RUMBLE HOG RH7500

OPERATIONS MANUAL

HOG™ TECHNOLOGIES

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WARNING

INCORRECT USE OF HOG TECHNOLOGIES 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

STOP

TO AVOID SERIOUS INJURY AND DAMAGE TO EQUIPMENT, MAKE SURE TO COMPLETELY READ THIS MANUAL AND FOLLOW ALL SAFETY AND OTHER PRECAUTIONS LISTED IN THE MANUAL AND ON COMPONENT LABELS BEFORE OPERATING THIS EQUIPMENT.

WARNING

FOURTEEN COMMANDMENTS
RH7500

FAILURE TO FOLLOW THESE GUIDELINES WILL RESULT IN PREMATURE FAILURE OF CRITICAL COMPONENTS AND COULD CAUSE INJURY TO PERSONNEL.

- **NEVER OPERATE WHEN HYDRAULIC FLUID IS LESS THAN 68O F *(FOLLOW THE WARM UP PROCEDURE)*.**
- **NEVER BACK UP WITH CUTTER HEAD ON THE GROUND.**
- **REDUCE SPEED APPROPRIATELY WHEN TRAVELING ON ROUGH AND/OR UNEVEN SURFACES.**
- **NEVER EXCEED THE STATED ENGINE RPM.**
- **ALWAYS LIFT THE HEAD AND SHIFT TO TRANSIT WHEN RELOCATING MORE THAN 100 FEET.**
- **CHECK THE CRITICAL BOLTS FOR PROPER TORQUE AT LEAST TWICE DAILY. *(TEETH, PINS, SEMI-CIRCLE, MOTOR, ECCENTRIC MOTOR, RETAINER PLATE)*.**
- **ALWAYS INSPECT BELTS AND SPROCKETS AT LEAST TWICE DAILY.**
- **INSPECT ECCENTRIC ALIGNMENT DAILY. COUNTERBALANCE WEIGHTS LEFT & RIGHT MUST BE IN THE SAME POSITION.**
- **INSPECT RUBBER GUARDS DAILY TO ENSURE THAT THEY CONTACT THE PAVEMENT SURFACE.**
- **CHECK LUBRICANT LEVELS DAILY; OMSI, HYDRAULIC TANK, GREASE PUMP TANK.**
- **CHECK HYDRAULIC FILTERS' INDICATORS DAILY WITH SYSTEMS AT FULL SPEED.**
- **NEVER EXCEED 5 MPH CUTTING RUMBLE STRIPS OR WHEN IN WORK MODE UNLESS ACTIVELY GROOVING OR MILLING.**
- **NEVER SHIFT CUTTER HEAD WHILE ON THE GROUND UNLESS MOVING FORWARD.**
- **WHILE MOVING FORWARD, ONLY SHIFT CUTTER HEAD LEFT OR RIGHT IN TINY INCREMENTS.**

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NOTES

Congratulations on your recent purchase of the Rumble Hog! The Rumble Hog is the worlds most advanced equipment for cutting rumble strips and implementing sign wave technology. Your purchase demonstrates your commitment to excellence and positions you as a world leader in providing innovative solutions to roads and highway safety concerns.

Hog Technologies is excited to welcome you and your crew to the Rumble Hog Operators' Team. We believe that by partnering with you we can create roads that are safer for travelers and answer the global call for technology that keeps cars from veering out of their lane unintentionally. Many lives will be saved and severe injuries avoided by our collective endeavors. Together we embrace the challenge of constantly developing the technology, equipment, knowledge, and skills to make safe roads a reality.

As you know, no machine is capable of outperforming its operator so we have designed a training experience that will equip your operators with the tools needed to maximize productivity and minimize operational expenses while building our mutual reputation of excellence. This manual is designed to be used by operators trained by Hog Technologies. During the training experience your team will be given the basic knowledge and skills necessary to maintain, operate, troubleshoot and repair your Rumble Hog.

This manual is an important aid in the operation and maintenance of your new equipment. Please take the time to read it before attempting to operate your machine. The information is intended as a guide and cannot cover every question you may have about your Rumble Hog or every operating situation. We encourage you to contact Hog Technologies for any additional information you might need. We provide support to our customers for all of the equipment we sell. We maintain an experienced support team that is available 24 hours a day 7 days a week along with a well-stocked inventory of parts and accessories for your convenience. Please contact us for any and all of your support issues and questions toll free at (877) 223-7393 or online at www.hogtechnologies.com or WWW.Stripehogsupport.com

On behalf of all of us here at Hog Technologies, Thank you for joining the Rumble Hog Team and thank you for being our customer. We look froward to meeting you and working together.

Hog Technologies Limited Warranty

Hog Technologies warrants its components to be free from defects in material and workmanship while under normal use and service. Hog Technologies will, at its option, either repair or replace free of charge any such part that appears to us to be defective in material or workmanship during the warranty period. The warranty evaluation by Hog Technologies as to the cause of the defect shall be conclusive.

For approved warranty shipments, Hog Technologies will provide no charge Fed-ex ground or Fed-Ex Economy shipping. If customer requests expedited shipping, the difference in the shipping costs will be invoiced to the customer.

Hog Technologies reserves the right to request the component(s) to be returned, freight pre-paid, for analysis before proceeding with any warranty claim. The customer shall be responsible for payment of any replacement components requested. If the warranty claim is approved by Hog Technologies, credit will be issued for the components under warranty.

No warranty is made, either expressed or implied, for defects, failures or malfunctions resulting from corrosion, misapplication, over-pressurization, insufficient or lack of maintenance and any modifications to the component as supplied by Hog Technologies.

Any components replaced during the period of warranty will be warranted only during the period of the initial warranty, and no extensions shall be made, unless in writing by Hog Technologies in addition to the provision of the terms of the original warranty.

Hog Technologies will not be liable for damage, abnormal wear or consequential damage to their system components resulting from the use of replacement components that are not furnished by Hog Technologies.

Hog Technologies will not be liable for charges incidental to the removal of damaged or defective components, lost time and profits, or any consequential damages resulting from failure of the component.

Hog Technologies reserves the right to make improvements to future models without the need to retrofit or upgrade prior models. Hog Technologies shall not be obligated to perform retrofits and/or modifications to components manufactured prior to the incorporation of the new design and specifications.

Components that are not originally manufactured by Hog Technologies, including but not limited to, the truck chassis, Jetstream Pump, OMSI (Gear Box), Dresser Roots Blower, are warranted only to the extent of the original manufacturer's warranty and are subject to their allowance to us if found defective by them. Copies of other manufacturers warranty statements are supplied at the time of sale. Hog Technologies will assist with warranty claims on components not originally manufactured by Hog Technologies.

*For approved warranty claims that include labor: If such labor is provided at customer location and not at Hog Technologies headquarters, Hog Technologies reserves the right to invoice customer for reimbursement of travel-related expenses.

Hog Technologies Warranty Schedule
Warranty starts from the date of acceptance by the purchaser. Date of acceptance shall be defined as the time that the Stripe Hog is received by the purchaser. Acceptance of the Stripe Hog shall imply agreement to the terms and conditions of this warranty.

- **1 - 365 Days: 100% Parts and 100% Labor ***

1.1 Safety Hazard & Warning Labels

Pavement grinding equipment can cause serious injury or even death if it is not operated or maintained properly. This manual has been written to include a number of safety instructions to assure the safe operation and maintenance of the equipment. These instructions are in the form of a General Safety Section as well as individual NOTICE, CAUTION, WARNING and DANGER statements. There are also WARNING AND DANGER LABELS located on some components. You should read these warnings carefully and make sure you understand the nature of the hazard as well as the precautions and recommended procedures required to ensure your safety. 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

INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

NOTICE:
INDICATES A SITUATION WHICH CAN CAUSE DAMAGE TO THE MACHINE, PERSONAL PROPERTY, AND/OR THE ENVIRONMENT OR CAUSE THE EQUIPMENT TO OPERATE IMPROPERLY.

IMPORTANT NOTE:
Every precaution has been taken by Hog Technologies to reduce the risks associated with possible injury and damage from electrical faults, hydraulic components and mechanical failure. However, your own precaution and good maintenance procedures are necessary in order to maintain a safe working environment.

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

1.2 General Safety

Use Professional Training

Operating high powered pavement grinding equipment requires professional training, including safe work practices and procedures. Only professionally trained personnel should be allowed to setup, operate, or maintain high powered grinding equipment. If you have not completed the Hog Technologies basic training course you will be a danger to yourself and others. Grinding system components can cause severe injury or even death to personnel if the Rumble Hog is not operated properly and/or proper safety precautions are not followed.

Always Read Instruction Manuals

Read this manual and all other equipment operation manuals and instructions prior to using the Rumble Hog. Contact Hog Technologies (877-HOG ROAD) should any questions arise.

Major Component Operation Manuals

The suppliers of some major components such as truck chassis, engine, pumps and drive units, provide their own operation manuals which have been included with your equipment. You should read the information in this manual and the manuals from other manufacturers 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 JUDGMENT WHEN INSTALLING OR REPAIRING EQUIPMENT AND WHILE OPERATING THIS EQUIPMENT.

Work Area Safety

Remember, safety is first! Only set up to work in areas properly protected from traffic and other hazards. Individuals being struck by vehicles or mobile equipment leads to many work zone fatalities or injuries. Work zones need traffic controls identified by signs, cones, barrels and barriers. You should always wear high visibility clothing with a fluorescent background and made of retro-reflective material to be more visible to motorists and reduce the possibility of an accident. Work stations should always be illuminated.

Outfit all operators and support personnel with proper safety apparel. Always use eye protection to shield from projected debris. Use ear protection to protect from noise levels generated from the truck and cutter. It is very important to wear steel toed boots that provide good traction on slippery surfaces such as on top of the water tank or chassis platforms.

Never wear loose clothing. Loose clothing can get caught on moving or rotating parts causing serious injury or even death.

Most rumble stripping and grinding operations generate noise levels above 90 dB. Hearing protection is required in accordance with OSHA standards.

OSHA's Permissible Noise Exposure	
90 dB	8.0 hours
92 dB	6.0 hours
95 dB	4.0 hours
97 dB	3.0 hours
100 dB	2.0 hours
102 dB	1.5 hours
105 dB	1.0 hours
110 dB	30 minutes
115 dB	15 minutes

WARNING

ALL PERSONNEL EXPOSED TO 90 DB OR GREATER NOISE LEVELS SHOULD RECEIVE INSTRUCTION IN THE CORRECT USE OF EAR PROTECTION SO THAT THEIR NOISE EXPOSURE LIES WITHIN THE LIMITS SPECIFIED BY OSHA. NEVER ALLOW ANYONE NEAR THE WORK AREA WITHOUT PROPER EAR PROTECTION.

REMEMBER: GRINDING OPERATIONS CAN CAUSE DEBRIS TO BE PROJECTED UNEXPECTEDLY IN AND AROUND THE WORK AREA THAT CAN CAUSE SEVERE INJURY. MAKE SURE ALL PERSONNEL STAY CLEAR OF THE GRINDING AREA AND USE HARD HATS, EYE AND EAR PROTECTION.

Always be sure your work area is clear of people whenever the cutter is engaged. When working on any component of the truck or cutter chassis, always make sure the truck is parked and in the service position.

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 change or 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 any time, without notice, in colors, materials, equipment, specifications, and models.

If you have questions about the equipment on your Rumble Hog, please contact the Customer Support Department at (877) HOG ROAD or (001) (772) 214-1714.

Never Alter a Hog Technologies Product
Do not alter any product without written consent from the manufacturer. Any alterations could have serious consequences including bodily harm or death. Alterations without manufacturer consent will void the warranty.

Inspect Equipment
Inspect the condition of all components prior to use. Do not use any item that is in questionable condition.

IMPORTANT NOTE:
YOUR EQUIPMENT USES AN INTERNAL COMBUSTION ENGINE 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.

Store Components Properly
Protect all components from damage when not in use. Always secure the lift arm and cutter chassis for transit.

1.3 Operation & Cutter Safety
Safety Rules and Statements
Before operating or performing any maintenance on the vehicle, review the following safety precautions. These are included for your protection and safety.

Always observe the general safety rules during operation of the vehicle. Also observe the safety rules set forth in the work place. The need for additional rules for safe operation may arise due to particular applications. The following safety rules should only be used as a general guide.

- Perform all recommended checks and report all vehicle defects.
- Check the area around entire vehicle prior to operation.
- Make sure all bolts, nuts, screws and other fasteners are in place and tight. All fasteners should be inspected frequently and replaced or tightened as required.
- Recognize and avoid potential hazard areas, such as the cutter (especially the teeth), lift arm, lift area, etc. The operator and passengers must be seated in proper seats with seat belts fastened during operation.
- Do not operate equipment while under the influence of alcohol or drugs.
- Ensure that all instruments, indicators and operating controls are functioning properly before operating the truck or cutter.
- Do not allow pedestrians near the vehicle when cutter is in operation.
- Always make sure the cutter chassis is centered and secured in the lifted position with the locking arm before driving the truck on the highway. This will insure proper weight distribution, avoid unexpected lowering of the grinding chassis and equipment damage.
- Never work on the cutter or lift arm unless it is secured with the locking arm in the up position and/or supported with safety stands.
- Always secure the cutter arm in the full up position with the locking arm when the vehicle is parked.
- Operate vehicle with caution. Be aware of your surroundings.

Be Prepared

If the equipment malfunctions or a malfunction is suspected, immediately stop all operations and shutdown the vehicle until proper repairs are made.

Use only thoroughly trained personnel to perform maintenance or repairs.

Cutter Hazard

Raising the lift arm and securing it with the locking arm and latch can be hazardous and requires special precautions that must be observed to reduce the possibility of severe injury to personnel and damage to equipment. Common sense and good judgement must be used whenever the cutter is raised and secured for transit.

The following safety precautions when operating the cutter:

- All operators and support personnel should be fully trained in the safe operation of the grinding unit.
- As the lift arm moves up and down, pinch points are formed. Make sure to keep hands, feet, hair, jewelry, loose clothing, etc. away from these pinch points. If any of these items become caught, serious personal injury or death could occur.
- Keep working area clear of all pedestrians while operating the cutter. Never allow anyone to walk, stand, or perform work near the cutter while it is in operation.
- Align the vehicle and the cutter arm with the road surface before engaging and lowering the cutter.
- Always stop and raise the cutter before reversing the vehicle or making sharp turns.
- After completing operations, always secure the cutter am in the full up position with the locking arm and pins, disengage the transmission PTO and shift the truck to TRAVEL mode.
- Never move or drive the vehicle at highway speeds with the lift arm unsecured with the locking arm and latch.
- If adjustments are required with the cutting drum rotating, always make sure the safety shroud is in place securely fastened.

DANGER

A ROTATING CUTTING DRUM CAN CAUSE SEVERE INJURY OR DEATH IF HANDS, FEET OR LOOSE CLOTHING ARE CAUGHT BY THE TEETH. ADDITIONALLY, LOOSE TEETH OR DEBRIS STUCK IN TEETH CAN BE THROWN FROM THE DRUM WITH ENOUGH FORCE TO CAUSE INJURY.

ALWAYS MAKE SURE THE SAFETY SHROUD IS PROPERLY INSTALLED AND THE HEAD IS ON THE GROUND BEFORE MAKING ANY ADJUSTMENTS WITH THE CUTTER ENGAGED. NEVER ALLOW ANYONE TO STAND NEAR OR BEHIND THE CUTTER WHILE THE DRUM IS ROTATING WITH THE SAFETY SHROUD REMOVED.

DANGER

ALWAYS MAKE SURE AN OPERATOR IS IN THE DRIVER SEAT AND MONITORING THE CUTTER AND ANY PERSONNEL NEAR THE CUTTER WITH THE VIDEO SYSTEM WHENEVER CUTTING DRUM IS ROTATING. THE OPERATOR MUST BE VIGILANT AND PREPARED TO SHUT THE MACHINE DOWN IMMEDIATELY IF A PROBLEM OCCURS WHILE ADJUSTMENTS ARE BEING MADE TO THE CUTTER WHILE THE DRUM IS ROTATING.

WARNING

AS THE LIFT ARM MOVES UP AND DOWN PINCH POINTS ARE FORMED THAT CAN CAUSE SEVERE INJURY OR EVEN DEATH IF HANDS, FEET, HAIR, JEWELRY, LOOSE CLOTHING, ETC. GET CAUGHT IN THESE PINCH POINTS. ALWAYS MAKE SURE ALL PERSONNEL ARE WELL CLEAR OF CUTTER COMPONENTS AND LIFT LINKAGE BEFORE RAISING THE LIFT ARM. NEVER WEAR LOOSE CLOTHING OR JEWELRY WHILE OPERATING THIS EQUIPMENT.

1.4 Electrical System Hazards

The electrical system on your vehicle is powered by a high amperage 12 or 24 volt DC electrical system. To avoid short circuits and circuit overloads that can damage the electrical system or cause a fire, the following precautions apply:

- Turn the main circuit breakers to the OFF position when the vehicle is unattended.
- All circuit breakers for overload protection in electrical circuits must be kept in good condition.
- Never attempt to correct a blown fuse with a fuse of a higher amperage. This could result in equipment damage or an electrical fire.

- Disconnect the negative (-) battery cable first and when reconnecting, connect the negative (-) cable last.
- Do not grind, weld or have open flame near batteries. Sparks can cause explosion.
- Do not weld on truck without turning off the main circuit breakers and disconnecting the batteries.
- Do not short across battery terminals. Sparks can cause an explosion.

1.5 Hydraulic System Hazard

The hydraulic systems for the hydrostatic drive, lift cylinders and hydraulic motors operate at extremely high pressure. Always use extreme caution when working around hydraulic systems. A high pressure fluid leak from a damaged hose or fitting can cause severe lacerations to a person's skin or inject hydraulic fluid into the blood stream, which can be fatal.

The following hydraulic system precautions apply:

WARNING

TO AVOID SERIOUS INJURY OR DEATH, NEVER USE YOUR HAND OR OTHER PART OF YOUR BODY TO CHECK FOR LEAKS IN THE HYDRAULIC SYSTEM. USE A PIECE OF CARDBOARD OR OTHER DEVICE TO IDENTIFY WHERE THE HYDRAULIC SPRAY IS EMITTING.

- Hydraulic hoses and connections must be inspected frequently to ensure they are in good condition and that there are no signs of chaffing or deterioration.
- Use only hydraulic components which are marked with the recommended operating pressure. Never exceed the operating pressure of the weakest component in the system.
- Make sure hoses are protected from contact with sharp objects or chaffing.
- Stretched or abused hose can fail prematurely and unexpectedly, which could cause injury to personnel. Hoses that have been exposed to excessive stretching, kinks or chaffing should be replaced.
- Always make sure all personnel maintain a safe distance from all hydraulic components and hoses whenever the cutting unit is in operation.
- Always depressurize the hydraulic system before removing any hydraulic components, hoses or fittings. Failure to do so could result in serious injury or death.

WARNING

INJURIES FROM HIGH PRESSURE HYDRAULIC SYSTEM COMPONENT FAILURES ARE VERY SERIOUS AND CAN RESULT IN SEVERE INJURY OR A FATALITY. ALWAYS MAKE SURE ALL PERSONNEL ARE A SAFE DISTANCE FROM HYDRAULIC SYSTEM COMPONENTS AND HOSES WHENEVER THE VEHICLE IS OPERATING.

WARNING

ALWAYS USE EXTREME CAUTION WHEN WORKING AROUND HYDRAULIC SYSTEMS. A HIGH PRESSURE FLUID LEAK FROM A DAMAGED HOSE OR FITTING CAN CAUSE SEVERE LACERATIONS TO A PERSON'S SKIN OR INJECT HYDRAULIC FLUID INTO THE BLOOD STREAM, WHICH CAN BE FATAL.

- If the unit is operated in temperatures below 68 degrees Fahrenheit, you must always perform the cold weather hydraulic system warm up procedure in this section and the Operation chapter to avoid significant or catastrophic damage to the system.

1.6 Dumping Safety

Standard Debris Tank

- Always drain all the liquid from the debris tank before dumping the solids.
- Always dump on level ground, never uneven or sloped ground.
- Always choose solid ground, not soft sand or wet soil.
- Always use the remote control to tilt the tank.
- Make sure the operator and all personnel are well clear of the truck before tilting the tank.
- Never allow personnel under a raised tank without safety supports in place.
- Always be careful to avoid any pinch points which could cause injury.

High Dump Tank Lift Hazard

Raising the scissor lift and debris tank can be hazardous and requires special precautions that must be observed to reduce the possibility of severe injury to personnel and damage to equipment. Remember that raising the tank also raises the vehicle center of gravity which can cause the truck to become unstable or even tip over if it is not on level ground. Common sense and good judgement must be used whenever the debris tank is raised. Always be alert to unforeseen problems as the tank raises and be prepared to stop immediately if a problem occurs.

The following safety precautions apply whenever operating the scissor lift:

- All operators should be trained in the safe operation of the dump system before operating the machine or raising the debris tank.
- Always park the truck on solid, level ground before raising and dumping the debris tank. Never attempt to dump on uneven or sloped ground.
- Always drain all the liquid from the debris tank before raising the tank and dumping the solids.
- Always apply vehicle park brake before operating scissor lift to raise the tank.
- Always lower the kickstand to stabilize the truck before raising the tank.
- Always look up and be aware of overhead clearance when raising the tank.
- To avoid the possibility of electric shock, do not raise the debris tank under or near any overhead electrical cables or wires. Failure to follow this warning could lead to injury or death.
- Always use the remote control to tilt the tank.
- Keep working area clear of all pedestrians when operating scissor lift to raise the tank. Never allow anyone to walk, stand, or perform work near or below a raised debris tank.
- As the scissor lift mechanism moves up and down, “pinch points” are formed. Make sure to keep hands, feet, hair, jewelry, loose clothing, etc. away from these pinch points. If any of these items become caught, serious personal injury or death could occur.
- After completing dumping operations, always lower the debris tank to the full down position.
- Never move the vehicle with debris tank raised.
- Never allow personnel under a raised tank without safety supports in place.

DANGER

ELECTRIC SHOCK FROM POWER LINES CAN CAUSE SEVERE INJURY OR DEATH IF THEY COME IN CONTACT WITH THE DEBRIS TANK. ALWAYS CHECK THE AREA AND MAKE SURE THE TRUCK IS A SAFE DISTANCE AWAY FROM ANY POWER LINES BEFORE RAISING THE DEBRIS TANK.

WARNING

PINCH POINTS ARE FORMED AS THE SCISSOR LIFT LINKAGE MOVES UP AND DOWN THAT CAN CAUSE SEVERE INJURY OR EVEN DEATH IF HANDS, FEET, HAIR, JEWELRY, LOOSE CLOTHING, ETC. GET CAUGHT IN THESE PINCH POINTS. ALWAYS MAKE SURE ALL PERSONNEL ARE WELL CLEAR OF LIFT COMPONENTS AND LINKAGE BEFORE RAISING THE DEBRIS TANK AND NEVER WEAR LOOSE CLOTHING OR JEWELRY WHILE OPERATING RH7500.

RAISING THE DEBRIS TANK WITH THE TRUCK ON GROUND THAT IS NOT LEVEL COULD CAUSE THE VEHICLE TO BECOME UNSTABLE AND TIP OVER ON ITS SIDE UNEXPECTEDLY, CAUSING DAMAGE TO THE TRUCK AND SEVERE INJURY OR EVEN DEATH TO PERSONNEL. ALWAYS MAKE SURE THE TRUCK IS LEVEL BEFORE RAISING THE DEBRIS TANK.

THE HEAT FROM WELDING CAN CHANGE THE TEMPER OF STEEL AND WEAKEN THE LIFT LINKAGE. NEVER WELD ON THE SCISSOR ARM STRUCTURE WITHOUT WRITTEN PRIOR APPROVAL FROM HOG TECHNOLOGIES.

Cold Weather Warm up Procedure

Starting the RH7500 improperly in cold weather will cause significant damage to the hydraulic system.

Always perform this warm up process before any operational functions if the time lapse since the last operation is more than 30 minutes and outside temperature is below 68 degrees F.

1. Make sure the truck transmission is in neutral, park brake is on, and the **engine speed is less than 800 rpm**. Do not increase engine rpms above lowest possible idle during this procedure.
2. Press Power on the Joystick Box
3. Press Truck PTO
4. Press Omsi PTO --DO NOT INCREASE ENGINE RPM-- Engine speed must remain at low idle.
5. Do not press Mode
6. Press Drive on Allison Transmission controller & verify 6/1 on Allison Display. If the display shows 4/4 you must return to neutral and turn off the Mode Switch.
7. Do not increase engine rpm. Engine speed must remain at low idle.
8. Turn the blower on (if you don't have this option skip this step)
9. Turn the cutter drum on
10. Do not increase engine rpm. Engine speed must remain at low idle.
11. Stay parked in this condition until hydraulic oil warms to greater than 68 degrees Fahrenheit

Once the oil has warmed above 68 degrees follow these next steps

12. Put the Allison Transmission in Neutral
13. Press Mode
14. Press Drive on the Allison Transmission controller & verify 4/4 on Allison Display
15. Do not increase engine rpm. Engine speed must remain at low idle.
16. Release the parking brake
17. Select forward on the Joystick Box
18. Slowly turn the potentiometer to start moving the truck forward. Do not exceed 50% on the dial.
19. Move the truck in this manner for at least 500 feet. It will intentionally move extremely slow.
20. Make sure that the hydraulic oil is still above 68 degrees Fahrenheit.
21. Confirm that the temperature of all hydraulic motors is above 68 degrees Fahrenheit.

When you stop working for any length of time you must keep the machine running in Work mode to keep all components warm and at the same temperature.

WARNING

Circumventing any portion of this procedure will cause catastrophic failure in the hydraulic pumps and motors. This type of failure exhibits distinct characteristics and will not be covered under warranty.

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NOTES

RH7500 W/O Debris Recovery

2.1 Introduction

The Rumble Hog RH7500 is a multi-purpose machine that can grind pavement markings, cut grooves for in-laid pavement markings and cut rumble strips. The cutting system is mounted on a commercially available truck chassis. It is available in the standard configuration without debris recovery or optional configurations with debris recovery.

The cutter system is powered by the truck engine through transmission and auxiliary gearbox power take off units. It includes a hydrostatic truck drive system, two hydraulic systems, a hydraulically powered cutting unit, water dust supresion system, video and laser guidance systems and a DC electrical system. Trucks with optional debris recovery will be equipped with vacuum system connected to the cutter.

The cutter and most components are controlled by soft key switches in the cab mounted digital control panel and joystick control panels. Other functions are controlled by the joystick, separate cab mounted switch panels or switches located on the rear of the debris tank. The features and controls on your truck will vary depending on the options selected.

RH7500 With Debris Recovery

The operation and Maintenance requirements for the engine, drivetrain and chassis components are unique to the chassis manufacturer and selected options. Each manufacturer provides owner 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.

Proper operation and Maintenance procedures for Rumble Hog systems are essential to efficient and safe operation. Maintenance requirements and operating instructions are outlined in subsequent sections of this manual. Make sure you read this manual and the manuals from other major component manufacturers which have been included with your equipment before operating the Rumble Hog.

Hydraulic Fluid Reservoir & Sight Glass

2.2 Hydraulic System

Hydraulic System Overview

The Hydraulic system powers all movement of the cutter arm, rotation of the cutting drum, the water pump, debris tank hoist, vacuum debris recovery system and the hydrostatic drive. Hydraulic system components are powered by the truck engine. They are activated by the PLC and switches in the truck cab switch panels or digital control.

There are several hydraulic pumps, a large reservoir tank, a manifold to centralize control valves and in-line filters. Two heat exchangers cool hydraulic fluid during operation. Electric solenoid valves, activated by switches in the digital controller, joystick, remote control or on the rear of the debris tank, direct hydraulic pressure to the various components.

Filters protect the system from debris. Pressure gauges on the hydraulic manifold and near the filters alert the operator when they are dirty and require changing.

Reservoir

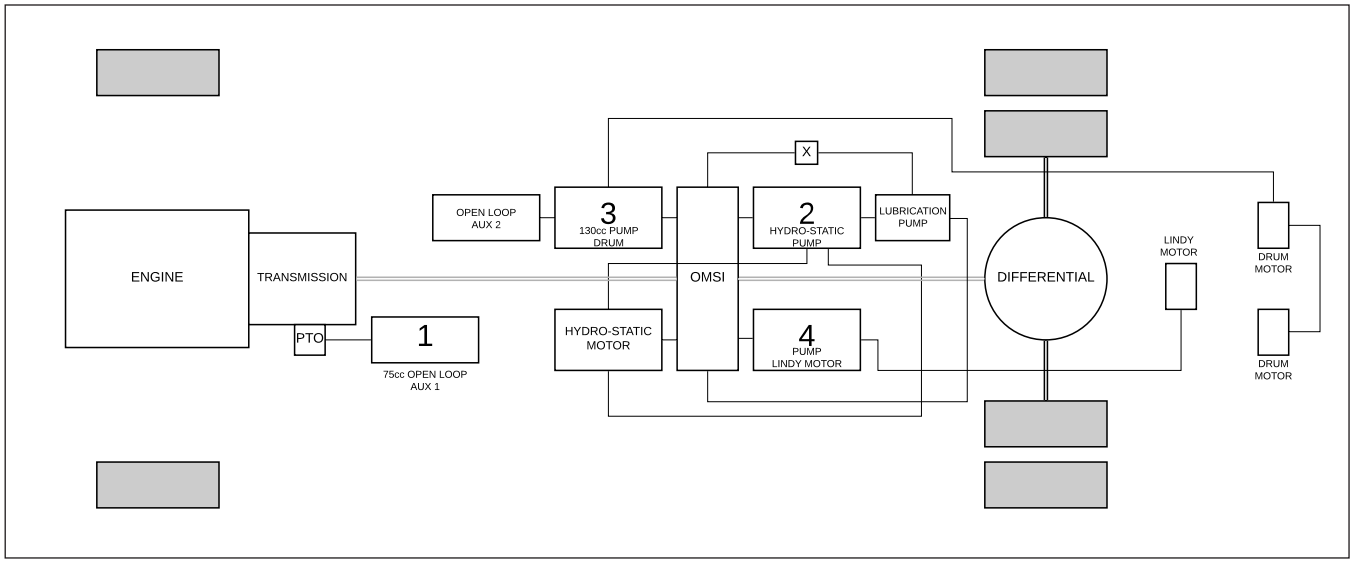
A large reservoir tank mounted on the chassis behind the cab provides hydraulic fluid for the system. The pumps circulate fluid through the manifold, hydraulic motors, cylinders and other components, then back to the tank. In-line low pressure filters near the reservoir clean the fluid as it flows back into the reservoir.

The hydraulic reservoir is equipped with a sight glass to view oil level. The thermometer inside the sight tube should not be used to determine correct temperature to begin operations. Thermal transducers installed on the outlet of the oil cooler display the relevant oil temperature on the controller display screen. The fluid level should be maintained within the upper level of the sight glass to ensure adequate fluid for operation.

Hydraulic fluid should be changed and the tank flushed on a regular schedule as stated in the Maintenance Matrix located in the Maintenance section of this manual.

WARNING

HYDRAULIC FLUID TEMPERATURE MUST BE ABOVE 68 FAHRENHEIT BEFORE OPERATING THE HYDRAULIC SYSTEM. IF THE FLUID TEMPERATURE IS BELOW 68 DEGREES, YOU MUST FOLLOW THE COLD WEATHER WARM UP PROCEDURE TO CIRCULATE HYDRAULIC FLUID AT LOW PRESSURE UNTIL IT IS WARMED TO MINIMUM OPERATING TEMPERATURE AS INDICATED ON THE CONTROL SCREEN. FAILURE TO DO SO WILL RESULT IN EXTENSIVE DAMAGE TO THE INTERNAL SEALS, PUMPS AND MOTORS.



Pump Block Diagrams

Hydraulic Pumps

Pump #1 Also know as Aux 1, is the implement pump. It is driven by the transmission auxiliary PTO. It provides power to the cutter arm lift cylinders, skip cylinders, water pump, debris tank hoist, arm lock, and arm slide motor.

Pump #2 is the hydrostatic drive pump also mounted on and driven by the OMSI. It is dedicated to the hydrostatic drive system and controlled by the TRUCK SPEED potentiometer in the cab.

Pump #3 is a 130 cc hydraulic pump driven by a drive shaft connected to an output on the right side of the Omsi. It is dedicated to turning the drum and is controlled by a switch in the cab.

Pump #4 is the eccentric drive pump and is also mounted on the OMSI. It turns in direct relation to the forward movement of the truck and independent of the drum speed. It is controlled by the PLC system according to the values assigned by the operator.

Pump #5 is the OMSI fluid circulation pump. This small pump is piggy backed onto pump #4. It circulates hydraulic fluid through the cooling system and lubricates the bearings and seals during transport and operations.

Pump #6 also known as Aux 2, is used to drive the blower and auger for systems with debris recovery.

Truck & OMSI PTO Buttons On Joystick Panel

Electric Hydraulic Pump

An electric hydraulic pump activated by a toggle switch on hydraulic manifold provides hydraulic power to raise or lower heavy components in the event of a hydraulic pump failure. This pump is capable of raising only one component at a time.

Electric Hydraulic Pump

Hydraulic Manifolds

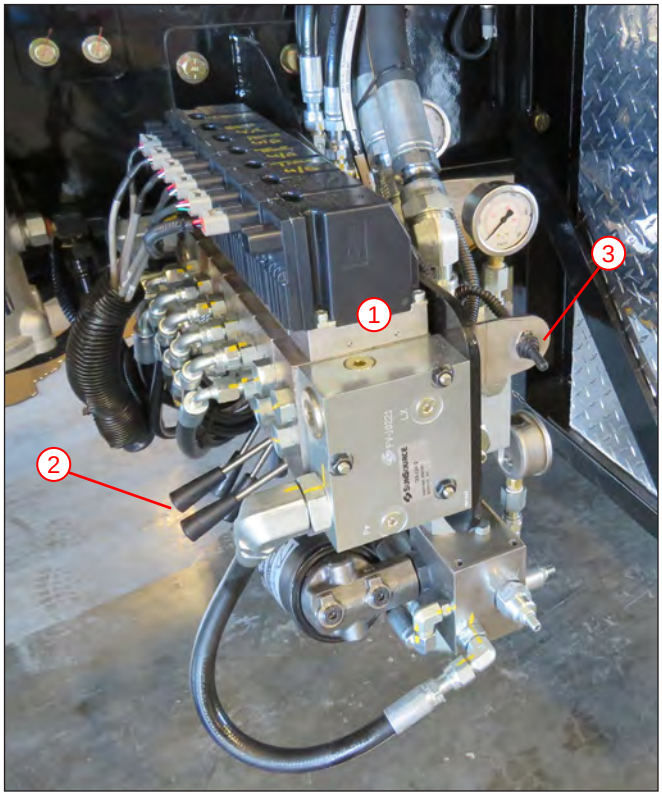
The Hydraulic manifolds are mounted to the chassis behind the driver side of the cab. Electric solenoid valves activated by switches in the control panels direct hydraulic pressure to the various components in the hydraulic system. It is also equipped with a regulator between the low and high pressure side of the manifold that is used to adjust the low pressure setting. The solenoid valves are a cartridge type design that are easily replaced in the event of a failure.

Manual Down Pressure Valve

Down pressure on the cutter arm is set and controlled by a manual bypass valve located near the hydraulic manifold or digital controls on the cab touch screen controller. A gauge near the valve indicates down pressure on the arm.

Down pressure is adjusted by the operator when the cutting mode is changed. Rotating the valve clockwise increases pressure, rotating the valve counter clockwise decreases pressure.

Refer to the Operation section for additional information on setting down pressure and pressure requirements for different modes of operation.



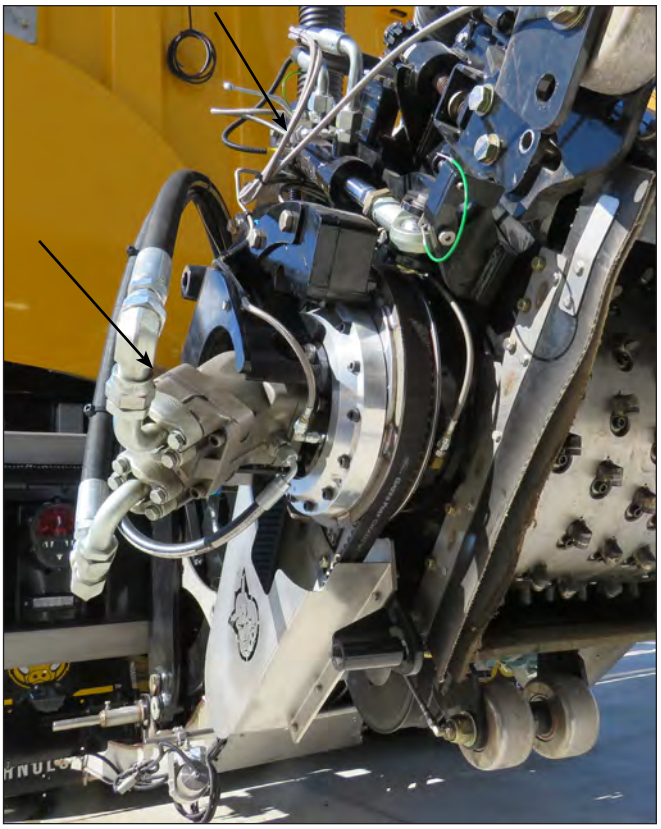
Hydraulic Manifold, Manual Override Valves & Emergency Pump Switch

1. Hydraulic Manifold
2. Override Valves
3. Emergency Pump Switch

Hydraulic Motors and Actuators

The water pumps, auger, eccentric, cutting drum and cutter arm slide mechanism are powered by hydraulic motors. Internal components of the motors are lubricated and cooled by the hydraulic fluid that powers the motor. All hydraulic motors have maximum pressure ratings and RPM settings that should never be exceeded.

The hydraulic motors that power the auger, cutter and eccentric cutting drum are designed to operate in one direction. If one of these motors needs to be removed for any reason, always make sure to mark the hoses and ports so they will be installed in the correct position. If the hoses are installed in the wrong ports, the motor will rotate opposite of the designed rotation which will permanently damage the motor.



Hydraulic Motor & Cutting Drum Skip Cylinder

Hydraulic Cylinders

Hydraulic cylinders are used to raise and lower the cutter lift arm, cutting drum, debris tank and optional continuous discharge auger. Another cylinder activates and releases the locking arm latch that secures the cutter arm in the up position for travel or service.

The hydraulic cylinders used to lift the debris tank, auger or lift arm are equipped with special counterbalance valves that prevent the tank, auger or cutter from dropping suddenly if a hose ruptures or a fitting fails.

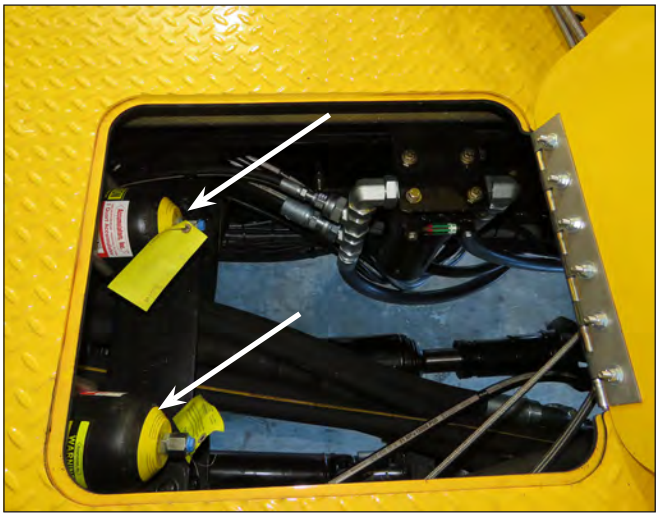
All hydraulic systems and cylinders require special procedures for bleeding air from the system after servicing components or replacing hoses. Contact Hog Technologies if you need assistance in bleeding the air from the hydraulic system.

Debris Tank Lift Cylinders

Hydraulic Accumulators

Two accumulator tanks with gas charged pistons provide reserve hydraulic power and compensate for normal pressure variations in the cutter and skip cylinder hydraulic circuits. They are located near the high pressure filters below the deck access plate.

The gas charged pistons inside the accumulator tanks Maintain hydraulic pressure up to 1500 psi (104 Bar) in the hydraulic circuit when the engine and hydraulic pumps are shutdown. Charge pressure is specific to each accumulator and is marked on the housing. Always make sure to follow proper procedure to bleed pressure from the accumulators and hydraulic circuits before servicing the system.



Hydraulic Accumulators

⚠ WARNING ⚠

ALWAYS DEPRESSURIZE THE HYDRAULIC SYSTEM (HYDRAULIC HOSES AND ACCUMULATORS) BEFORE REMOVING ANY HYDRAULIC COMPONENTS, HOSES OR FITTINGS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH

Hydraulic System Filters

Clean hydraulic fluid that has not been exposed to excessive temperature or become contaminated is essential to the performance of the system. As pumps, cylinders and components wear, they release tiny metal and rubber particles into the hydraulic fluid. These particles act as a grinding compound as they flow through the system. Ordinary dirt and water are common hydraulic fluid contaminants. Any one of these will contribute to premature failure of hydraulic components. Filters on the low and high pressure hydraulic circuits remove these contaminates and increase the life of the fluid and hydraulic components.

Low Pressure Filters

The filters are spin on type filters located near the top of the reservoir tank in the low pressure fluid return circuit. All return fluid passes through the filters as it flows back into the tank. The filters should be changed at the same time the hydraulic fluid is changed or if they begin to restrict the return flow.

A pressure gauge near the filters monitors return fluid pressure which provides an indication of when the filter elements are becoming clogged and must be changed. The elements should also be changed when the hydraulic oil is changed.

Hydraulic System Low Pressure Filters & Pressure Gauge

Cutter Loop Charge Filter
There is a charge filter located below the OMSI drive for the cutter circuit. It is a spin on type filter that should changed every 150 hours of operation or if there is a noticeable decline in cutter performance.

High Pressure Filters
Special fine micron cartridge type filters are located in the high pressure circuit between the manifold and cylinders, motors and other hydraulic components. They remove tiny particles that could be released by the hydraulic pump. The filter element is inside a special canister that can withstand the operating pressure on the high pressure side of the pump.

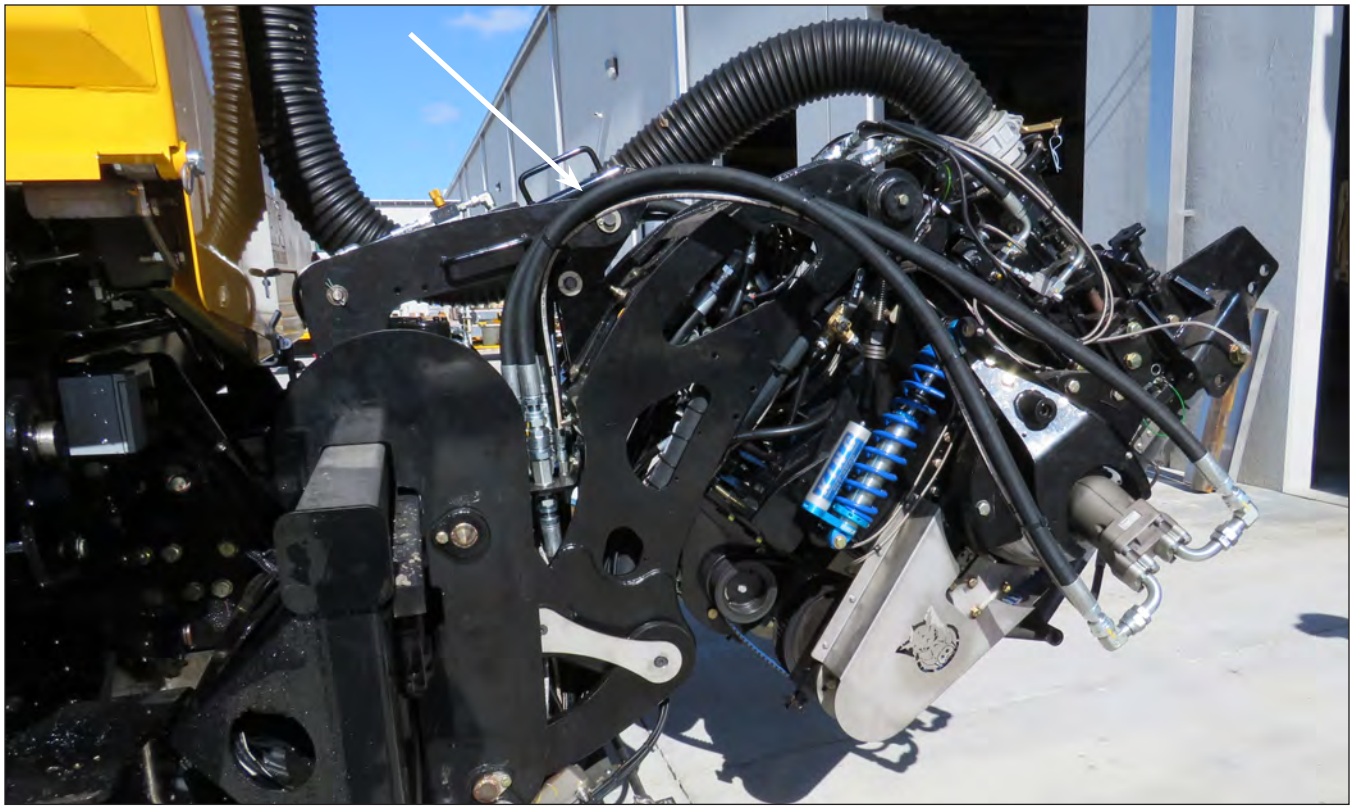
The filters are located below the deck access plate near the hydraulic pumps. A pressure gauge near each filter monitors the pressure and provides an indication of when the filter element is becoming clogged and must be changed. The elements should also be changed when the hydraulic oil is changed.

