load, until oil heats up above 60 degrees Fahrenheit (16 degrees Celsius).

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Spray Bar Configuration and Nozzles

1) 8”, 8 Nozzle - Most Agressive set-up. | 5.39 GPM @ 36K psi | 5.69 GPM @ 40K psi

2) 8”, 8 Nozzle - Medium Agressive set-up. | 4.73 GPM @ 36K psi | 5.0 GPM @ 40K psi

3) 8”, 8 Nozzle - Less Agressive set-up. | 4.27 GPM @ 36K psi | 5.0 GPM @ 40K psi

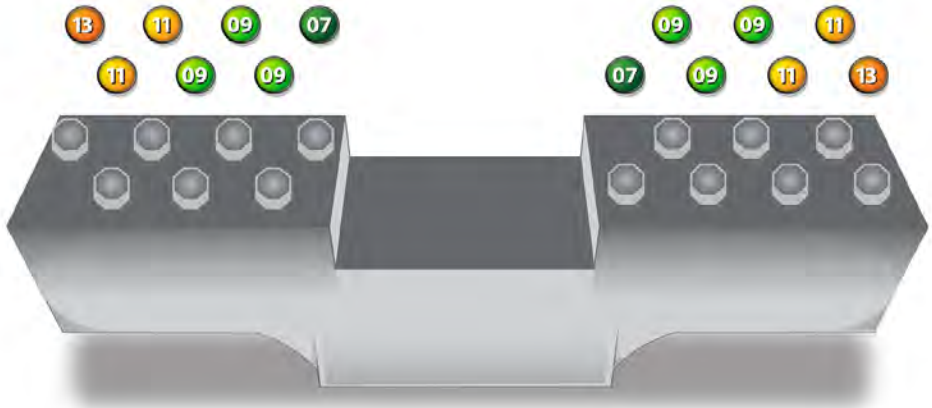
4) 8", 8 Nozzle -Least Agressive set-up. | 3.71 GPM @ 36K psi | 3.93 GPM @ 40K psi

5) 8", 8 Nozzle - Concrete Prep/Curing Compound Removal - 25,000 - 35,000psi | 5.48 GPM @ 40K psi