Suction Filter
The suction filter provides additional protection for the hydrostatic drive/cutter eccentric circuits. This is screen type filter that must be changed frequently. Typically every 150 hours of operation. A clogged suction filter will dramatically impact the performance of the eccentric and hydrostatic drive systems and could result in pump damage.

Donaldson Low Pressure Charge Filter For The Cutter Circuit

Hydrostatic Drive & Eccentric Pump Suction Filter

High Pressure Filter & Gauge



Hydraulic Hoses

Hydraulic Hoses

The hydraulic system operates at pressures of up to 3,000 psi (207 BAR). Therefore, it is critical that the operator and maintenance personnel inspect the hydraulic hoses, fittings and other components frequently. A visual inspection of the entire hydraulic 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 the unit. A more thorough inspection of the pumps and components should be conducted at each routine service interval. Remember that the hydraulic system can be severely damaged if it runs low on fluid.

Protect the hoses from contact with sharp objects or kinks. Never operate the hydraulic system with a damaged hose or a hose that is questionable.

WARNING

INJURIES FROM HIGH PRESSURE HYDRAULIC SYSTEM COMPONENT FAILURES ARE VERY SERIOUS AND CAN RESULT IN SEVERE INJURY OR A FATALITY. ALWAYS MAKE SURE ALL PERSONNEL ARE A SAFE DISTANCE FROM HYDRAULIC SYSTEM COMPONENTS AND HOSES WHENEVER THE CUTTER SYSTEM IS OPERATING.

WARNING

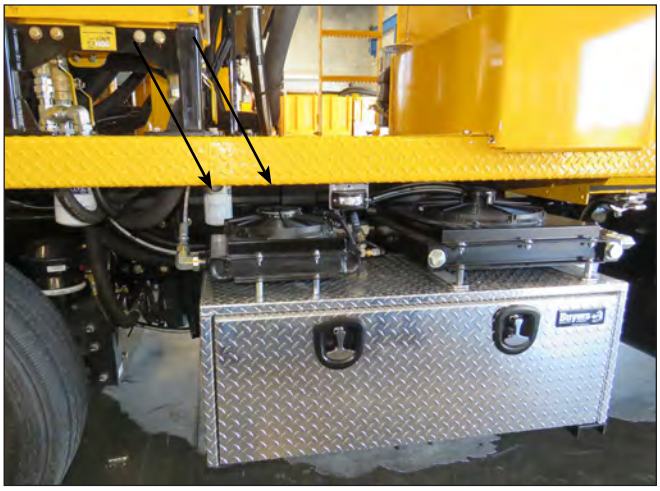
TO AVOID SERIOUS INJURY OR DEATH, NEVER USE YOUR HAND OR OTHER PART OF YOUR BODY TO CHECK FOR LEAKS IN THE HYDRAULIC SYSTEM. USE A PIECE OF CARDBOARD OR OTHER DEVICE TO IDENTIFY WHERE THE HYDRAULIC SPRAY IS EMITTING.

2.3 Hydrostatic Drive System

The hydrostatic drive pump is bolted to the OMSI gearbox. It is powered by the truck engine and primary drive shaft connecting transmission to the OMSI drive.

The closed loop hydrostatic drive system is activated by the OMSI PTO switch on the joystick switch panel. A swash plate controlled by the joystick and TRUCK SPEED dial directs fluid flow and pressure output from the pump, setting the speed and direction of the hydrostatic drive motor.

Hydraulic fluid is provided by the hydraulic system reservoir/cooling tank. A circulation pump and heat exchanger with cooling fans provide continuous cooling for the hydraulic fluid during operation. Electric solenoid valves, activated by the joystick and TRUCK SPEED dial control the fluid flow in the system. A dedicated, in-line spin on type filter protects the system from debris. A pressure gauge near the filter alerts the operator when the filter is dirty and requires changing.



Hydrostatic Drive Fluid Filters & Cooler

2.4 Fluid Coolers

The RH7500 is equipped with coolers for the engine, transmission, drivetrain components and hydraulic system.

Engine And Drivetrain Coolers

Heat exchangers that cool engine oil and transmission fluid are located in front of the radiator in the engine compartment and on the chassis. The heat exchanger for the hydrostatic drive is located above the passenger side tool box. Refer to the truck chassis and OMSI operation manuals for additional information on the operation and maintenance of the engine and drivetrain cooling systems.

Hydraulic Fluid Coolers

Hydraulic Fluid Coolers

Two heat exchangers are located on the top and side of the hydraulic fluid reservoir. Each cooling unit is equipped with fans that run constantly whenever the hydraulic system is activated.

Heat exchangers loose efficiency if they become dirty. It is important to inspect cooling fins at least once a week and clean them as necessary. If they 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 severe damage to hydraulic system components.

Clean Water Tank

1. Water Tank
2. Debris Tank
3. Water Tank Fill Fitting & Valve
4. Water Tank Sight Gauge
5. Water Pump

2.5 Water System

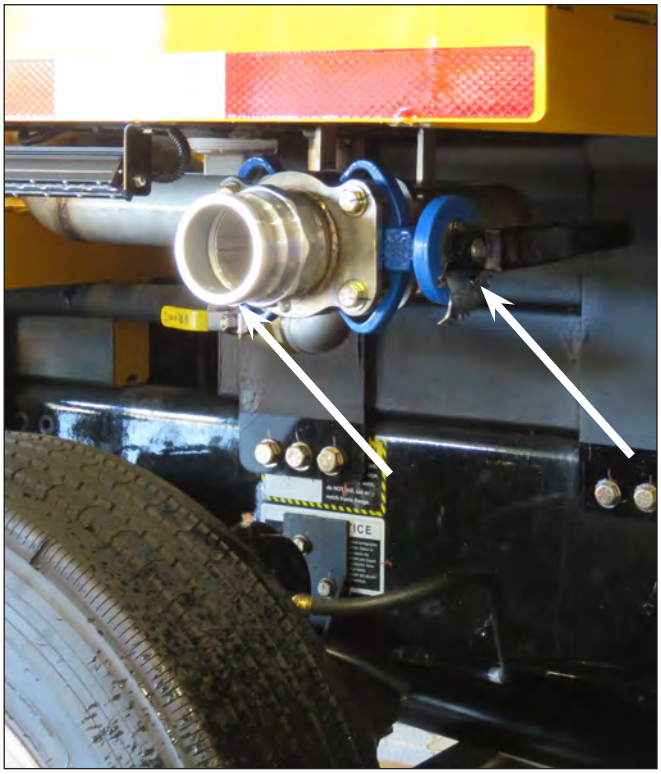
The water system that suppresses dust during operation consists of a water storage tank, delivery pump, hoses and nozzles that spray water on the cutter during operation. The hydraulically powered pump is engaged by a switch in the digital control panel.

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

Water Tank

The water tank is mounted to the chassis just forward of the debris tank and made of stainless steel to reduce corrosion and provide a supply of clean, fresh water to the pump. A site tube on the forward side of the tank indicates the water level and a valve on the bottom of the tank allows for quick draining.

The water tank fill connection accommodates large hoses that are typically connected to a metered source like a fire hydrant to expedite the filling of the tank.



Water Tank Fill Fitting & Valve

Operators must always monitor the tank closely during filling operations as the flow of water from a hydrant will be greater than the flow capacity of tank air vent. Overfilling the tank will cause excessive pressure and damage the tank.

Only use potable water (clean enough to drink) to increase the service life of the components in the water system. Always flush the water source for several minutes prior to filling the tank to help ensure that no debris enters the system. Additionally, the tank should be flushed frequently with clean, fresh water to prevent the accumulation of debris that may accidently enter the tank.

There is a 3" ball valve on the driver side bottom of the tank that allows for quick draining of the tank when flushing is required or complete draining for system winterization. A large man-way hatch on the top of the tank provides access to the interior for inspection or to facilitate cleaning.

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 TO ENSURE THE UNIT CANNOT BE ACCIDENTALLY DRIVEN WITH THAT PERSON 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.

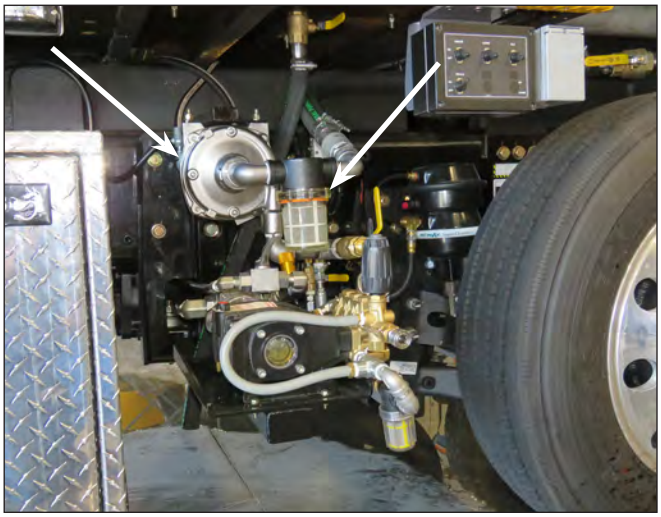
Water Tank Man-Way Hatch

Water Tank Drain Valve

Water Pump

The water pump is powered by the implement hydraulic system that is activated by the transmission auxiliary PTO. When activated, the pump delivers a constant flow of water to the nozzles that spray water on the cutting drum to cool the cutter and help reduce dust. The pump should Maintain a minimum pressure 50-60 PSI (2.8-4.1 Bar) on the water pressure gauge in the digital control panel.

A supply valve and strainer are located between the water tank and the pump. The valve controls the flow of water. Always make sure there is at least a half a tank of water and the supply valve



Water Pump & Water Strainer

is open prior to engaging the water pump. If the pump is engaged while this valve is closed or there is no water in the tank, the cutter will not be cooled properly and the pump impeller will likely be damaged.

The water pump is activated by engaging the auxiliary PTO and pressing button 5 on the digital control panel in the cab of the truck. Once activated, the pressure gauge in the digital control panel should rise immediately above 10 psi (7 BAR) and continue climbing to normal operating pressure, approximately 50 - 60 PSI (2.8 - 4.1 Bar). Refer to Startup Procedure in the Operation section of this manual for additional startup and operating instructions.

Water supply problems are indicated by low water pressure or by the sound of the pump. Fluctuating pump RPM, inconsistent high pitch whines and fluctuating water pressure are indications of a water supply problem to the water pump. If the pressure does not immediately rise and the pump is whining, immediately turn the pump off. Make sure the supply valve is open and/or bleed the air from the system. Operators should be familiar with the normal sound of the pump and be prepared to turn off the pump and cutter if the sound changes. Find and correct the problem before cutting operations resume.

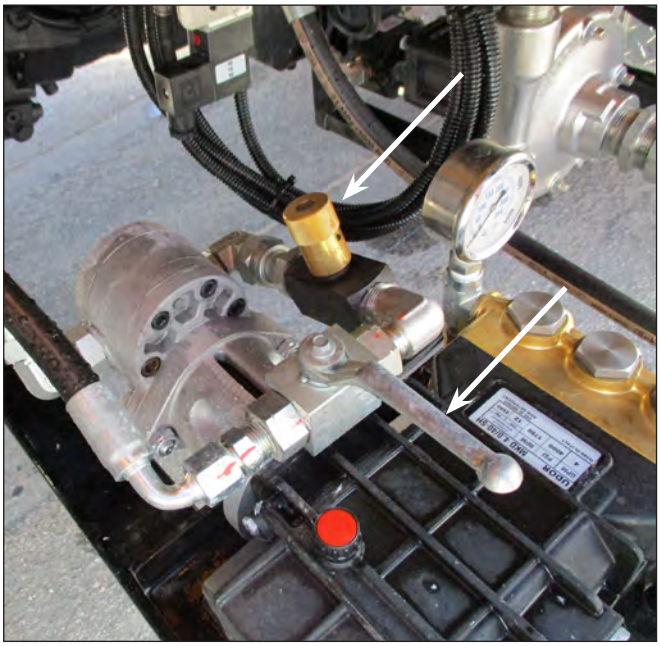
2.6 Handheld Pressure Washer

A pressure washer is mounted to the chassis below the charge water pump. It provides up to 4000 psi (276 BAR) to the handheld spray gun. The pressure hose and spray gun connect to a high pressure disconnect fitting on the pump and are stored in the tool box when the handheld pressure washer is not being used.

The pressure washer is powered by the hydraulic system. A manually operated hydraulic pressure ON/OFF valve and a flow control valve supply pressurized hydraulic fluid to the hydraulic motor that powers the pump. The flow control valve is equipped with colored rings that indicate the valve setting for reference.

A ball valve on the water line turns the water supply to the pressure pump on or off. Pressurized water from the clean water tank is provided to the pump by the water system pressure pump.

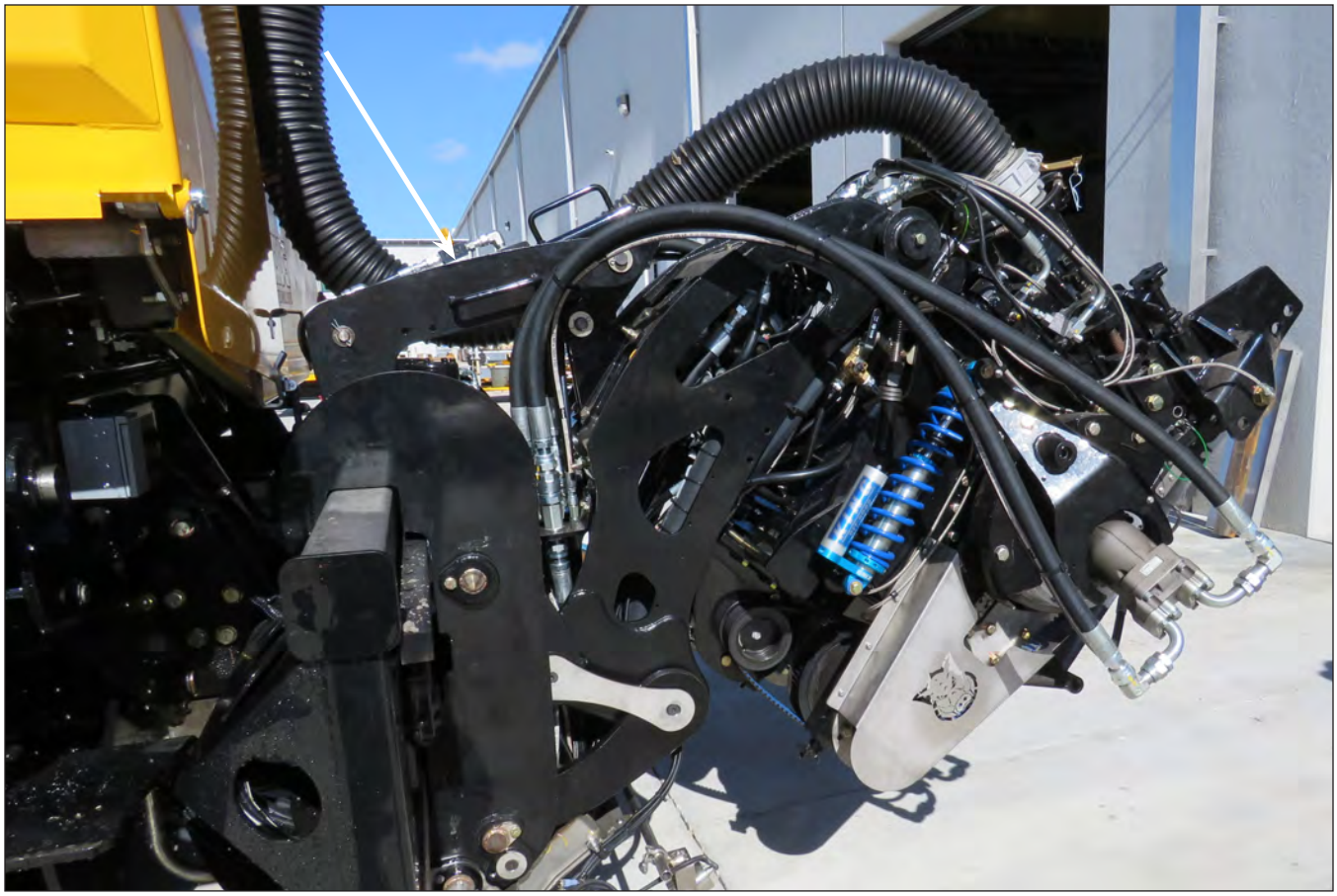
Handheld Pressure Washer



Hydraulic Pressure ON/OFF Valve & Flow Control Valve

Always make sure to close the hydraulic pressure and water ball valves whenever the pump is not being used.

Refer to the Operation chapter for procedures to activate and shutdown the handheld pressure washer.



Cutter Lift Arm

2.7 Lift Arm & Locking Mechanism

Lift Arm And Cylinders

The cutter lift arm assembly is mounted to a slide track on the rear of the chassis. A hydraulic motor and drive gear mounted to the front of the arm moves the arm right and left on the slide track. All functions of the cutter and lift arm are controlled by the joystick and switches in the digital controller or remote controls.

The accessory hydraulic system provides the power for all functions of the arm. It is activated by the TRUCK PTO switch in the joystick switch panel. Refer to the Startup procedure in the Operation section of this manual.

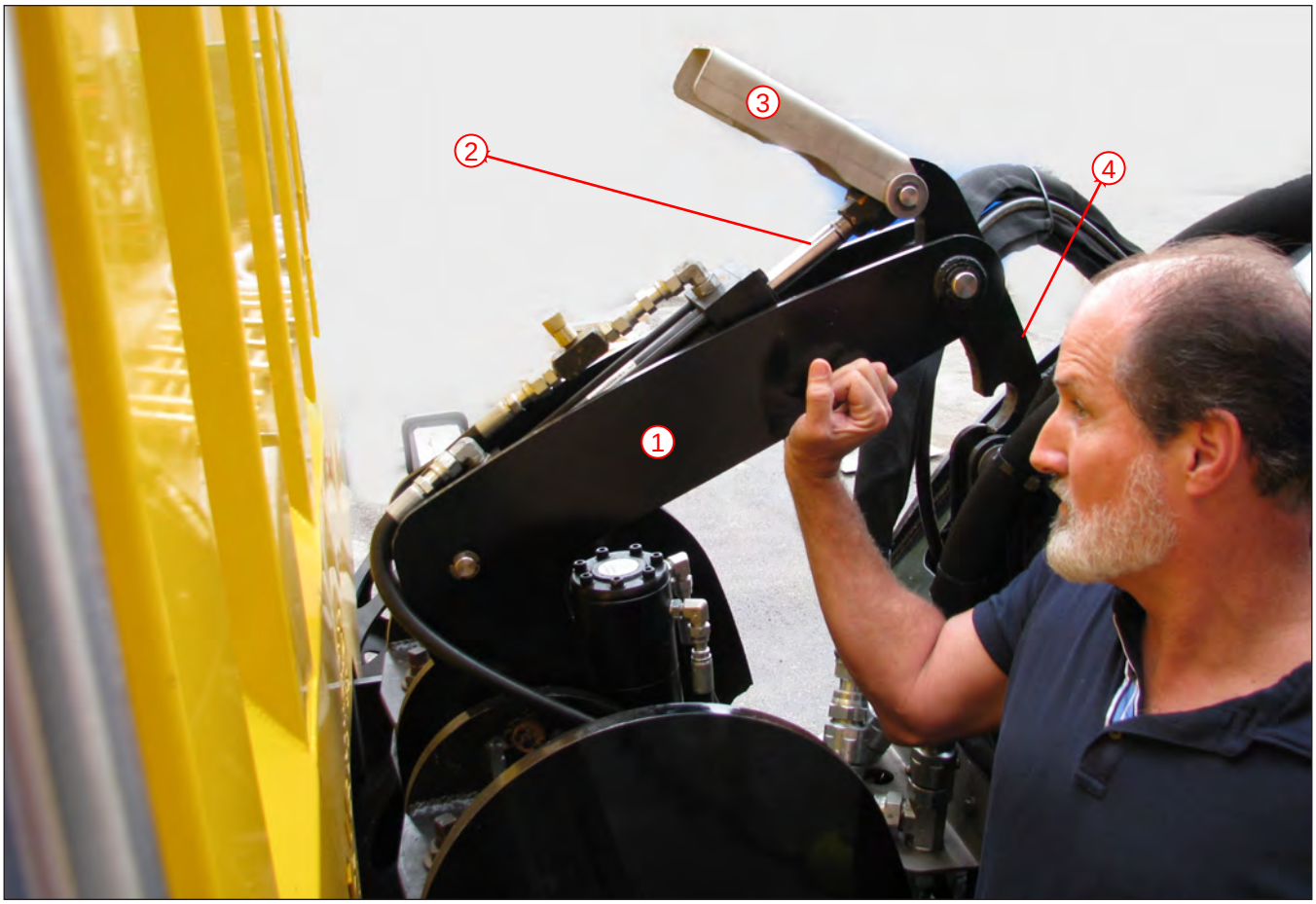
The lift arm is equipped with hydraulic cylinders that raise and lower the arm or apply variable down pressure on the arm and cutter. Down pressure is set by the operator on the digital controller. Once down pressure is set, the cylinders allow the arm to float while Maintaining consistent down pressure on the cutter. This allows the cutter and truck to follow the contour of the pavement without causing damage to the cutter or pavement.

WARNING

AS THE LIFT ARM MOVES UP AND DOWN PINCH POINTS ARE FORMED THAT CAN CAUSE SEVERE INJURY OR EVEN DEATH IF HANDS, FEET, HAIR, JEWELRY, LOOSE CLOTHING, ETC. GET CAUGHT IN THESE PINCH POINTS. ALWAYS MAKE SURE ALL PERSONNEL ARE WELL CLEAR OF CUTTER COMPONENTS AND LIFT LINKAGE BEFORE RAISING THE LIFT ARM. NEVER WEAR LOOSE CLOTHING OR JEWELRY WHILE OPERATING THIS EQUIPMENT.

Locking Arm And Lock Mechanism

When the arm is raised to the full up position, the arm locking mechanism can be engaged to secure the arm in the up position for travel. This is a safety feature that prevents the arm from being lowered accidentally or drifting down while the vehicle is operating in Travel mode.

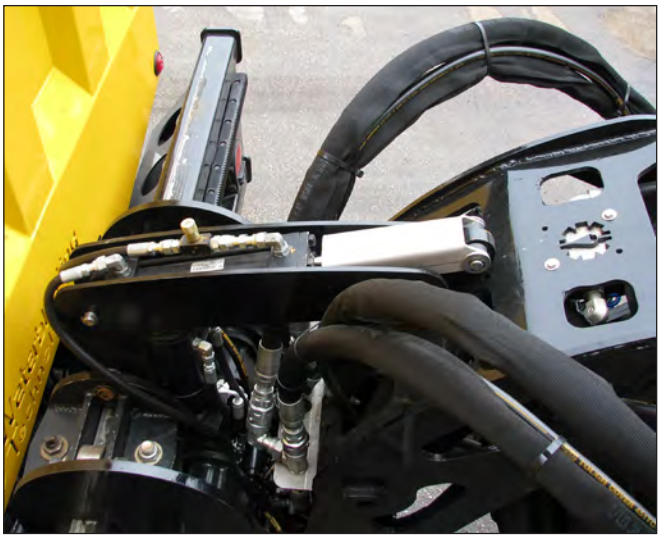


Lift Arm Locking Mechanism

1. Locking Arm
2. Latch Hydraulic Cylinder & Ram
3. Hydraulically Activated Latch
4. Hinged Locking Plate

The locking mechanism consists of a lock arm with a hydraulically activated latch that secures the lock arm to the lift arm. A hinged locking plate on the top of the locking mechanism swings down manually to lock the latch in the closed position and prevent it from being released accidentally. The hydraulic cylinder that opens and closes the latch is controlled by the LATCH/TANK toggle switch on the rear of the debris tank and the UP/Down switches in the remote control.

The operator must manually release the locking mechanism before the arm and cutter can be lowered. Refer to the Operation section for instructions to release or engage the lift arm locking mechanism.



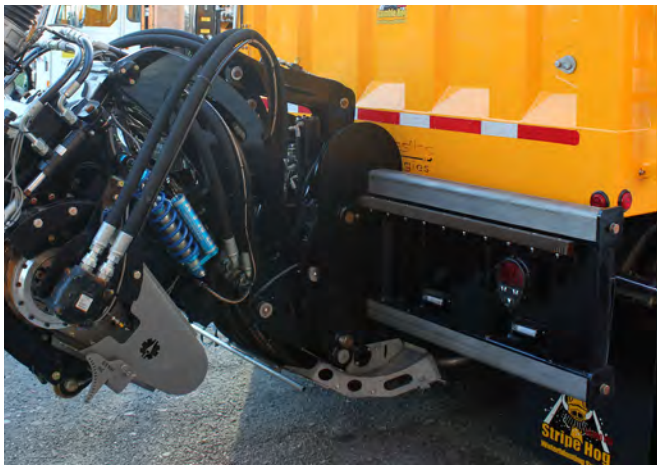
Locking Arm Latched To Lift Arm & Secured With Locking Plate

NOTICE:
TO RELEASE THE LOCK, THE TRUCK PTO WILL HAVE TO BE ENGAGED AND THE LIFT ARM RAISED SLIGHTLY TO RELIEVE THE STRAIN ON THE LATCH. ADDITIONALLY, THE LOCKING ARM MUST BE MANUALLY RAISED FROM THE LIFT ARM AND THE HYDRAULIC LATCH CLOSED AND LOCKED BEFORE OPERATING THE LIFT ARM AND CUTTER.

Lift Arm Slide Track

The lift arm slide track & trolley mounting system enables the operator to move the arm and cutter to either side of the truck or any place in between. The arm is mounted to a special chassis plate that rides on heavy duty rollers and slide tracks on the rear of the chassis. A hydraulic motor on the arm controlled by the joystick or the LEFT/RIGHT buttons on the digital control panel moves the lift arm and secures it in the desired position.

Refer to the Operation section for instructions on operating the lift arm slide track system.

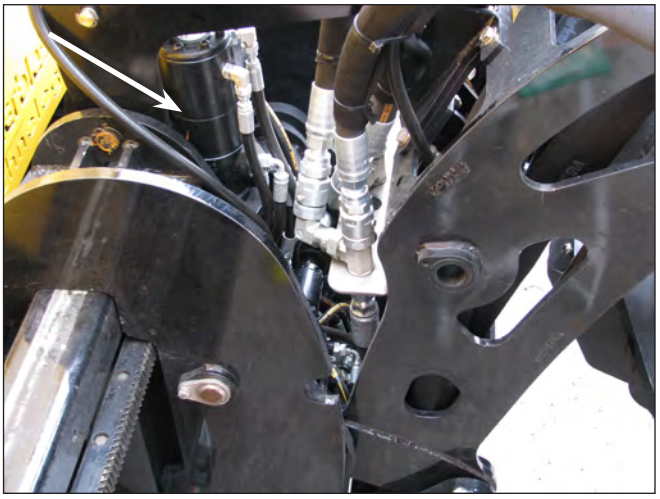


Lift Arm Slide Track & Trolley

⚠ WARNING ⚠

THE CUTTER IS HEAVY AND WILL CAUSE THE TRUCK CHASSIS TO BE OFF BALANCE IF IT IS NOT CENTERED BEFORE TRAVELING ON THE HIGHWAY. THIS COULD CAUSE HANDLING PROBLEMS THAT COULD RESULT IN AN ACCIDENT.

ALWAYS MAKE SURE THE CUTTING UNIT IS MOVED TO THE CENTER OF THE TRUCK CHASSIS FOR PROPER BALANCE BEFORE TRAVELING ON THE HIGHWAY.

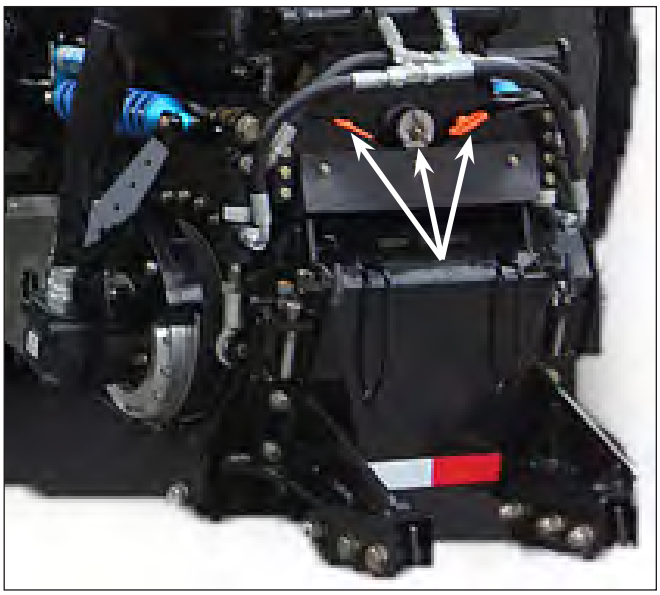

Lift Arm Slide Track Right/Left Hydraulic Motor

Articulation Hinge

The cutter chassis is connected to the arm by an articulating hinge that allows the chassis to articulate right or left as it follows the contour of irregular pavement.

Two pins, one on each side of the hinge are inserted to prevent the cutter from articulating during travel. The pins are normally left in place when cutting pavement that is relatively flat and consistent. When cutting pavement with ledges or other inconsistencies that require additional cutter articulation, the pins can be removed.

To remove the pins, make sure the cutter is raised to take the load of the pins. Pull each pin out and allow them to hang on the tether. Install the


Articulation Hinge & Lockout Pins

pins by raising the cutter. Then rotate the cutter slightly until the pins can be inserted in the holes.

2.8 Cutter

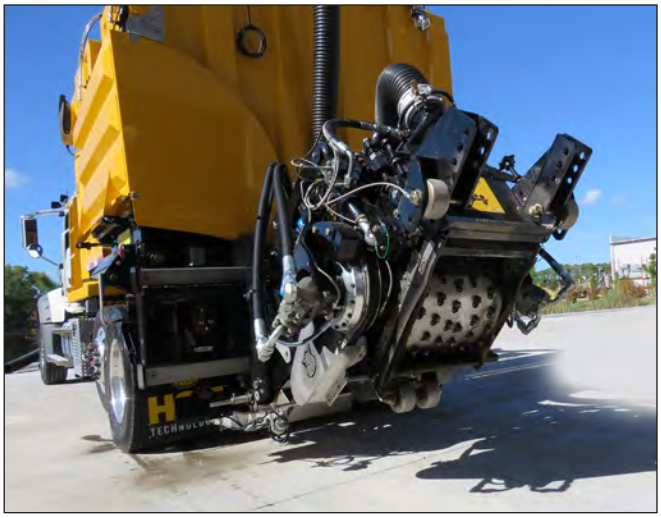
Overview

The cutter assembly and chassis is mounted on the lifting arm. It can be operated in two modes, rumble stripping or planing. Cut alignment is controlled manually by controls in the cab or automatically by the auto guidance system. Special teeth mounted on a hydraulically powered rotating drum do the cutting.

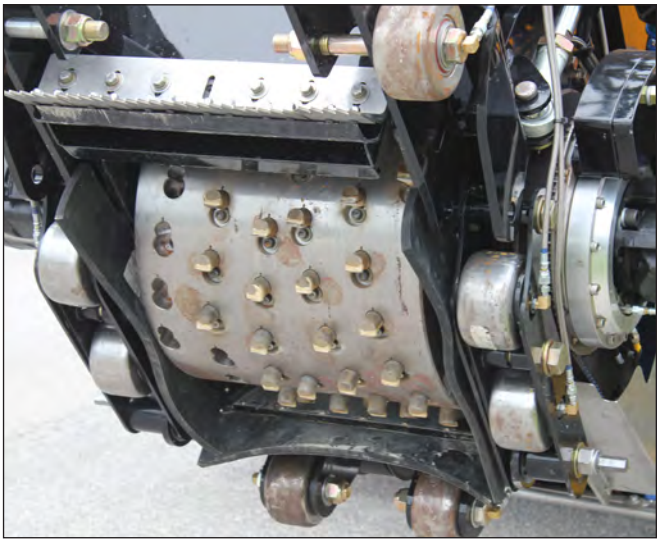
Hydraulically powered, rotating eccentrics cause the cutter to plunge at a specific depth with each rotation in rumble stripping mode. Gas charged shock absorbers and springs connected to the hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporally suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This Maintains the cut width and pattern when truck speed is increased or decreased during operation.



Cutter Unit Raised



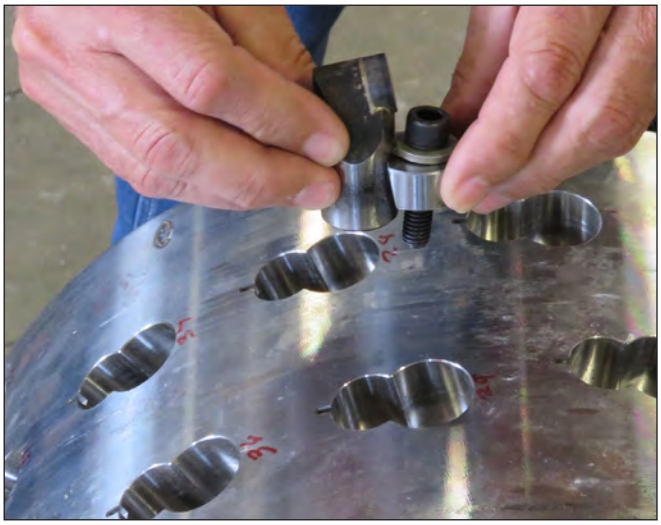
Cutting Teeth & Drum

Drum and Teeth

The cutter drum rotates independently from the eccentric and is powered by two direct drive hydraulic motors on each end of the drum axle. The hydraulic motors are powered by a dedicated hydraulic pump driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.

Cutting width can be changed by removing or adding teeth. Rounded teeth are used for cutting rumble strips. Flat teeth are used for planing.

The water system supplies pressurized water to spray nozzles mounted to the cutter chassis just



Typical Cutting Tooth

forward of the cutting drum. Water cools the drum and reduces dust during operation. Always make sure the water system is activated and supplying water to the cutter when rumble stripping or planing operations are underway.

WARNING

THE CUTTING DRUM AND TEETH AND ARE EXPOSED WHEN THE CUTTER IS RAISED BY THE LIFT ARM. AN EXPOSED ROTATING CUTTER CAN BE EXTREMELY DANGEROUS AND CAUSE SEVERE INJURY TO PERSONNEL. ALWAYS MAKE SURE ALL PERSONNEL ARE WELL CLEAR OF THE CUTTER BEFORE RAISING THE LIFT ARM WITH CUTTING DRUM ROTATING OR ENGAGING THE CUTTING DRUM WITH THE UNIT RAISED .

DANGER

A ROTATING CUTTING DRUM CAN CAUSE SEVERE INJURY OR DEATH IF HANDS, FEET OR LOOSE CLOTHING ARE CAUGHT BY THE TEETH. ADDITIONALLY, LOOSE TEETH OR DEBRIS STUCK IN TEETH CAN BE THROWN FROM THE DRUM WITH ENOUGH FORCE TO CAUSE INJURY.

ALWAYS MAKE SURE THE SAFETY SHROUD IS PROPERLY INSTALLED AND THE CUTTER CHASSIS IS ON THE GROUND BEFORE MAKING ANY ADJUSTMENTS WITH THE CUTTER ENGAGED. NEVER ALLOW ANYONE TO STAND NEAR OR BEHIND THE CUTTER WHILE THE DRUM IS ROTATING WITH THE SAFETY SHROUD REMOVED.

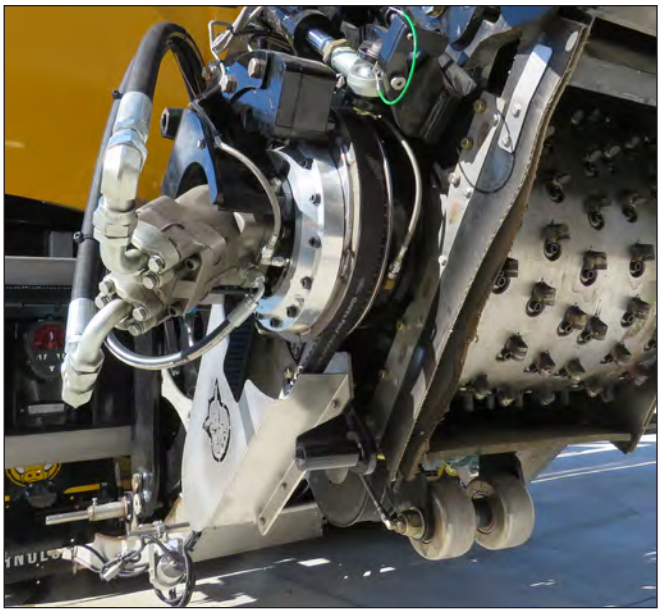
DANGER

ALWAYS MAKE SURE AN OPERATOR IS IN THE DRIVER SEAT AND MONITORING THE CUTTER AND ANY PERSONNEL NEAR THE CUTTER WITH THE VIDEO SYSTEM WHENEVER CUTTING DRUM IS ROTATING. THE OPERATOR MUST BE VIGILANT AND PREPARED TO SHUT THE MACHINE DOWN IMMEDIATELY IF A PROBLEM OCCURS WHILE ADJUSTMENTS ARE BEING MADE TO THE CUTTER WHILE THE DRUM IS ROTATING.

Cutter Eccentric

The cutting drum is mounted to a rotating eccentric system driven by two drive belts, one on each side of the cutter. The drive pulleys for each belt are connected to an axle that is driven by another drive belt and hydraulic motor. The eccentric hydraulic motor is powered by a dedicated hydraulic pump driven by the OMSI PTO. Drive belt tension is critical to proper operation and should be checked frequently and adjusted as required.

Cutter Eccentric



Cutter Eccentric, Drive Belt & Pulley

The eccentric causes the cutting drum and teeth to plunge and lift at a specific depth and height. Eccentric RPM is variable and determines the cut spacing value between the rumble strips. RPM is calculated by the controller and indicated as a percentage of the cut width which sets the distance between each cut. Cutting depth is set by adjusting the rear guide wheels up or down using adjustment bolts on the cutter chassis.

Refer to the Operation section for instructions on programming the cut spacing value.

Cutter Skip Cylinders

The hydraulic cylinders that lift the drum during rumble cutting or planing operations are separate from the cylinders that raise the lift arm and cutter chassis. The skip cylinders are located at the rear of the cutter chassis and powered by the implement hydraulic pump driven by the TRUCK PTO. They are used to temporarily lift the drum completely off the pavement during rumbling or planing operations.

In rumble strip mode, the controller can be programmed to raise the drum every x number of cuts, skip x number of cuts, then lower the drum back to the pavement to create a pattern. The drum can also be raised manually by buttons in the controller, on the joystick or the wireless remote control to raise the drum to momentarily stop cutting while crossing bridges, intersections, driveways, etc.

Adjustable linkages on each cylinder ram provide adjustment to level the cutter if necessary. Refer to the Lubrication & Maintenance section for instructions on the adjusting the skip cylinders.

Cutter Skip Cylinder

Torque Springs And Shock Absorbers

A spring and gas charged shock absorber is connected to a linkage attached to each cutting drum drive motor. The spring and shock absorber absorb the spike in torque that occurs when the cutting teeth contact the pavement.

Spring & Gas Charged Shock Absorber

Gauge And Trim Wheels

Rumble Mode Wheels

There are two trim wheels and four gauge wheels on the bottom of the cutter chassis. The forward wheels are the trim wheels that function as the pivot for the rear gauge and skip cylinder wheels.

The rear gauge wheels support the cutter chassis at a preset height above the pavement. Chassis height sets the depth for each cut as the eccentric plunges the cutter into the pavement (cutting depth). Cutting depth is set by adjusting the rear gauge wheels up or down.

The two gauge wheels just forward of the rear wheels are connected to the skip cylinders that raise the cutter to skip rumble cuts.

Optional skid plates can be bolted to the chassis behind the gauge wheels. The skids are designed to span rumble strips to prevent gauge wheels from dropping into the cuts when wheels must roll in the cut pattern.

Trim & Gauge Wheels - In Rumble Mode

Refer to the Lubrication & Maintenance section for instructions to adjust the rear gauge wheels and cutting depth.

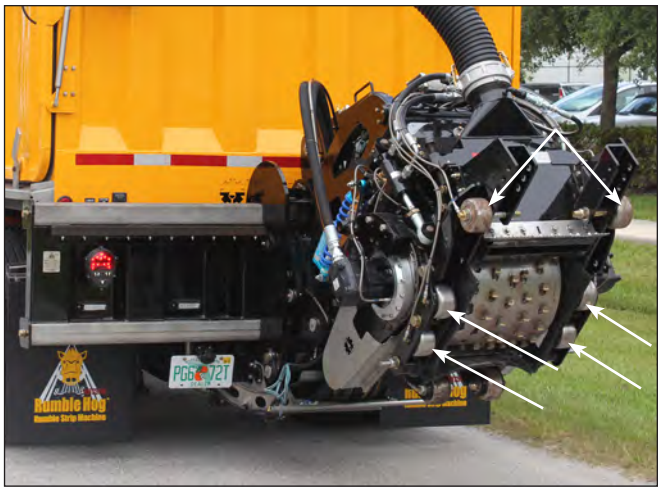
Planing Mode Wheels

There are two trim wheels, two rear gauge wheels and four planing chassis wheels on the bottom of the cutter chassis. The forward wheels are the trim wheels that function as the pivot for the rear gauge and center planing chassis wheels.

The rear gauge wheels and planing chassis wheels support the cutter chassis at a preset height above the pavement (cutting depth). Chassis height sets the cutting depth for planing operations. It is set to required specifications by adjusting the rear gauge wheels and planing chassis up or down.

The rear of the planing chassis is connected to the skip cylinders that raise the cutting drum off the pavement to temporarily interrupt planing operations.

Refer to the Lubrication & Maintenance section for instructions to adjust the gauge wheels and planing chassis to set cutting depth.



Planing Mode Trim, Planing Chassis & Rear Gauge Wheels

2.9 Drive Belts

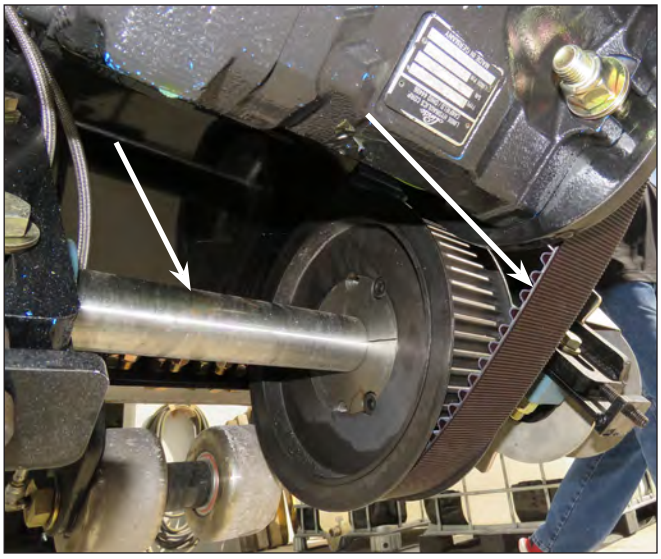
The drive belts that connect the hydraulic motor to the cutting drum eccentric are carbon fiber industrial belts designed for high horsepower applications. The ribbed drive belts are matched to grooved pulleys and have very little stretch. Therefore, they typically don't require adjustment often and 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 eccentric final drive pulleys and the belt that connects the hydraulic motor to the eccentric drive axle are different and, therefore, have different tension specifications. Additionally, new belts have a different tension specification than used belts (drive belts with 20 hours or more). Instructions for adjusting the drive belts and tension specifications are included in the Lubrication & Maintenance section of this manual.

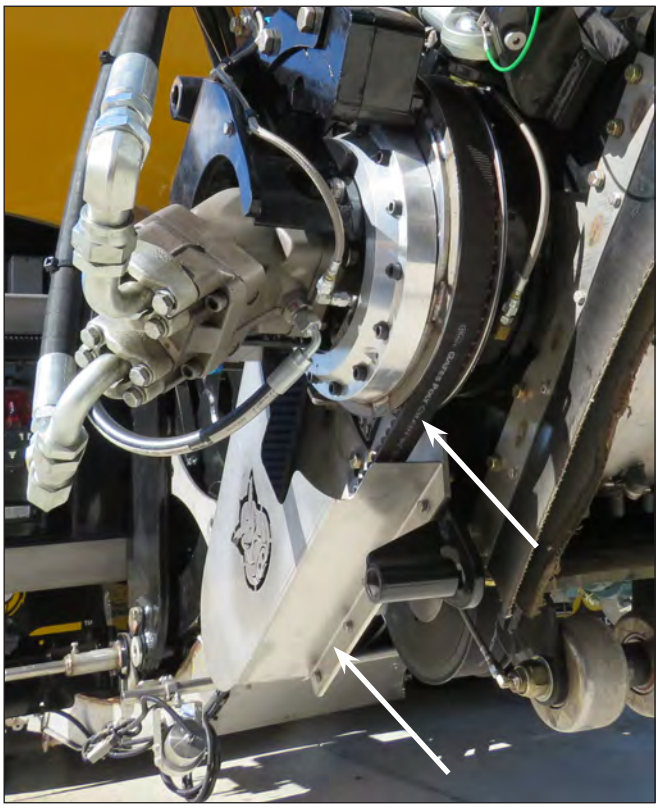
WARNING

THE 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 Lubrication & Maintenance section of this manual or the belt manufactures information manual when adjusting the belt tension and never overtighten them.



Eccentric Drive Axle & Belt



Driver Side Eccentric Drive Belt & Shield

Debris Recovery System Without Optional Continuous Off-Loading System

2.10 Debris Recovery System

Overview

A debris recovery system is an available option on the Rumble Hog. Two systems are available, a vacuum system with a debris tank or a vacuum system with debris tank and continuous off-loading auger. A high lift dump system is an option on either system.

Both systems are powered by the hydraulic system and include a vacuum blower, cyclonic separator, debris tank and filter canister. Trucks with Continuous off-loading include cyclonic separators and a hydraulically powered auger that continuously discharges debris to the shoulder or dump truck during operation. Trucks that are not equipped with an optional debris recovery system will have a non functioning debris tank and vacuum canister.

Even though both systems operate on the same principle, there are significant differences in the components, features and the operation of each system. Consequently, there is a separate section for each system. If your truck is equipped with a debris recovery system, make sure to read the section that applies to your system.

Debris Recovery System With Optional Continuous Off-Loading System

Optional Debris Recovery System W/O Continuous Off-loading System

1. Blower
2. Silencer & Flapper
3. Filter Canister & Door
4. Filter Canister Drain Valve
5. Clean Water Tank
6. Relief (Kunkle) Valve
7. Debris Tank, Door & Chute
8. Vacuum Hose
9. Cyclonic Separator

2.11 Debris Recovery Without Continuous Off-Loading

Trucks equipped with an optional debris recovery system without Continuous off-loading include a debris tank, vacuum blower, cyclonic separator, filter, silencer and hoses. The system creates vacuum in the debris tank and cutter shroud that continuously moves debris from the cutter to the debris tank during operation. Debris accumulates in the tank, which will need to be emptied periodically during operation.

The following is a description of the major components in the system and their function.

Blower And Silencer

The vacuum blower is powered by the hydraulic system. The truck engine must be set the maximum operating RPM to achieve maximum vacuum and debris recovery.

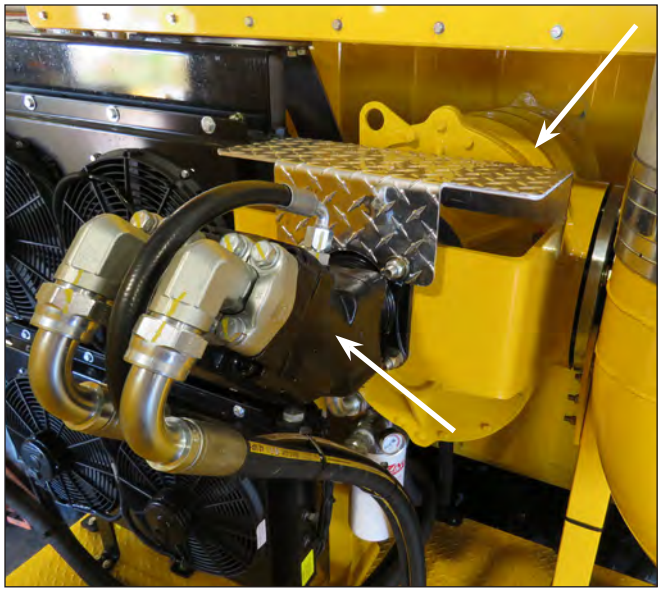
The blower creates vacuum in the filter canister, cyclonic separator, debris tank, vacuum hoses and cutter. A filter located in the filter canister protects the blower. Flexible hoses with quick disconnect fittings provide vacuum to the cutter shroud. Relief valves (Kunkle valves) on the debris tank and near the blower will automatically open if excessive vacuum in the system occurs. Always test the valves and all vacuum hose connections at the start of each shift to ensure the valves are operating properly and there are no vacuum leaks in the system.

The blower bearing housing is equipped with two grease fittings that must be lubricated daily to achieve maximum life expectancy. Refer to the Lubrication & Maintenance section of this manual and the Blower operation manual for lubrication specifications.

⚠ CAUTION ⚠

THE BLOWER BEARINGS MUST BE LUBRICATED DAILY WITH THE GREASE SPECIFIED IN THE MAINTENANCE MATRIX AND BY THE BLOWER MANUFACTURER. FAILURE TO LUBRICATE THE BEARINGS DAILY OR USING GREASE OTHER THAN THE GREASE SPECIFIED BY HOG TECHNOLOGIES AND THE BLOWER MANUFACTURER WILL VOID THE WARRANTY.

USING THE WRONG GREASE WILL CONTAMINATE THE EXISTING GREASE AND DESTROY THE LUBRICATING PROPERTIES.



Blower & Hydraulic Motor

Blower Drive End & Grease Fitting Locations

Blower airflow is expelled through a silencer connected to the outlet side of the blower. A flapper installed on the silencer keeps water and debris from entering the system damaging the blower when the unit is shutdown.

Blower components have extremely small tolerances and must be protected from the debris. If debris ever gets into the blower impellers, use paint/lacquer thinner or another non-corrosive cleaner to remove any residue build up inside. It will be necessary to disconnect the hose to the silencer in order to clean the blower. If any debris gets into the blower, it can cause severe damage to the blower.

CAUTION

THE BLOWER'S INTERNAL COMPONENTS HAVE EXTREMELY SMALL TOLERANCES AND MUST BE PROTECTED FROM THE DEBRIS AND CORROSION. ANY FOD (FOREIGN OBJECTS OR DEBRIS) INCLUDING EXCESSIVE WATER, CAN CAUSE SEVERE DAMAGE TO THE BLOWER.

Filter & Oil Injection Port

The blower must be shutdown properly and internal components protected from corrosion with a light protective oil such as WD-40, LPS or CRC when the system is shutdown for the evening or an extended period. This is accomplished by opening the access door and removing the plug in the filter element while the blower operating. Allow the blower to operate for several minutes to dry out blower components, then spray oil into the port for 20-30 seconds. Refer to the Operation and Lubrication & Maintenance sections for additional information on maintaining and protecting the blower.

Vacuum Hose - Debris Tank to Cutter

Vacuum Tube - Debris Tank to Cyclonic Separator

Vacuum Hoses & Tubes

The primary vacuum tube runs from the connection on top of the debris tank to the cyclonic separator, then to vacuum filter canister. Another hose runs from the inlet elbow on the top of the debris tank to the cutter shroud.

Consistent and proper air flow is important to the proper operation of the recovery system. Debris buildup, kinks, damage or leaks will cause a reduction in air flow at the cutter head.

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 or abrasive surfaces and to inspect the hoses daily to ensure there is no damage, signs of chaffing or kinks.

The inside walls of vacuum hoses develop wear points caused from the high velocity of abrasive debris. The wear points are most prevalent in the outside radius of tight bends near the cutter where the debris hose rises above the tank. The life of the hoses can be extended by rotating the hoses 120^0 once each week.

Some types of debris will buildup on the inside walls of the hoses to the point where it restricts debris flow in the system and reduces vacuum at the cutter. 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 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.

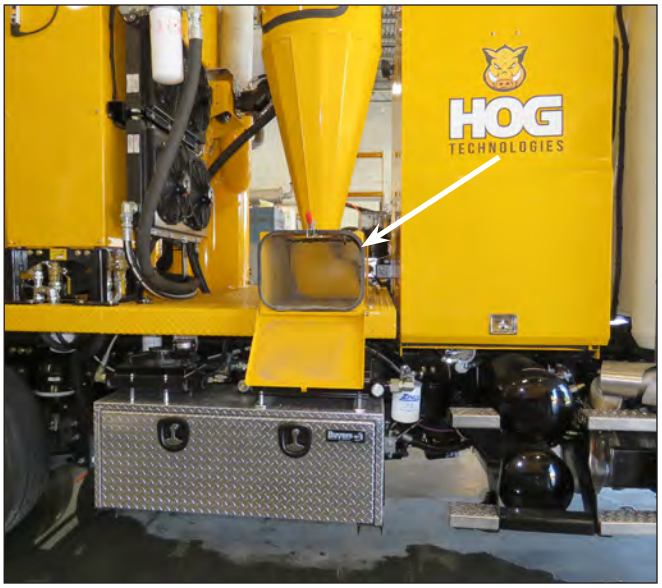
Cyclonic Separator

The cyclonic separator is mounted on the passenger side of the chassis. Cyclonic action separates debris and water vapor that may get past the debris tank and drops it to the floor of the box at the base of the separator. This reduces the amount of debris and water reaching the filter canister, increasing the time between filter cleaning intervals and increasing the life of the filter element.

It is normal for some debris and water vapor to travel from the debris tank to the cyclonic separator box where it will accumulate. Excessive accumulation of water and debris in the cyclonic separator will pass through the separator to the

filter canister, prematurely filling the canister and clogging the filter. Therefore, the separator box must be drained and cleaned at the start of each shift and each time the debris tank is drained to reduce the amount of water and debris getting past the separator to the filter canister.

There is a manual drain valve connected to a hose at the bottom of the separator box to remove accumulated water as required. A door on the side of the box provides access to inspect and clean out the separator when necessary. The engine must be at idle with the blower disengaged before attempting to drain the separator box or open the door. Make sure the drain valve is closed and the door seal is clean with the door properly latched before reactivating the blower. The system will not be able to develop enough vacuum if the door is not sealed and latched or the drain valve is open.



Cyclonic Separator Box

Filter And Filter Canister

The filter canister houses the vacuum filter which protects the blower from debris and excessive moisture that makes it past the cyclonic separator. The filter should be checked at the beginning of each shift and periodically during operation.

It is normal for some water vapor and debris to travel through the cyclonic separator to the vacuum filter canister where it will accumulate. Excessive water in the canister can pass through the vacuum filter and cause severe damage to the blower. Therefore, the canister must be drained at the start of each shift and each time the debris tank is drained to ensure water does not accumulate to an unsafe level in the filter canister.

There is a manual drain valve connected to a hose at the bottom of the filter canister to remove accumulated water as required. The engine must be at idle and the blower disengaged before attempting to drain the canister. Once water has been drained, close the drain valve to avoid losing vacuum suction during operation. The system will not be able to develop enough vacuum if the canister door is not sealed and latched or when the drain valve is open.

Vacuum Canister & Drain Valve

NOTICE:
THE CYCLONIC SEPARATOR AND FILTER CANISTER WILL NOT DRAIN IF THE VACUUM SYSTEM IS OPERATING. ALWAYS MAKE SURE THE SYSTEM IS COMPLETELY SHUTDOWN BY REDUCING ENGINE SPEED TO IDLE AND DISENGAGING THE BLOWER BEFORE DRAINING THE SEPARATOR BOX OR FILTER CANISTER.

The vacuum filter is a pleated, reusable filter that is easily accessed through the door on the side of the canister. Once the filter has been removed you should de-grease with detergent and power wash at 2000 psi (138 BAR). A mild solvent solution may be used to clean thermoplastic or tar residue from the filter surface. Always check to ensure there are no damaged areas or holes that could allow debris to get into the vacuum blower or silencer. Replace the filter if it is damaged or shows any sign of deterioration.

Blower internal components must be protected from corrosion with light oil such as WD-40, LPS or CRC when the system is shutdown for the evening or an extended period. This is accomplished by opening the access door and removing the plug in the filter element while the blower is operating. Allow the blower to operate for several minutes to dry out blower components, then reduce engine speed to idle and spray oil into the port for 20-30 seconds. Reinsert the plug when done. Refer to the Operation and Lubrication & Maintenance sections for additional information on maintaining and protecting the blower.

Vacuum Filter Canister,Door,Filter Element & Plug

Optional Debris Recovery System With Continuous Off-Loading System

1. Cone Shaped Separator & Auger
2. Cone Shaped Separator Door
3. Auger Hydraulic Motor
4. Vacuum Check Valve
5. Hydraulic Hoses
6. Vacuum Hose
7. Vacuum Tube
8. Cyclonic Separator
9. Cyclonic Separator Door
10. Cyclonic Separator Box
11. Turret & Lift Cylinder

2.12 Debris Recovery With Continuous Off-Loading

Trucks equipped with a debris recovery system and continuous off-loading include a debris tank, vacuum blower, filter, silencer, 2 cyclonic separators,hoses and continuous discharge auger in the rear separator.

The system operates in two modes, continuous discharge or debris tank recovery. In Continuous discharge mode, the system creates vacuum in the cyclonic separators that continuously move debris from the cutter to the cone shaped separator on the top of auger. Cyclonic air flow in the cone separates recovered debris from the air and drops it on the rotating auger. The auger continuously moves the debris from the separator to the shoulder or dump truck. The second cyclonic separator traps debris that may get past the cone separator to reduce debris reaching the filter canister.

In debris tank recovery mode, the system creates vacuum in the debris tank and cutter shroud that continuously moves debris from the cutter to the debris tank during operation. Debris accumulates in the tank which will need to be emptied periodically during operation.

The following is a description of the major components in the system and their function.

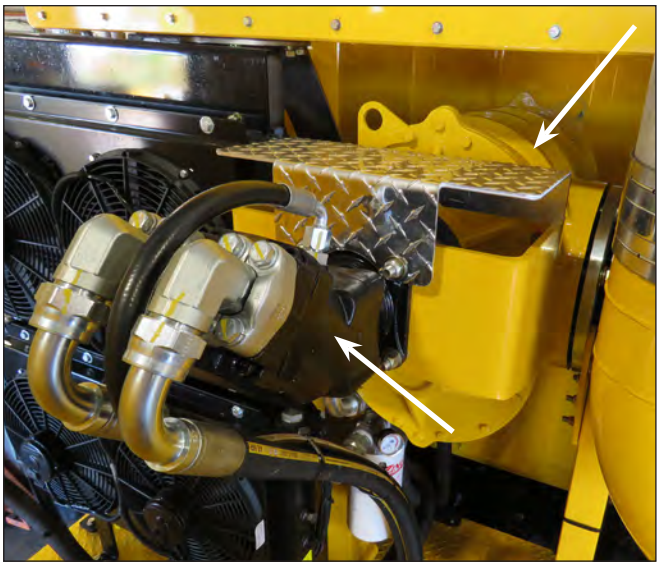
Blower And Silencer

The vacuum blower is powered by the hydraulic system. The truck engine must be set the correct operating RPM to achieve maximum air flow and debris recovery.

The blower creates vacuum in the filter canister, cyclonic separators or debris tank, vacuum hoses and cutter. A filter located in the filter canister protects the blower. Flexible hoses with quick disconnect fittings provide vacuum to the separators or debris tank and cutter shroud.

A relief valves (Kunkle valves) on the debris tank and near the blower will automatically open if excessive vacuum in the system occurs when operating in debris recovery mode. Always test the valves and all vacuum hose connections at the start of each shift to ensure the valves are operating properly and there are no vacuum leaks in the system.

The blower bearing housing is equipped with two grease fittings that must be lubricated daily to achieve maximum life expectancy. Refer to the Lubrication & Maintenance section of this manual and the blower operation manual for lubrication specifications.



Blower & Hydraulic Motor

Blower Drive End & Grease Fitting Locations

CAUTION

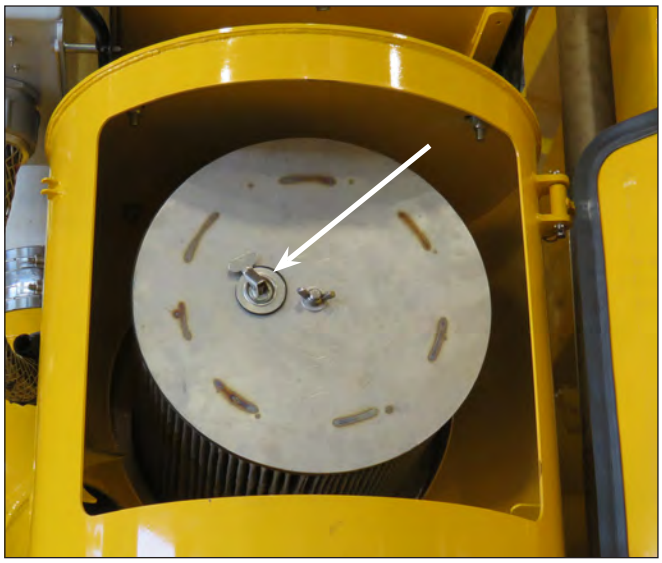
THE BLOWER BEARINGS MUST BE LUBRICATED DAILY WITH THE GREASE SPECIFIED IN THE MAINTENANCE MATRIX AND BY THE BLOWER MANUFACTURER. FAILURE TO LUBRICATE THE BEARINGS DAILY OR USING GREASE OTHER THAN THE GREASE SPECIFIED BY HOG TECHNOLOGIES AND THE BLOWER MANUFACTURER WILL VOID THE WARRANTY.

Blower airflow is expelled through a silencer connected to the outlet side of the blower. A flapper installed on the silencer keeps water and debris from entering the system damaging the blower when the unit is shutdown.

Blower components have extremely small tolerances and must be protected from debris. If debris ever gets into the blower impellers, use paint/lacquer thinner or another non-corrosive cleaner to remove any residue build up inside. It will be necessary to disconnect the hose to the silencer in order to clean the blower. If large debris gets into the blower, it can cause severe damage to the blower.

CAUTION

THE BLOWER'S INTERNAL COMPONENTS HAVE EXTREMELY SMALL TOLERANCES AND MUST BE PROTECTED FROM THE DEBRIS AND CORROSION. ANY FOD (FOREIGN OBJECTS OR DEBRIS) INCLUDING EXCESSIVE WATER, CAN CAUSE SEVERE DAMAGE TO THE BLOWER.



Filter & Oil Injection Port

The blower must be shutdown properly and internal components protected from corrosion with light oil such as WD-40, LPS or CRC when the system is shutdown for the evening or an extended period. This is accomplished by opening the access door and removing the plug in the filter element while the blower operating. Allow the blower to operate for several minutes to dry out blower components, then reduce engine speed to idle and spray oil into the port for 20-30 seconds. Reinstall the plug when done. Refer to the Operation and Lubrication & Maintenance sections for additional information on maintaining and protecting the blower.

Vacuum Hoses

The vacuum hoses are connected differently for each mode of operation. When in continuous recovery mode, the primary vacuum hoses run from the filter canister to the top connection on the passenger side cyclonic separator, then from the connection on the side of the cyclonic separator to the vacuum connection on top of the cone shaped separator. Another hose runs from the side connection on the cone to the cutter shroud.

When in debris recovery mode, the primary vacuum hose runs from the filter canister to the top connection on the passenger side cyclonic separator, then from the connection on the side of the separator to the vacuum connection on top of the debris tank. Another hose runs from the inlet elbow on the top of the debris tank to the cutter shroud.

Refer to the Operation section for additional information on configuring the vacuum hoses for each mode.

Consistent and proper vacuum is important to the proper operation of the recovery system. Debris buildup, kinks, damage or leaks will cause a reduction in air flow at the cutting 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 or abrasive surfaces and to inspect the hoses daily to ensure there is no damage, signs of chaffing or kinks.

The inside walls of vacuum 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 where the debris hose rises above the tank. The life of the hoses can be extended by rotating the hoses 120^0 once each week.

Some types of debris will buildup on the inside walls of the hoses to the point where it restricts debris flow in the system and reduces vacuum at the cutter. 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.

Vacuum Hoses, Cone Shaped Separator with Auger & Access Door

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.

Cone Shaped Separator with Auger

The cone shaped separator and hydraulically powered auger is mounted on the vacuum tube. A vacuum hose connects the separator to the cutter shroud. Cyclonic action separates debris from the air flow and drops it on the auger. The auger rotates continuously to move debris from the separator to the vacuum check valve at the bottom of the separator.

When debris from the auger accumulates to a predetermined amount, the valve automatically opens to allow it to dump on the shoulder or into a dump truck traveling with the Rumble Hog. After the debris dumps, the valve automatically closes to seal the vacuum system until enough debris accumulates to open the valve again. This process is continuous while operating in this mode.

A door on the side of the separator provides access to inspect components or to clean out the separa-

tor if it becomes clogged. The engine must be at idle with the blower and auger disengaged before attempting to open the separator door. Make sure the door seal is clean and the door is properly latched before reactivating the blower and auger. The system will not be able to develop enough vacuum if the door is not sealed and latched.

DANGER

A ROTATING AUGER WILL CAUSE SEVERE INJURY OR DEATH IF HANDS OR CLOTHING BECOME CAUGHT IN THE AUGER. NEVER OPEN THE SEPARATOR DOOR WITH THE AUGER ENGAGED.

The separator and supply tube are mounted to a turret and base bolted to the chassis. A hydraulic motor rotates the auger. Another hydraulic motor rotates a worm gear in the turret that moves the auger assembly right and left.

The AUGER switch on the joystick turns the Auger on or off. Auger speed is preset at the factory.

A hydraulic cylinder in the base below the turret raises and lowers the supply tube and separator. The cylinder is activated independently by a switch in the control panel.

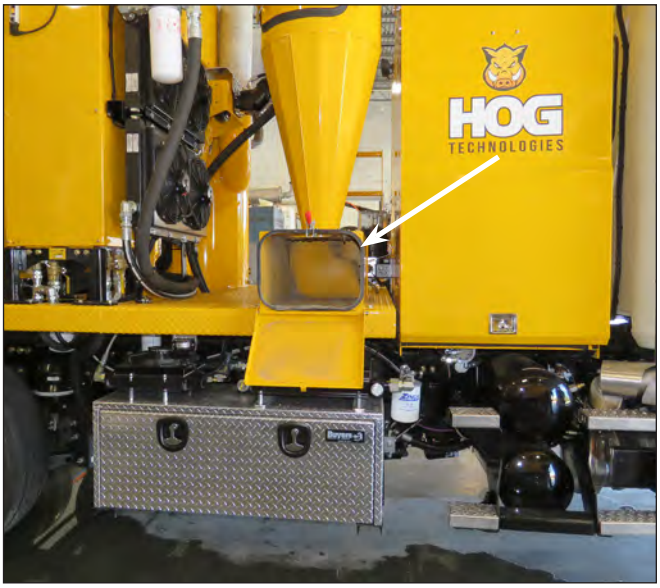
The separator must be raised and moved right or left to provide clearance to open truck hood to access the engine. If the truck engine can't be started to activate the hydraulic system, the turret can be manually moved right or left by using a wrench on the hex nut on the end of the turret worm gear shaft. It is recommended that the separator always be moved to the driver side to provide clearance for engine access so the operator will be less likely forget to center and secure the auger for transit.

A cradle above the cab secures the vacuum tube and separator for transit. Make sure the vacuum tube is sitting firmly in the cradle before operating the truck on the highway.

CAUTION

ALWAYS MAKE SURE SECURE THE AUGER ASSEMBLY TO THE FRONT HYDRAULIC CYLINDER FOR TRANSIT. IF THE FRONT IS NOT SECURED, THE AUGER WILL BOUNCE AND DAMAGE THE AUGER HOUSING AND CAB.

Hex Nut On Worm Gear Shaft For Manual Movement



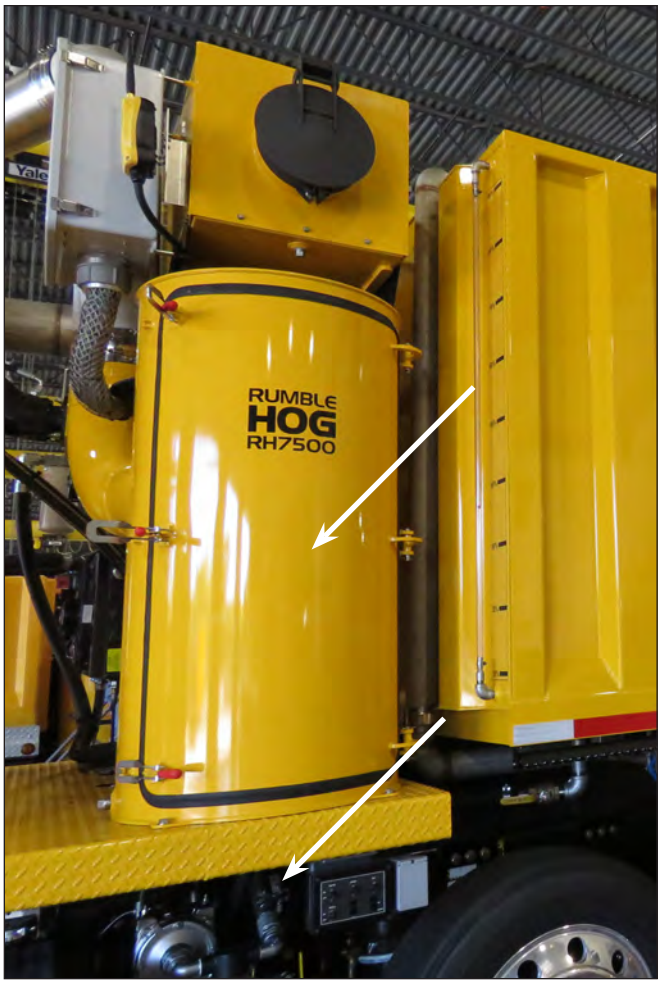
Cyclonic Separator Box

Cyclonic Separator

The cyclonic separator is mounted on the passenger side of the chassis. Cyclonic action separates debris and water vapor that may get past the debris tank and drops it to the floor of the box at the base of the separator. This reduces the amount of debris and water reaching the filter canister, increasing the time between filter cleaning intervals and increasing the life of the filter element.

It is normal for some debris and water vapor to travel from the debris tank to the cyclonic separator box where it will accumulate. Excessive accumulation of water and debris in the cyclonic separator will pass through the separator to the filter canister, prematurely filling the canister and clogging the filter. Therefore, the separator box must be drained and cleaned at the start of each shift and each time the debris tank is drained to reduce the amount of water and debris getting past the separator to the filter canister.

There is a manual drain valve connected to a hose at the bottom of the separator box to remove accumulated water as required. A door on the side of the box provides access to inspect and clean out the separator when necessary. The engine must be at idle with the blower disengaged before attempting to drain the separator box or open the door. Make sure the drain valve is closed and the door seal is clean with the door properly latched before reactivating the blower. The system will not be able to develop enough vacuum if the door is not sealed and latched or the drain valve is open.



Vacuum Canister & Drain Valve

Filter And Filter Canister

The filter canister houses the vacuum filter which protects the blower from debris and excessive moisture that makes it past the cyclonic separator. The filter should be checked at the beginning of each shift and periodically during operation.

It is normal for some water vapor and debris to travel through the cyclonic separator to the vacuum filter canister where it will accumulate. Excessive water in the canister can pass through the vacuum filter and cause severe damage to the blower. Therefore, the canister must be drained at the start of each shift and each time the debris tank is drained to ensure water does not accumulate to an unsafe level in the filter canister.

There is a manual drain valve connected to a hose at the bottom of the filter canister to remove accumulated water as required. The engine must be at idle and the blower disengaged before attempting to drain the canister. Once water has been drained, close the drain valve to avoid losing vacuum suction during operation. The system will not be able to develop enough vacuum if the canister door is not sealed and latched or when the drain valve is open.

NOTICE:
THE CYCLONIC SEPARATOR AND FILTER CANISTER WILL NOT DRAIN IF THE VACUUM SYSTEM IS OPERATING. ALWAYS MAKE SURE THE SYSTEM IS COMPLETELY SHUTDOWN BY REDUCING ENGINE SPEED TO IDLE AND DISENGAGING THE BLOWER BEFORE DRAINING THE SEPARATOR BOX OR FILTER CANISTER.

The vacuum filter is a pleated, reusable filter that is easily accessed through the door on the side of the canister. Once the filter has been removed you should de-grease with detergent and power wash at 2000 psi (138 BAR). A mild solvent solution may be used to clean thermoplastic or tar residue from the filter surface. Always check to ensure there are no damaged areas or holes that could allow debris to get into the vacuum blower or silencer. Replace the filter if it is damaged or shows any sign of deterioration.

Vacuum Filter Canister,Door,Filter Element & Plug

2.13 Standard Debris Tank

The debris tank is the same for all recovery systems. It is constructed from stainless steel panels. The door and debris chute are hydraulically opened and closed. An inflatable gasket provides a watertight seal for the door. Another inflatable donut gasket seals the vacuum tube at the top of the debris tank.

The pressurized door and vacuum tube seals are supplied compressed air by the truck brake system. Solenoid activated pressure valves controlled by switches on the side of the chassis and below the rear of the tank inflates or deflates the seals. Seal pressure is monitored by digital gauges in the controller. Normal seal inflated seal pressure is 20-25 psi (1.4 - 1.7 BAR).

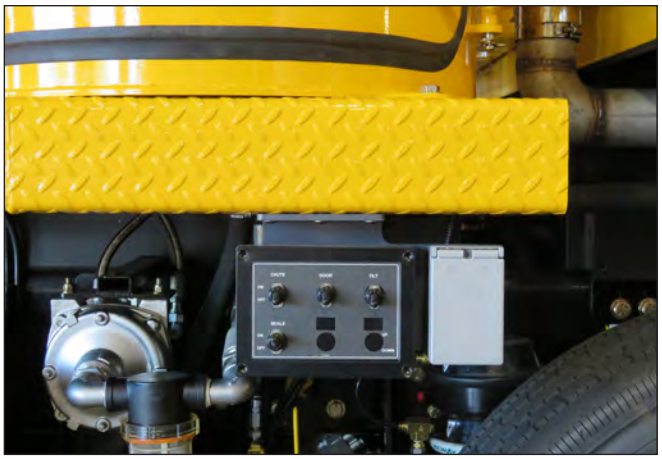
An optional material full level switch automatically shuts off the blower if the tank becomes full.

A site tube on the side of the debris tank indicates the recovered water level and an opening inspection port on top of the tank is used to monitor the solid waste level. A 4” ball valve allows for draining of the tank.

Debris Tank Dump System

Solid debris needs to be dumped when the tank is 3/4 full. A hydraulic ram below the tank lifts the passenger side, causing the tank to tilt for easy dumping. Other hydraulic rams lower the chute and open the door. The tank is designed with enough ground clearance to empty into most low industrial low sided dumpsters.

Debris Tank, Chute & Door



Side Switch Panel & Grey Junction Box for Remote Control

Remote Control Switches

The chute and door rams are controlled by switches in the in the side and rear switch panels. The hydraulic tilt ram is controlled by switches in a remote control or the CUTE and DOOR switches on the side and rear switch panels. The remote control plugs into the grey junction boxes located on the driver side of the chassis and below the debris tank door at the rear of the debris tank.

Always make sure the truck is on level, solid ground before dumping debris. After dumping, use a hose or the pressure washer to clean the tank and sump thoroughly with fresh water.

The debris tank should be checked at the beginning of the shift as part of the pre-start procedure or when you believe it may be reaching its capacity. It should also be checked at the end of each shift. Debris should never be left in the tank for a period of more than two days. Debris will harden and conform to the shape of the tank walls making it very difficult to dump.

Always comply with local guidelines and state law when dumping recovered water and debris.

Remote Control Connected to Grey Junction Box

NOTICE:
THE DOOR AND CHUTE SEALS MUST BE DEFLATED BEFORE THE TANK HYDRAULIC DUMP SYSTEM WILL ACTIVATE.

Debris Tank Raised

2.14 Optional Debris Tank High Dump System

The high dump debris tank is equipped with a scissor lift system that allows the tank to be raised up to 12 feet. Other than the lift system, the debris tank features and operation are the same as the standard debris tank.

Debris Tank Lift System

The lift components are powered by the hydraulic system and controlled by switches in a panel located on the rear of the chassis. A stabilizer foot (kickstand) is lowered before the tank raises to provide additional stabilization for the chassis during high lift dumping operations. The stabilizer is an important safety feature on trucks equipped with the high dump system. It is extremely important that operators deploy the stabilizer each time the debris tank is raised for dumping. Refer to the Operation chapter for information on the proper deployment of the kickstand stabilizer and high dump operations.

High Dump System Stabilizer (Kickstand)

The scissor lift and debris tank are heavy and the truck could become unstable if lifted when the truck is not level or other precautions are not taken prior to lifting the tank. Operators should be aware of this and always follow proper procedures when lifting and dumping the debris tank.

DANGER

LIFTING THE DEBRIS TANK WHEN THE CHASSIS IS NOT LEVEL WITH THE KICKSTAND DOWN CAN CAUSE THE MACHINE TO BECOME UNSTABLE AND TIP OVER. THIS WILL CAUSE SEVERE INJURY OR DEATH TO PERSONNEL AND DAMAGE THE MACHINE. ALWAYS MAKE SURE THE MACHINE IS LEVEL AND SECURED WITH THE KICKSTAND BEFORE RAISING THE DEBRIS TANK.

The lift operates in an extremely dirty environment. Consequently, it is important to lubricate all hinge points, rollers and other components at least weekly. If the optional auto lube system is installed, some lubrication points will be greased automatically. Refer to the Lubrication And Maintenance chapter in this manual for additional information on lubrication, the optional automatic lubrication system and proper maintenance procedures for lift components.

Lift Linkage and Cylinders

The lift is raised by three hydraulic cylinders and a scissor linkage. Rollers in tracks at the tank and on the chassis allow each end of the linkage to slide as the lift raises, maintaining stability. In-line flow limiters, called velocity fuses, restrict the flow of fluid through the cylinders to control lift speed as the platform is raised or lowered.

The scissor linkage design provides excellent stability for the platform as it is raised. However, there are hazards related to this type of linkage that operators and all other personnel should be aware of. Raising and lowering the platform is particularly dangerous because “pinch points” are formed by the linkage as the platform moves up or down. Operators must be aware of the hazard and make sure all personnel are well clear of the linkage and platform. Keep hands, feet, hair, jewelry, loose clothing, etc. away from these pinch points as the lift moves up or down. If any of these items become caught, serious personal injury or death could occur.

Debris Tank Lift Cylinders & Scissor Linkage

All operators should be trained in the safe operation of the lift and instructed in the related hazards prior to operation. Refer to the Safety Information chapter for a list of precautions that must be observed while using the lift and the Operation chapter for instructions on the proper operation of the lift platform.

DANGER

PINCH POINTS FORMED AS THE PLATFORM MOVES UP OR DOWN CAN CAUSE SERIOUS INJURY OR DEATH TO PERSONAL IF HANDS, FEET, HAIR, LOOSE CLOTHING, JEWELRY, ETC BECOME CAUGHT. PERSONNEL CAN ALSO BE SEVERELY INJURED BY THE PLATFORM IF IT HITS THEM AS IT LOWERS. ALWAYS MAKE SURE ALL PERSONNEL ARE CLEAR OF THE PLATFORM AND LINKAGE BEFORE LOWERING OR RAISING THE PLATFORM.

NOTICE:
THE DOOR AND CHUTE SEALS MUST BE DEFLATED BEFORE THE TANK HYDRAULIC LIFT AND DUMP SYSTEMS WILL ACTIVATE.

Typical Rumble Hog Digital Controller - MAIN Screen

Note: The controller display shown in this picture is for demonstration purposes only. The display and controls in the controller on your truck may be different.

2.15 System Controls

Overview

All features and functions of the cutter and hydrostatic drive system are controlled in the cab by soft keys and touch screen buttons in the digital controller, or by soft key buttons, dials and switches in the joystick panels or by the joystick.

LED lights in each joystick panel button illuminate to indicate the status of the function activated by the button. All soft key buttons in the joystick panel and digital controller send low voltage signals to logic controllers which interpret the command then activate relays in the outside terminal box (OTB), hydraulic manifold or near the component that engage the circuit to activate the function the soft key button controls. Consequently, most soft keys function much like OFF/ON or momentary switches.

Refer to the Digital Controller Screens and functions in this section and the SunSource Hog Technologies User Guide for a description of the controls and features available in each controller screen.

Joystick Control

A multifunction joystick is mounted in the truck cab near the digital controller. The joystick and switches in the joystick panels provide precision control of the vehicle in work mode and the cutter.

The following is a description of the functions and systems controlled by the joystick or joystick switches.

1. Left Switch Panel

- TRUCK PTO - Engages/disengages the truck transmission PTO that drives the implement hydraulic pump.
- POWER - Toggles Main electrical power to all other switches ON or OFF. No cutter or work mode truck functions can be activated until the power switch is turned ON.
- OMSI PTO - Engages/disengages the OMSI gearbox PTO that drives the hydrostatic drive pumps and the pumps that power the cutter and cutter eccentric.
- MODE - Shifts the truck between WORK and TRAVEL modes.
- AUX - Optional equipment.
- AUX - Optional equipment.
- AUGER - Optional. Activates the hydraulic motor that turns the continuous off-loading auger when this option is installed.
- AUX - Optional equipment.

2. Right Switch Panel

- WORK LIGHTS - Activates the lights that illuminate the cutting area and alignment markings.
- STROBE LIGHTS - Activates the safety strobe lights during operations.
- SERVICE LIGHTS - Activates the lights that illuminate tool boxes and specific system components.
- AUX - Optional equipment.
- AUX - Optional equipment.
- LASER GUIDANCE - Activates the control panel for the laser guidance system.
- FLOAT - Optional. For grooving and marking removal.
- CAMERA - Activates the cameras on the front and rear of the truck.

3. Joystick

The joystick is spring loaded and will automatically return to the center (neutral position) when released. It selects truck forward and reverse while in work mode. A trigger switch on the front of the joystick provides a safety lockout feature and must be activated before any function controlled by the joystick can be activated.

Joystick, Joystick Panels, Speed Dials & Emergency Stop Switch

- WORK MODE FORWARD/REVERSE - Pushing the joystick forward or pulling it back selects truck forward or reverse for the hydrostatic drive while in work mode. It is calibrated to increase response as the joystick is pushed forward or pulled back to increase or decrease vehicle work mode speed in forward or reverse. Speed in forward is also controlled by the TRUCK SPEED dial.

NOTICE:
THE RECOMMENDED PROCEDURE TO CONTROL FORWARD WORK MODE TRUCK SPEED IS TO USE THE TRUCK SPEED DIAL. WHEN THE SPEED DIAL IS SET TO ANY SETTING OTHER THAN 0, THE TRUCK WILL BEGIN MOVING AT THE PRESET SPEED IN FORWARD WHEN THE JOYSTICK IS MOVED FORWARD AND RELEASED. THE TRUCK WILL CONTINUE TO MOVE FORWARD UNTIL THE JOYSTICK IS MOVED AGAIN, WHICH WILL IMMEDIATELY STOP THE TRUCK.

4. Joystick Trigger Switch
The momentary trigger switch on the front of the joystick is a safety lockout feature that must be activated before any function controlled by the joystick with activate.

5. Joystick Control Buttons
Six buttons on the joystick control handle that activate various cutter functions. The right and left buttons move the lift arm and cutter right or left on the slide track.

6. Truck Speed Dial
The TRUCK SPEED dial controls the forward speed of the truck while in work mode with the hydrostatic drive system engaged. Rotating the dial clockwise increases speed. Rotating the dial counterclockwise reduces speed. Setting the TRUCK SPEED dial to 0 will stop the truck.

7. Emergency Stop Switch
Sequentially shuts down all cutter functions and the hydrostatic drive system. It does not shut down the truck engine or drop the engine to idle speed. The E-stop stays engaged until it is reset manually.

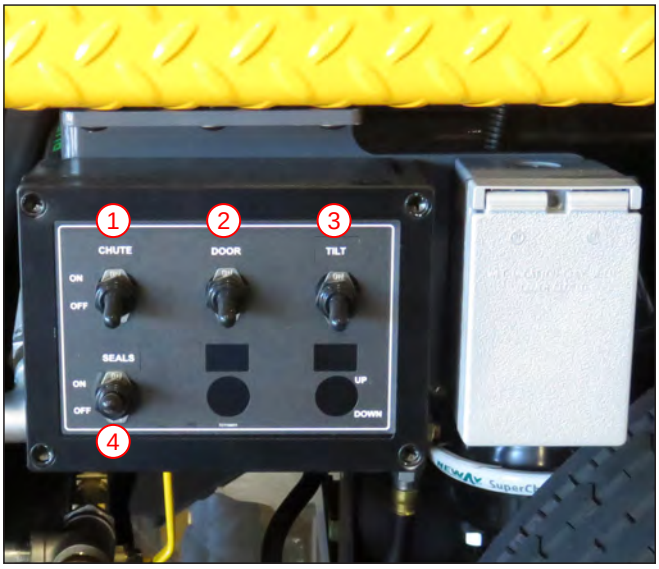
8. Auxiliary Speed Dial
In reserve.

Side Control Switches

Toggle switches that are used to select or control dumping functions from the driver side of the truck.

The following is a description of the functions performed by the side control switches.

1. **CHUTE** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to raise or lower the chute. Move the switch to the OFF position to cancel remote control.



Side Control Switches

2. **DOOR** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to raise or lower the door. Move the switch to the OFF position to cancel remote control.

3. **TILT** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to tilt or lower the debris tank. Move the switch to the OFF position to cancel remote control.

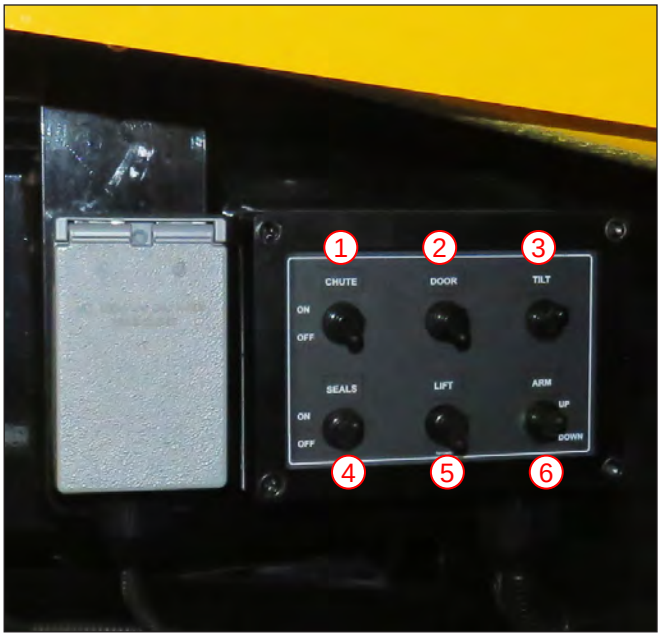
4. **SEALS** - A two position toggle switch that inflates and deflates the pneumatic seals on the vacuum tube coupler and debris tank door. Move the switch to the ON position to inflate the seals. Move the switch to the OFF position to deflate the seals. A pressure gauge in the digital controller indicates seal pressure. A pressure sensor and solenoid valve in the seal pressure line automatically limit maximum seal pressure to 20-25 psi (1.4 - 1.7 BAR).

Rear Control Switches

Toggle switches that are used to select or control functions typically performed at the rear of the truck.

The following is a description of the functions performed by the rear control switches.