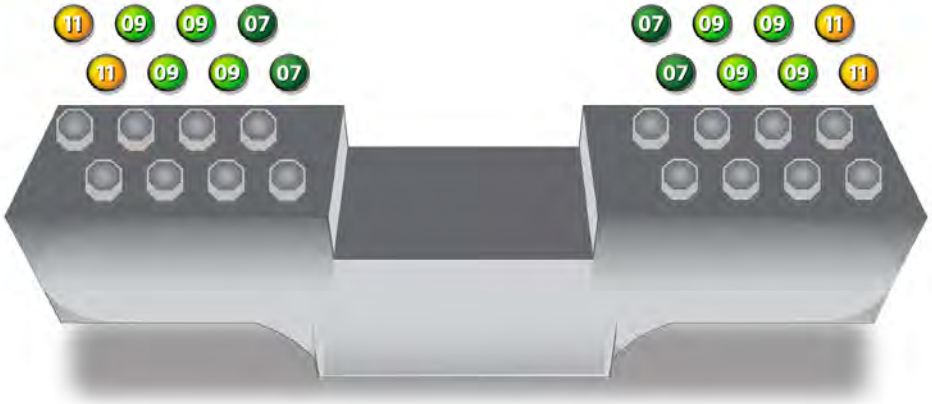
High Cohesive Nozzle Flow Chart

FLOW - GPM @ Pressure Indicated

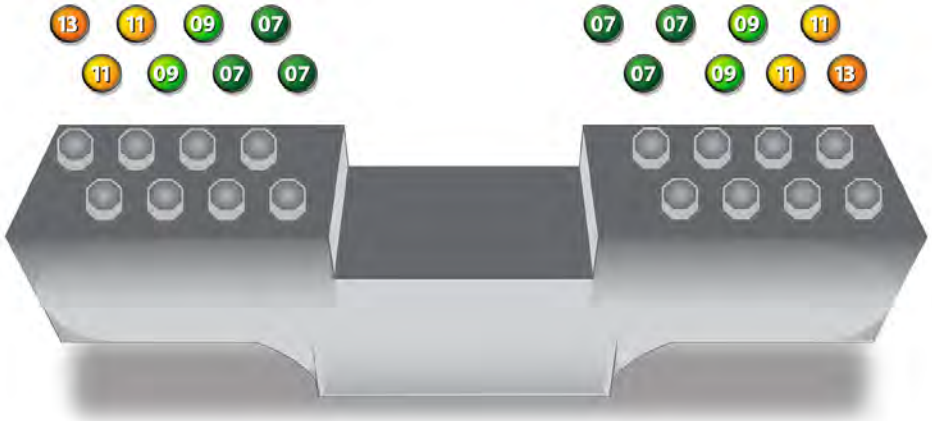
Orifice Dia./ins	20KPSI (1379 Bar)	26KPSI (1723 Bar)	30KPSI (2068 Bar)	36KPSI (2482 Bar)	40KPSI (2758 Bar)
0.005	0.08	0.09	0.09	0.10	0.11
0.006	0.11	0.12	0.13	0.15	0.15
0.007	0.15	0.17	0.18	0.20	0.21
0.008	0.19	0.22	0.24	0.26	0.28
0.009	0.25	0.28	0.30	0.33	0.35
0.010	0.30	0.35	0.37	0.41	0.43
0.011	0.37	0.42	0.45	0.49	0.52
0.012	0.44	0.50	0.54	0.59	0.62
0.013	0.51	0.59	0.63	0.69	0.73
0.014	0.60	0.68	0.73	0.80	0.84
0.015	0.68	0.78	0.84	0.92	0.97



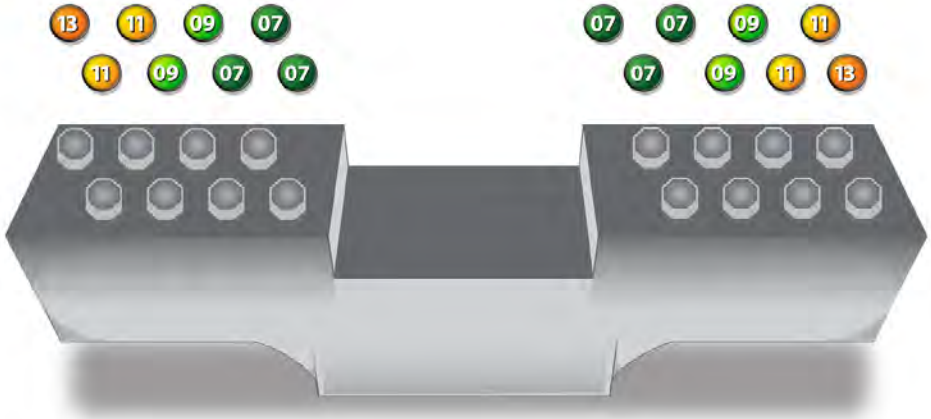
6) 6” 14 Nozzle Spray Bar - 4” lines - Argessive. | 5.72 GPM @ 36K psi | 6.0 GPM @ 36K psi



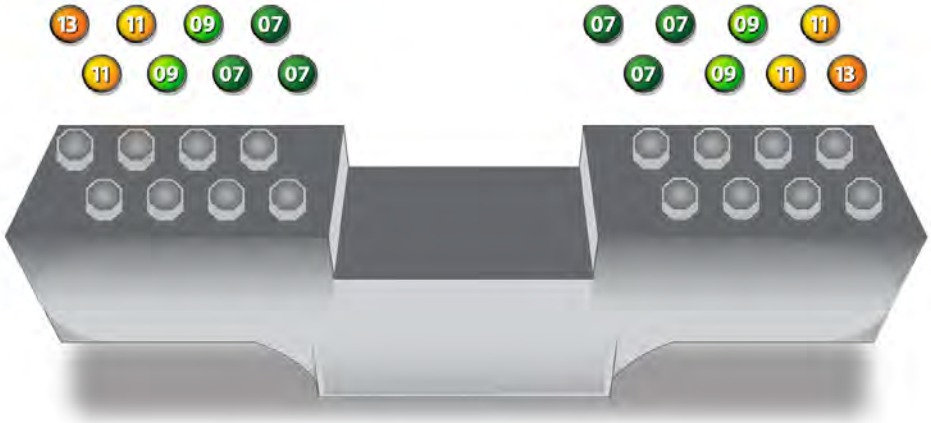
7) 6”, 14 Nozzle Spray Bar - 4” lines - Less Aggressive 4.48 GPM @ 36K psi / 4.74 GPM @ 40K psi