1. **CHUTE** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to raise or lower the chute. Move the switch to the OFF position to cancel remote control.
2. **DOOR** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to raise or lower the door. Move the switch to the OFF position to cancel remote control.
3. **TILT** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to tilt or lower the debris tank. Move the switch to the OFF position to cancel remote control.
4. **SEALS** - A two position toggle switch that inflates and deflates the pneumatic seals on the vacuum tube coupler and debris tank door. Move the switch to the ON position to inflate the seals. Move the switch to the OFF position to deflate the seals. A pressure gauge in the digital controller indicates seal pressure. A pressure sensor and solenoid valve in the seal pressure line automatically limit maximum seal pressure to 20-25 psi (1.4 - 1.7 BAR).



Rear Control Switches

5. **LIFT (Optional)** - A two position toggle switch that selects the mode for the remote control switches. Move the switch to the ON position to use the remote switches to raise or lower the debris tank and kickstand. Move the switch to the OFF position to cancel remote control.
6. **ARM - UP/DOWN** - A three position momentary toggle switch that raises and lowers the cutter lift arm. The center position is OFF. Move the switch to the ON position to raise the arm. Move the switch to the OFF position to lower the arm. Release the switch to stop the arm in the desired position.

Remote Switch Control

The remote switch control harness plugs into a receptacle on the driver side or rear of the chassis. The UP/DOWN switches in the control allow the operator to control debris tank dumping operations a safe distance from the truck. Using the remote control to operate the optional continuous off-loader is selected by the OFF-LOADER mode switch.

Refer to the Operation section of this manual for additional information on using the remote control.

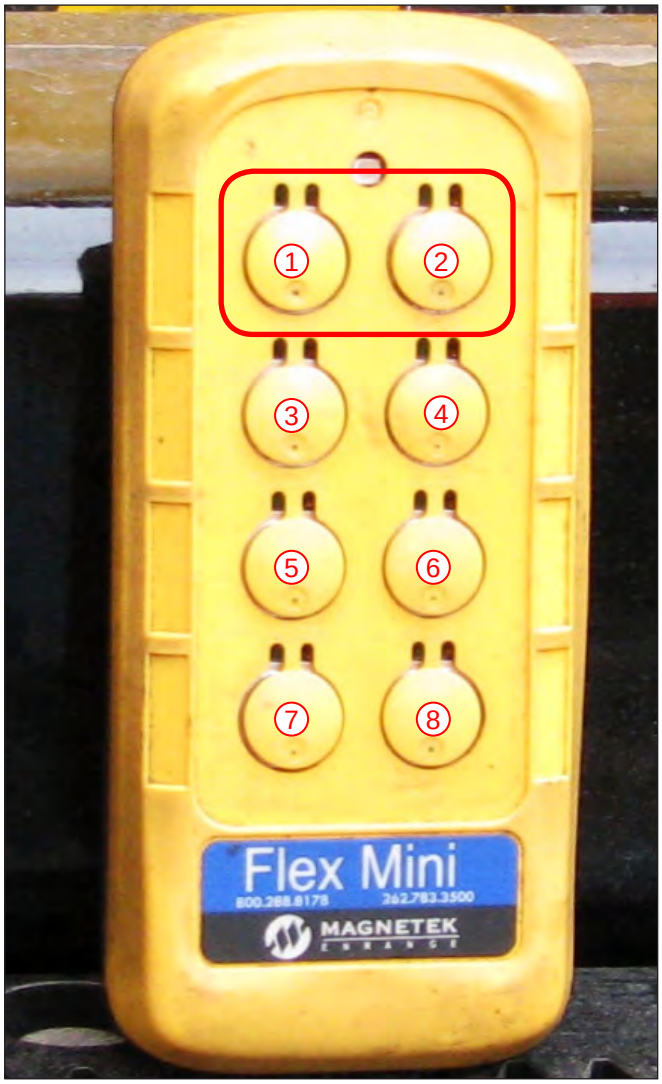
Remote Switch Control

Wireless Remote Control

The wireless remote control communicates with a receiver located on the truck near the outside terminal box (OTB). It allows an assistant located near the truck to activate the skip cylinders to momentarily raise cutting drum from the pavement to cause a manual skip. This is useful when crossing intersections, driveways or obstructions where rumble strips are not wanted and it is difficult for the operator to determine exactly when to stop and restart the rumble strips.

Standard units with no debris recovery are equipped with remote controls that only have the top two buttons that control skipping activated.

Wireless Remote Receiver On OTB

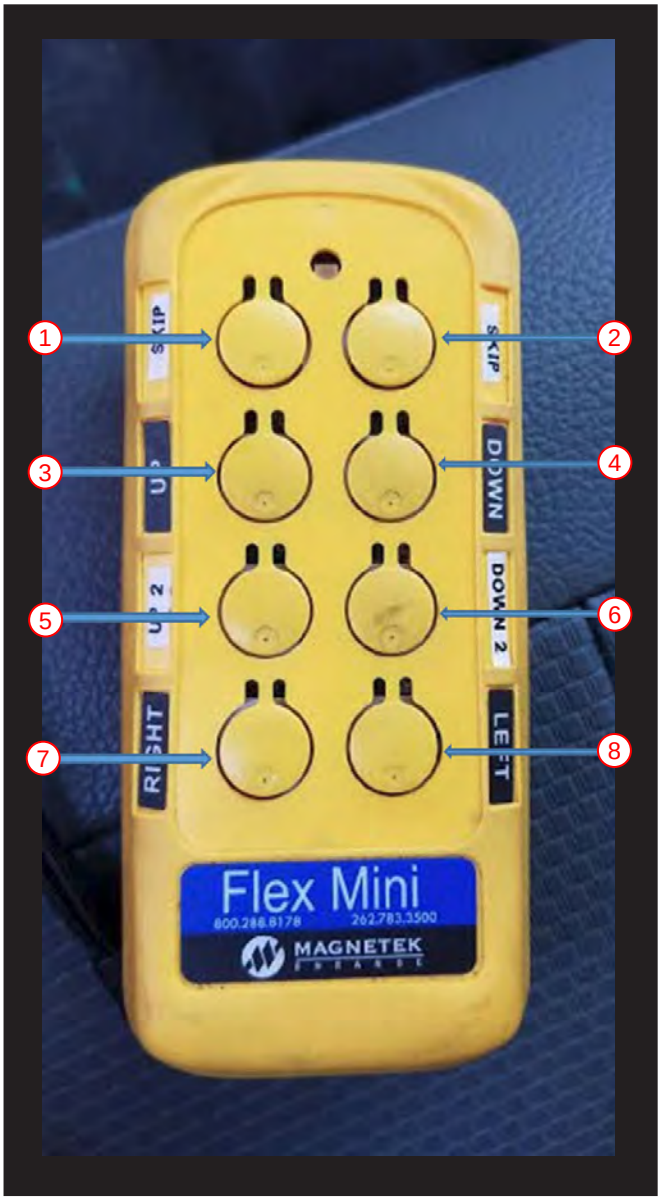


Standard Wireless Remote Control & Skip Cylinder Buttons

All other buttons are not used. If your truck is equipped with an optional continuous off-loading debris recovery system, the wireless remote also controls the hydraulic cylinders and motors that raise and lower the auger or move it left or right.

The following is a description of the functions controlled by the wireless remote control on trucks equipped with debris recovery and continuous off-loading.

1. Used for remote skipping.
2. Used for remote skipping.
3. Auger UP primary cylinder.
4. Auger DOWN primary cylinder.
5. Auger UP secondary cylinder.
6. Auger DOWN secondary cylinder.
7. Skew auger right.
8. Skew auger left.



Optional Continuous Off-Loading Wireless Remote Control

Camera Video Screens

2.16 Video Systems

The video system includes 2 monitors and 4 cameras that provide a complete video guidance and monitoring system during cutting operations. Each monitor is mounted to a bracket on the dash that allows the monitors to be rotated down to improve visibility when the truck is in TRAVEL mode.

The camera on the right side of the front fender provides a full screen image of the shoulder in front of the truck on the monitor dedicated to the forward camera. An adjustable cross hair on the screen is used for truck guidance and alignment purposes. Typically the cross hair is aligned to the white line, a seam or the edge of the pavement to help maintain proper truck and cutter alignment during cutting operations.

Forward Camera

Two rear facing cameras mounted on the upper rear of the debris tank provide an overhead view of the pavement on each side of the cutter in separate windows on the rear camera monitor. These cameras provide the operator with the location of the cutter and monitor cutting operations.

Another camera mounted below the chassis provides a view of the pavement just forward of the cutting drum in a separate window. An adjustable cross hair on the screen is used for guidance and alignment purposes. Typically, the cross hair is

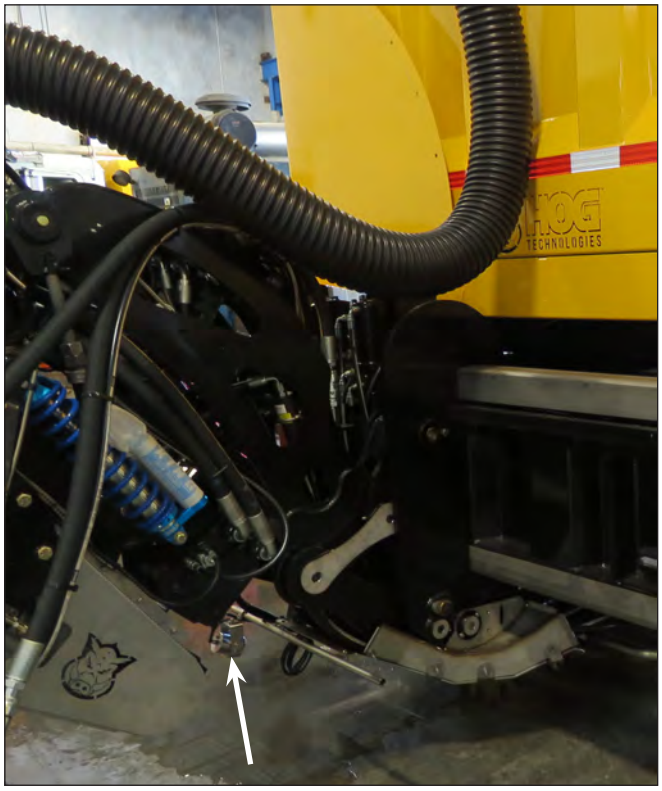
aligned to the white line or a seam in the pavement to help set the cutter at the proper offset and make sure the cutter position setting is Maintained. The cutter video also assists the operator in making minor right/left cutter position adjustments during operation.

The Main screen on the video monitor for the rear cameras shows the image from each camera on separate windows simultaneously. The operator can select to view any camera image in full screen mode using the buttons the monitor control panel. Refer to the camera and monitor manufacturers manuals for additional instructions and maintenance for the video cameras and monitors.

WARNING

THE VIDEO MONITORS OBSTRUCT THE DRIVERS FORWARD VISIBILITY WHEN TRAVELING DOWN THE HIGHWAY IN TRAVEL MODE WHICH COULD RESULT IN AN ACCIDENT. ALWAYS ROTATE THE MONITORS SO THEY ARE HORIZONTAL BEFORE DRIVING ON THE HIGHWAY.

Rear Cameras On Each Side Of Debris Tank



Rear Cutter Camera Below Chassis

2.17 Laser Guidance System

The optional laser guidance system uses an ultra high visibility green laser to establish visual line control for your truck. The system provides the operator with another alignment tool that can be used with the forward video camera monitor or instead of the forward monitor, depending the operator's preference.

The operator adjusts the laser spot to the desired reference point on the road surface using the laser control panel in the cab. The laser spot is impacted directly on the road surface and shows the operator exactly where the vehicle is relative to "on line." The laser spot is on the road ahead of the truck so that the reference is in the operator's driving field of view. The operator can also select laser spot mode, steady on or blinking.

Switches in the laser control panel in the cab control all laser functions. The following is a description of the functions performed by the laser control panel.

1. **System Power Switch -** Energizes the laser system. Note that the system requires several minutes to warm up before the spot will appear.
2. **Laser Power Indicator Light -** A red LED that indicates the panel is energized when lit.
3. **Laser Mode Light -** A green LED that blinks slowly when the panel is energized and is in warm up mode. The light goes out when the system is warmed up and the laser is ready for activation.
4. **Laser ON/OFF/MODE Switch -** Turns the laser on and selects the laser spot mode, steady on or blinking.
5. **Laser Spot Controls -** Move the laser spot UP/DOWN or RIGHT/LEFT.

WARNING

DIRECT EXPOSURE TO LASER LIGHT CAN CAUSE PERMANENT EYE DAMAGE. NEVER LOOK DIRECTLY AT THE LASER BEAM OR POINT THE LASER AT ANOTHER PERSON.

Laser

Laser Guidance Control Panel

Laser Control Panel Switches

2.18 Electrical System

Your truck is equipped with either a 12 volt or 24 volt DC electrical system depending on your location and the chassis manufacturer. The cutter electrical system is totally isolated from the truck electrical system.

The system is equipped with two heavy duty Main circuit breakers on the side of the battery compartment on the passenger side of the chassis. These breakers protect the cutter system DC circuits and can function as Main disconnect switches to deactivate the system.

Main Circuit Breakers

Two heavy duty circuit breakers, a 90 amp and a 70 amp breaker, are connected directly to battery and supply electrical power directly to the outside terminal box (OTB) accessory fuse panel and in-line fuses or circuit breakers for accessory circuits connected to the Main breakers. The breakers must be on to power the cutter electrical system.

Each Main circuit breaker is equipped with a yellow indicator/reset lever that indicates the status of the breaker (ON or OFF/TRIPPED) and is used to reset the breaker if it trips or to turn the breakers and electrical system off.

These are heavy duty circuit breakers that typically trip only when there is a serious fault in the system. If a Main breaker trips, you should find and correct the problem before resetting the breaker. The breaker is reset by moving the yellow lever to the ON position.

Each Main breaker can be used as a Main disconnect switch by manually moving the yellow lever to the OFF or ON position. Move the lever to the ON position to activate the electrical system. Move the yellow lever to OFF position to deactivate the electrical system.

Main Circuit Breakers

Outside Terminal Box

The OTB is located behind the cab on the driver's side of the truck. The logic controllers for the digital controller and joystick, relays that activate accessories and a fuse panel are located in this box.

Switches and controls in the digital controller and joystick send signals to the logic controllers which interpret the command then activate electrically powered solenoid valves and/or relays to control the desired function. Each relay is labeled for the function activated by the relay.

The controlled circuits are supplied power and protected by fuses in the OTB fuse panel or in-line fuses near the component, Main circuit breakers or fuses inside the battery compartment.

Accessory Circuit Protection

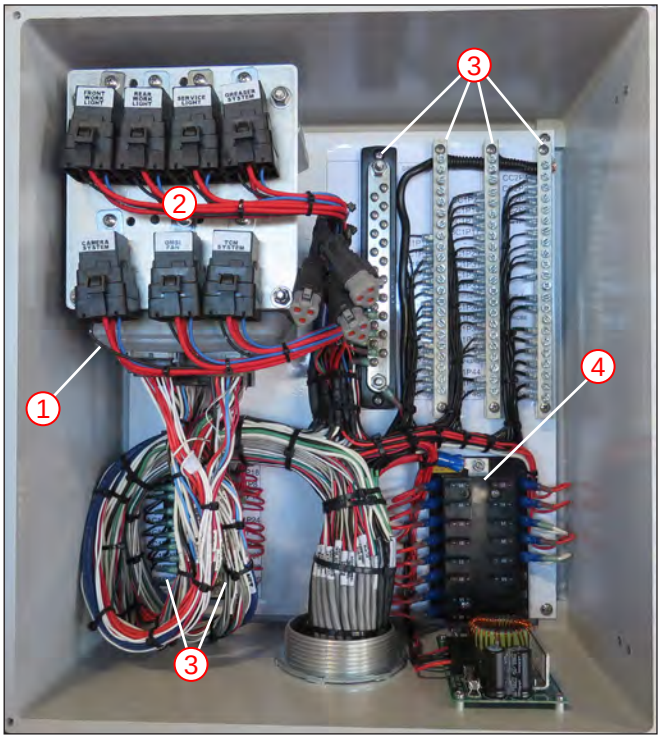
ATC blade type fuses in fuse panels located inside the outside terminal box protect most accessory circuits. In-line fuses ATC fuses or circuit breakers protect other circuits.

NOTICE:
THE CIRCUITS PROTECTED BY IN-LINE FUSES WILL VARY. IN-LINE FUSE LOCATIONS WILL ALSO VARY, DEPENDING ON THE ACCESSORY CIRCUIT PROTECTED. THE MOST COMMON LOCATIONS FOR IN-LINE FUSES OR CIRCUIT BREAKERS ARE NEAR THE MAIN CIRCUIT BREAKERS, IN THE BATTERY COMPARTMENT, NEAR THE ACCESSORY OR INSIDE THE OTB BOX.

The fuses are color coded with the AMP rating printed on the fuse. The fuse body is translucent plastic with the fuse element clearly visible making it easy to identify a blown fuse.

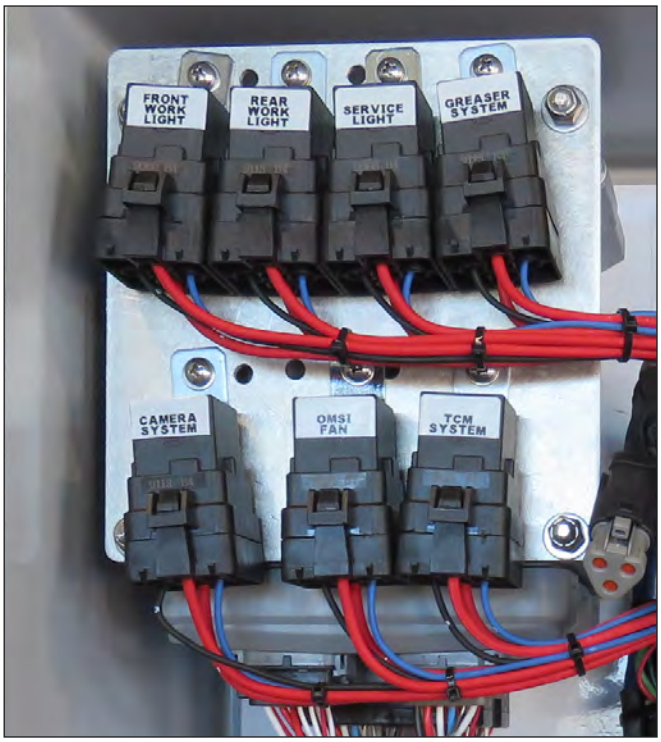
When replacing fuses, never replace the blown fuse with a fuse of a different color or higher amperage in an attempt to correct a circuit that is causing the fuse to blow. Using a higher amperage fuse can cause the circuit to overheat which can damage the circuit and components or cause an electrical fire.

Contact Hog Technologies Customer Service if you need assistance correcting a problem with the electrical system.



Outside Terminal Box Components

1. Logic Controllers
2. Relays
3. Terminal Strips
4. Fuse Panel

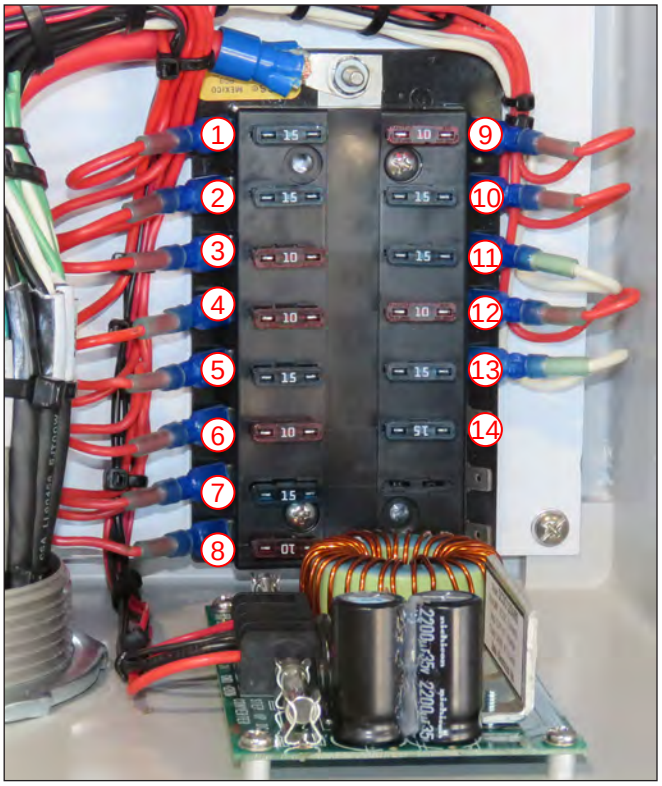


OTB Relays Labeled For The Functions They Activate

OTB Fuse Panel

The following circuits are protected by fuses in the OTB Fuse Panel.

1. Protects and supplies power to logic controller 1 in the OTB.
2. Protects and supplies power to logic controller 2 in the OTB.
3. Protects and supplies power to logic controller 3 in the OTB, the digital controller and joystick.
4. Protects and supplies power to the terminal strip in the OTB.
5. Protects and supplies power to the relay that activates the front work lights.
6. Protects and supplies power to the relay that activates the light bar lights.
7. Protects and supplies power to the relay that activates the rear work lights.
8. Protects and supplies power to the relay that activates the service lights.
9. Protects and supplies power to the relay that activates the video camera system.
10. Protects and supplies power to the relay that activates the OMSI fluid cooler fan.
11. Protects and supplies power to the relay that activates the toolbox lights. Also powers and protects the remote control circuits.
12. Protects and supplies power to the relay that activates the strobe lights.
13. ****
14. ****



OTB Fuse Panel

In-line Fuses And Circuit Breakers

Some circuits are protected by in-line fuses or circuit breakers. The most common locations are near the Main circuit breakers inside the battery compartment, in the OTB or near the accessory. The following circuits are protected by in-line fuses and circuit breakers.

- Back Up Beeper - In-line fuse
- OTB Fuse Panel Main Power Supply - In-line circuit breaker
- Hydraulic Fluid Cooling Fans - In-line circuit breaker
- Engine PTO Solenoid - In-line fuse
- Laser Guidance Ground Circuit - In-line fuse
- Laser Guidance Power Circuit - In-line fuse

2.19 Engine & Transmission

Overview

Power is transferred from the engine to the drive-train and cutting system through the chassis transmission and the OMSI gearbox.

The OMSI gearbox provides two modes of operation that can be selected by the operator; TRAVEL mode for transporting the machine on the highway and WORK mode which activates the hydrostatic drive system that moves the truck at controlled speeds of 0 to 7 mph for cutting operations and makes most cutter related functions available for operation. The PTO on the engine transmission powers the accessory hydraulic system pump when activated by the TRUCK PTO switch in the joystick panel while in WORK mode.

The engine and the chassis transmission were specified and installed by the chassis manufacturer. Refer to the truck chassis operation manual for additional information on the engine and transmission.

Truck & OMSI PTO Buttons On joystick Panel

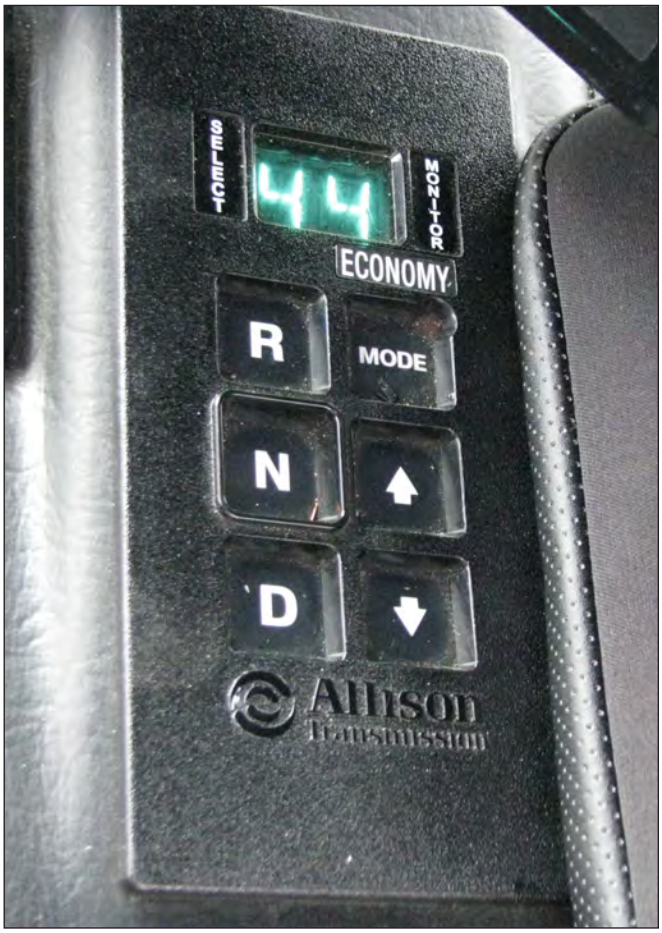
Engine

The chassis engine powers the truck drivetrain and all cutter systems and components. Typically, the engine will be operated at maximum full load RPM during operations. The actual RPM will vary somewhat, depending on the chassis and selected options. Operating the engine below the minimum required RPM will place excess load on the engine, resulting in poor efficiency and could cause it to overheat.

Transmission

The chassis is equipped with an automatic transmission. It is essential to select the correct gear for proper operation while in WORK mode. The hydrostatic drive and cutting system are designed to operate with the transmission output shaft turning the same RPM as the engine or at a 1 to 1 gear ratio. The following outlines the procedure for selecting the correct gear for WORK mode with an automatic transmission.

Automatic Transmissions must meet two conditions to provide the proper RPM for the output shaft. The correct output gear must be selected and the torque converter must be locked so that it cannot slip. Normally 4th gear is correct. This is called 4-4 Lockup.



Automatic Transmission Gear Selector & LED Screen
PTO Switch ON & 4/4 Lockup Displayed

Both conditions are programmed into the engine ECM and are automatically selected with MODE switch on the joystick panel. When the MODE switch is on, it sends a signal to the transmission that tells it to select the pre-programmed conditions when the operator puts it into drive. Since one of the conditions is to lock the torque converter, it is extremely important to turn the MODE switch ON or OFF in the proper sequence to avoid severe damage to the transmission and torque converter. Refer to the Start-Up Procedure in the Operation section of this manual for additional instructions.

2.20 Access Panels, Ladders & Tool Boxes

Ladders

A ladder on the driver's side of the unit provides access to the components located on the chassis between the water tank and the truck cab. The ladder is hinged and has a spring loaded safety pin that locks the ladder in the stored or deployed position. To use the ladder, release the safety pin and swing the ladder out until the pin locks in the deployed position. Return the ladder to the stored position and secure it with the safety pin when service or inspections are complete.

Driver's Side Ladder

Debris Tank Ladder

Another ladder on the passenger side of the debris tank provides access to the top of the tanks. The ladder is hinged and has a spring loaded safety pin that locks the ladder in the stored position. To use a ladder, release the safety pin and rotate the ladder to the down position. Return the ladder to the stored position and secure it with the safety pin when service or inspections are complete.

Debris Tank Ladder

CAUTION

ALWAYS MAKE SURE THE LADDERS ARE LATCHED IN THE STORED POSITION BEFORE OPERATING THE TRUCK. THE LADDERS STICK OUT FROM THE SIDE OF THE VEHICLE AND CAN CAUSE DAMAGE TO THE TRUCK OR OTHER VEHICLES IF THEY ARE NOT PROPERLY SECURED FOR TRANSPORT.

Tool Boxes

Heavy duty, lockable tool boxes are located on each side of the truck chassis and behind the cab on both sides. The tool boxes are used for storing hoses, fittings, extra parts and tools. Always make sure the tool box doors are closed, latched and locked before operating the truck.

⚠ CAUTION ⚠

ALWAYS MAKE SURE THE TOOL BOX DOORS ARE CLOSED AND LATCHED BEFORE OPERATING THE TRUCK. TOOL BOX DOORS STICK OUT FROM THE SIDE OF THE VEHICLE AND CAN CAUSE DAMAGE TO THE TRUCK OR OTHER VEHICLES IF THEY ARE NOT PROPERLY CLOSED AND LATCHED WHILE THE TRUCK IS MOVING.

ADDITIONALLY, TOOLBOX DOOR LATCHES THAT ARE NOT LOCKED COULD WORK LOSE FROM VIBRATION ALLOWING THE DOORS TO OPEN AS THE TRUCK TRAVELS DOWN THE ROAD IF THEY ARE NOT LOCKED. ALWAYS LOCK ALL TOOLBOX DOORS BEFORE OPERATING THE TRUCK IN TRAVEL MODE.

Tool Box Behind Cab

RH7500 In Operation

3.1 Start Up/Shutdown Introduction

Before operating the Rumble Hog, check the fluid levels in the truck engine, transmission, OMSI gearbox and hydraulic system. A thorough understanding of the component systems and their operation is essential to the proper operation of the Rumble Hog. Never allow inexperienced and untrained personnel to operate the Rumble Hog.

This manual and the associated manufacturers' information is provided to enhance your knowledge of the Rumble Hog. Make sure you have read them carefully and fully understand the truck and all cutter components and systems in theory and operation.

To make operation as safe and productive as possible, it is essential to conduct a thorough pre-start inspection before operating the machine. You should walk around the unit and visually inspect the lift arm, hydraulic hoses, vacuum hoses, and all cutting system components for obvious signs of leaks, wear and deterioration. The inspection should be conducted in an orderly and consistent fashion to ensure all critical points are inspected each time. 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 an automatic 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 the options selected. Hog Technologies includes a quick reference placard usually attached to the drivers side sun visor in the cab, that provides the proper startup and shutdown procedures for your specific truck.

NOTICE:
ALWAYS CHECK THE CUTTING DRUM AND TEETH FOR WEAR, DAMAGE AND MISSING TEETH BEFORE EACH SHIFT. REPLACE TEETH OR REPAIR COMPONENTS BEFORE OPERATION.

3.2 Pre-Operation Inspection

The pre-operation Inspection in this section and the Pre-Op Check List in Appendix 4 is provided as a guideline. Additional items should be added to the checklist as determined by company policy, your operating environment and other factors unique to your situation.

The following instructions provide a general overview and introduction to the pre-operation inspection. The Pre-Op Checklist provides an itemized checklist that should be used when performing a pre-operation inspection.

Pre-Operation Inspection/Pre-Op Check List:

General

1. Check tire condition and air pressure.
2. Inspect all hoses for chaffing and signs of wear.
3. Check fuel levels and make sure you have enough for the shift.
4. Check engine and all systems fluid levels. Refer to the truck and OMSI Drive operating manuals.
5. Check hydraulic reservoir fluid level.
6. Drain debris tank water and check debris level. Empty if necessary and replace bag filter.
7. Check all cutting system hoses, hydraulic motors and components for oil leaks, damaged or loose bolts and parts.
8. Inspect the cutter lift arm and slide track for loose components and damage.
9. Check cutter eccentric drive belt tension and alignment.
10. Make sure the cutting teeth are not excessively worn, damaged or missing. Replace or install teeth as required.
11. Check clean water tank level and fill if necessary. Make sure the water supply valve is open.
12. Verify debris tank door is closed properly and the inflatable seal pressure is correct.
13. Grease all manual lubrication points with the specified lubricant.
14. Check all controls, switches and lights for proper operation.

Hydraulic Reservoir Sight Gauge

Clean Water Level Sight Gauge

15. Attach both video monitors to the windshield, then check the video and laser guidance systems for proper operation.
16. Make sure front and rear cameras are mounted and connected.

WARNING

THE VIDEO MONITORS OBSTRUCT THE DRIVERS FORWARD VISIBILITY AND COULD RELEASE FROM THE WINDSHIELD UNEXPECTEDLY WHILE TRAVELING DOWN THE HIGHWAY IN TRAVEL MODE. RESTRICTED VISIBILITY OR THE UNEXPECTED RELEASE OF A MONITOR COULD RESULT IN AN ACCIDENT.

IF THE TRUCK MUST BE DRIVEN IN TRAVEL MODE AFTER CONDUCTING THE PRE-OP INSPECTION, ALWAYS REMOVE AND PROPERLY STORE BOTH MONITORS BEFORE SHIFTING THE TRUCK TO TRAVEL MODE AND DRIVING TRUCK.

17. Make sure the Mobile Spare Parts and Tool Systems are complete and onboard.
18. Conduct a final walk around and visually check all components. Look for obvious problems that may have been overlooked.

Optional vacuum debris recovery system w/o continuous off-loading:
Include the following steps if your truck is equipped with an optional vacuum recovery system without Continuous off-loading.

1. Make sure debris tank door is closed properly and the inflatable seal pressure is correct.
2. Check debris level. Make sure the tank is empty.
3. Inspect Kunkle valve (vacuum check valve). Make sure it is free and operating properly. Lubricate if necessary.
4. Inspect vacuum filter – clean or replace if needed. Clean with pressure washer using no more than 1500 psi.
5. Make sure the vacuum canister is free of water and debris.
6. Check vacuum hoses for cuts, rips and clogging.
7. Inspect blower for loose bolts and damage.
8. Check blower gear end fluid level. Fill if necessary.
9. Grease blower drive end bearings with specified grease.

Optional vacuum debris recovery system with continuous off-loading:
Include the following steps if your truck is equipped with an optional vacuum recovery system with continuous off-loading.

1. Perform all vacuum debris recovery system without Continuous off-loading inspection and maintenance steps.
2. Inspect the cone shaped cyclonic separator on the auger for debris. Clean if necessary.
3. Inspect the secondary cyclonic separator for debris. Clean if necessary.
4. Inspect auger assembly for loose bolts and damage.

Debris Recovery System Without Optional Continuous Off-Loading System

Debris Recovery System With Optional Continuous Off-Loading System

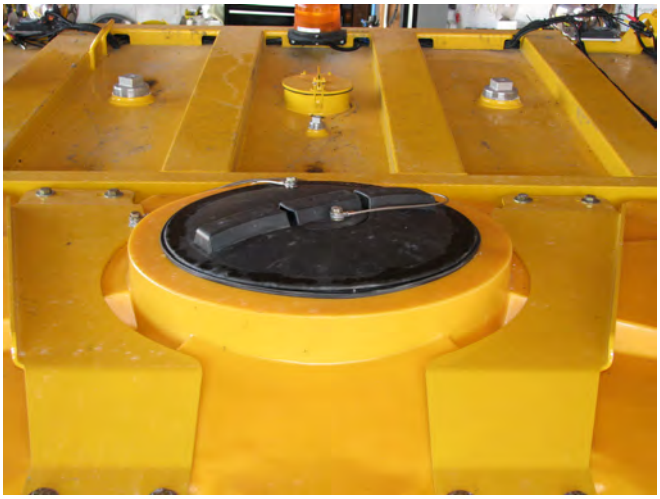
5. Make sure auger is secured to the front hydraulic cylinder with the pin for transit. This pin must be removed before the auger can moved left or right.
6. Grease Continuous off-loading components auger boom components.

Optional automatic grease system:
Include the following steps if your truck is equipped with an optional automatic grease system.

1. Check grease level in grease pump reservoir. Fill with specified grease if necessary.
2. Inspect all grease system lines for leaks and that they are properly attached.
3. Make sure all auto-greased components have fresh grease.
4. Manually grease all auto-greased fittings to insure proper lubrication.

NOTICE:
SOME ITEMS MENTIONED IN THE PRE-OP CHECKLIST ARE OPTIONAL AND MAY NOT BE ON YOUR TRUCK. THOSE ITEMS SHOULD BE SKIPPED.

Clean Water Fill Fitting & Valve



Rear Clean Water Tank Man-Way & Wastewater Bladder

3.3 Filling The Clean Water Tank

The clean water fill connection on the driver side of the tank is a quick connect fitting that accommodates large hoses that are typically connected to a metered source like a fire hydrant to expedite the filling of the tank. Only use potable water (clean enough to drink) to increase the service life of the components in the water system.

Filling the freshwater tank:

1. Open the man-way on the top of the rear fresh water tank and make sure the tank is clean. Then close and latch the man-way.

NOTICE:
IF A BUILD UP OF SLUDGE OR SLUDGE IS VISIBLE IN THE TANK, IT MUST BE THOROUGHLY FLUSHED WITH FRESH WATER UNTIL ALL DEBRIS IS REMOVED.

2. If this is the first time using the water source, flush for several minutes prior to filling the tank to help ensure that no debris enters the system.
3. Connect the fill hose to the water source and flush hose for several seconds.

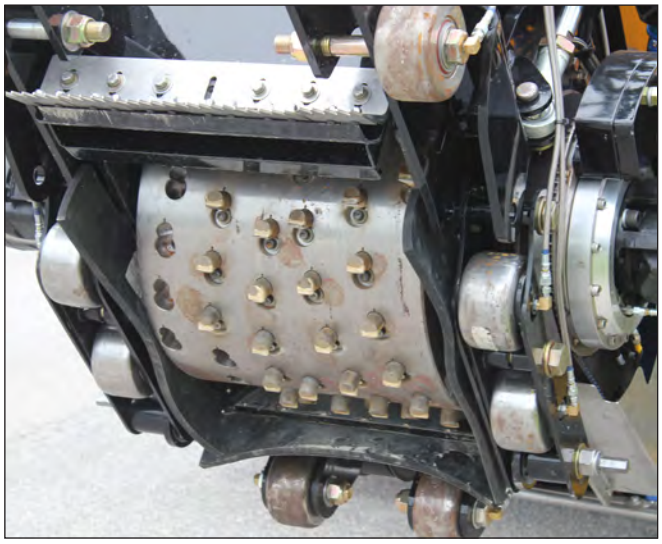
Clean Water Tank Sight Gauge

4. Open the water tank fill valve and connect the hose to the quick connect fill fitting. Secure the hose to the fitting with the cam-lock levers.
5. Slowly open the source valve to begin filling the tank.
6. Open the drain valve the tank for several seconds to flush out debris that may have accumulated on the bottom of the tank, then close the valve.
7. Monitor the tank sight glass closely during fill operations and close the source valve just before the tank is completely filled.
8. Close the water tank fill valve, release the cam-locks and disconnect the fill hose from the fitting.
9. Remove the fill hose from the water source and drain the hose.
10. Store the hose in a clean, safe location.

⚠ CAUTION ⚠

OPERATORS MUST ALWAYS MONITOR THE TANK CLOSELY DURING FILLING OPERATIONS AS THE FLOW OF WATER FROM A HYDRANT OR OTHER HIGH VOLUME SOURCE CAN BE FAR GREATER THAN THE FLOW CAPACITY OF TANK AIR VENT. OVERFILLING THE TANK WILL CAUSE EXCESSIVE PRESSURE AND DAMAGE THE TANK.

Clean Water Tank Fill & Drain Valves



Cutting Teeth & Drum - Flat Teeth for Planing

3.4 Cutter Drum Setup

Before you start the job, you should evaluate the type of pavement and choose the correct down pressure on the cutter and required water pressure for cooling and dust control. You will also need to set the cut spacing and skip pattern to accommodate job specifications. The procedures for setting up the cutter are explained in this section.

Drum and Cutter Teeth

Determine which teeth should be used and the width of the cut. There are two types of teeth that can be used in the Drum, Flat teeth and full round teeth. You may need to remove some existing teeth and install others. Full round teeth are used for Rumble Strips and Flat teeth are used for Milling and Grooving.

The teeth are arranged in a double triple row pattern. This means that there are 3 distinct row patterns that allow the user to select many different cut widths and not sacrifice efficiency or the quality of the cut. Install the teeth in continual rows around the full circumference of the drum.

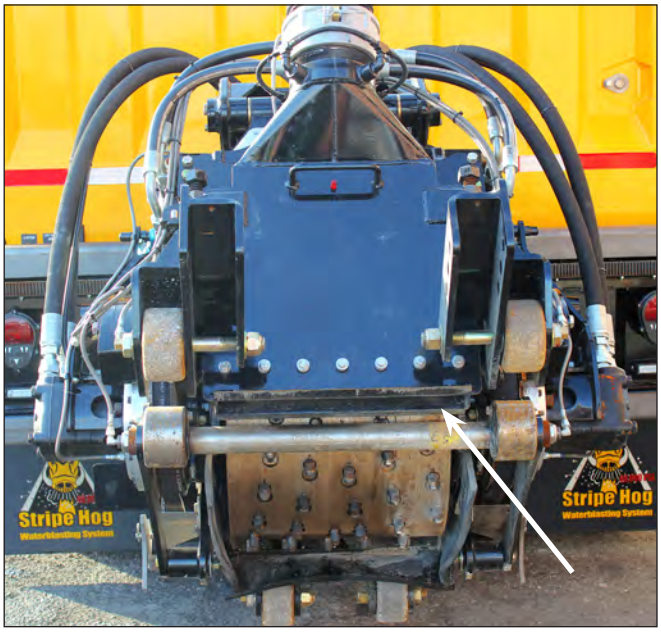
Refer to the Replace Cutter Teeth section in Lubrication & Maintenance for instructions to remove and install the teeth.

NOTICE:
AFTER SETTING UP THE CUTTER, ALWAYS MAKE A SHORT TEST RUN AND EVALUATE THE RESULTS. ADJUST CUTTER SETTINGS IF NECESSARY AND TEST AGAIN. REPEAT UNTIL THE DESIRES RESULTS ARE ACHIEVED.

Configuring Cutter for Rumble Strips

1. Raise the cutter and secure it with the locking arm.
2. Secure the front of the cutter chassis with safety stands.
3. Shutdown the truck and place it in the service position.
4. Remove planing teeth and install rumble (round) teeth. If round teeth are already installed, inspect the teeth and ensure they are in good condition and tight.
5. Install or remove cutting teeth if necessary to set the width of the cut.
6. Unlock Eccentrics. This is done by loosening the 1" jam nut on each threaded pin located on the counter balance weights. Turn the threaded pin counterclockwise until fully disengaged with the action control arm.
7. Close eccentric bypass valve by turning it 5.5 turns clockwise. This will provide hydraulic pressure to rotate the eccentrics.
8. Remove the milling depth adjustment wheels.
9. Readjust gauge and trim wheels to achieve proper cutting depth.
10. Activate the Hydraulic System
11. Unlatch the Cutting Head locking arm and lower the cutting chassis to the pavement.
12. Adjust the down pressure for the type and quality of the pavement you will be working with. The valve is located behind the hydraulic manifold next to the frame. Down pressure is displayed on the main control screen. Contact Hog Technologies for assistance if necessary.
13. Adjust the trim pressure. The valve is located in the center behind the hydraulic manifold. Use the manual pressure gauge at the valve to set the pressure.
14. Adjust cutting depth. Max depth is 3/8."
15. Adjust vacuum height. (Trucks equipped with optional vacuum recovery)
16. Program the controller for the desired cut pattern.

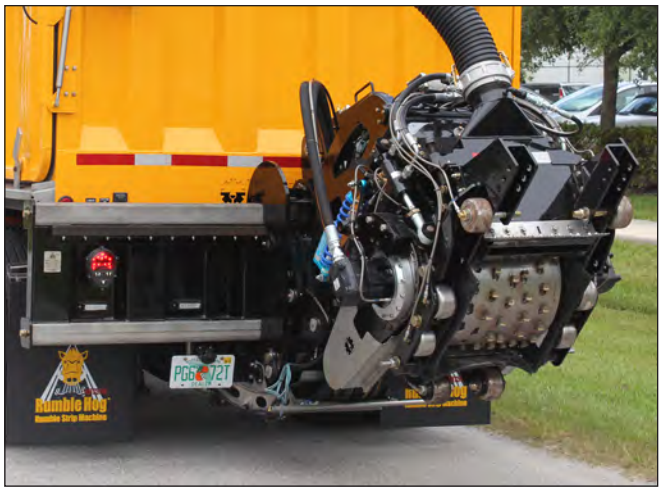
Cutter Configured For Rumble Strips



Vacuum Shroud

Configuring Cutter for Milling (Planing)

1. Raise the cutter and secure it with the locking arm.
2. Secure the front of the cutter chassis with safety stands.
3. Shutdown the truck and place it in the service position.
4. Remove rumble teeth and install planing (flat) teeth. If planing teeth are already installed, inspect the teeth and ensure they are in good condition and tight.
5. Install or remove cutting teeth if necessary to set the width of the cut.
6. Rotate eccentrics to TDC (Top Dead Center). Monitor PLC as eccentrics are rotated. Controller shows “ON” when eccentric is at TDC.
7. Lock Eccentrics. This is done by loosening the 1” jam nut on each threaded pin located on the counter balance weights. Turn the threaded pin clock wise until fully engaged with the action control arm.
8. Open eccentric relieve valve. Turn the valve all the way out (5.5 turns counter clockwise). This is necessary because the eccentrics are locked and cannot turn.
9. Install milling chassis and depth adjusting wheels
10. Activate the Hydraulic System.
11. Unlatch the Cutting Head locking arm and lower the cutting chassis to the pavement.
12. Adjust the down pressure. The pressure required for milling is much less than pressure required for rumbling. Reducing down pressure will result in less noticeable wheel marks in the surface, however you should have 200-500 psi (14-35 BARS) of down pressure for cutter stability. The valve is located behind the hydraulic manifold next to the frame. Down pressure is displayed on the main control screen.
13. Adjust the trim pressure (no less than 100 psi). The valve is located in the center behind the hydraulic manifold. Use the manual pressure gauge at the valve to set the pressure.
14. Adjust cutting depth. Max depth is 3/8.”



Cutter Configured For Planing

Hydraulic Manifold & Manual Down Pressure Valve

15. Adjust vacuum height. (Trucks equipped with optional vacuum recovery)
16. Program the controller for the desired cut pattern.

Typical Monitor Mounted to Windshield

Front Camera Mounted

3.5 Mounting Monitors & Cameras

The video system includes 2 monitors and 4 cameras that provide a complete video guidance and monitoring system during cutting operations. Each monitor is removable and secured to the windshield with special vacuum cups during cutting operations. The monitors obstruct the drivers forward visibility, so they must be removed and properly stored when the truck is in TRAVEL mode.

Monitors

Each monitor vacuum cup is equipped with a manual pump that creates a strong suction to the windshield. Use the following procedure to attach the monitors.

1. Make sure the vacuum cups and windshield are clean.
2. Hold the monitor against the windshield and pump the plunger on the suction pump until the red line on the plunger remains hidden in the pump body, indicating the cup and monitor are secure and ready for use.

⚠ CAUTION ⚠

IF THE RED LINE IS EXPOSED, IT INDICATES VACUUM SUCTION IS WEAK AND THE MONITOR COULD RELEASE FROM THE WINDSHIELD.

3. Check the plunger frequently to make sure the cup remains securely attached. If the red line begins to show, pump the plunger to increase the vacuum.
4. Remove the monitor and clean the suction cup and window if the red line becomes exposed frequently.

⚠ WARNING ⚠

THE VIDEO MONITORS OBSTRUCT THE DRIVERS FORWARD VISIBILITY AND COULD RELEASE FROM THE WINDSHIELD UNEXPECTEDLY WHILE TRAVELING DOWN THE HIGHWAY IN TRAVEL MODE. RESTRICTED VISIBILITY OR THE UNEXPECTED RELEASE OF A MONITOR COULD RESULT IN AN ACCIDENT. ALWAYS REMOVE AND PROPERLY STORE BOTH MONITORS BEFORE SHIFTING THE TRUCK TO TRAVEL MODE AND DRIVING ON THE HIGHWAY.

Front Camera

The camera on the right side of the front fender provides a full screen image of the shoulder in front of the truck on the monitor dedicated to the forward camera. An adjustable cross hair on the screen is used for truck guidance and alignment purposes.

If the camera is not mounted, use the following procedure to attach the camera.

1. Attach the camera to the bracket on the front camera bar using the four bolts and locknuts. Tighten locknuts securely.
2. Loosen the friction knob on the camera mount and slide the camera to the desired position on the bar.
3. Set the camera angle and tighten the friction knob.
4. Attach the cat 5 cable to the camera.

Upper Rear Cameras

Two rear facing cameras mounted on the upper rear of the debris tank provide an overhead view of the pavement on each side of the cutter in separate windows on the rear camera monitor. These cameras provide the operator with the location of the cutter and monitor cutting operations.

If the cameras are not mounted, use the following procedure to attach the camera.

1. Attach each camera to the brackets on the rear of the debris tank using the four bolts and locknuts.
2. Tighten locknuts enough to secure the camera, but allow for adjustment.
3. Set each camera to the desired angle and tighten the locknuts securely.
4. Attach the cat 5 cable to each camera.

Rear Video Cameras

Lower Rear Cameras

Guidance Camera

A camera mounted below the chassis provides a view of the pavement just forward of the cutting drum in a separate window. An adjustable cross hair on the screen is used for guidance and alignment purposes. Typically the cross hair is aligned to the white line or a seam in the pavement to help set the cutter at the proper offset and make sure the cutter position setting is Maintained. The cutter video also assists the operator in making minor right/left cutter position adjustments during cutting operations.

If the camera is not mounted, use the following procedure to attach the camera.

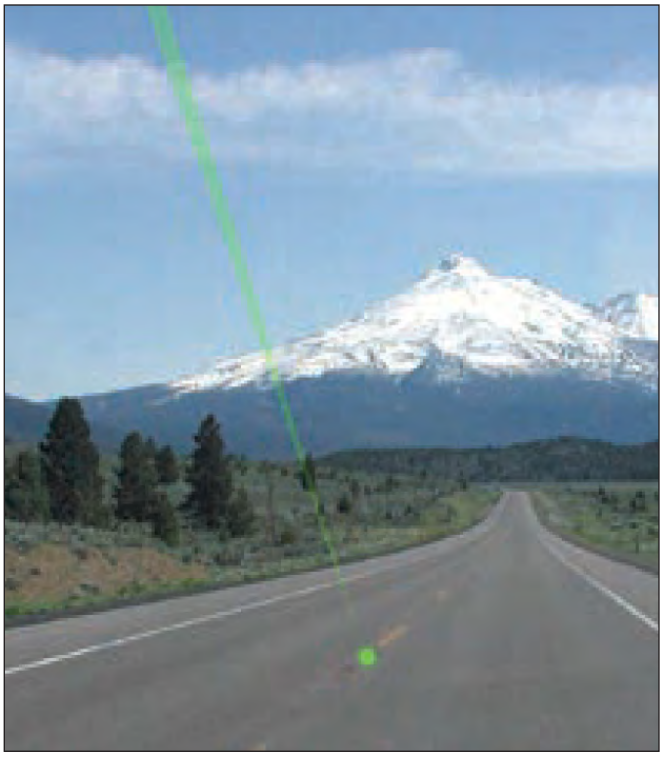
1. Attach the camera and sunshade to the bracket on the cutter camera bar using the four bolts and locknuts. Tighten locknuts securely.
2. Loosen the friction knob on the camera mount and slide the camera to the desired position on the bar.
3. Set the camera angle and tighten the friction knob.
4. If necessary loosen camera mounting locknuts or swivel bolt locknut slightly to fine tune camera angle. Then tight locknuts securely.
5. Attach the cat 5 cable to the camera.

Rear Guidance Camera

Verify Camera Operation

When all monitors and cameras are installed and connected, activate each one and verify proper operation. Correct any issues so each camera system is operating properly before beginning rumbling or planing operations.

Laser



Laser Spot Alignment Indicator On Reference Line

3.6 Laser Guidance System

The laser guidance system uses an ultra high visibility green laser to establish visual line control for your truck. The system provides the operator with another alignment tool that can be used with the forward video camera monitor or instead of the forward monitor, depending the operator's preference.

The operator adjusts the laser spot to the desired reference point on the road surface using the laser control panel in the cab. The laser spot is impacted directly on the road surface and shows the operator exactly where the vehicle is relative to "on line." The operator can also select laser spot mode, steady on or blinking.

Switches in the laser control panel in the cab control all laser functions. Use the following procedure to activate the laser guidance system.

1. Activate the Power Switch. Note that the system requires several minutes to warm up before the spot will appear.
2. The red Laser Power indicator light on the panel will illuminate to indicate the system is energized.

Laser Control Panel Switches

1. Power ON/OFF Switch
2. Laser Power Indicator Light
3. Laser Mode Light
4. Laser ON/OFF/MODE Switch
5. Laser Spot Control Buttons

3. The green Laser Mode Light blinks slowly when the panel is energized and is in warm up mode. The light goes out when the system is warmed up and the laser is ready for activation.

4. When the green light goes out use the Laser ON/OFF/MODE Switch to turn on the laser and select the mode. (Laser spot mode, steady on or blinking.

5. Use the Laser Spot Controls to move the laser spot UP/DOWN or RIGHT/LEFT.

WARNING

DIRECT EXPOSURE TO LASER LIGHT CAN CAUSE PERMANENT EYE DAMAGE. NEVER LOOK DIRECTLY AT THE LASER BEAM OR POINT THE LASER AT ANOTHER PERSON.

3.7 Auto Guidance Camera

Guidance Camera Quick Start

1. Make sure the monitors and a laptop are plugged in and mounted in the cab.

2. Engage Auto Guidance system by pressing “Laser Guidance” switch on the right side of the joystick.

3. Make sure camera assembly along with a shade box is mounted to the rear camera bar under the cutting head assembly.

4. Verify that the camera is in the correct location in relation to the position of cutting teeth.

5. Connect the cab Ethernet cable to the laptop computer. Turn on the computer and allow it to boot up.

6. Double click on “SOPAS Single Device”. (The software will automatically search for the camera)

7. In the “Available Devices” pop-up window, click on your device “InspectorP30(NoName)”

8. At this point camera should be connected. You should see live image of the line in Edit mode.

9. Click on “Replace reference image”

10. Align the camera with a line, so the image is in the center of a screen.

11. Adjust “image settings”. In most cases clicking om “Auto” will correct the image (right upper side of the window).

Rear Guidance Camera Forward of Cutting Drum

12. Save to device.

13. Click on “Run”

If for some reason the device is not found:

1. Start SOAPS software.

2. In the “Available Devices” pop-up window, click on the “Search Connected Devices”.

3. Click on the “Connect to specific device” bullseye. (It may already be checked)

4. Click on the “Inspector” bullseye. (It may already be checked)

5. Click “Next”. SOPAS will find the InspectorP90 camera. If prompted to change IP settings go to step 6. If not, go to step 8.

6. Click “Automatically” to change device IP settings.

7. Click “Yes” to complete IP settings change. Wait approx. 40 seconds.

8. You should now be connected.

3.8 Hydraulic System Cold Weather Warm Up Procedure

Starting the RH7500 improperly in cold weather (below 68° F [20° C] will cause significant and potentially catastrophic damage to the hydraulic system.

Always perform this warm up process before any operational functions if the time lapse since the last cutter system operation is more than 30 minutes and outside temperature is below 68 degrees F.

1. Make sure the truck transmission is in neutral, park brake is on, and the engine speed is less than 800 rpm. Do not increase engine rpms above lowest possible idle during this procedure.
2. Press Power on the Joystick Box
3. Press Truck PTO
4. Press OMSI PTO **--DO NOT INCREASE ENGINE RPM--** Engine speed must remain at low idle.
5. Do not press Mode
6. Press Drive on Allison Transmission controller & verify 6/1 on Allison Display. If the display shows 4/4 you must return to neutral and turn off the Mode Switch.
7. **DO NOT INCREASE ENGINE RPM**. Engine speed must remain at low idle.
8. Turn the blower on (if you don't have this option skip this step)
9. Turn the cutter drum on
10. **DO NOT INCREASE ENGINE RPM**. Engine speed must remain at low idle.
11. Stay parked in this condition until hydraulic oil warms to greater than 68° F (20° C).

Once the oil has warmed above 68° (20° C) follow these next steps

12. Put the Allison Transmission in Neutral
13. Press Mode
14. Press Drive on the Allison Transmission controller & verify 4/4 on Allison Display
15. Do not increase engine rpm. **ENGINE SPEED MUST REMAIN AT LOW IDLE**.
16. Release the parking brake
17. Select forward on the Joystick Box
18. Slowly turn the potentiometer to start moving the truck forward. Do not exceed 50% on the dial.
19. Move the truck in this manner for at least 500 feet. It will intentionally move extremely slow.
20. Make sure that the hydraulic oil is still above 68° F (20° C).
21. Confirm that the temperature of all hydraulic motors is above 68° F (20° C) degrees Fahrenheit.

When you stop working for any length of time you must keep the machine running in Work mode to keep all components warm and at the same temperature.

WARNING

CIRCUMVENTING ANY PORTION OF THIS PROCEDURE WILL CAUSE CATASTROPHIC FAILURE IN THE HYDRAULIC PUMPS AND MOTORS. THIS TYPE OF FAILURE EXHIBITS DISTINCT CHARACTERISTICS AND WILL NOT BE COVERED UNDER WARRANTY.

3.9 System Startup Procedure

Once the truck is at the job site it must be shifted to work mode. The startup procedure to shift the truck from TRAVEL mode to WORK mode and activate the cutting system is outlined in the following instructions. These instructions are general and apply to most trucks with automatic transmissions. However your truck may be slightly different, depending on the chassis and optional equipment selected. ***Always refer to the placard on the back of the visor in the cab for specific startup and shutdown instructions for your truck.***

Startup procedure to engage WORK mode and the cutting system:

Engine and accessory hydraulic system startup:

1. Verify hydraulic fluid level and temperature. If fluid temperature is below 68° F (20° C) follow the Hydraulic System Warm Up Procedure in this section before continuing with the next steps.

NOTICE:
IN COLD WEATHER, HYDRAULIC FLUID CAN COOL BELOW 68° F (20° C) DURING TRANSIT TO THE JOB SITE OR IF THE LAST CUTTER OPERATION IS MORE THAN 30 MINUTES.

2. Position the truck 50' before the starting point and centered on the target line
3. Check the video and laser guidance systems for proper operation.
4. Make sure the main breakers are on and all switches and the speed dial are in the OFF position or set at 0.
5. Be sure the truck transmission is in "N N", (*NEUTRAL*) position and the park brake is set.
6. Start engine and allow it to run at idle speed.
7. Press the POWER switch to activate all switches and controls.
8. Press the TRUCK PTO button to engage the accessory hydraulic pump. You should see a slight raise in engine speed.
9. Press the OMSI PTO Button (monitor a Control Screen to ensure the WORK mode has engaged)
10. Press the Mode button.
11. Press down on a brake pedal and hold it down

POWER, TRUCK PTO, OMSI PTO & MODE Switches
TRUCK SPEED Dial

TRUCK & OMSI PTO Buttons On joystick Panel

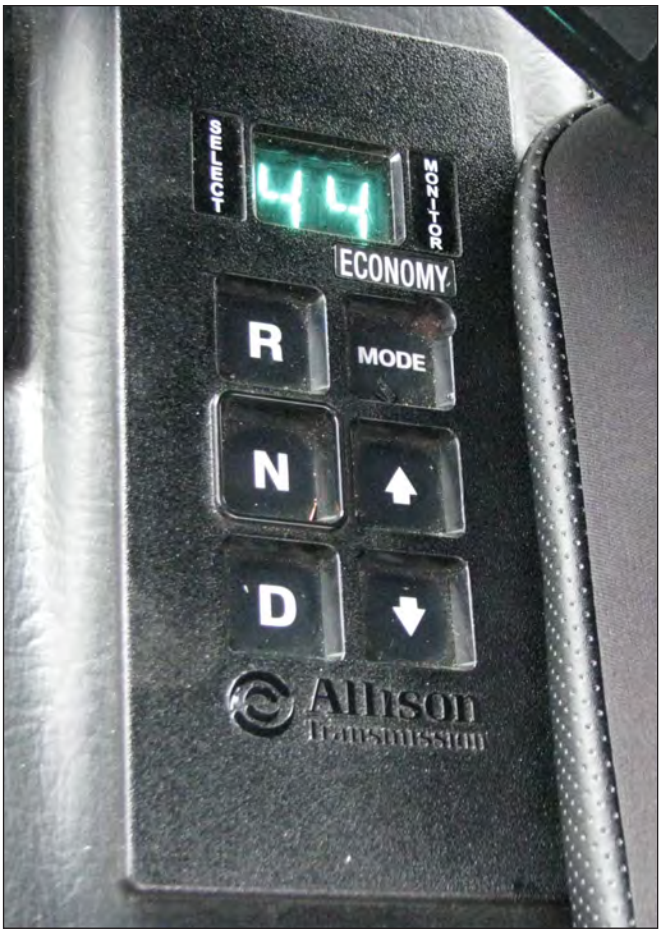
12. Select Drive (D) with the transmission shift lever
13. Transmission will shift into 4th gear (4.4) and you will hear a change in engine rpm
14. Release the brake pedal
15. Using the truck cruise control accelerate button, raise engine speed to 1800 RPM.
16. Release the parking brake.

Hydro-Static Drive startup:

1. Complete engine and accessory hydraulic system procedure.
2. Set engine speed to 1,000 rpm
3. Turn the TRUCK SPEED dial clockwise to ON position. (Just out off the detent position)
4. Squeeze the Joystick trigger and move it forward to select travel direction, continue to hold the trigger while returning it to the center position then release the trigger.
5. Turn up the TRUCK SPEED potentiometer to adjust desired speed.
6. To change directions squeeze the trigger on the joystick and move the joystick backwards.
   - TRUCK SPEED dial does not work in reverse. Reverse speed is controlled by the joystick only.
   - If the joystick is moved without holding the trigger while the truck is moving the truck will stop as a safety precaution.
   - The truck can be moved forward or backward by moving the joystick in the direction of travel while squeezing the trigger. Travel speed is increased or decreased by moving the joystick further in the selected direction.

NOTICE:
FOR SAFETY REASONS, THE HYDROSTATIC CONTROLS ARE DESIGNED TO DEMAND OPERATOR PRESENCE AND INTENTIONAL ACTION. THE TRUCK WILL IMMEDIATELY STOP IF THE JOYSTICK IS MOVED WITHOUT THE TRIGGER ENGAGED.

RELEASING THE TRIGGER BEFORE THE JOYSTICK RETURNS TO CENTER WILL DISABLE THE POTENTIOMETER.



Automatic Transmission Gear Selector & LED Screen
OMSI PTO & MODE Switches ON & 4/4 Lockup Displayed

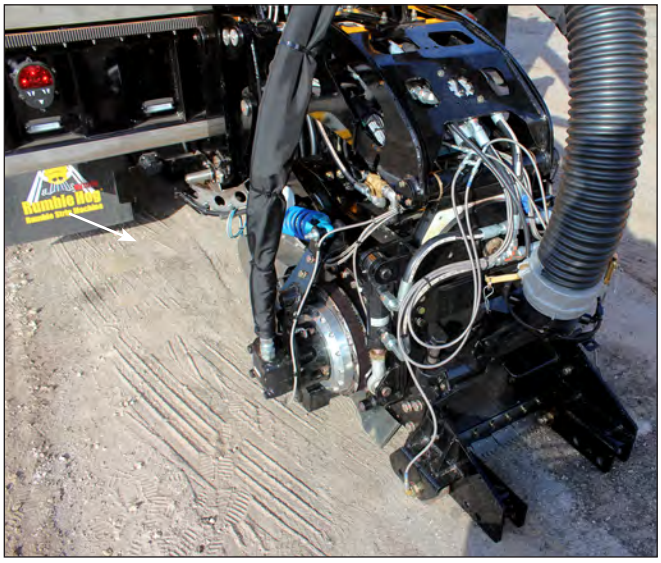
Front Camera

3.10 Aligning The Truck & Positioning The Head

The truck must be properly positioned prior to setting the head on the ground. The head must also be in proper alignment prior to setting it on the ground. Once the head is on the ground it cannot be moved side to side unless the truck is moving. Never attempt to move the head sideways while the truck is sitting still.

Aligning the Truck

1. Position the truck over the line Activate Hydrostatic Drive (Set engine to 1000 RPM).
2. Make sure the video guidance monitors are attached to the windshield.
3. Turn ON the camera switch.
4. Drive the truck in reverse.
5. Position the rear camera, so that it is in the right relationship with the cutter teeth in accordance with the desired offset from the line.
6. Position the cutter head assembly at the center of the truck or at the desired offset left or right.



Rear Camera

7. Drive the truck hydrostatically forward until the line is passing through the center of the camera for at least the length of the truck.

Forward Camera Video Monitor With Alignment Indicator On Reference Line

Rear Video Monitor

8. Now stop and align front camera with a reference line, so the line is visible in the center of the front camera monitor. The truck is now aligned, and you are ready to cut.
9. While cutting, always keep the front camera aligned and only bump the Left or Right buttons (top of the joystick) when necessary to keep the rear camera aligned. This is also necessary procedure even in a bend. Keeping the front camera aligned insures a consistent radius and bumping Left or Right buttons will keep the cutter on the line.
10. The rear camera monitor cross hairs should be aligned with the center or the edge of the reference line.

Cutter Head Positioned To Right Offset

Locking Arm Released From Lift Arm With Latch Closed For Operation

Remote Switch Control

Unlock the Lift Arm

1. Activate the Hydrostatic Drive
2. Attach the remote control to the receptacle on the driver's side of the truck
3. Make sure the LATCH/TANK switch is in Latch position
4. Press the DOWN button on the remote control until the hook is fully extended
5. By hand lift and hold the safety lock arm
6. With the safety lock arm up, press and hold UP button until the latch hook is fully retracted.
7. Now lower the latching arm to its resting position.
8. Detach and store the remote control

Rear Control Switches

Aligning the Cutting Head

1. Make sure the monitors and all guidance systems are activated.

1. Align the forward video and/or laser guidance indicators on the reference line, pavement seam or edge of the pavement.

2. Make sure the locking arm is released, then use the joystick to move the cutter to the desired offset position.

3. Use the rear video cameras to make final cutter offset adjustments. Then align the rear video guidance indicator on a reference line, seam or the edge of the pavement.

Rear Video Cameras

Laser Spot Alignment Indicator On Reference Line

3.11 Programing Controller

Once you have completed the Pre-Op Inspection and you have set up the drum for the proper cut style and width it's time to program the PLC system.

NOTICE:
THE CONTROLLER DISPLAY SCREENS SHOWN IN THIS SECTION ARE FOR DEMONSTRATION PURPOSES ONLY. THE DISPLAY AND CONTROLS IN THE CONTROLLER ON YOUR TRUCK MAY BE DIFFERENT. REFER TO THE SUNSOURCE HOG TECHNOLOGIES USER GUIDE FOR A DESCRIPTION OF THE CONTROLS AND FEATURES.

Controller MAIN Screen - Setting Down Pressure & Select Cutter Setup Screen

Cutter Down Pressure

Hydraulic down pressure on the lift arm keeps the cutter firmly on the pavement and reduces torque kickback during cutting operations. This improves efficiency and results in more consistent cuts. The down pressure setting will vary depending on the type and age of the pavement or the cutting mode if the truck is equipped the planing option.

Use the following procedure to set down pressure on the cutter.

1. Make sure the cutter eccentric and cutter are rotating.
2. Rotate the valve while monitoring the gauge near the valve to achieve the desired down pressure.
3. If the truck is equipped with the planing mode option, rotate the knob 5.5 turns counterclockwise when transferring from rumbling mode to planing mode to set proper down pressure for planing mode.
4. When transferring from planing mode to rumbling mode, rotate the knob 5.5 turns clockwise to set proper down pressure for rumbling.

⚠ CAUTION ⚠

EXCESSIVE CUTTER DOWN PRESSURE CAN RAISE THE REAR TRUCK AXLES FROM THE PAVEMENT CAUSING LOSS OF TRACTION, DAMAGE TO CUTTER COMPONENTS AND PAVEMENT DAMAGE. NEVER APPLY EXCESS DOWN PRESSURE ON THE CUTTER.

Cut Spacing

Cut spacing controls set the distance between the center of each rumble strip. Spacing distance is shown as a percentage of the minimum and maximum cut spacing, 9" (23 cm) being the minimum and 30" (76 cm) the maximum. For example, if the operator sets the cutter Percentage at 100%, the space between each cut will be 9" (23 cm) and 0% will be 30" (76 cm).

CUTTER SETUP Screen - Setting Cut Spacing

Use the following procedure to set the cut spacing before starting cutting operations:

1. From the Main Screen on the digital controller, press button (2) to select the CUTTER SETUP screen.
2. Press controller buttons (5) and (6) to increase or decrease cut spacing. The spacing is displayed as a percentage of the cut width and the actual distance in inches.
3. Press ESC to return to the Main Screen when cut spacing is set.

Skip Pattern

The skip pattern controls set the cut/stop cut pattern for the cutter. This setting causes cutter to lower and cut for a specified distance, then raise and stop cutting for a specified distance, then repeat the sequence throughout cutting operations. For example, the operator can set the cutter to cut 20 rumble strips, then raise and stop cutting for 5 rumble strips. The pattern will repeat until It is changed by the operator.

Use the following procedure to set the skip pattern:

1. From the Main Screen on the digital controller, press button (2) to select the CUTTER SETUP screen.
2. Press button (7) to set the PRIMARY skip panel.
3. Press button (7) again to toggle between the CUT/SKIP icons and highlight CUT.
4. Use the UP/DOWN arrow buttons to set the desired number of cuts before the skip.
5. Press button (7) to highlight the SKIP Icon.
6. Use the UP/DOWN arrow buttons to set the desired number of cuts to skip before cutting resumes.
7. Skip pattern setting examples:
   - CUT 20 - SKIP 20
   - CUT 25 - SKIP 10
   - CUT 30 - SKIP 15
8. Press ESC to return to the Main Screen when the cut pattern is set.

CUTTER SETUP Screen - Setting Primary & Secondary Skip Pattern

CUTTER SETUP Screen - Setting Spray Nozzle Water Pressure

Nozzle Water Pressure

The water pressure setting controls the volume of water sprayed on the cutter drum during cutting operations.

Use the following procedure to set water pressure PSI:

1. From the Main Screen on the digital controller, press button (2) to select the CUTTER SETUP screen.
2. Press controller buttons (3) and (4) to increase or decrease water pressure. Pressure is displayed in PSI.
3. Press ESC to return to the Main Screen when cut spacing is set.

CUTTER SETUP Screen - Job Status Window & Buttons

Job Status (A-B-C)

Cutter setup settings can be memorized by saving them to JOB STATUS A-B OR C. The settings can be recalled anytime during the current job or future jobs. Press button (1) to toggle between the saved settings. Press the button (2) to clear the memorized settings.

3.12 Wireless Remote Control

Trucks W/O Optional Continuous Off-Loading

The top two buttons on the wireless remote are programmed to raise or lower the skip cylinders. The control allows an assistant located within 25 feet (7.5 meters) of the truck to momentarily raise cutting drum from the pavement to cause a manual skip, then lower the drum to resume cutting operations.

This is useful when crossing intersections, driveways or obstructions where rumble strips or planing operations are not wanted and it is difficult for the operator to determine exactly when to stop and restart the rumble strips.

Only the top two buttons are active on the control transmitter. The other six buttons are not programed.

Use the following procedure to active the skip function with the wireless remote.

1. Press any button to wake up the control.
2. Press and hold either button to activate the skip cylinders and raise the cutting drum off the pavement and stop cutting.
3. Release the buttons to lower the cutter to the pavement and resume cutting operations.

Trucks With Optional Continuous Off-Loading

The top buttons wireless remote are programmed to raise or lower the skip cylinders. The next four buttons raise or lower the primary and secondary hydraulic cylinders that raise and lower the auger. The bottom two buttons control the hydraulic motor that rotates the auger right and left.

The control allows an assistant located within 25 feet (7.5 meters) of the truck to raise cutting drum to skip rumble strips or interrupt planing, and to adjust the position of the auger.

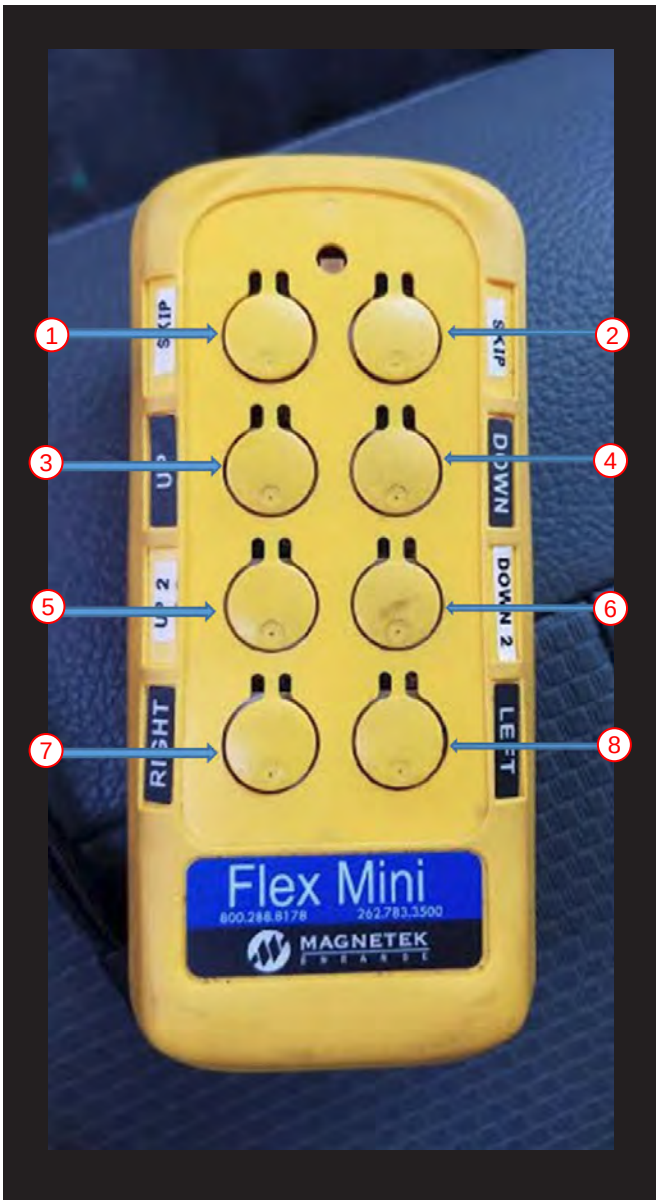
Wireless Remote Control & Skip Cylinder Buttons

Use the following procedure to active the skip function with the wireless remote.

1. Skip Function
   - Press and hold either button 1 or 2 to activate the skip cylinders and raise the cutting drum off the pavement and stop cutting.
   - Release either button to lower the cutter to the pavement and resume cutting operations.
2. Primary Auger Cylinder UP/Down Function
   - Press and hold button 3 to raise the front of the auger using the primary (front) hydraulic cylinder. Release the button to stop the auger at the current height.
   - Press and hold button 4 to lower the front of the auger using the primary (front) hydraulic cylinder. Release the button to stop the auger at the current height.
3. Secondary Auger Cylinder UP/Down Function
   - Press and hold button 5 to raise the front of the auger using the secondary (rear) hydraulic cylinder. Release the button to stop the auger at the current height.
   - Press and hold button 6 to lower the front of the auger using the secondary (rear) hydraulic cylinder. Release the button to stop the auger at the current height.
4. Auger Right/Left Function
   - Press and hold button 7 to rotate the front of the auger to the right. Release the button to stop the auger in the current position.
   - Press and hold button 8 to rotate the front of the auger to the left. Release the button to stop the auger in the current position.

CAUTION

ATTEMPTING TO MOVE THE AUGER WITHOUT REMOVING THE SAFETY PIN FROM SECONDARY (FRONT) CYLINDER WILL RESULT IN DAMAGE TO THE TRUCK AND AUGER. ALWAYS REMOVE THE SAFETY BEFORE MOVING THE AUGER.



Wireless Remote Control
Trucks With Optional Continuous Off-loading

1. Raise & Lower Cutter For Skipping
2. Raise & Lower Cutter For Skipping
3. Raise Primary Auger Cylinder
4. Lower Primary Auger cylinder
5. Raise Secondary Auger Cylinder
6. Lower Secondary Auger Cylinder
7. Rotate Auger Right
8. Rotate Auger Left

Debris Recovery System Without
Optional Continuous Off-Loading System

3.13 Vacuum System Operation

The vacuum recovery system is an available option. If your truck is equipped with a debris recovery system, use the following procedure to activate the vacuum system.

NOTICE:
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Controller Main Screen Control Buttons

Starting the Optional Vacuum System

1. Perform all steps Pre-Operation Inspection and System Startup Procedure.
2. Verify filter canister pump operation(when equipped) – reach inside the canister and lift the float switch to test if the pump is coming on.
3. Test vacuum blower – ensure that it turns freely. Remember to run it after each use for 2-3 min
4. Make sure vacuum head clearance is set to 1/4" - 3/8". This clearance should not be greater than 3/8".
5. Open valve for in-line mister jets. This valve is located on the top of the cutting head assembly and is diverting water from spraying directly onto the cutting drum to inside of the vacuum head. This ensures the debris is moist before entering the system.
6. Press button #4 (BLOWER) on the Main control screen to activate the system.
7. 14. Press left or right buttons on the front of the control screen to adjust blower speed. Left arrow will decrease the speed. The right arrow will increase it.

3.14 Continuous Off-loading Operation

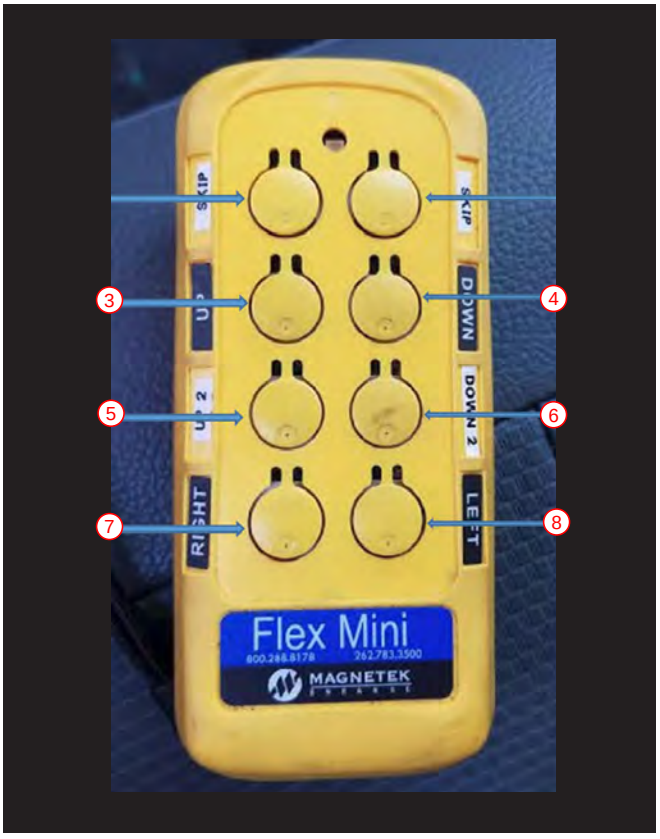
If the optional vacuum debris recover system on your truck includes the Continuous off-loading option, use the following procedure to activate the system.

1. Complete the Pre-Op Inspection and System Startup procedures.
2. Detach the auger tube from the front (primary) hydraulic cylinder by pulling the safety pin out. Use the wireless remote-control primary UP/DOWN function, to bump it up or down in order to free up the pin.

Debris Recovery System With
Optional Continuous Off-Loading System

3. Use remote control's primary up/down function to raise the auger tube up.
4. Use a remote control to move an auger tube left or right.
5. Press auger button located on the left side of the joystick, then use the auger speed control dial to increase auger speed to at least 50%.
6. Activate vacuum system as described in Vacuum System Operation.

Auger Speed Control Dial



Wireless Remote Control
Auger Control Buttons

3. Raise Primary Auger Cylinder
4. Lower Primary Auger cylinder
5. Raise Secondary Auger Cylinder
6. Lower Secondary Auger Cylinder
7. Rotate Auger Right
8. Rotate Auger Left

3.15 Rumble Strip Cutting Operations

NOTICE:
THE CONTROLLER DISPLAY SCREENS SHOWN IN THIS SECTION ARE FOR DEMONSTRATION PURPOSES ONLY. THE DISPLAY AND CONTROLS IN THE CONTROLLER ON YOUR TRUCK MAY BE DIFFERENT. REFER TO THE SUNSOURCE HOG TECHNOLOGIES USER GUIDE FOR A DESCRIPTION OF THE CONTROLS AND FEATURES.

1. Complete the “Setting Up the Drum Procedure”
2. Complete the “Unlock Lift Arm Procedure.”
3. Lower the Cutting Head to the ground.
4. Adjust the down pressure. (Refer to a section) Pressure is displayed on the screen
   A. Excessive pressure leaves undesirable wheel marks.
   B. Low pressure may allow the cutting head to bounce and damage the teeth.
5. Adjust the trim pressure. (Refer to a section)
   A. Excessive pressure leaves undesirable wheel marks.
   B. Low pressure may allow the cutting head to bounce and damage the teeth.
6. Make sure the eccentric relief valve is set correctly. (Refer to a section)
7. Open the Water Supply Valve
8. Turn on the Charge Pump. (Button #5 on the control monitor)
9. Use selector ball valve to direct water to the cutting drum or into the vacuum head as desired.

Joystick, Joystick Trigger (A) & TRUCK SPEED Dial (B)

10. Press button #2 (CUTTER) on the control Main screen. This will take you to the Cut Set Up page.
11. Select between PRIMARY cut/skip or SECONDARY cut/skip, buttons 7 or 8.
12. Enter the number of cuts and skips using up/down arrow buttons.
13. Enter the percentage of Cutter Coil Signal to set the spacing between each cut. During the operation, the Actual Distance between cuts will display in the right upper corner of the screen. Use buttons 5(+) and 6(-) to adjust the distance. These parameters will have to be readjusted during operation.

Controller MAIN Screen Control Buttons

Controller CUT SETUP Screen

14. Adjust water pressure using buttons 3(+) and 4(-). Percentage of PSI depends on type of the material and whether the vacuum system is in use.
15. Press ESC button to return to the main page.
16. Raise the Cutting Head.
17. Align the truck according to “Align the Truck” procedure described in section “Align the Truck”.
18. Activate vacuum system (if equipped or desired) by pressing button # 4 on the controller Main screen. Follow further instructions in section “Vacuum System”.
19. Press button #8 while holding the up arrow on the control screen to start the Cutting Drum rotation. (Rear Lift Arm must be raised up).
20. Lower the Cutting Head by pressing down arrow button.
21. Position Guidance camera (if desired). Refer to “Guidance System Quick Start”
22. Press button #6 to activate skip cylinders. (Note; eccentric motor will turn as soon as the truck starts moving in forward direction).
24. Move the truck hydrostatically forward a short distance. Stop and inspect the rumble strip depth, width, number of cuts and skips. Minor adjustment might be needed to satisfy demand of the job.
25. Use Wireless Remote-Control top 2 buttons to pause the cutting function when driving across intersections or driveways. Press 1 of the buttons and hold it down until ready to cut again.

Rumble Stripping Do’s and Don’ts

Do’s:

- Mount video monitors to windshield before starting cutting operations.
- Align truck, set guidance indicators and cutter offset before start cutting operations.
- Make sure the proper teeth for rumbling are installed in the cutting drum.
- Inspect cutter for worn or missing teeth before each shift.
- Set down pressure at the start of each job.
- Check cutter depth before starting each shift. Remember that cutter diameter decreases as teeth wear. Adjust standoff height if necessary.
- Shift truck to work mode in the proper sequence.
- Engage eccentric and cutting drum before lowering cutter to the pavement.
- Raise lift arm before engaging eccentric and cutting drum. Cutting drum will not rotate unless the last lift arm motion is UP.
- Make several short test runs at the beginning of each job to verify correct down pressure, cut spacing, cut pattern and cutter operation.
- Reduce down pressure if gauge wheels damage pavement or truck experiences traction issues.
- Raise the cutter before changing direction or making sharp turns.
- Engage water pump before starting cutting operations.
- Control truck WORK mode speed with TRUCK SPEED dial not the joystick during cutting operations.
- Monitor truck and cutter alignment during cutting ope rations.
- Raise cutter off pavement while crossing bridges, intersections, driveways.
- Look well ahead off the truck while cutting. Begin bumping cutter right or left to clear objects well before reaching the object.
- Bump cutter right or left in no more than .25” increments when clearing objects.
- Monitor video screen vacuum cup plungers during operation. Pump the plunger if red line is showing.
- Raise cutter and move it to the center of the chassis before traveling on the highway.
- Secure lift arm and cutter in the UP position with the locking arm and insert articulation lock pins before traveling on the highway.
- Remove video monitors from windshield and turn off laser guidance before traveling on the highway.

Don'ts

- Do not allow untrained personnel to operate Rumble Hog equipment.
- Do not aim the laser guidance beam at any person, vehicle or airplane.
- Do not operate the cutter with worn or missing teeth.
- Do not operate cutter with no water spraying from nozzles.
- Do not allow the water tank to run dry during operation.
- Do not make sharp turns while cutting.
- Do not back up with cutter down.
- Do not cut pavement on bridges, across intersections or in front of driveways.
- Do not continue cutting if cutter is kicking back or not cutting properly.
- Do not travel on the highway without centering the cutter on the chassis.
- Do not travel on the highway without the locking arm in place and the latch secured.
- Do not travel on the highway with the cutter articulation lock pins removed.
- Do not travel on the highway with the video monitors mounted to the windshield or with the laser guidance system activated.

3.16 Milling (Planing) Operations

When beginning milling operations, you should configure the cutter for planing which will lockout the eccentrics and cancel cutter drum plunging. Also, the gauge wheels must be reconfigured for planing. Make sure down pressure is set for the type of pavement to be cut.

Always set cutter down pressure, cutting depth and the width of the cut. Then make several short test runs to fine tune the settings. Make sure to adjust down pressure if the gauge wheels grove the pavement or the cutter kicks back while cutting.

Use the following procedure to begin planing operations.

Starting Planing Operations

1. Perform all steps Pre-Operation Inspection and System Startup Procedure.
2. Align the truck according to procedures described in Aligning Truck & Setting Cutter Offset.
3. Activate optional vacuum system (if equipped or desired). Main screen button # 4. Refer to the Vacuum System Operation for instructions to activate the vacuum system.
4. Activate optional continuous Off-loading System (if equipped or desired). Refer to the Continuous Off-loading System Operation for additional instructions to activate continuous off-loading.
5. Press button #8 while holding the up arrow on the control monitor to activate the Cutting Drum rotation. (The Cutting Head must be in UP position)
6. Lower the Cutting Head by pressing down arrow button
7. Activate FLOAT function. (Button on the right side of a joystick)
8. Activate skip function (if necessary) by pressing button #6 on the control monitor.
9. Position Guidance camera (if desired). Refer to "Guidance System Quick Start"
10. Using the hydrostatic drive, move the truck forward a short distance (approximately truck's length). Stop and inspect the depth, width, length of cuts and length of skips. Minor adjustment might be necessary to satisfy demand of the job.
11. Press and hold one of the top buttons (button 1 or 2) on Remote-Control to raise the cutter drum and pause the cutting function when driving across intersections or driveways. Release the button to lower the cutter drum and resume cutting operations.

Controller MAIN Screen & Control Buttons Indicating Work Mode

Controller MAIN Screen & Control Buttons Indicating Travel Mode

3.17 Routine Shutdown

The routine shutdown procedure should be followed each time the cutting system is deactivated and the truck is shifted from WORK mode to TRAVEL mode.

The shutdown procedure to shift the truck from WORK mode to TRAVEL mode and deactivate the cutting systems in this section provides general instructions that will apply to most trucks with an automatic transmission. However your truck may be slightly different, depending on the chassis and optional equipment selected. ***Always refer to the placard on the back of the visor in the cab for specific startup and shutdown instructions for your truck.***

NOTICE:
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Joystick, Joystick Trigger (A), TRUCK SPEED Dial (B) & E-Stop Button (C)

Routine Cutter Shutdown procedure:

1. Raise the cutter off the pavement.
2. Turn the TRUCK SPEED dial to 0 or bump the joystick to stop the truck. Set the park brake.
3. Disengage the cruise control and allow engine speed to drop to idle.
4. Press controller button (5) to stop the water pump.
5. Press controller button (8) to stop cutter drum rotation and controller button (6) to stop the eccentric.
6. Put the transmission in “N N” (NEUTRAL).
7. Turn the MODE and OMSI PTO switches off. Listen for the PTO to disengage and the red TRAVEL icon in the controller to illuminate. The transmission display will change from 4 4 to “N N.”

Notice:
If an emergency situation involving the potential for personal injury and/or equipment damage occurs, press the E-Stop Button (C).

Change the cutter configuration and truck from WORK mode to TRAVEL mode:

1. With the engine still running at idle speed, use the joystick to move the cutter right or left to the center of the chassis.
2. Attach the remote control to the receptacle on the driver side of the truck.
3. Use the LIFT ARM switch on the debris tank to raise the lift arm to the full UP position.
4. Make sure the LATCH/TANK switch is set to LATCH. Then raise the latch locking plate to the released position.
5. Manually raise the locking arm until the latch is clear of the lift arm. Then use the switches on the remote control to open the locking latch.
6. Lower the locking arm until it rests on the lift arm. Then use the remote control switches to close the latch on the lift arm latch pin.

NOTICE:
USE THE LIFT ARM UP/DOWN SWITCHES TO ADJUST THE LIFT ARM SLIGHTLY IF THE LOCKING ARM LATCH DOESN'T FULLY ENGAGE.