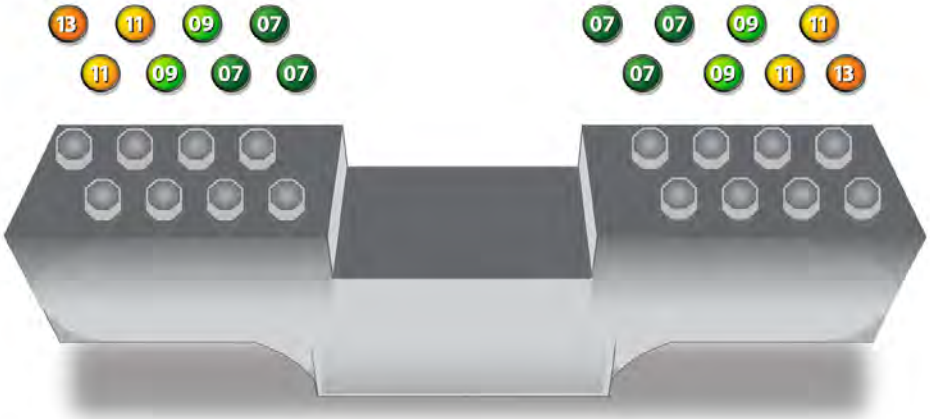
8) 8” - 10”, 16 Nozzle - Most Aggressive set up. 5.4 GPM @ 36K psi / 5.72 @ 40K psi



9) 8” & 10”, 16 Nozzle - Less Aggressive set-up. 5.4 GPM @ 36K psi / 5.72 @ 40K psi



10) 8” & 10”, 16 Nozzle - Less Aggressive Set-up. 4.82 GPM @ 36K psi / 5.1 GPM @ 40K psi



11) 8” & 10”, 16 Nozzle Concrete Prep - Curing Compound removal set-up - 25,000 35,000 psi

12) 14” Most Aggressive set-up. 5.83 GPM @ 36K psi / will not achieve 40K psi

13) 14” Most Aggressive set-up. 5.66 GPM @ 36K psi / 5.98 GPM @ 40K psi

14) 14” Less Aggressive set-up. 5.46 GPM @ 36K psi / 5.78 GPM @ 40K psi

15) 14” Least Aggressive set-up. 4.81 GPM @ 36K psi / 5.09 GPM @ 40K psi

16) 14” Concrete PRep - Curing Compound Removal. Will not achieve 40K psi

14” Rubber Removal - 30,000K psi

Nozzle Calculation Sheet

36K Nozzle Calculation Sheet

Size	GPM	Quantity	Total GPM

Total Accumulative GPM

40K Nozzle Calculation Sheet

Size	GPM	Quantity	Total GPM

Total Accumulative GPM

Remember to multiply the total by two if you have a two head system. The total should not exceed 11.8 gpm. If it does, you will not achieve pressure.

Remember that the total available gpm varies by 12% for individual machines.

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Technical Support

24 / 7 CUSTOMER SERVICE

- Hog Technologies Customer Service Department stands ready to answer your questions and provide technical assistance 24 hours a day, 7 days a week.
- Customer Service can also assist you with part orders.
- Always contact Hog Technologies Customer Service Department for assistance and cross reference specifications for parts you intend to purchase locally.

PARTS

- All replacement parts are available directly through Hog Technologies
- Get the parts you need when you need them
- Next day delivery is available in most locations.
- Same day delivery available in some areas for parts ordered before 10AM Eastern Standard Time

CUSTOMER SERVICE HOT LINE - 772-223-7393
www.hogtechnologies.com
www.stripehogsupport.com

Hog Technologies will not be responsible for damages or loss caused by substituted parts purchased locally or from another vendor or manufacturer.

WARNING

NEVER ATTEMPT TO USE COMMONLY AVAILABLE PLUMBING PARTS, FITTINGS, AND HOSES IN HIGH PRESSURE SYSTEMS! ALL FITTINGS TO BE USED WITH HIGH PRESSURE OPERATIONS MUST BE PROPERLY DESIGNED, STAMPED, RATED AND APPROVED BY HOG TECHNOLOGIES! FAILURE TO HEED THIS WARNING MAY RESULT IN DAMAGE TO COMPONENTS AND SEVERE INJURY OR DEATH!

Stripe Hog Support Web Page

Typical Registration & Log On Window

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Stuart, Florida 34992

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www.hogtechnologies.com

Print Date 02/21/2019 Rev 4