7. Rotate the latch locking plate to down to the locked position.
8. Insert the two pins that secure the articulation hinge for travel.
9. Disconnect the remote control and store it a safe place.
10. If the truck is equipped with continuous off-loading, turn the auger off and center it above the truck. Lower the auger to the travel position and secure it to the front cylinder with the safety pin.
11. Turn the TRUCK PTO switch off to disengage the accessory hydraulic pump.
12. Turn the POWER switch off to disable all joystick and control panel switches.
13. Release the vacuum cups and remove the video camera monitors from the windshield. Make sure the laser guidance system is off.
14. Verify that the TRAVEL icon is illuminate on the controller Main Screen. The cutter and truck are now ready for highway travel.

Truck Transmission Indicating Neutral


Cutter Centered On Chassis

15. When the truck is parked, set the parking brake and allow the engine to idle for several minutes to cool internal components, then shut off the engine.

WARNING

CUTTER SYSTEM COMPONENTS COULD BE ACTIVATED ACCIDENTLY WHILE DRIVING IF THE OMSI PTO DOES NOT DISENGAGE OR THE POWER SWITCH IS NOT TURNED OFF. THIS COULD RESULT IN SEVERE DAMAGE TO THE TRUCK AND/OR INJURY TO PERSONNEL.

ALWAYS MAKE SURE YOU HEAR THE PTO DISENGAGE DURING SHUTDOWN AND THAT THE POWER SWITCH IS TURNED OFF BEFORE DRIVING THE TRUCK ON THE HIGHWAY.

Debris Tank & Door

3.18 Dumping Debris Tank

The debris tank must be emptied when it is near full. A hydraulic actuator below the tank lifts the passenger side, causing the tank to tilt for easy dumping.

Before dumping debris, be sure you are dumping in an approved dump site and that the truck is on solid, level ground. Then use the following procedure to dump debris from the cage.

1. Put the truck in neutral, set the engine speed to idle and engage the parking brake.
2. Turn the POWER switch on.
3. If the truck is in WORK mode, disengage the OMSI Drive by turning off the OMSI PTO switch. This will deactivate the eccentric and cutter drum hydraulic pumps and motors.
4. Make sure the vacuum blower is shutdown. Press button #4 on the main screen to turn the blower off if necessary.
5. Press button #5 on the controller Main Screen to turn the water pump off.
6. Make sure all wastewater is drained from the debris tank. Open the gravity drain valve to completely drain the tank if necessary.
7. Move the Door Seal switch on the debris tank control panel to the DEFLATE position to completely deflate the air seal on the debris tank door.
8. Open the latches at the bottom of the debris tank door. Put pressure against the door to hold it closed 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.
9. Make sure the POWER switch is on. Then activate the TRUCK PTO and the accessory hydraulic system.
10. Attach the remote control to the receptacle on the driver side tool box.

11. 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.

12. If all debris does not slide out, use a rod or shovel to break up the debris until it is all removed.

⚠ CAUTION ⚠

NEVER ROCK THE TRUCK OR BOUNCE THE HYDRAULIC ACTUATOR TO MAKE THE DEBRIS FALL OUT. THIS JERKING MOVEMENT WILL DAMAGE THE HYDRAULIC ACTUATOR AND POSSIBLY BREAK DEBRIS TANK HINGE PINS OR MOUNT BRACKETS.

13. 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.

14. Support the door in the full open position with the safety strut. Then use a hose to clean the tank and liner thoroughly with fresh water.

NOTICE:
A HOSE CAN BE ATTACHED TO THE WATER PUMP OR ACTIVATE THE PRESSURE WASHER TO USE THE ONBOARD WATER SUPPLY TO WASHDOWN THE DEBRIS TANK AFTER DUMPING.

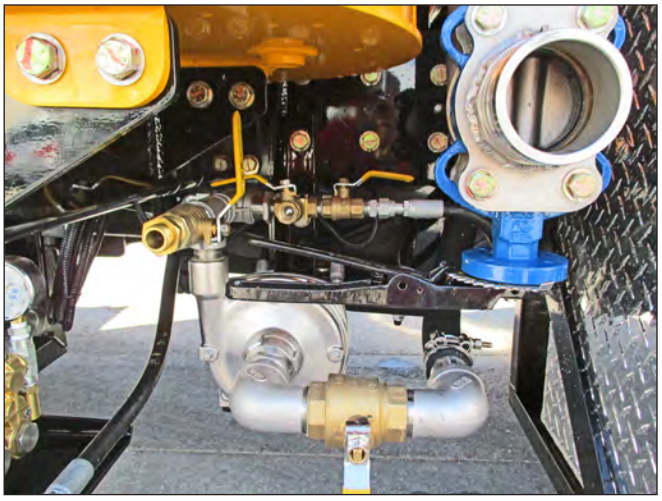
15. When the tank is clean install a new filter bag. Check that the bag is installed properly and that the debris pump intake line is not blocked. Also make sure the automatic float switch and cutoff ball valve are free.

16. Then thoroughly clean the door seal, close the door and secure it with the clamps.

17. When the door is closed and latched, use the DOOR SEAL switch to inflate the debris door seal. Maximum seal pressure is 20-25 psi (1.4 - 1.7 BAR).

18. Remove and store the remote switch control.

19. Start the engine and follow the startup procedure to engage the OMSI PTO to activate the vacuum system. Then increase engine RPM to achieve maximum vacuum and 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.



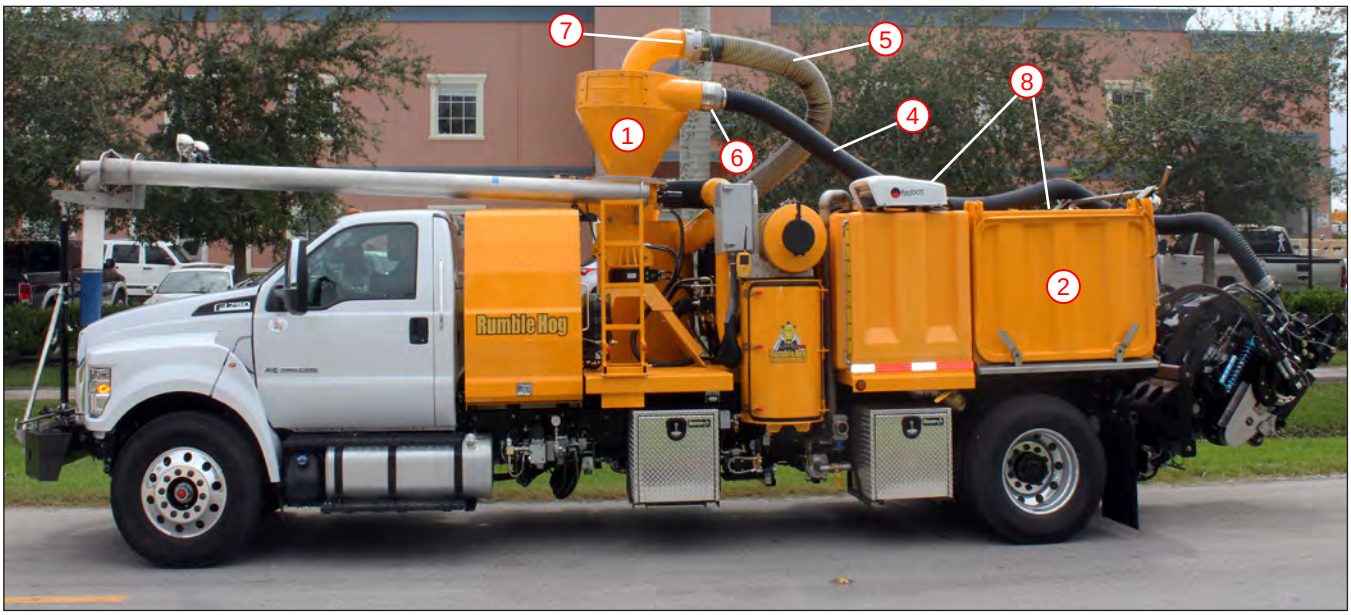
Water Pump Washdown Hose Connection

Pressure Washer

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

20. Perform the shutdown procedure to deactivate work mode and place the truck in transport mode.

Repair any problems found during dumping operations before returning the truck to service.



Cone Shaped Cyclonic Separator Hoses

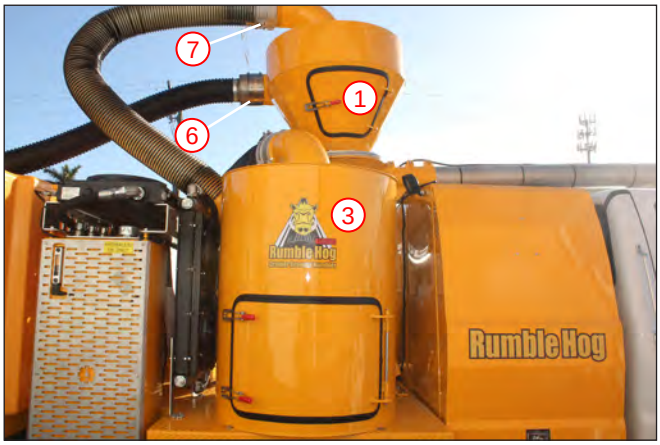
3.19 Convert Continuous Off-loading To Debris Recovery

The optional continuous off-loading system operates in two modes, continuous discharge or debris tank recovery. In Continuous discharge mode, the system creates vacuum in the cyclonic separators that continuously move debris from the cutter to the cone shaped separator on the top of auger. The auger continuously moves the debris from the separator to the shoulder or dump truck.

In debris tank recovery mode, the system creates vacuum in the debris tank and cutter shroud that continuously moves debris from the cutter to the debris tank during operation. Debris accumulates in the tank, which will need to be emptied periodically during operation.

Before performing the conversion procedure, make sure the cutting system is shutdown with the park brake set and the truck in the service position. Then use the following procedure to convert continuous of-loading to debris recovery mode.

1. Make sure the truck is stopped with the park brake set and the truck in the service position.
2. Disconnect the vacuum hose from the cutter shroud to the cone shaped cyclonic separator from the intake connection on the separator.



Secondary Canister Cyclonic Separator

1. Cone Shaped Cyclonic Separator
2. Debris Tank
3. Secondary Canister Cyclonic Separator
4. Cutter Shroud To Cone Shaped Separator Hose
5. Cone Separator To Canister Separator Hose
6. Separator to Cutter Hose Connection
7. Secondary Canister Hose Connection
8. Debris Tank Hose Connections

3. Connect the separator end of the shroud vacuum hose to the intake elbow hose fitting on the top of the debris tank.
4. Disconnect the vacuum hose from the cone shaped cyclonic separator to the secondary canister separator from the top fitting on cone shaped separator.
5. Connect the separator vacuum hose to the check valve/vacuum fitting on the top of the debris tank.
6. Make sure all hose connections are secure, then activate the vacuum system and test for proper vacuum pressure.
7. Reverse the procedure to convert the system back to continuous off-loading mode.

WARNING

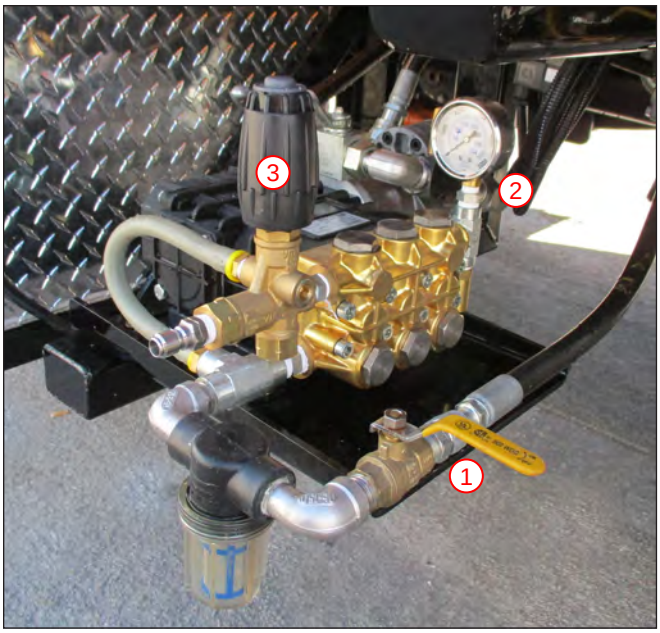
IF AN EMERGENCY SITUATION INVOLVING THE POTENTIAL FOR PERSONAL INJURY AND/OR EQUIPMENT DAMAGE OCCURS, THE OPERATOR SHOULD ALWAYS SELECT THE EMERGENCY SHUTDOWN PROCEDURE. THIS PROVIDES IMMEDIATE SHUTDOWN OF THE TRUCK AND ALL WATER BLASTING SYSTEMS TO REDUCE THE POSSIBILITY OF INJURY AND DAMAGE TO EQUIPMENT.

3.20 Emergency Shutdown

To stop all operations immediately use the following procedure:

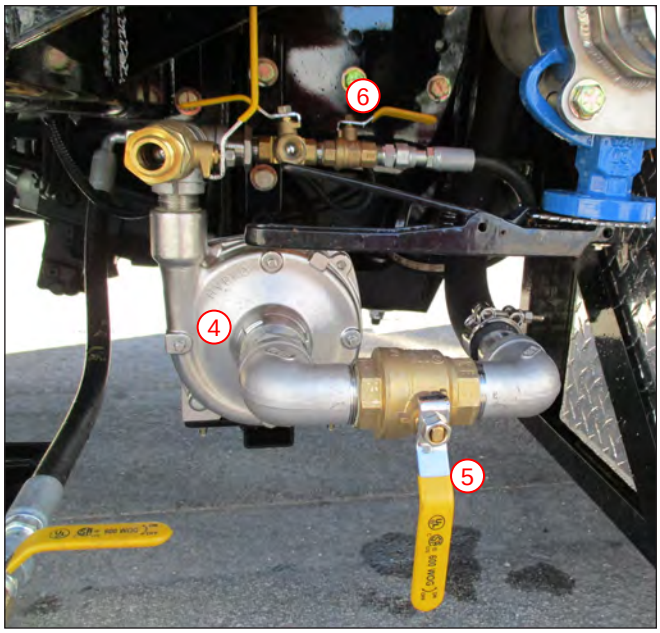
1. PRESS THE RED E-STOP BUTTON ON THE JOY-STICK. TRUCK FORWARD MOTION STOPS AND ALL HYDRAULIC SYSTEMS AND THE CUTTER SEQUENTIALLY SHUTDOWN.
2. IMMEDIATELY DISENGAGE THE CRUISE CON-TROL AND ALLOW ENGINE SPEED TO DROP TO IDLE.
3. SHIFT THE AUTOMATIC TRANSMISSION TO “N N” (NEUTRAL) AND SHUTDOWN THE ENGINE.
4. TURN THE “POWER” SWITCH ON THE JOY-STICK PANEL OFF. ALL TRUCK AND CUTTER SYSTEMS ARE NOW SHUTDOWN.
5. WHEN THE SITUATION PERMITS, RETURN ALL SWITCHES TO THE “OFF” POSITION AND ALL DIALS TO THE “0” SETTING.

Joystick Emergency (E-STOP) Switch



Pressure Washer Pump & Water Supply Valve

1. Pressure Washer Water Supply Valve
2. Wand Pressure Gauge
3. Manual Bypass Valve



Clean Water Pressure Pump & Supply Valves

4. Water System Pressure Pump
5. Pressure Pump Supply Valve
6. Cutter Nozzle Water Supply Valve

3.21 Pressure Washer Operation

The pressure washer pump is powered by the hydraulic system and mounted to the driver side chassis. It provides up to 2500 psi (172 BAR) to the handheld spray gun. The pressure hose and spray gun connect to a high pressure disconnect fitting on the pump and are stored in the tool box.

A manually operated ON/OFF valve and a flow control valve supply pressurized hydraulic fluid to the hydraulic motor that powers the pump. The flow control valve is equipped with colored rings that indicate the valve setting for reference.

Water is provided to the pressure washer by the water system pressure pump. Ball valves on the water lines are used to direct water to the cutter nozzles or pressure washer.

Always make sure to close the pressure washer hydraulic and water ball valves whenever it is not being used.

Use the following procedures to activate or shut-down the pressure washer.

Activating The Pressure Washer:

1. Make sure the truck is parked on level ground with the parking brake set and the engine at idle.
2. Verify that the pressure gauge on the pump indicates 0 pressure, then attach the pressure hose and gun to the quick disconnect fitting.
3. Make sure the truck is in WORK mode with the hydraulic system activated.
4. Verify that the clean water supply valve is open and raise the engine speed to 1000 RPM.
5. Activate the pressure pump. Then verify water pump operation and pressure 50-60 PSI (2.8-4.1 Bar).
6. Open the pressure washer water supply valve and close the cutter nozzle supply valve.

7. Make sure someone is holding the wand and the tip is point away from all people and the machine.
8. Open the ON/OFF hydraulic pressure valve and slowly turn the knob on the hydraulic flow control valve counterclockwise until the bottom edge of the knob is even with the desired reference ring to activate the hydraulic motor and set proper RPM for the pump.
9. Use the manual bypass valve and wand pressure gauge to set the desired wand pressure. Typical pressure settings range from 1000 psi (69 BAR) to 2500 psi (172 BAR).
10. With the wand still pointed away from all people and the machine, squeeze the trigger to begin pressure cleaning with the wand.

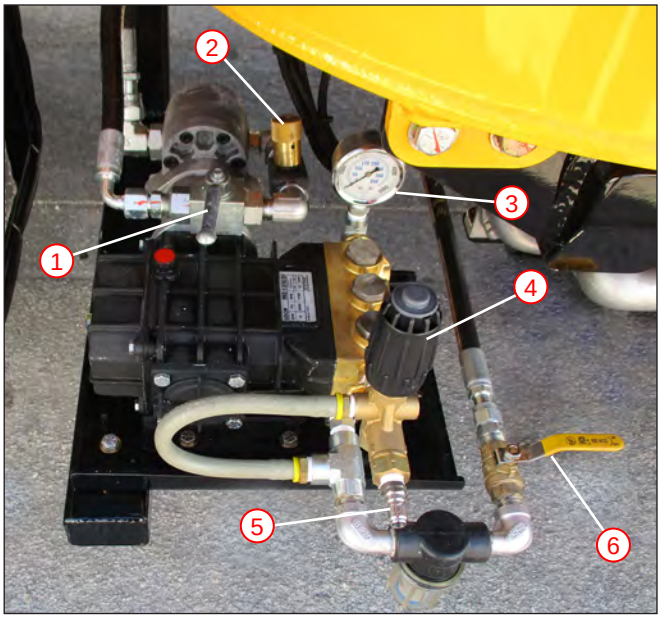
NOTICE:
THE PRESSURE WASHER IS CAPABLE OF PROVIDING UP TO 4000 PSI (276 BAR). HOWEVER, PRESSURE SETTINGS ABOVE 2500 (172 BAR) CAN DAMAGE PAINT, SEALS AND OTHER COMPONENTS. CONSEQUENTLY, PRESSURE SETTINGS ABOVE 2500 PSI (276 BAR ARE NOT RECOMMENDED.

WARNING

NEVER LAY THE WAND ON THE GROUND OR TRUCK WITH HIGH PRESSURE SUPPLIED TO THE WAND. IF THE TRIGGER FAILS OR IS ACCIDENTALLY ENGAGED, AN UNATTENDED WAND WILL WHIP VIOLENTLY CAUSING DAMAGE TO EQUIPMENT AND SERIOUS INJURY OR EVEN DEATH TO PERSONNEL.

Shutting Down The Pressure Washer:

1. Reduce engine speed to idle.
2. Slowly turn the hydraulic flow control valve clockwise until it seats in the closed position. Then close the ON/OFF hydraulic pressure valve to deactivate the hydraulic motor and pressure pump.
3. Open the cutter nozzle water supply valve and slowly close the pressure washer supply valve.
4. Briefly pull the trigger on the spray gun to remove pressure in the hose.



Pressure Washer Control Valves

1. Hydraulic Pressure ON/Off Valve
2. Hydraulic Pressure Control Valve
3. Wand Pressure Gauge
4. Manual Bypass Valve
5. Wand Quick Disconnect Fitting
6. Water Supply Valve

5. Verify 0 pressure on the pressure gauge and disconnect the pressure hose and gun.
6. Coil the pressure hose and store the hose and gun in the tool box.

WARNING

HIGH WATER PRESSURE ESCAPING FROM A DAMAGED OR DETERIORATED PRESSURE HOSE OR GUN CAN CAUSE SEVERE INJURY TO PERSONNEL. NEVER OPERATE THE HANDHELD PRESSURE WASHER WITH A HOSE OR SPRAY GUN THAT IS DAMAGED OR NOT OPERATING PROPERLY.

ALL HIGH PRESSURE HOSE MAINTENANCE PROCEDURES AND PRECAUTIONS OUTLINED IN THE SAFETY INFORMATION AND HYDRAULIC SYSTEM SECTIONS OF THIS MANUAL APPLY TO HANDHELD PRESSURE WASHER SYSTEM HOSES.

3.22 Operating in Freezing Conditions

Shutting down the system in freezing conditions:

1. Follow all instructions in the normal Shutdown Procedure.
2. If your truck is equipped with a debris recovery system, allow the vacuum blower to operate for a couple of minutes after shutting down the water pump to clear waste water from hoses and dry out blower system.
3. Make sure the clean water tank is drained and the debris tank emptied immediately at the end of each shift.
4. Open the drain valve at the 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.
5. Pour 15 gallons of 50/50 antifreeze mixture into the clean water tank. (Non alcohol)
6. Make sure the park brake is set and start the engine.
7. With the engine running at idle speed, turn the POWER switch on. Then activate the TRUCK PTO to activate the accessory hydraulic system.
8. Press button (5) on the controller Main Screen to activate the water pump until antifreeze flows from the cutter spray nozzles for several seconds.
9. Attach the hose and wand to the pressure washer. Then close the nozzle supply valve and open the valve for the pressure washer. Allow water to flow at low pressure until antifreeze flows from the wand nozzle for several seconds.
10. Close the pressure washer supply valve and open the nozzle valve, then turn off the pump.
11. Turn the TRUCK PTO and POWER switches off and shut down the truck engine.

NOTICE:
REFER TO THE HIGH PRESSURE PUMP MANUFACTURER'S PROCEDURES FOR MAINTAINING AND OPERATING THE PUMP IN FREEZING CLIMATES FOR ADDITIONAL INFORMATION.

System startup in freezing conditions:

There are no special startup procedures with operation the Rumble Hog in freezing conditions other than to follow the cold weather warm up procedure and allow the fluid to warm up to a temperature above 68^0 F (20^0 C) before operating hydraulic systems.

WARNING

IF YOU OPERATE IN FREEZING TEMPERATURES OR EVEN TEMPERATURES BELOW 68 DEGREES FAHRENHEIT (20 DEGREES CELSIUS), IT WILL BE NECESSARY TO FOLLOW THE COLD WEATHER WARM UP PROCEDURE UNTIL HYDRAULIC FLUID HEATS UP ABOVE 68 DEGREES FAHRENHEIT (20 DEGREES CELSIUS). CIRCUMVENTING ANY PORTION OF THIS PROCEDURE WILL CAUSE CATASTROPHIC FAILURE IN THE HYDRAULIC PUMPS AND MOTORS. THIS TYPE OF FAILURE EXHIBITS DISTINCT CHARACTERISTICS AND WILL NOT BE COVERED UNDER WARRANTY.

NOTES

4.1 Lubrication & Maintenance Introduction

You should familiarize yourself with the location of all components that require frequent adjustments and lubrication in order to include them in your maintenance schedule. There are unique lubricant specifications for some components and frequent intervals to check and add lubricants in order to achieve the longest reliable life cycle of your unit. In this section you will find all of the information you need to build a comprehensive and adequate maintenance routine for your Rumble Hog.

NOTICE:
IT IS NOT POSSIBLE TO SHOW ALL VALVES, HINGES, LATCHES AND SAFETY PINS ON THE LUBRICATION CHARTS. RELATED ITEMS NOT SHOWN SHOULD ALSO BE INCLUDED IN YOUR MAINTENANCE ROUTINE.

Some of the components used in assembling your RH7500 were manufactured by other companies. Their operations manuals have been supplied along with the delivery of your unit. If you do not have a copy on hand you may request a copy from the manufacturer or from Hog Technologies Customer Support Department. You should read all related manuals and reference their specifications. You may find overlap in the specifications provided in this manual and the original equipment manufacturer's manual. If you find a discrepancy between the two you should follow the Original Equipment Manufacturer's recommendations especially if they are more frequent or more stringent specifications.

As a courtesy to our customers, we have provided a chart in this section called The Maintenance Matrix. This chart serves as a quick reference guide and attempts to identify all components that need maintenance as related to lubrication and adjustments. While we have made every effort to ensure that the information we give is accurate and complete it is also true that constant improvements are being made to the equipment models we build and sometimes there is a lag between the design change and the manual update. The service intervals we provide in the Maintenance Matrix are meant to meet or exceed OEM specifications but no guarantee is expressed or implied. Hog Technologies will not be held liable for damages or loss of service due to the use of the information contained in the Maintenance Matrix. It is the responsibility of the equipment owner to design a maintenance program that meets or exceeds the unique requirements of the components used in the RH7500.

Each procedure has been carefully thought through with each step building upon the previous step in the same manner as our technicians are trained to perform it. We recommend that you follow the process as prescribed in the text and as shown in the pictures.

Routine Maintenance refers to procedures that are expected to occur immediately prior to and during work shifts. Routine maintenance ensures that the machine is functioning properly and expects that some parts will wear out and need replaced as a normal part of the operations. Examples are greasing, replacing protectors, and replacing teeth.

Scheduled Maintenance refers to procedures that are to be carried out at prescribed intervals at the work shop. These intervals are typically longer and more predictable. Examples include Hydraulic Oil, Drum Bearings, etc..

Keep in mind that environmental conditions may alter lubricant specifications and maintenance intervals. For example; extreme cold weather and hot weather may require alternating fluids; Hot, dry and dusty environments may affect greasing intervals, etc..

CAUTION

THE MAINTENANCE PROCEDURES IN THIS SECTION MUST BE FOLLOWED EXACTLY TO AVOID DAMAGING COMPONENTS AND/OR VOIDING THE WARRANTY.

Service Position

Properly shutting down and securing the machine for service is critical to the safety of the operator and/or service personnel.

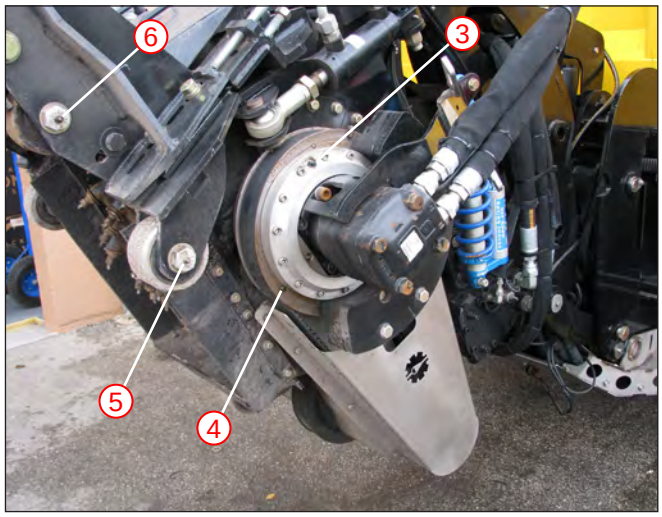
Use the following procedure to place the machine in the service position:

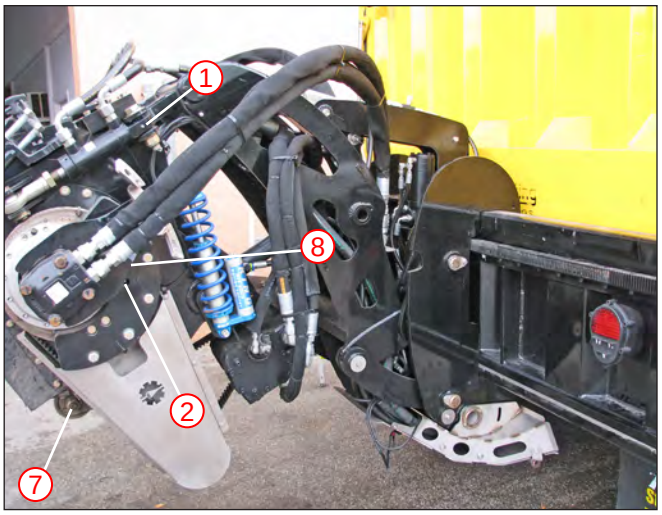
1. Make sure all components lifted hydraulically are in the full down position or properly supported to remove the load from the cylinders and hinges.
2. Shift the truck to TRAVEL mode before shutdown to prevent accidental activation of cutting systems.
3. Park vehicle on a level area and apply parking brake.
4. Shutdown the engine and disable the truck electrical system at the main circuit breakers.
5. Follow all Lockout/tagout and additional shutdown procedures established in your company safety guidelines to complete the service position.

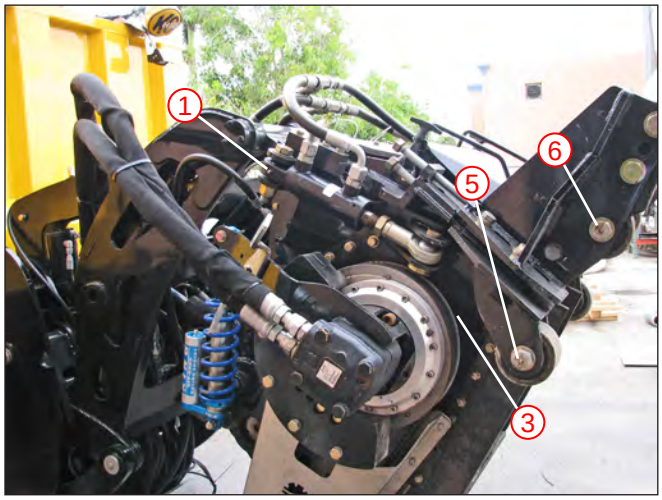
WARNING

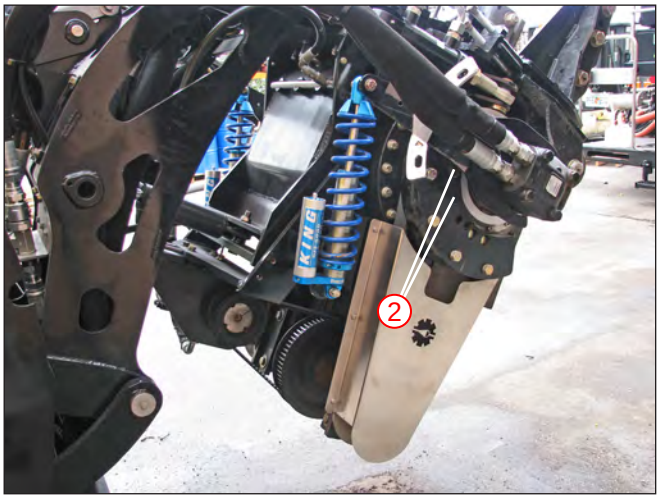
SEVERE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN RESULT IF THE VEHICLE ROLLS OR IS STARTED UNEXPECTEDLY DURING SERVICE. ALWAYS FOLLOW THE RECOMMENDED PROCEDURES TO PLACE THE UNIT IN THE SERVICE POSITION AND APPLY LOCKOUT/TAGOUT PROCEDURES BEFORE ALLOWING ANYONE TO SERVICE COMPONENTS.

4.2 Lubrication & Grease Point Locations









Rumble Hog Lubrication Chart 1

ITEM#	COMPONENT DESCRIPTION		ITEM#	COMPONENT DESCRIPTION
1.	Skip Cylinders		5.	Gauge Wheel Bearings (Auto Lube)
2.	Main Bearing		6.	Gauge Wheel Bearings (Auto Lube)
3.	Motor Mount Bearing		7.	Trim Wheel Bearings
4.	9" Bearing		8.	Main Shaft Bearing

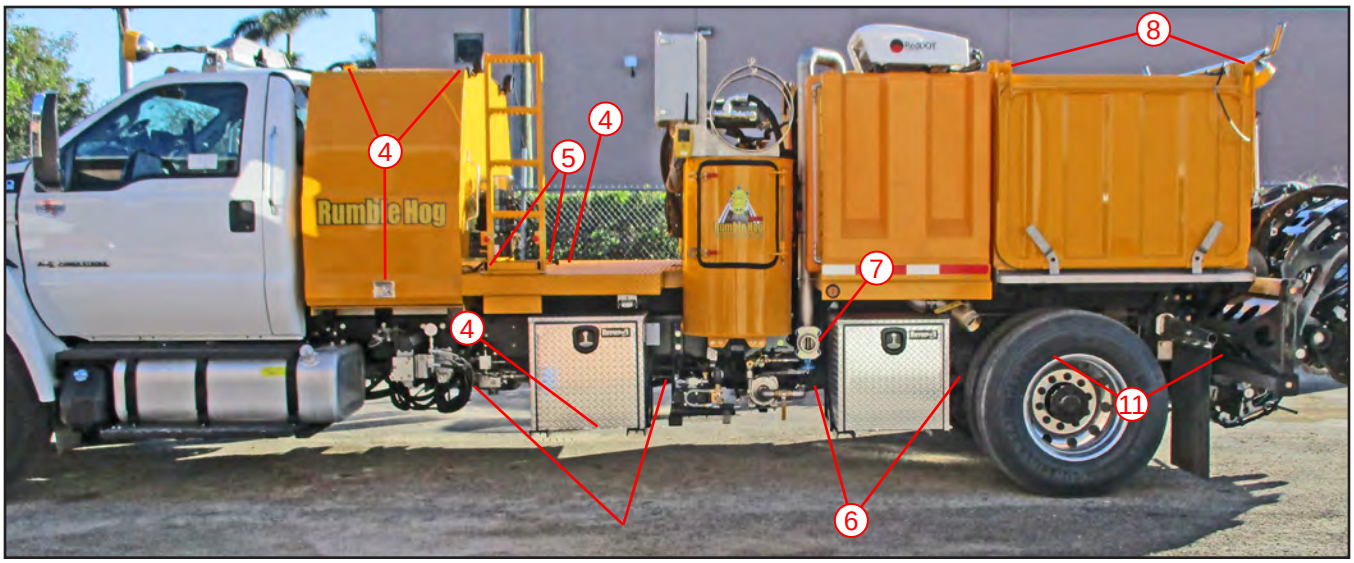
WARNING

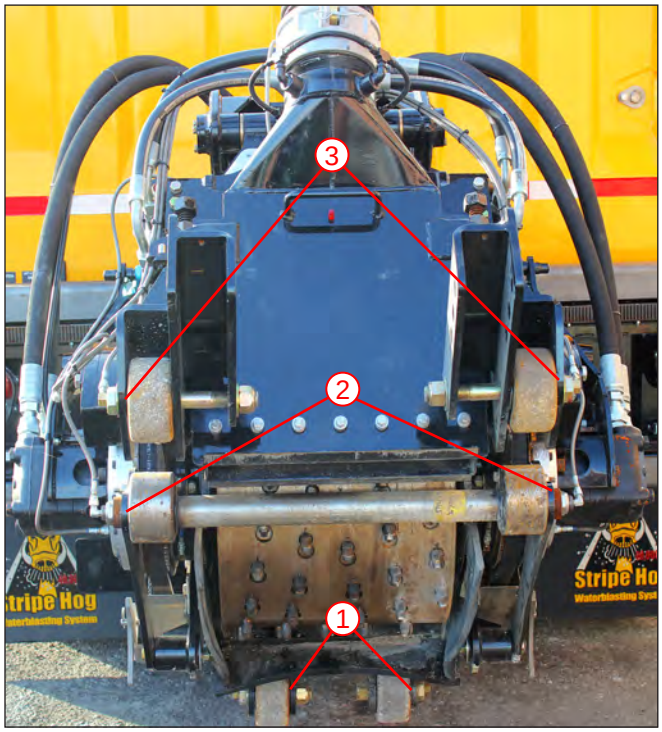
USE ONLY POLYREX EM GREASE IN ECCENTRIC BEARINGS. THE USE OF ANY OTHER GREASE WILL RESULT IN LIQUEFIED OR HARDENED GREASE THAT WILL CAUSE BEARING FAILURE.

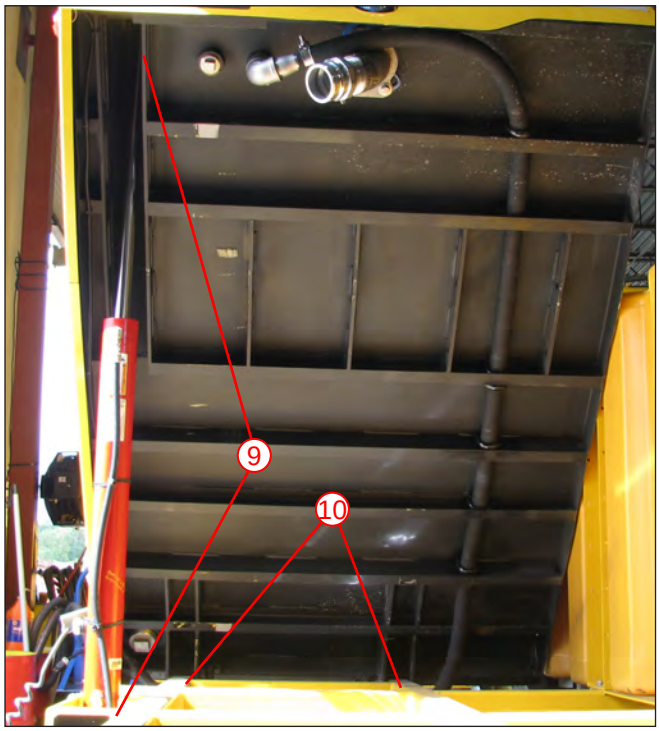
WARNING

GREASE PURGES SKIP, GAUGE AND TRIM WHEEL BEARINGS OF TAR AND OTHER MATERIAL THAT WILL CAUSE THE BEARINGS TO SEIZE WHEN THEY COOL AFTER OPERATION, PERMANENTLY DAMAGING THE BEARINGS.

GREASE SKIP GAUGE AND TRIM WHEEL BEARINGS 3 TIMES DAILEY. PUMP GREASE INTO EACH BEARING UNTIL GREASE EXITS EACH SIDE AND THE ENTIRE CIRCUMFERENCE OF THE BEARINGS TO PURGE THEM OF TAR AND OTHER MATERIALS.

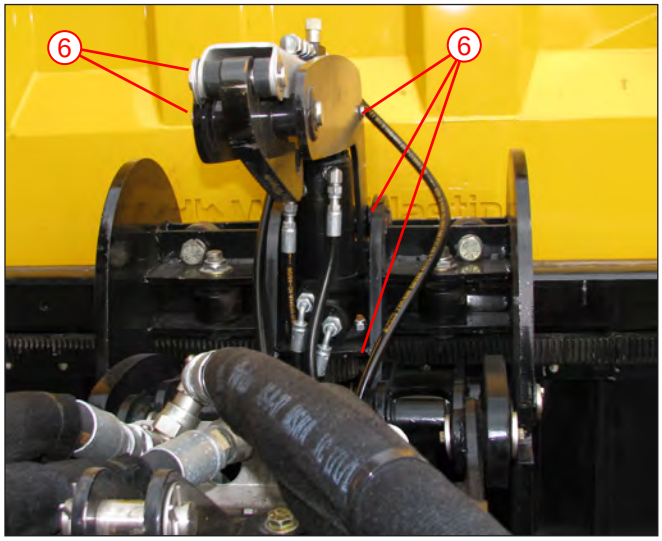






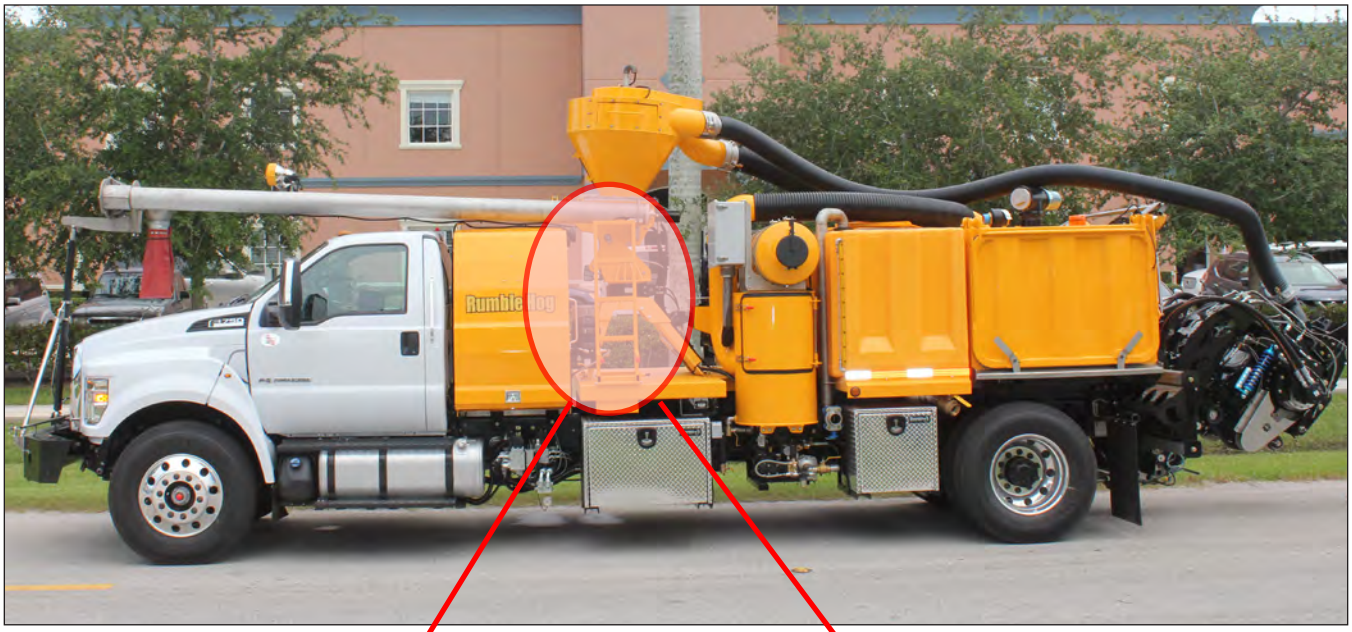
Rumble Hog Lubrication Chart 2

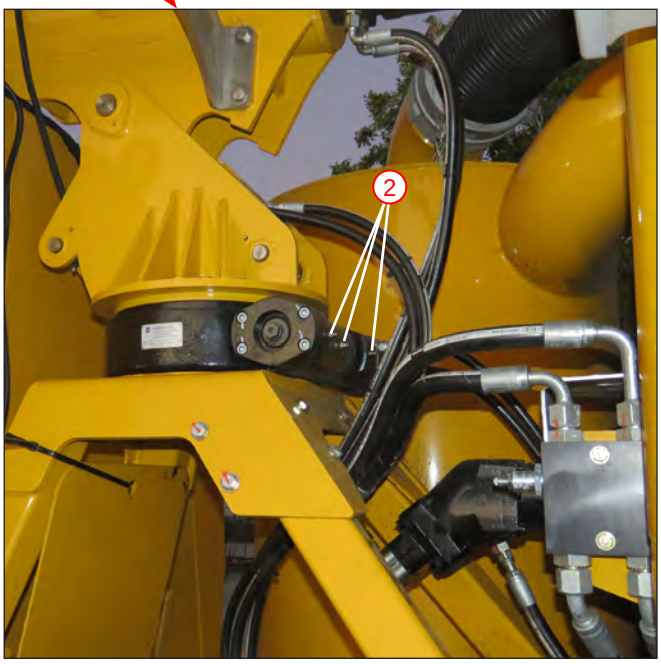
ITEM #	COMPONENT DESCRIPTION		ITEM #	COMPONENT DESCRIPTION
1.	Trim Wheel Bearings		6.	Driveshaft Universal Joints & Spline Shafts
2.	Skip Wheel Bearings (Auto Lube)		7.	Water Tank Fill Valve
3.	Gauge Wheel Bearings		8.	Debris Tank Door Hinges
4.	Tool Box & Access Panel Hinges & Latches		9.	Debris Tank Tilt Cylinder Bearings
5.	Ladder Hinges & Locking Pin		10.	Debris Tank Tilt Hinges



Rumble Hog Lubrication Chart 3

ITEM #	COMPONENT DESCRIPTION		ITEM #	COMPONENT DESCRIPTION
1.	Ladder Hinges & Locking Pin		4.	Debris Tank Inspection Hatch Hinges & Latch
2.	Drain Valves		5.	Articulation Hinge (Optional)
3.	Latches & Hinges		6.	Lift Arm Hinge Pin Grease Fittings





Rumble Hog Lubrication Chart 4

ITEM #	COMPONENT DESCRIPTION		ITEM #	COMPONENT DESCRIPTION
1.	Grease Pump Reservoir Fill Fitting		2.	Auger Pivot Gear Grease Fittings (3)

NOTICE:
SOME LUBRICATION POINTS SHOWN IN THIS SECTION ARE FOR OPTIONAL EQUIPMENT THAT MAY NOT BE ON YOUR MACHINE. Continuous OFF-LOADING AUGER, AUTO-LUBE GREASE PUMP AND DEBRIS RECOVERY ARE SOME OF THE OPTIONS SHOWN.

4.3 Periodic Maintenance Items

The primary components in the cutting system have specific stated service intervals. Other components of the chassis and cutting system require periodic inspection and routine maintenance. Many of those items are mentioned in this section.

Tool Box Door Hinges And Latches.

Monthly/200 Hours:

- Lubricate and inspect all hinges.
- Inspect and lubricate latches. Replace damaged or worn out latches immediately.

Ladders And Inspection Panels

Monthly/200 Hours:

- Lubricate and inspect all hinges.
- Inspect and lubricate safety pins and latches. Replace damaged or worn out safety pins immediately if the spring becomes weak or damaged.

Safety/Locking Pins

Weekly/50 Hours:

- Lubricate the retaining ball or sliding shaft on safety pins.
- Inspect and test for proper operation. Replace damaged, corroded or worn out pins immediately.

Ball Valves

Monthly/200 Hours:

- Open and close ball valves at least once each month to keep them free and operating properly.
- Lubricate and inspect valve shafts and handles. Replace if badly corroded.

Water Pump And Hoses

Weekly/50 Hours:

- Inspect the water pump, hoses and fittings for leaks and signs of wear or deterioration. Any questionable or leaking component should be repaired or replaced before operating the system.
- Run the pump and listen for unusual noises and proper operation. Find and correct the cause of unusual noises or erratic operation.

4.4 Truck Maintenance

Engine and Chassis

Proper engine and chassis maintenance is essential to the proper performance and reliability of the Rumble 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.

NOTICE:
BECAUSE OF THE SPLIT SHAFT DRIVE CONFIGURATION, ENGINE HOURS ACCUMULATE WITHOUT RECORDING MANY MILES ON THE ODOMETER. CONSEQUENTLY, MILES TRAVELED AS IT RELATES TO ENGINE AND TRUCK COMPONENT SERVICE INTERVALS MUST BE CALCULATED BY MULTIPLYING ENGINE HOURS X 50.

OMSI Drive Gearbox-Fluid Level Plug Location

OMSI Drive PTO

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

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

Inspection And Maintenance

Daily

- Inspect components for loose bolts.

Weekly/50 Hour Maintenance:

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

Monthly

- Inspect universal joints.
- Grease drive shaft splines and universal joints monthly/200 hours.

Periodic Maintenance:

- Change OMSI Drive fluids, filter and components as recommend in the OMSI Drive operators manual.

4.5 Cutting Depth Adjustment Procedure

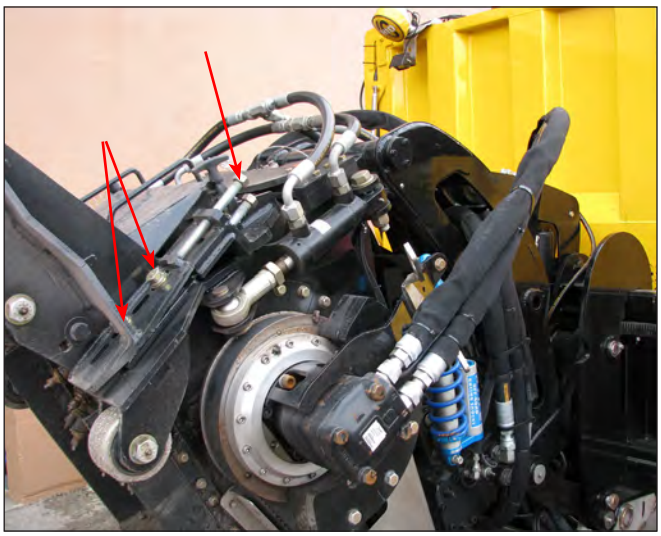
Depth adjustment refers to the depth the cutting teeth will cut into the pavement. Depth is set by turning the adjustment bolts on each gauge wheel mount.

Depth directly affects cutter performance and should be checked before each shift.

It is the operator's responsibility to monitor cutter teeth wear and adjust cutting depth when necessary.

To set cutting depth:

1. Stop the truck on level pavement with the park brake set.
2. Loosen the three bolts on the gauge wheel plates.
3. Make sure the cutter head is lowered flat to the surface with the cover in place and all wheels contacting the surface.
4. Loosen the jam nuts and turn adjusters clockwise to decrease depth or counterclockwise to increase depth. Note that turning just the left or right adjuster with change the depth on only one side.
5. Tighten the jam nuts on the adjusters and the three bolts on the gauge wheel plates to lock the adjustment.



Gauge Wheel Mount & Adjusting Bolts

Cutter Inspection And Maintenance

Daily

- Inspect components for loose and broken teeth.

Every 50 Miles

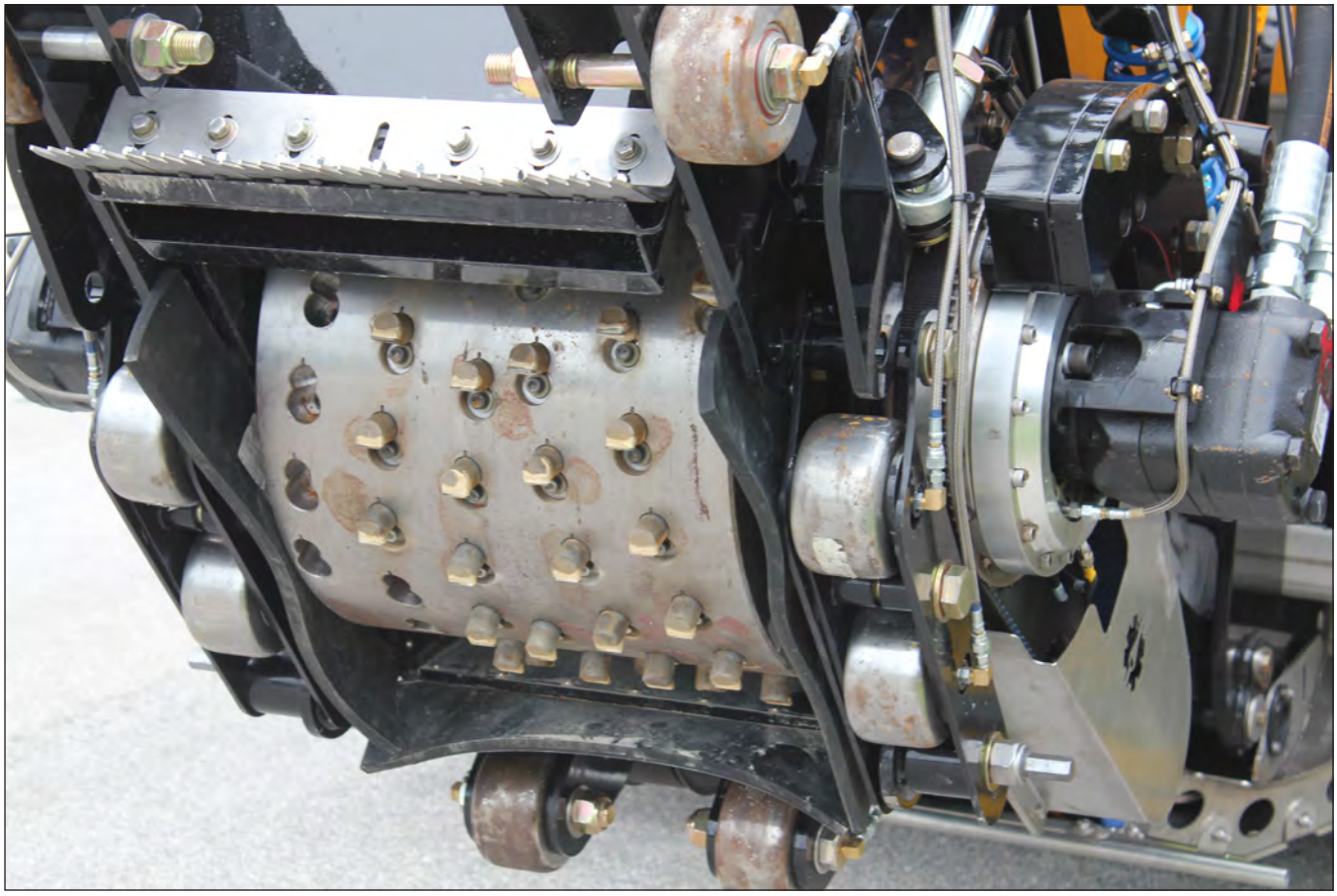
- Inspect teeth cap screws. Tighten to 35 ft lbs if necessary.
- Inspect teeth and wedges. Replace worn or broken teeth and worn wedges as required.

Every 100-150 Miles

- Change teeth cap screws. Tighten to 35 ft lbs.

Every 400 Miles

- Replace teeth, wedges and cap screws.



Cutting Drum With Teeth Installed

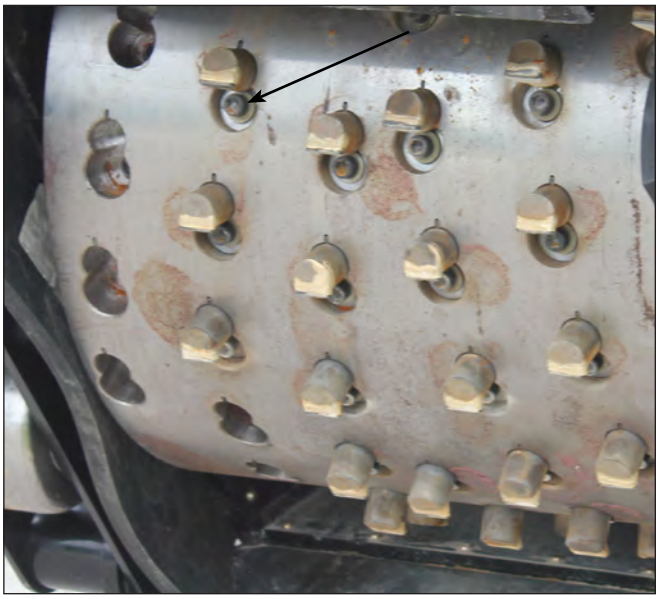
4.6 Replace Cutting Teeth

Cutting teeth gradually wear during operations and will need to be replaced when they are worn out. Service life for the teeth will vary, depending on the type of pavement and pavement condition.

Before performing any maintenance procedure, make sure the cutting system is shutdown with the park brake set and the truck in the service position.

To replace the cutting teeth:

1. Make sure the truck is stopped with the park brake set and the truck in the service position.
2. Remove the protector from the socket head screw.
3. Remove the 3/8" socket head cap screw.



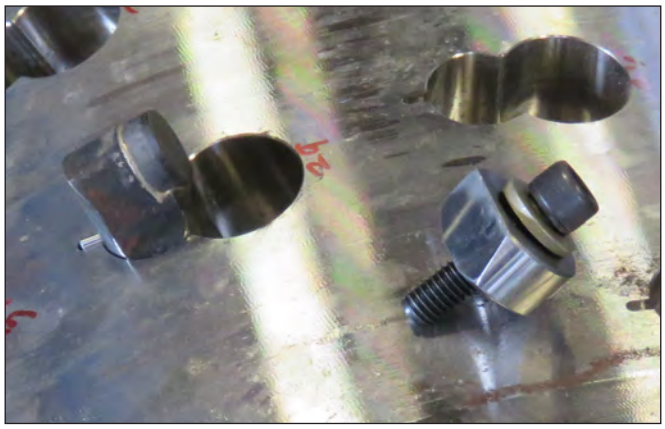
3/8" Socket Head Cap Screw

Remove Wedge & Tooth With A Slide Hammer

Tooth, Wedge & Bolt In Socket

4. Thread the slide hammer extraction tool into the wedge and remove the wedge and tooth.
5. Thoroughly clean the tooth socket.

NOTICE:
IF THE TOOTH SOCKET IS NOT CLEANED THOROUGHLY AND MATERIAL REMAINS IN THE SOCKET, THE NEW TOOTH WILL NOT SEAT PROPERLY AND WILL COME OUT.



Bolt Washer & Wedge
Note that the tooth is in position in the socket

6. Inspect the wedge for deformation. Replace if any deformation is apparent.
7. Install new tooth and wedge together with the bolt and washer. Torque to 35 ft lbs.
8. Install new bolt protector.

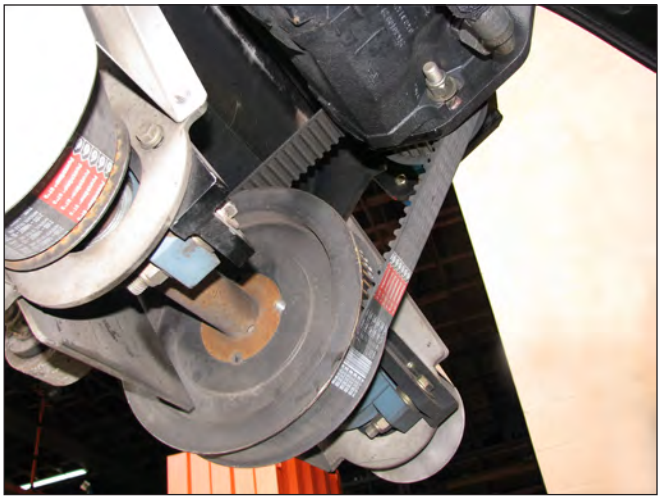
NOTICE:
- **THE THREADED INSERT IN THE BASE OF THE SOCKET IS REPLACEABLE. CONTACT Hog Technologies FOR INSTRUCTIONS.**
- **ALWAYS INSTALL A NEW WEDGE, BOLT AND WASHER WITH A NEW TOOTH.**
- **WEDGES ARE SOFT AND SACRIFICIAL. THEY TYPICALLY WEAR FASTER THAN THE TEETH. REPLACE WEDGE WHEN PULLER HOLE BECOMES EGG SHAPED.**

Socket Replaceable Threaded Insert

4.7 Cutter Eccentric Drive Belts

The drive belts that connect the hydraulic drive motor to the eccentric are carbon fiber industrial belts that are designed for high horsepower applications. They 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.

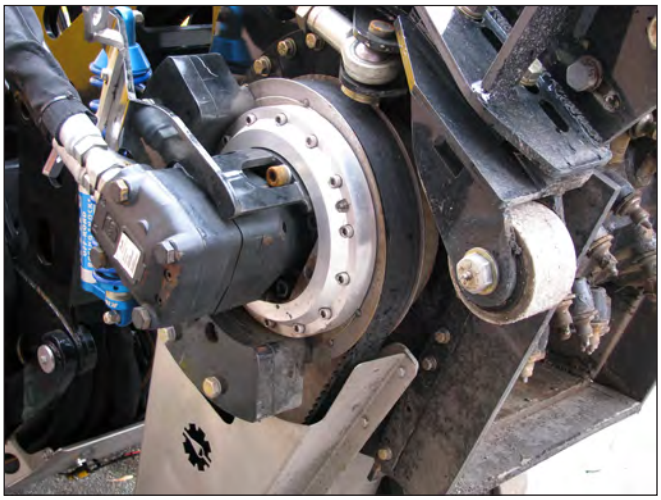


Eccentric Hydraulic Motor To Eccentric Drive Axle Belt

⚠ 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.

Before performing any maintenance procedure, make sure the cutting system is shutdown with the truck in the service position.



Driver Side Eccentric Drive Belt

Drive Belt Inspection and Maintenance

Daily:

- The belts must be inspected before each shift for damage, tension and alignment.
- Inspect pulleys frequently during operation for the accumulation of impacted material that will increase belt tension which will stress the bearings and break the shaft. Clean out material as required.

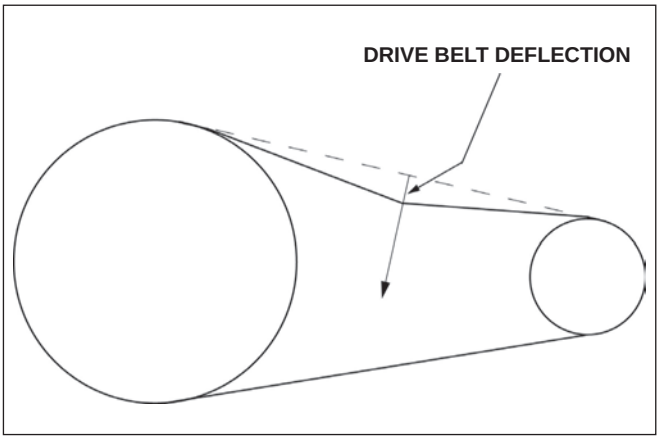
Monthly/200 Maintenance:

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

Passenger Side Eccentric Drive Belt

WARNING

EXCESSIVE IMPACTED MATERIAL AROUND BELTS AND PULLEYS IS A COMMON CAUSE OF CUTTER ECCENTRIC BELT AND PULLEY SYSTEM FAILURE. MAKE SURE TO INSPECT ECCENTRIC BELT AND PULLEYS FREQUENTLY AND CLEAN AS REQUIRED.



Drive Belt Deflection
(Force Deflection Method)

Checking Belt Tension With Force Deflection

The proper way to check belt tension is to use a spring scale tension tester. This type of tester is used by measuring how much force is required to deflect the belt at the center of its span by a specified distance.

Checking belt tension:

1. At the center of the span apply a force perpendicular to the span large enough to deflect the belt on the drive from its normal position. One sprocket should be free to rotate. Be sure force is applied evenly across the entire belt width. If the belt is a wide synchronous belt, place a piece of steel or angle iron across the belt width and deflect the entire width of the belt evenly.
2. If it is less than the minimum recommended deflection force, the belt should be tightened. If it is greater than the maximum recommended deflection force the belt should be loosened.

Typical Spring Tension Belt Tension Gauge

Belt Tension Specifications:

Hydraulic Motor To Eccentric Drive

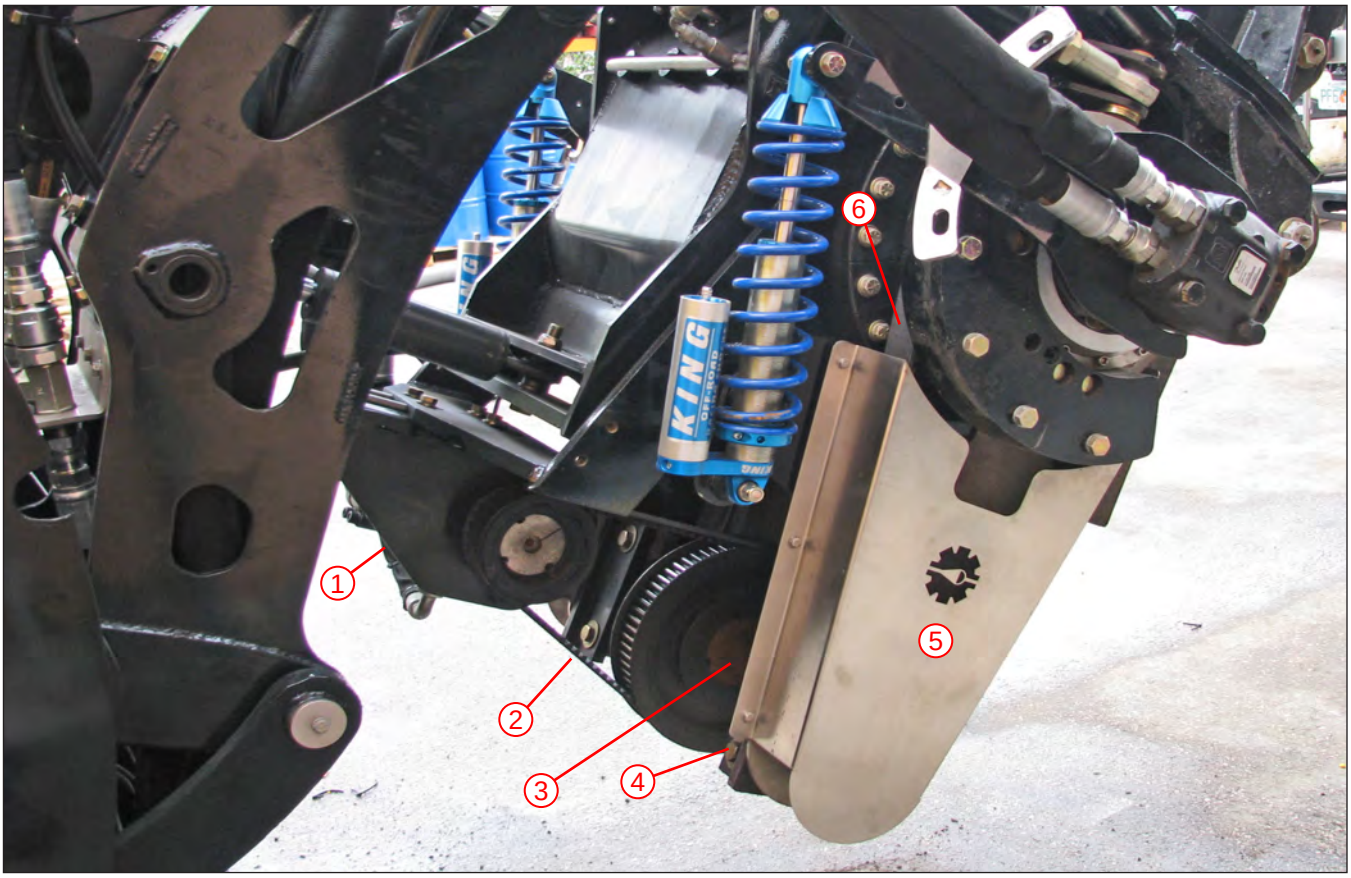
Belt Deflection & Tension = Minimum or 0 deflection & just enough tension to pull belt straight. A slight sag is acceptable.

Eccentric Drive Belt (Using Spring Scale Tester)

Belt Deflection & Tension = .35" (.89 cm) deflection @ 30 FT LBS pressure

CAUTION

OVERTIGHTENING THE HYDRAULIC MOTOR TO ECCENTRIC DRIVE AXLE BELT WILL CAUSE THE AXLE TO BREAK AND DAMAGE THE BEARINGS. MAKE SURE TO TIGHTEN JUST ENOUGH TO PULL THE BELT STRAIGHT. DO NOT OVERTIGHTEN.



Eccentric Drive Belt Guards, Hydraulic Motor, Pulleys & Belts

1. Eccentric Hydraulic Motor
2. Hydraulic Motor To Eccentric Drive Axle Belt
3. Eccentric Drive Axle
4. Drive Axle Pillow Block Bearings
5. Eccentric Drive Belt Guard
6. Eccentric Drive Belt

Drive Belt Adjustment And Timing Procedures

The hydraulic motor to drive axle belt and eccentric drive belts must be adjusted in the proper sequence to achieve proper belt tension. Always adjust the eccentric belts first, then adjust the hydraulic motor to eccentric drive axle belt tension.

CAUTION

ALWAYS SET THE TENSION FOR THE ECCENTRIC DRIVE BELTS BEFORE ADJUSTING THE HYDRAULIC MOTOR TO ECCENTRIC DRIVE AXLE BELT TENSION. IF THE HYDRAULIC MOTOR TO ECCENTRIC DRIVE AXLE BELT TENSION IS ADJUSTED FIRST, THE BELT TENSION WILL CHANGE AND BE OUT OF TOLERANCE WHEN THE ECCENTRIC BELTS ARE ADJUSTED.

Make sure the cutting system is shutdown and the truck is in the service position. Then use the following procedures to adjust the belts.

Step 1 - Adjust Eccentric Drive Timing:

Make sure the left and right eccentric pulleys are in the same clock position. Adjust pulleys if necessary.

Step 2 - Adjust The Eccentric Drive Belts:

Threaded adjusting bolts and nuts inserted into holes in brackets just behind each eccentric drive axle pillow block are used to move the drive axle and set the tension for each drive belt.

Use the following procedure to adjust the eccentric drive belts.

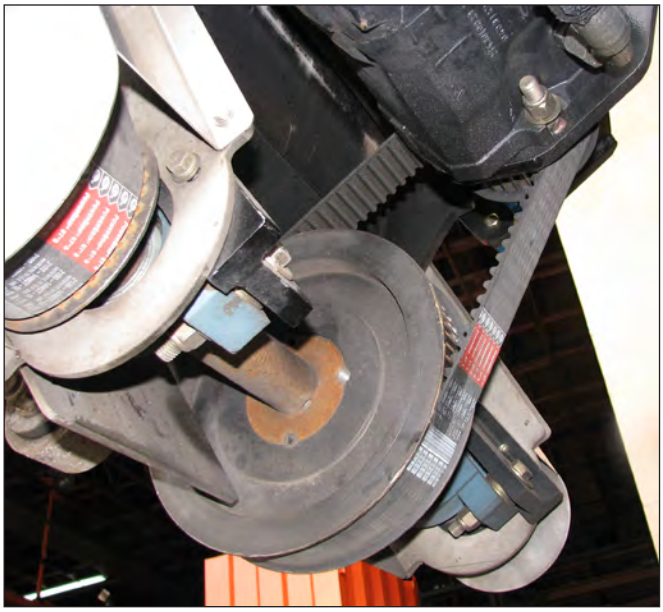
1. Remove the eccentric drive belt guards on each side of the cutter chassis.
2. Loosen the four bolts in the slotted holes on the eccentric drive axle pillow block bearings. Make sure not to loosen them too much.

3. Turn the bolt behind the pillow block until proper tension is achieved.

4. Use a spring scale tester to achieve proper tension for each belt. Then tighten the pillow block bearing bolts.

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

5. Tighten pillow block bolts and jam nut on adjuster bolt.



Eccentric Drive Axle, Belt & Pillow Block Bearings

Step 3 - Hydraulic Motor To Eccentric Drive Axle Belt:
Once the tension is set for the eccentric drive belts, the hydraulic motor to eccentric drive axle belt tension can be set.

The hydraulic motor is on an adjustable mount. Threaded adjusting bolts inserted into threaded holes on each side of the motor mount are used to set the drive belt tension.

Use the following procedure to adjust the eccentric drive axle belt.

1. Loosen the four bolts in the slotted holes on the hydraulic motor mount just enough to allow the motor to move. Make sure not to loosen them too much.

2. Rotate the adjusting bolts to move the motor and adjust the belt. Make sure the adjusting bolts are rotated equally to maintain proper pulley alignment.

Important:
Make sure the belt is not stretched tight. It should be set with enough play to cause a slight outward curve.

3. Tighten the 4 bolts in the slotted mount holes.

4.8 Auto Lube Electric Grease Pump

Overview

A Continuous duty, electric grease pump located on the center deck is an available option. It provides automatic lubrication for cutter grease fittings.

The pump consists of a pump housing, electric gear motor, timer and a plastic reservoir with stirring paddle. Feed lines deliver grease from the pump reservoir to the fittings.

⚠ CAUTION ⚠

USING ANY GREASE OTHER THAN MOBILE POLYREX WILL NOT BE COMPATIBLE WITH THE GREASE IN THE AUTO LUBE RESERVOIR OR PROVIDE PROPER LUBRICATION FOR BEARINGS. THIS WILL RESULT IN CLOGGED GREASE LINES AND DAMAGE TO COMPONENTS.

CHECK GREASE LEVEL IN THE RESERVOIR DAILY AND ONLY USE MOBILE POLYREX GREASE WHEN FILLING THE SYSTEM.

Auto Lube Grease Pump & Reservoir Fill Fitting

Timer

The grease pump control system is activated automatically when the cutter is engaged. The timer is factory programmed to run the pump once every 12 to 18 minutes of cutter run time for approximately 4 min. The lubrication cycle can also be started manually by pressing a button on the pump control panel.

Lubrication frequency and cycle times can be changed to accommodate different operating conditions. Refer to the pump manufacturer's manual for instructions to change the pump timer programming.

Fill the reservoir through the grease fitting located at the base of the reservoir using a hand-operated, electric or pneumatic grease pump. Monitor the grease level in the reservoir daily. Refill reservoir when grease reaches the minimum mark located on the reservoir. Fill the reservoir up to the "Max" mark.

Auto Lube Pump Control Panel

NOTICE:
ALWAYS CLEAN INLET FITTING WITH A CLEAN DRY CLOTH PRIOR TO FILLING RESERVOIR. DIRT AND/OR DEBRIS CAN DAMAGE PUMP AND/OR LUBRICATION SYSTEM.

CARE MUST BE USED WHEN FILLING THE RESERVOIR USING A PNEUMATIC OR ELECTRIC TRANSFER PUMP TO AVOID PRESSURIZING AND BREAKING THE RESERVOIR.

Grease Fittings And Faults

Grease from the auto lube system serves two purposes, lubricate components & purge bearings of dirt and grit that will shorten bearing life. Consequently, it is important to monitor the auto lube system and all cutter bearings and components greased by the system every one to two hours during a shift.

If one of the fittings becomes blocked or a line breaks, the pump will sense the blockage or leak and will fault. Consequently, if a fault exists in for any reason, the cutter components may not receive proper lubrication until the fault condition is corrected.

Replacing Grease Lines

When a grease line is replaced for any reason, it must be pre-filled with grease to enable the system to provide immediate lubrication to the component when the system cycles. If the line is not pre-filled with grease during installation it could take several days for the Auto Lube system to fill the line and provide lubrication.

Use a grease gun attached to one end of the line and pump until all air is purged and a steady stream of grease is flowing from the other end. Attach the line to the divider valve and component. Then tighten the fittings. Activate the pump manually until lubricant flows from the component bearing.

Refer to the manufactures manual for additional information on the operation and maintenance procedures for the Auto Lube System.

Grease Lines

Auto Lube Inspection And Maintenance

Daily

- Check grease level in reservoir. Fill when grease level drops to the minimum mark on reservoir.
- Test the pump for two full cycle cycles at the start of each shift.

Every 2 Hours

- Check the pump for faults and proper operation. If the pump faults, find and correct the problem before resuming operations.
- Inspect grease lines for breaks and leakage. Repair or replace lines if necessary.
- Manually activate the grease pump and check all cutter bearings and components for proper lubrication. Correct any problems before resuming operations.

4.9 Hydraulic System Maintenance

Hydraulic System

The hydraulic pumps operate at very high pressure and have specific maintenance requirements. You should perform all recommended maintenance according to the pump manufacturers' specifications.

Hydraulic fluid should be changed and the tank flushed on a regular schedule in accordance with Hog Technologies and the hydraulic component manufacture's recommendations. Hog Technologies recommends changing the fluid at least once every 600 hours.

CAUTION

NEVER MIX BRANDS OF HYDRAULIC OIL. THE ADDITIVES WILL NOT BE COMPATIBLE CAUSING BLINDING OF THE FILTER.

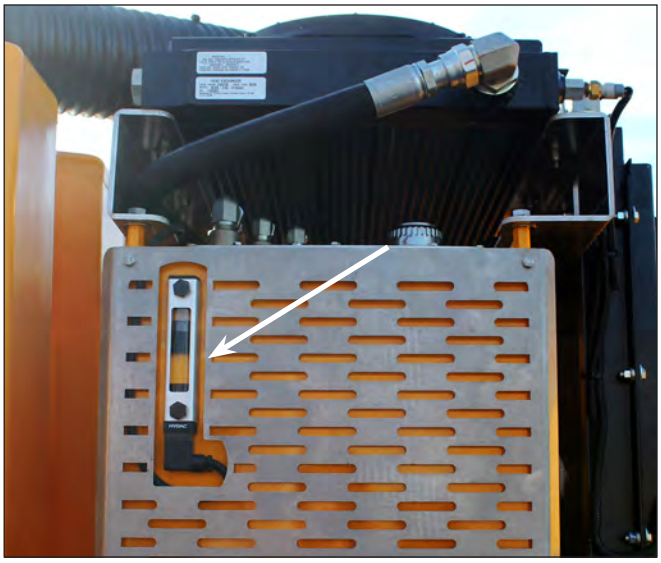
YOUR TRUCK HAS BEEN FILLED AT THE FACTORY WITH CHEVRON BRAND AW68. IT IS VERY IMPORTANT TO USE THE SAME BRAND WHEN ADDING OIL.

Make sure the cutting system is shutdown and the truck is in the service position. Then use the following procedures to maintain the hydraulic system.

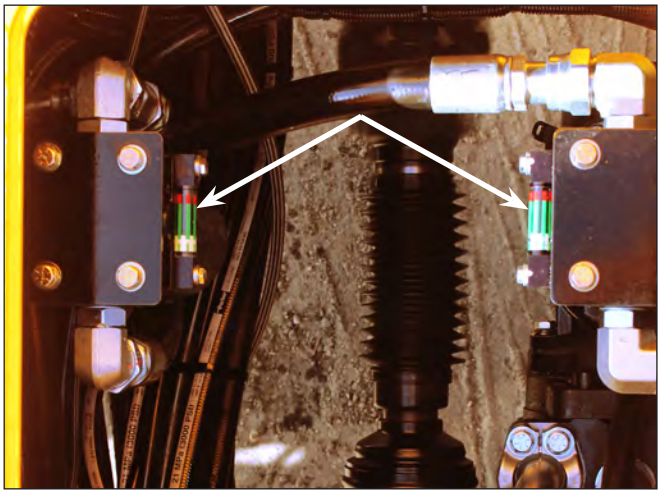
Daily Inspection and Maintenance

- Check the hydraulic fluid level each day or immediately following the repair of a blown hose, leaking fitting or any hydraulic system service.
- Inspect all hoses, fittings, valves and seals for leaks daily. Repair or replace leaking or malfunctioning components before operating the system.
- Check the pressure indicator or gauge at the filters with components operating. Make sure it is well within the green zone. Change the filters when the indicator moves near or into the red zone.
- Monitor cooling fan operation and make sure fans are activating when necessary, sound normal and pull a strong flow of air through the coolers.

Refer to the Maintenance Matrix in this section for fluid specifications.



Hydraulic Reservoir Fluid Level Indicator



High Pressure Filter Condition Indicators

Low Pressure Filters & Gauges On Hydraulic Reservoir

Weekly

- Check accumulator charge pressure.
  - Trim accumulator= 150 psi (10.34 BAR)
  - Cutter drum accumulator= 1500 psi (103.4 BAR)
  - Eccentric accumulator = 350 psi (24.1 BAR)

WARNING

ACCUMULATORS ARE PRE-CHARGED AT EXTREMELY HIGH PRESSURE THAT CAN CAUSE SERIOUS INJURY OR DEATH IF SERVICED IMPROPERLY. ONLY TECHNICIANS CERTIFIED IN HYDRAULIC ACCUMULATORS SHOULD PERFORM THIS SERVICE.

Zinga Suction Filter Below Hydraulic Reservoir

200 Hours

- Change the low pressure filters in the return line at the hydraulic oil reservoir. The filters remove any debris that may enter the system and should be changed every 200 hours or if high pressure is indicated on the gauges with the system activated and fluid flowing.
- Change the Zinga suction filter for the hydrostatic drive & eccentric pump circuit located on the passenger side, below the hydraulic fluid tank. It is a screen type filter that must be changed every 200 hours or if the engine begins to strain or stall when the hydrostatic drive is engaged.
- Change the Donaldson charge filter for the cutter pump circuit. It is the horizontal filter located below the chassis near the OMSI Drive. This filter should be changed every 200 hours or if a drop in cutter pump charge pressure is indicated on the display with the system activated and fluid flowing.
- Inspect the fluid coolers and clean as necessary. The coolers are critical in maintaining acceptable fluid temperatures in the hydraulic system and must be kept clean to maintain efficiency.

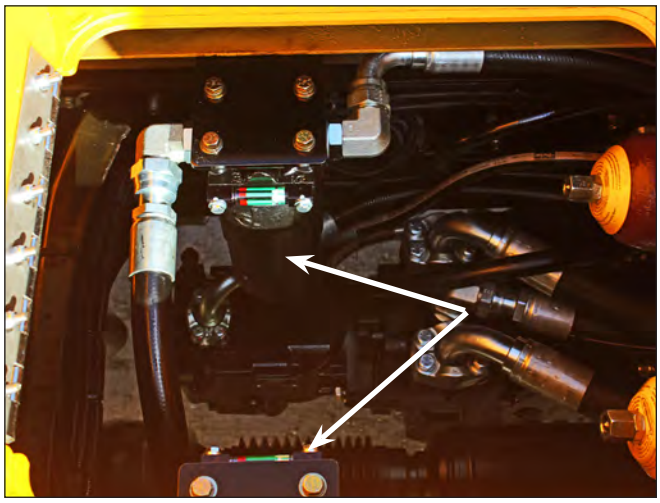
Donaldson Filter Near OMSI Drive

600 Hours

- Drain hydraulic fluid and flush hydraulic tank.

1000 Hours

- Change the high pressure filters located below the access plate on the center deck, just forward of the blower. These filters should be changed every 1000 hours or if the indictor at each filter is near or into the red zone with the hydraulic system activated and fluid flowing.



High Pressure Filters Below Deck Access Plate

4.10 Changing Hydraulic Fluid & Flushing Tank

The reservoir tank is equipped with a removable clean out/inspection plate on the top of the tank. When the fluid is changed, the clean out plate should be removed to inspect the tank and remove any sludge or debris accumulated on the bottom. Only qualified service technicians should drain and flush the system or replace hydraulic fluid filters.

⚠ WARNING ⚠

ALWAYS DEPRESSURIZE THE HYDRAULIC SYSTEM BEFORE REMOVING ANY HYDRAULIC COMPONENTS, HOSES OR FITTINGS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

NOTICE:

- **BEFORE PERFORMING ANY MAINTENANCE PROCEDURE, MAKE SURE THE HYDRAULIC SYSTEM IS SHUTDOWN WITH THE TRUCK IN THE SERVICE POSITION AND ON LEVEL GROUND.**
- **MAKE SURE THE HYDRAULIC TANK, FILTERS AND ALL RELATED COMPONENTS ARE THOROUGHLY CLEANED BEFORE SERVICING TO PREVENT CONTAMINATION.**
- **MAKE SURE ALL PARTS ARE CLEAN BEFORE FINAL ASSEMBLY.**

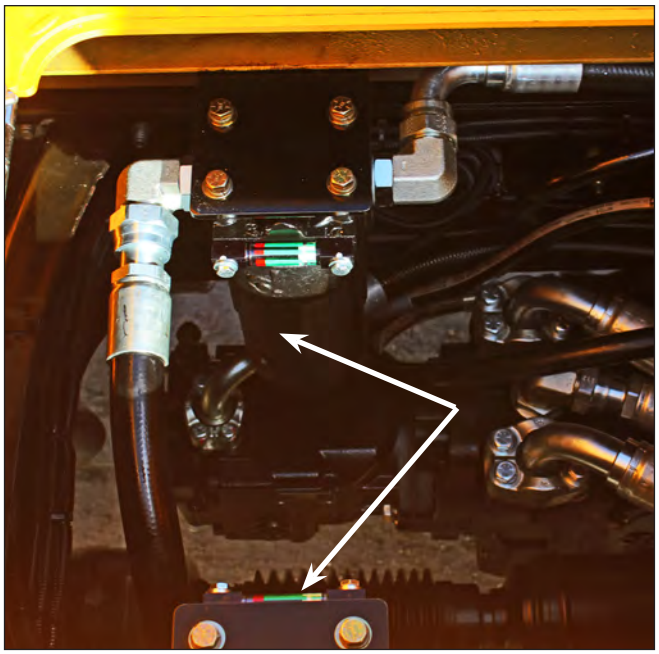
Hydraulic Fluid Reservoir

Draining and flushing the hydraulic tank:

1. Make sure the hydraulic system is not pressurized and the fluid is cool.
2. Drain the tank into a suitable container by removing drain plug at the bottom of the tank.
3. When the tank is drained, loosen the bolts securing the inspection plate and remove the plate. Use a bright light to inspect for sludge buildup and other contamination.
4. Remove sludge and contaminates, then flush the tank until it is clean using fresh hydraulic fluid.
5. Coat the seal with hydraulic fluid and install the plate. Tighten the bolts in a crisscross pattern to secure the plate.
6. Install the drain plug.
7. Add fluid until the tank is full. Monitor the fluid level using the sight gauge.

Typical Tank Inspection Plate

Low Pressure Return Filters & Gauges
On Hydraulic Reservoir



High Pressure Filters
Below Deck Access Plate

4.11 Replacing Hydraulic Filters

Before performing any maintenance procedure, make sure the cutting system is shutdown with the truck in the service position.

Low Pressure Return Filters

The filters are the spin on type filters located in the return line near the top of the hydraulic reservoir.

Changing the filters:

1. Make sure the hydraulic system is not pressurized and the fluid is cool. Use a filter wrench and rotate the filters counterclockwise to remove them.
2. Lubricate the seal on the new filters with hydraulic fluid.
3. Install the filters and hand tighten.
4. Inspect the filters for leaks when the hydraulic system is activated.

High Pressure Filters

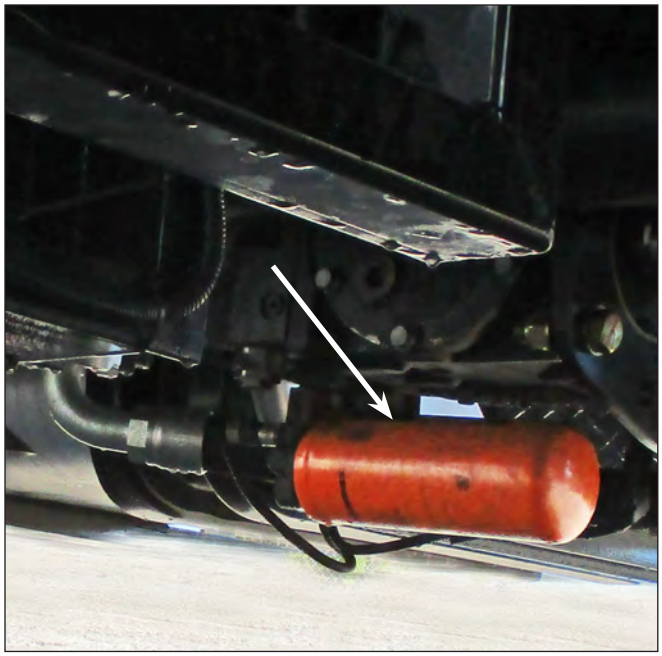
The filters are the spin on type filters located below the center deck access plate.

WARNING

SOME HYDRAULIC CIRCUITS ARE EQUIPPED WITH ACCUMULATORS THAT MAINTAIN PRESSURE IN THE CIRCUIT AFTER IT IS SHUTDOWN.

ALWAYS MAKE SURE TO FOLLOW PROPER PROCEDURE TO BLEED PRESSURE FROM THE ACCUMULATORS AND HYDRAULIC CIRCUITS BEFORE SERVICING THE HIGH PRESSURE FILTERS.

1. Make sure the hydraulic system is not pressurized and the fluid is cool.
2. Use a filter wrench and rotate the filters counterclockwise to remove them.
3. Lubricate the seal on the new filters with hydraulic fluid.
4. Install the filters and hand tighten.
5. Inspect the filters for leaks when the hydraulic system is activated.



Donaldson Filter Near OMSI Drive

Zinga Suction Filter Below Hydraulic Reservoir

Donaldson Cutter Pump Charge Filter

A horizontal, spin on type filter located below the chassis near the OMSI Drive.

1. Make sure the hydraulic system is not pressurized and the fluid is cool.
2. Use a filter wrench and rotate the filter counterclockwise to remove it.
3. Lubricate the seal on the new filter with hydraulic fluid.
4. Install the filter and hand tighten.
5. Inspect the filter for leaks when the hydraulic system is activated.

Zinga Hydrostatic Drive/Eccentric Pump Suction Filter

A spin on, screen mesh type suction filter located below the hydraulic system reservoir.

1. Make sure the fluid is cool.
2. Use a filter wrench and rotate the filter counterclockwise to remove it.
3. Lubricate the seal on the new filter with hydraulic fluid.
4. Install the filter and hand tighten.
5. Inspect the filter for leaks when the hydraulic system is activated.

Refer to the manufacturer's operating and service manuals for additional information and instructions for servicing the hydraulic system.

4.12 Accumulator Tank Pressure & Charging

Two accumulator tanks with gas charged pistons that provide reserve hydraulic power and compensate for normal pressure variations in the cutter and skip cylinder hydraulic circuits are located near the high pressure filters below the center deck access plate.

Required charge pressure is specific to each accumulator and is marked on the housing. Always make sure to follow proper procedure to bleed pressure from the accumulators and hydraulic circuits before servicing the system.

Before performing any maintenance procedure, make sure the cutting system is shutdown with the truck in the service position.

Inspection And Maintenance

Weekly:

- Check charge pressure. Add nitrogen if necessary.

NOTICE:

- **A SPECIAL CHARGING KIT IS REQUIRED TO TEST AND CHARGE ACCUMULATORS.**
- **ACCUMULATORS ARE CHARGED WITH NITROGEN GAS. COMPRESSED NITROGEN GAS IS REQUIRED.**
- **EACH CYLINDER HAS DIFFERENT PRESSURE REQUIREMENTS. REQUIRED PRESSURE IS NOTED ON EACH CYLINDER.**

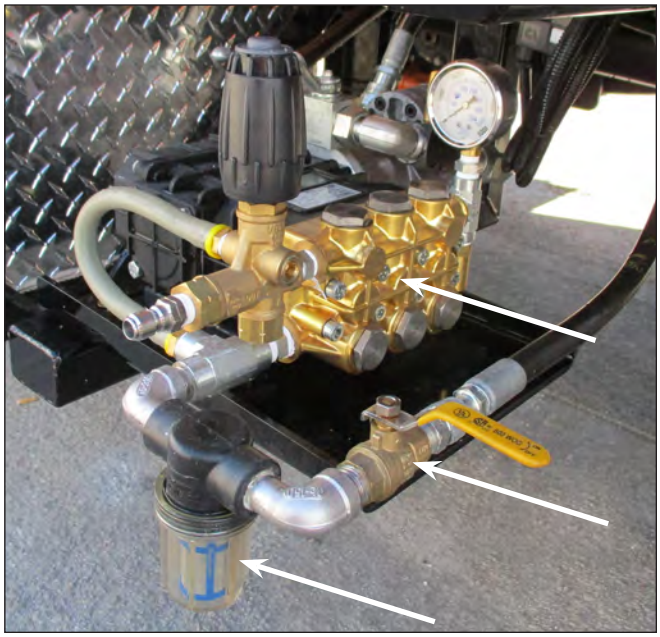
- Inspect accumulator hydraulic hoses and fittings for damage and leaks. Repair or replace damaged or leaking components.

Cutter & Skip Cylinder Accumulators Below Access Plate In Center Deck

4.13 Water System Pumps

All pumps in the water system are powered by hydraulic motors. The pump that supplies pressurized water to the cutter nozzles also supplies charge water to the high pressure pump. It requires little maintenance other than routine inspections.

The high pressure pump for the pressure washer is permanently lubricated and also requires little maintenance. Water is supplied by the clean water tank and a fine mesh strainer protects the pump from debris.



High Pressure Pump, Strainer & Supply Valve

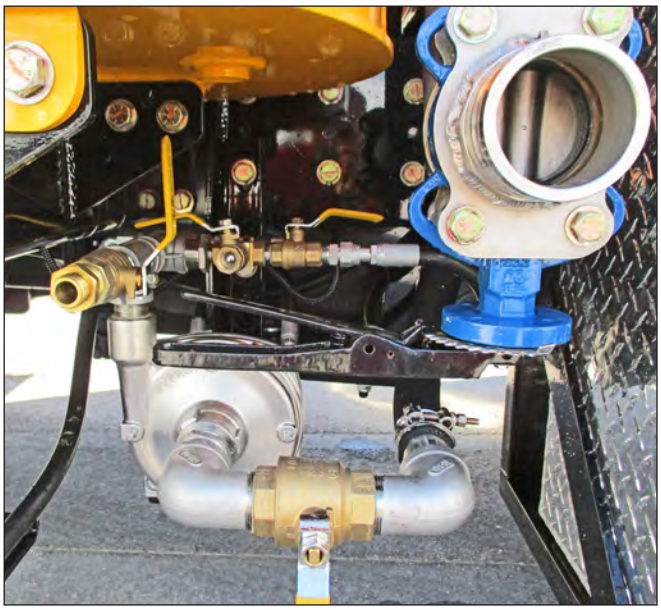
Inspection And Maintenance

Daily:

- Inspect the pumps, hoses and fittings for leaks and signs of wear or deterioration. Any questionable or leaking component should be repaired or replaced before operating the system.
- Run the pumps and listen for unusual noises and proper operation. Find and correct the cause of unusual noises or erratic operation.
- Inspect high pressure hose for kinks, damage or deterioration. Replace if necessary.

Monthly:

- Thoroughly flush clean water tank to remove accumulated debris.
- Open and close valves at least once each month to keep them free and operating properly.
- Lubricate and inspect valve shafts and handles. Replace if badly corroded.
- Remove and clean the water strainer located at the intake side of the pressure washer pump.



Supply Pump & Water System Ball Valves

Cleaning Water Strainer

- To clean the strainer, make sure the water system is shutdown with the truck in the service position. Rotate the strainer bowl counterclockwise to release it.
- Remove and clean the screen with fresh water.
- Lubricate the O-ring lightly with Teflon or silicon grease and reinstall the screen and strainer bowl.

Optional Debris Recovery W/O Continuous Off-Loading

4.14 Optional Debris Recovery W/O Continuous Off-Loading

Vacuum Canister and Filter

The canister houses the vacuum filter that protects the blower from debris and should be checked at the beginning of each shift. It is normal for water vapor to travel from the debris tank to the filter canister and gradually accumulate. Therefore, the canister should be drained at the start of each shift, each time the debris tank is emptied and whenever the vacuum filter is serviced to ensure excess water does not collect to an unsafe level. There is a manual drain valve at the bottom to remove excess water as needed.

The filter canister contains a pleated, reusable vacuum filter that can be easily removed through the door on the side of the canister. The filter should be inspected and cleaned before each shift.

A service port and plug is located in the filter. The plug is removed and light protective oil is sprayed into the blower to protect it from corrosion at shutdown. Always make sure the plug is secure in the port before operating the vacuum system.

Daily Maintenance:

- Inspect and clean filter.
- Drain water from canister as required.
- Clean out accumulated debris in canister
- Check canister door seal to ensure good sealing. Clean if necessary.

Vacuum Filter Canister, Door & Drain Valve

Weekly/50 Hour Maintenance:

- Inspect and lubricate door hinges and latches.

Use the following procedure to drain the canister and remove and clean the vacuum filter:

1. Make sure the vacuum system is shutdown and the truck is in the service position.
2. Open the filter access door and drain accumulated water from the canister. Close the valve when draining is complete.
3. Remove the wing nut that secures the filter to the canister. Then remove the filter.
4. Use a detergent degreaser to cut oil and grease, then power wash the filter with pressure not exceeding 2000 psi (138 bars).
5. Thoroughly inspect the filter for holes and damage. Replace the filter if its condition is questionable, it is damaged or has holes that could allow debris to get into the blower.
6. Install the cleaned or new filter and secure it with the wing nut. Hand tighten the wing nut. ***Make sure not to over tighten the wing nut and collapse the filter.***
7. Make sure the plug is secured in the filter service port, then close and latch the access door.

NOTICE:
DEBRIS ENTERING THE BLOWER THROUGH THE FILTER PORT CAN DAMAGE THE BLOWER. ALWAYS MAKE SURE THE SERVICE PORT PLUG IS SECURED IN THE FILTER BEFORE OPERATING THE VACUUM SYSTEM.

Vacuum Canister Filter & Service Port Plug

Debris Recovery Tank

Daily Maintenance: (When used)

- Check the water level sight tube for cracks or damage and clean or replace as necessary.
- Check debris tank door seal to ensure good sealing. Clean if necessary.
- Inspect hydraulic lift components and hinge pins to ensure they are tight and in good condition.

Debris Tank & Debris Tank Door

Weekly/50 Hour Maintenance:

- Grease the hydraulic lift hinge pins and fittings.
- Inspect safety strut. Make sure the hinge pins are tight and lubricate pins.
- Lubricate the debris door gas spring pivot hinge pins.
- Inspect and lubricate door hinges.
- Lubricate inspection port hinges and latch.
- Inspect the debris tank liner for worn and broken parts. Clean and replace parts as necessary to keep the liner operating properly.

Monthly/200 Hour Maintenance

- Inspect debris tank door seal and inflation pressure to ensure good vacuum sealing and clean if necessary. Coat the seal with silicone to help keep it pliable.
- Inspect and lubricate ball valves. Make sure to open and close all valves to keep them free and operating properly.
- Inspect, clean and lubricate the vacuum relief valve to keep it operating properly.

Vacuum Blower

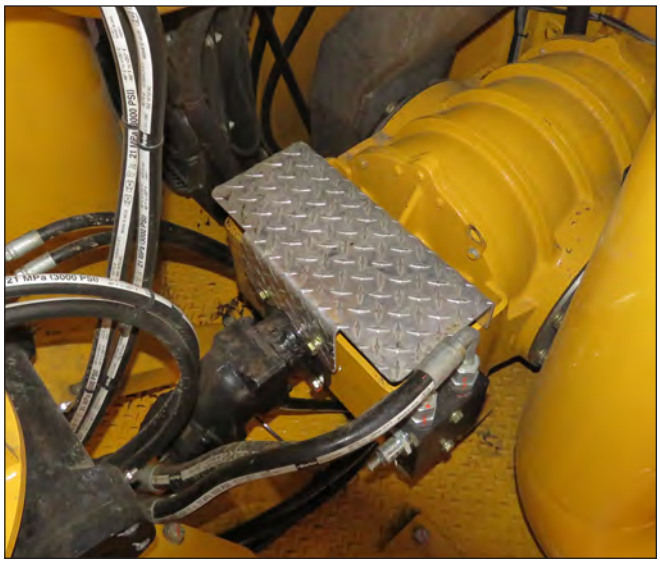
Blower Maintenance Overview

The vacuum blower operates at an extremely high RPM and has specific lubrication and maintenance requirements. It is also very susceptible to damage from debris because of the tight tolerances in the blower impellers. Refer to the Maintenance Matrix and the blower manufacturer's operating manual for lubrication specifications and maintenance schedules.

Remember, there is a special shutdown sequence for the blower that includes injecting light protective oil into the service port with the blower operating. This procedure is essential to eliminate corrosion on internal blower components that will cause the blower to seize when it is shutdown. Refer to Daily Inspection and Maintenance in this section for the blower shutdown sequence.

Debris Tank Inflatable Door Seal

Debris Tank Drain Valve



Typical Vacuum Blower

Be sure the vacuum filter is always in good operating condition with the plug inserted and secured in the service port so it fully protects the blower from debris internally. If paint debris ever gets into the blower impellers, use lacquer thinner or other non-corrosive cleaner to remove 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 blower components. Refer to Vacuum Canister & Filter for instructions on maintaining the vacuum system and cleaning the filter.

Inspection and Maintenance

Daily:

- Check for obvious loose mounting nuts and bolts.
- Check the oil level in the gear end of the blower. It should be within 1/4" of the overflow plug threads.
- Grease blower drive end bearings with the lubricant recommended by the blower manufacturer. Refer to the Service Matrix for lubricant specifications.
- Clean the vacuum filter before each shift. Drain the filter canister and check the filter at least once every 2 hours of operation. 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.
- Inspect the filter for 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. Replace if necessary.
- Check the vacuum canister door seal. Clean or replace the seal if necessary.

200 Hour Maintenance

Perform all daily maintenance along with the items outlined in this section.

- Inspect hydraulic motor coupler, hydraulic hoses and bolts.
- Inspect and tighten all mounting bolts, hose clamps and hardware.
- Lubricate drain ball valve. Make sure to open and close all valves at least once every 200 hours to keep them free and operating properly.
- Inspect, clean and lubricate the vacuum relief valve to keep it operating properly.
- Inspect all hoses and fittings for signs of deterioration, chaffing and leaks. Repair or replace as necessary.
- Tap vacuum hose walls with a dead blow hammer while the system is operating at maximum vacuum to flex the hose walls and cause built up debris to break off and be sucked into the debris tank.
- Inspect and rotate the vacuum hoses 120^0 to increase the life of the hoses.

500 Hour Maintenance

Perform all daily and 200 hour maintenance along with the items outlined in this section.

- Change blower gear case lubricating oil after the first 100 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.

Daily Shutdown Sequence:

CAUTION

MOISTURE ALWAYS PRESENT IN VACUUM AIR FLOW WILL CAUSE CORROSION IN INTERNAL BLOWER COMPONENTS WHICH WILL CAUSE THE BLOWER TO SEIZE WHEN IT IS SHUTDOWN.

IT IS IMPORTANT THAT LIGHT PROTECTIVE OIL IS INJECTED INTO THE SERVICE PORT WITH THE BLOWER OPERATING ANYTIME THE VACUUM SYSTEM IS SHUTDOWN, EVEN JUST FOR A COUPLE OF HOURS.

THIS MAINTENANCE PROCEDURE IS ESSENTIAL TO PROPER BLOWER OPERATION AND SERVICE LIFE. IT SHOULD NEVER BE OVERLOOKED.

1. Park the truck, reduce engine speed to idle and set the parking brake.
2. With the engine at idle speed and the vacuum system engaged, open the filter canister door.
3. Open the canister drain valve and drain any accumulated water.
4. Allow clean dry air to flow through the blower for several minutes to dry out internal components.
5. With the blower still operating, remove the service port plug and inject WD40, Blaster, LPS or another light protective spray oil into the port for 20 or 30 seconds.
6. Shutdown the vacuum system immediately after the oil injection step is completed.

Vacuum Filter & Service Port

Optional Debris Recovery With Continuous Off-Loading

4.15 Optional Debris Recovery With Continuous Off-Loading

Debris recovery systems with the optional Continuous off-loading include a debris tank, vacuum blower, filter, silencer, 2 cyclonic separators,hoses and Continuous discharge auger.

Cone Shaped Cyclonic Separator

The cone shaped separator is mounted at the rear of the Continuous off-loading auger. There are no moving parts and debris is separated by the cyclonic rotation of the air flow through the separator. Separated debris flows down the funnel shaped sides to the auger where it is off-loaded to the shoulder or dump vehicle traveling with the Rumble Hog.

Daily Maintenance:

Perform the following procedures every two hours of operation with the vacuum and off-loading systems shutdown.

- Open the access door on the side of the separator and inspect for excessive debris.
- Clean out excessive debris and clear any clogs at the off-loading auger.
- Check the door seal. Clean or replace the seal if necessary.

Cone Shaped Primary Separator & Secondary Separator

Weekly Maintenance:

- Inspect and lubricate access door latches and hinges.

Secondary Cyclonic Separator

The secondary separator is mounted on the passenger side of the center deck, between the cone shaped separator and the vacuum filter canister. It is designed to separate debris that gets past the primary cone shaped separator. There are no moving parts and debris is separated by the cyclonic rotation of the air flow through the separator. Separated debris flows down the sides to the slopped floor where it can be removed.

Secondary Cyclonic Separator W/ Door Open

Daily Maintenance:

Perform the following procedures every two hours of operation with the vacuum and off-loading systems shutdown.

- Open the access door on the side of the separator and inspect for excessive debris.
- Remove accumulated debris.
- Lubricate access door latches and hinges.
- Check the door seal. Clean or replace the seal if necessary.

Weekly/50 Hour Maintenance:

- Inspect and lubricate door hinges and latches.

Vacuum Canister and Filter

The vacuum filter canister houses the vacuum filter to protect the blower from debris and should be checked at the beginning of each shift. It is normal for water vapor to travel from the debris tank to the vacuum filter canister and gradually accumulate. Therefore, the canister should be drained at the start of each shift, each time the debris tank is drained and whenever the vacuum filter is serviced to ensure excess water does not collect to an unsafe level in the bottom of the filter canister. There is a manual drain valve at the bottom of the filter canister to remove excess water as needed.

Vacuum Filter Canister, Door & Drain Valve

The filter canister contains a pleated, reusable vacuum filter that can be easily removed through the door on the side of the canister. The vacuum filter should be inspected and cleaned before each shift.

A service port and plug is located in the filter. The plug is removed and light protective oil is sprayed into the blower to protect it from corrosion at shutdown. Always make sure the plug is secured in the port before operating the vacuum system.

Daily Maintenance:

- Inspect and clean filter.
- Drain water from canister as required.
- Clean out accumulated debris in canister
- Check canister door seal to ensure good sealing. Clean if necessary.

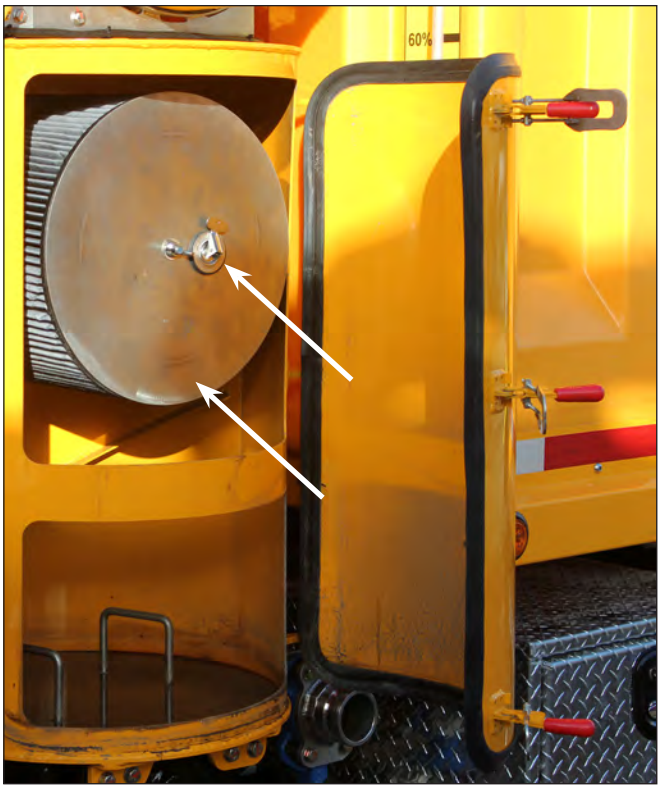
Weekly/50 Hour Maintenance:

- Inspect and lubricate door hinges and latches.

Use the following procedure to drain the canister and remove and clean the vacuum filter:

1. Make sure the vacuum and off-loading systems are shutdown and the truck is in the service position.
2. Open the filter access door and drain accumulated water from the canister. Close the valve when draining is complete.
3. Remove the wing nut that secures the vacuum filter to the canister and remove the filter.
4. Use a detergent degreaser to cut oil and grease, then power wash the filter with pressure not exceeding 2000 psi (138 bars).
5. Thoroughly inspect the filter for holes and damage. Replace the filter if its condition is questionable, it is damaged or has holes that could allow debris to get into the blower.
6. Install the cleaned or new filter and secure it with the wing nut. Hand tighten the wing nut. ***Make sure not to over tighten the wing nut and collapse the filter.***
7. Make sure the plug is secured in the filter service port, then close and latch the access door.

NOTICE:
DEBRIS ENTERING THE BLOWER THROUGH THE FILTER PORT CAN DAMAGE THE BLOWER. ALWAYS MAKE SURE THE SERVICE PORT PLUG IS SECURED IN THE FILTER BEFORE OPERATING THE VACUUM SYSTEM.



Vacuum Canister Filter & Service Port Plug

Debris Recovery Tank

Daily Maintenance: (When used)

- Check the water level sight tube for cracks or damage and clean or replace as necessary.
- Check debris tank door seal to ensure good sealing. Clean if necessary.
- Inspect hydraulic lift components and hinge pins to ensure they are tight and in good condition.

Weekly/50 Hour Maintenance:

- Grease the hydraulic lift hinge pins and fittings.
- Inspect safety strut. Make sure the hinge pins are tight and lubricate pins.
- Lubricate the debris door gas spring pivot hinge pins.
- Inspect and lubricate door hinges.
- Lubricate inspection port hinges and latch.
- Inspect the debris tank liner for worn and broken parts. Clean and replace parts as necessary to keep the liner operating properly.

Monthly/200 Hour Maintenance

- Inspect debris tank door seal and inflation pressure to ensure good vacuum sealing and clean if necessary. Coat the seal with silicone to help keep it pliable.
- Inspect and lubricate ball valves. Make sure to open and close all valves to keep them free and operating properly.
- Inspect, clean and lubricate the vacuum relief valve to keep it operating properly.

Debris Tank & Debris Tank Door

Debris Tank Inflatable Door Seal

Debris Tank Drain Valve

Vacuum Blower

Maintenance Overview

The vacuum blower operates at an extremely high RPM and has specific lubrication and maintenance requirements. It is also very susceptible to damage from debris because of the tight tolerances in the blower impellers. Refer to the Maintenance Matrix in this section and the blower manufacturer's operating manual for lubrication specifications and maintenance schedules.

Remember that there is a special shutdown procedure for the blower that includes light protective oil to be injected into the service port with the blower operating. This procedure is essential to eliminate corrosion on internal blower components that will cause the blower to seize when it is shutdown. Refer to Daily Shutdown in this section for the blower shutdown procedure.

Be sure the vacuum filter is always in good operating condition with the plug inserted in the service port so it fully protects the blower from collecting vacuumed debris internally. If paint 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 Vacuum Canister & Filter for instructions on maintaining the vacuum system and cleaning the filter.

Typical Vacuum Blower

Daily Maintenance

- Check for obvious loose mounting nuts and bolts.
- Check the oil level in the gear end of the blower. It should be within 1/4" of the overflow plug threads.
- Grease blower drive end bearings with the lubricant recommended by the blower manufacturer. Refer to the Service Matrix for lubricant specifications.
- Clean the vacuum filter before each shift. Drain the filter canister and check the filter at least once every 2 hours of operation. 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.
- Inspect the filter for 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. Replace if necessary.
- Check the vacuum canister door seal. Clean or replace the seal if necessary.

200 Hour Maintenance

Perform all daily maintenance along with the items outlined in this section.

- Inspect hydraulic motor coupler, hydraulic hoses and bolts.
- Inspect and tighten all mounting bolts, hose clamps and hardware.
- Lubricate drain ball valve. Make sure to open and close all ball valves at least once every 200 hours to keep them free and operating properly.
- Inspect, clean and lubricate the vacuum relief valve to keep it operating properly.
- Inspect all hoses and fittings for signs of deterioration, chaffing and leaks. Repair or replace as necessary.

- Tap vacuum hose walls with a dead blow hammer while the system is operating at maximum vacuum to flex the hose walls and cause built up debris to break off and be sucked into the debris tank.
- Inspect and rotate the vacuum hoses 120^0 to increase the life of the hoses.

500 Hour Maintenance
Perform all daily and 200 hour maintenance along with the items outlined in this section.

- Change blower gear case lubricating oil after the first 100 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.

Daily Shutdown:

CAUTION

MOISTURE ALWAYS PRESENT IN VACUUM AIR FLOW WILL CAUSE CORROSION IN INTERNAL BLOWER COMPONENTS WHICH WILL CAUSE THE BLOWER TO SEIZE WHEN IT IS SHUTDOWN.

IT IS IMPORTANT THAT LIGHT PROTECTIVE OIL IS INJECTED INTO THE SERVICE PORT WITH THE BLOWER OPERATING ANYTIME THE VACUUM SYSTEM IS SHUTDOWN, EVEN JUST FOR A COUPLE OF HOURS.

THIS MAINTENANCE PROCEDURE IS ESSENTIAL TO PROPER BLOWER OPERATION AND SERVICE LIFE. IT SHOULD NEVER BE OVERLOOKED.

1. Park the truck, reduce engine speed to idle and set the parking brake.
2. With the engine at idle speed and the vacuum system engaged, open the filter canister door.
3. Open the canister drain valve and drain any accumulated water.
4. Allow clean dry air to flow through the blower for several minutes to dry out internal components.

Vacuum Filter & Service Port

Service Port Plug Installed

5. With the blower still operating, remove the service port plug and inject WD40, Blaster, LPS or another light protective spray oil into the port for 20 or 30 seconds.
6. Shutdown the vacuum system immediately after the oil injection step is completed.

Continuous Off-Loading Auger

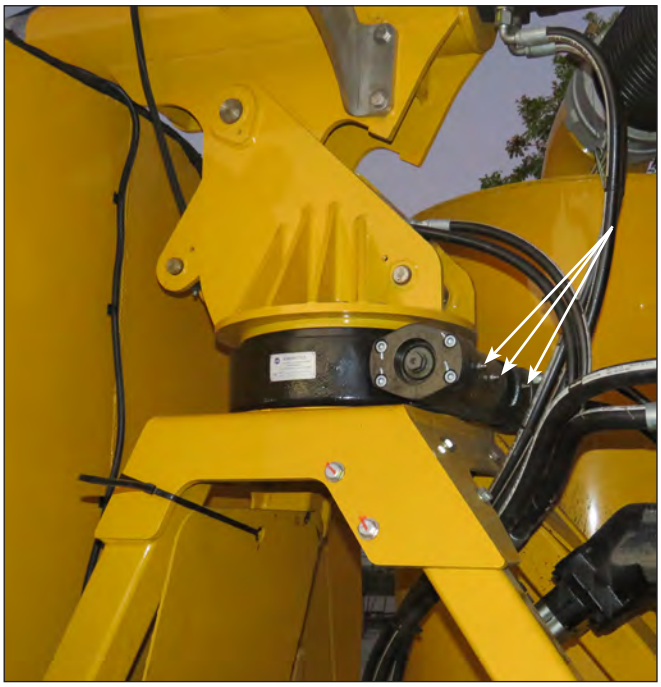
Continuous Discharge Auger

Daily Maintenance:

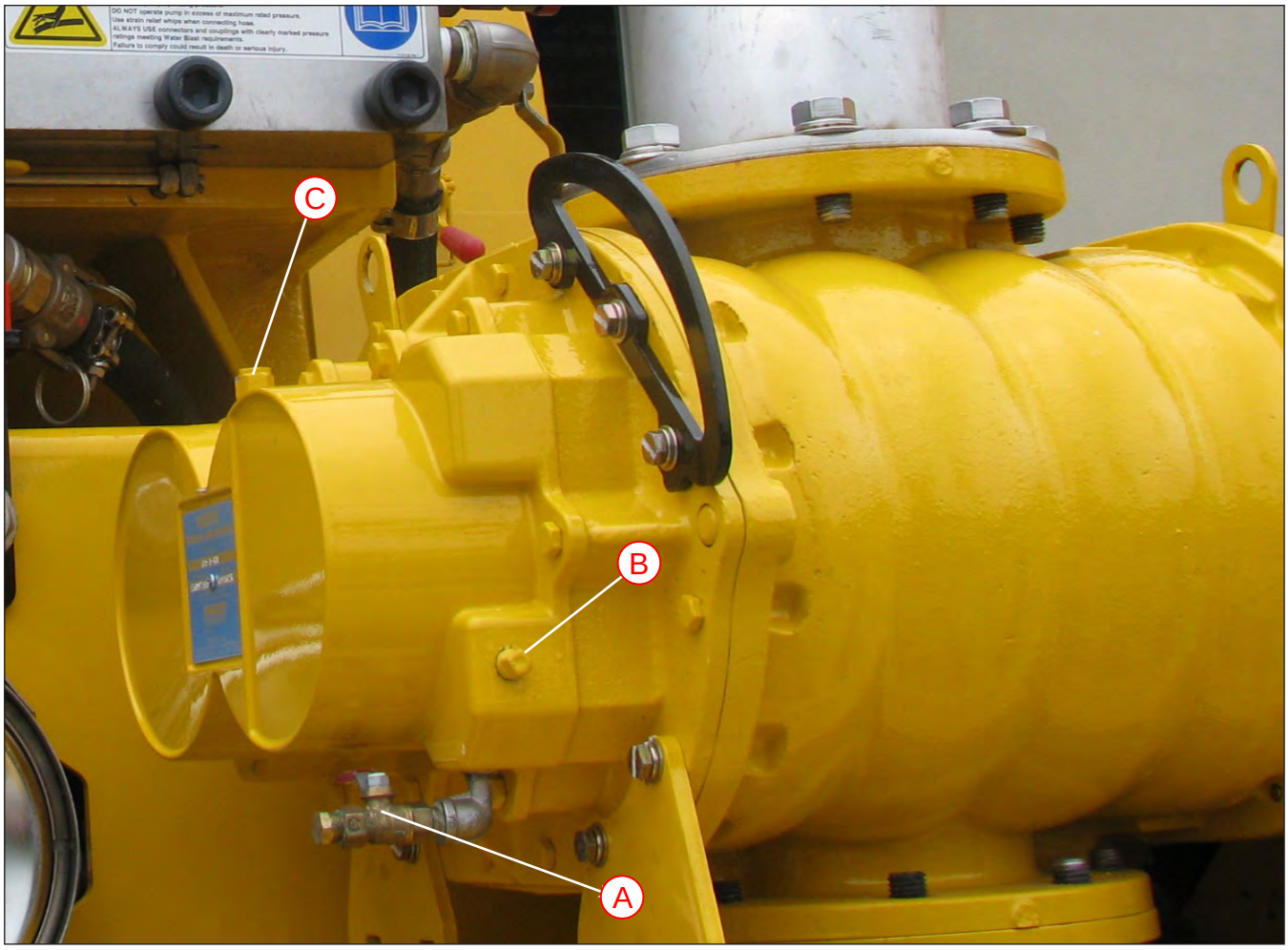
- Inspect the auger housing at the base of the separator for a excessive material. Clean as required.
- Check auger and pivot base for loose bolts. Tighten as necessary.
- Inspect hydraulic hoses and fittings for leaks. Repair or replace as necessary.

Weekly Maintenance:

- Lubricate pivot gear bearings at rear of auger.
- Lubricate bearing at front of auger.
- Inspect and lubricate all latches, pins and hinges.



Pivot Gear Grease Fittings



Typical Vacuum Blower Gear Case Drain, Oil Level & Oil Fill Plugs
A. Drain Valve & Safety Plug B. Overflow Plug C. Breather/Oil Fill Plug

4.16 Checking & Changing Blower Gear Case Oil

The blower gear case oil level should be checked daily or at least every 50 hours of operation. The oil should be changed every 500 hours.

When changing or checking the gear case oil, always clean the area around the breather and overflow plugs before they are removed. This will reduce the possibility of dirt and debris from entering the gear case when the fill plugs are removed.

Checking The Gear Case Oil Level

1. Make sure the system is shutdown with the truck in the service position and on level ground.
2. Remove the overflow plug on the side of the gear case. The oil should be within 1/4" of the bottom of the plug threads.
3. If the oil is low, remove the breather plug and add oil until the oil level is even with the bottom of the overflow hole.
4. Replace the breather and overflow plugs. Tighten to specifications.

Changing the Gear Case Oil

Draining the gear case:

1. Make sure the system is shutdown with the truck in the service position and on level ground.
2. Remove the safety drain plug at the oil drain ball valve fitting.

3. Attach a drain hose to the ball valve fitting and route the hose to a suitable waste oil container capable of handling at least 2 quarts (2.9 Liters) of oil.
4. Open the drain valve and drain the oil.
5. When draining is complete, close the valve and insert the safety plug. Make sure the safety plug is clean to avoid contamination. Tighten the plug to specifications.

NOTICE:
NOT ALL BLOWERS ARE EQUIPPED WITH A VALVE AND DRAIN PLUG. SOME ARE EQUIPPED WITH A DRAIN PLUG ONLY.

Refilling the gear case:

1. Clean the area around the breather plug on the top of the gear case and remove the plug.
2. Make sure the drain valve is closed and the safety plug is installed in the valve fitting and tightened.
3. Add the recommended amount and type of gear oil to the gear case. Refer to the blower manufacturer's Operation and Maintenance manual and/or the Maintenance Matrix in this chapter for the correct quantity and type of gear oil.
4. Verify the gear case oil level when filling is complete following the instructions for checking the oil level in the previous section of this chapter.
5. Make sure the breather plug is clean and insert the plug into the port. Tighten to specifications.
6. Wipe up any spilled oil and properly dispose of the waste oil and oil soaked rags.

Typical Vacuum Blower Drain Valve & Safety Drain Plug

Note that not all blowers are equipped with a drain valve and are equipped only with a drain plug. The blower drain system shown is for reference purposes only and the drain system on your truck may be different.

Vacuum Hoses

4.17 Vacuum Hose Replacement & Rotation Procedure

Debris buildup, kinks, clogs or leaks in the system will cause a reduction in airflow at the blasting heads, reducing the efficiency of operation or causing operations to stop completely. Debris buildup inside the hoses can be removed by periodically 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 built up debris to break off and be sucked into the debris tank.

The internal walls of vacuum 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 blasting heads 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 120^0 every 200 hours. Vacuum hoses should be inspected daily and replaced as needed.

Make sure the system is shutdown with the truck in the service position before rotating or replacing vacuum hoses.

NOTICE:
DAMAGED VACUUM HOSES CAN BE REPAIRED USING DUCT TAPE AS A TEMPORARY SOLUTION TO EXTEND THE LIFE OF THE VACUUM HOSE.

Vacuum Hose Replacement

1. Release the cam locks at the hose connection fittings.
2. Remove the old vacuum hose assembly.
3. If the cam lock fittings are in good condition and can be reused, cut the old hose off of the fittings. Then install the fittings in the new vacuum hose.
4. Connect the new vacuum hose assembly and close the cam locks.

Vacuum Hose Rotation

1. Mark the position of the hose, then release the cam locks at the hose fittings.
2. Using the marks as a reference, rotate the hose 120 degrees.
3. Secure the hose in the new position with the cam locks.

4.18 RH7500 Maintenance Matrix

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
Truck Drive Line	Drive Shafts	At Each Chassis Service	Mobil PolyRex EM Grease
OMSI Drive	Main Gearbox Rear Section	After 1st 100 Hours Then Every 600 Hours	High Grade Non Detergent 75w90 Gear Oil
Hydraulic System	Hydraulic Fluid Reservoir	Every 600 Hours or Once Per Year/Which Ever Comes 1st	Aw68
Hydraulic Accumulator Charge Pressure	Accumulators Trim, Cutter Drum, Eccentric	Weekly	Must Be Checked By A Certified Hydraulic System Technician
Cutter Eccentric	DriveShaft Pillow-Block Bearings	Daily	Mobil PolyRex EM Grease
Cutter Eccentric	Eccentric Bearings	Daily	Mobil PolyRex EM Grease ***No Substitutes***
Cutting Drum	Cutting Drum 4" & 9" Bearings	Daily 24 Pumps	Mobil PolyRex EM Grease
Cutting Drum	Cutting Tooth Shaft	When Installed	Mobil PolyRex EM Grease
Lift Arm	Locking Arm & Latch Grease Fittings	Weekly	Mobil PolyRex EM Grease
Lift Arm	Lift Arm Hinges and Other Grease Fittings	Weekly	Mobil PolyRex EM Grease
Cutter Chassis	Gauge Wheels	Weekly	Mobil PolyRex EM Grease
Cutter Chassis	Skip Cylinder Wheels	Weekly	Mobil PolyRex EM Grease
Planing Chassis	Gauge Wheels	Weekly	Mobil PolyRex EM Grease
General Grease Points	Hydraulic Ram Pivots – Door Hinges –Debris Tank Tilt Pins – ETC.	Weekly More Frequently If Required	Mobil PolyRex EM Grease
Unit General Lubrication Points	Toolbox Door Hinges – Ball Valves – Latches – ETC.	Weekly More Frequently If Required	General Purpose Oil
OPTIONAL EQUIPMENT			
Vacuum Blower All Blower	Blower Gear Case Oil	After 1st 50 Hours Then Every 500 Hours	ISO VG 320 Roots Oil High Temp – Synthetic
Vacuum Blower Howden	Pulley End Bearings ***(Grease Fittings)***	Daily ***(2 Pumps Each Fitting)***	Royal Purple Grease
Vacuum Blower Tuthill	Pulley End Bearings ***(Grease Fittings)***	**Daily** *(2 Pumps Each Fitting)*	***Tuthill Lithium Grease***
Vacuum Kunkle Valves	*Internal Relief Valve*	*Weekly* ***(Cycle Valve While Lubricating)***	*WD-40 or Equivalent*
Automatic Grease System	Grease Pump Reservoir	Weekly/40 Hours **(Fill to Max Line - DO NOT OVERFILL)**	Mobil PolyRex EM Grease
Continuous Off-Loading Auger	Pivot Base Worm Gear & Hinge Grease Fittings	Weekly	Mobil PolyRex EM Grease

This chart is a guide only. It should never be used to supersede equipment manufacturer's specifications. Please refer the manufacturer's operation and maintenance manuals for additional information.

System Status Screen

The STATUS screen displays the current status of primary cutter systems on one screen. This screen provides the operator with a snapshot of real time pressure, temperature or HTZ of all cutter systems.

To navigate to the STATUS screen, make sure you are on the Main Screen. Then press button (1) once. Press the escape button to return to the Main Screen.

STATUS Screen

The image above shows the STATUS screen. To view this screen, press button (3) once while on the MAIN screen. Press ESC to exit the STATUS screen and return to the MAIN screen.

Digital Controller Faults Screen

The digital control panel has a troubleshooting guide built into the program. To navigate to the FAULTS screen, make sure you are on the Main Screen, then press button (3) once.

A red icon next to a fault indicates that fault is active and the component requires attention. No red icon indicates the component is operating properly.

FAULTS Screen

The image above shows the FAULTS screen. To view this screen, press button (3) twice on the MAIN screen. A red icon next to the fault description indicates the fault is active. Use the UP/ DOWN arrows to change screen brightness. Press ESC to exit the FAULTS screen and return to the MAIN screen.

Troubleshooting Wires & Cables

Sometimes a fault is caused by a faulty cable connection. When a fault is displayed, start by inspecting the connectors at each connection for a loose connection or pins that are pushed in or bent. Disconnect the plugs and press gently on each pin to be sure that it is seated properly. If the pin moves, it is not seated in the connector body.

Check the terminal blocks in the OTB for loose wires or wires touching each other. Check individual wires by disconnecting the wire at one end and using a multi-meter to check the wire for continuity.

Test For Broken Cable Wires

Disconnect the cable at both ends. Use a multimeter in the continuity/resistance mode and place the leads on the same numbered pins on each end of the cable. You should get a reading close to Zero Ohms. If you don't, the wire is broken or one of the pins is not connected properly to the wire. First check the connectors to be sure that the wire is properly connected to the pins. If the connections are good there is a broken wire in the cable and the cable will need to be replaced.

Test For Shorted Cable Wires

Disconnect the cable at both ends. Use a multimeter in the continuity/resistance mode and place the leads between the different pins on one end of the cable, be sure to check each combination of pins (i.e. for a 3 conductor cable check A & B, B & C, and A & C). If you find a short, check the connectors to be sure that the pins or wires are not touching each other. If the connectors are okay, then there is a short within the cable and it will need to be replaced.

NOTES

PROBLEM	CAUSE AND SOLUTION
Lift Arm	
Lift arm won't raise.	• Hydraulics not engaged. Engage transmission PTO to activate hydraulic system. • POWER switch on joystick panel is not on. Turn on POWER switch. • 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.
Lift arm won't lower.	• Locking arm engaged. Release locking arm. • Hydraulics not engaged. Make sure transmission PTO is engaged to activate hydraulic system. • POWER switch on joystick panel is not on. Turn on POWER switch.
Lift arm and cutter will not move right/left.	• Hydraulics not engaged. Engage transmission PTO to activate hydraulic system. • POWER switch on joystick panel is not ON. Turn on POWER switch. • 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. • Cutter is down. Raise cutter off pavement.
Water System	
Low water pressure.	• Hydraulics not engaged. Engage transmission PTO to activate hydraulic system. • Truck engine speed is too low and hydraulic system is not turning the charge pump at proper RPM. Raise engine speed to operating RPM. • Charge water pump is not activated or supply valve is closed. Open supply valve or activate charge water pump. • Water tank is empty. Fill tank with water. • Clogged impeller on pump. Disassemble pump and clean or replace impeller. • There is an air leak in the suction hose. Find and repair leak. • Debris in water hose from tank. Flush or replace intake water hose.

PROBLEM	CAUSE AND SOLUTION
Laser Guidance System	
Laser guidance is not activating	• POWER switch on joystick panel is not on. Turn on POWER switch. • Laser power switch is not on. Turn power switch on laser panel on. • Laser system is not warmed up. Allow a couple of minutes for system to warm up after turning on power switch. • Fuse is blown. Replace blown fuse.
Video System	
Video monitor vacuum cup will not hold vacuum and monitor will not stay on windshield.	• Windshield is dirty. Clean windshield. • Vacuum cups are dirty. Clean vacuum cup. • Vacuum cup pump is worn or defective. Replace vacuum cup assembly.
Video system is not activating.	• POWER switch on joystick panel is not on. Turn on POWER switch. • Monitor cables are not plugged in. Attach cables. • Fuse is blown. Replace blown fuse.
Cutting System	
Cutter and eccentric not activating.	• POWER switch on joystick panel is not on. Turn on POWER switch. • Digital controller is not on the Main Screen. Set controller to the Main Screen, then press button (6). • Hydraulics not engaged. Engage transmission and OMSI PTO units to activate hydraulic system.
Eccentric engaged but does not rotate to plunge cutter into pavement.	• POWER switch on joystick panel is not on. Turn on POWER switch. • Digital controller is not on the Main Screen. Set controller to the Main Screen then press button (6). • Truck is not moving forward. Move truck forward to engage eccentric. • Cut spacing is set to 0. Set cut spacing. • 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. • The eccentric drive belt is broken. Replace drive belt.

PROBLEM	CAUSE AND SOLUTION
Cutting System	
Cutting drum doesn't rotate when activated.	• Lift arm and cutter are down. The last action of the lift arm must be up before the cutting drum will rotate. • OMSI PTO is engaged. Engage OMSI PTO • 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.
Cutter kicks back or jumps when the cutter teeth hit the pavement.	• Down pressure is not set high enough. Raise down pressure.
Gauge wheels cut groves in pavement and or truck is experiencing taction loss.	• Down pressure set to high. Lower down pressure.
Cutter hits pavement during the skip cycle during cutting operations.	• The skip pattern is not set properly. Set the skip pattern. • The skip wheels are set too low. Adjust skip wheel cylinder rams to increase cutter clearance when the skip cylinders are engaged. • Skip cylinders are not activating. Find and correct the problem.
Cutting is not cutting rumble strips deep enough.	• The cutter teeth have worn which has increased the standoff height. Adjust the gauge wheels to set the proper standoff height. • There is not enough down pressure on the cutter. Increase down pressure.
Cutter is not sitting square to the pavement and rumble are not the same depth on each side.	• The articulation hinge lock pins are locking the cutter articulation hinge. • The gauge wheels are misadjusted. Adjust gauge wheels. • Teeth are missing on the cutter drum. Replace missing teeth.
Vacuum System	
Blower system noise and vibration.	• Blower impellers are clogged with debris. Disassemble and clean blower. Rebuild or replace if necessary. • Internal blower components corroded. Disassemble and clean blower. Rebuild or replace if necessary. • Blower muffler is clogged. Clean muffler. • Blower mount bolts are loose. Tighten Bolts. • Blower or drive bolts loose and out of alignment. Align and tighten bolts. • Blower bearings are worn. Rebuild blower.

PROBLEM	CAUSE AND SOLUTION
Low vacuum pressure.	• Truck engine speed is too low and PTO is not turning the vacuum blower at proper RPM. Raise engine speed to operating RPM. • Vacuum filter canister or cyclonic door seal leaking. Clean or replace lid seal. • Vacuum debris tank relief valve leaking or stuck open. Clean or replace leaking valve. • Vacuum filter is clogged. Clean or replace vacuum filter. • Vacuum service port plug is not installed. Insert service plug.
Vacuum loss or failure.	• A vacuum hose is worn through or damaged. Replace worn or damaged vacuum hose. • Vacuum hose plugged with debris. Hit hose with dead blow hammer to breakup debris. Replace hose if necessary.
Vacuum system relief valve sticks open.	• Debris in relief valve is causing it to stick. Clean and lubricate relief valve. Replace valve if necessary. • Vacuum hose is clogged. Clear clogged hose. Replace hose if necessary. • Vacuum hose kinked. Replace kinked hose.

Mobile Tool System

Rubber Hammer
#2 or #4 Hammer
2 Grease Guns with hose
Brass Wire Brush (Big and Small)
Putty Knife/Scraper
12" or 15" Pipe Wrench
Torque Wrench (50 foot lbs.) 3/8" Drive
Feeler Gauges
60-96 Piece Socket Set
Utility Knife (3 pieces)
Tool Box
6 Piece Screw Driver Set
Open End Wrench Set - 1/4"-7/8"
Needle Nose Pliers
Snap Ring Pliers
15" Crescent Wrench (adjustable)
12" Crescent Wrench (adjustable)
12" Channel Lock Pliers
Triangle Metal File (Small)
Pick Set (Dental Pick Type)
Allen Wrench Set (Standard and Metric)
Metric set must include 7mm allen
Deep Socket for Thru-Shaft - 1 1/8"
Deep Socket for Thru-Shaft - 15/16"
Brake Parts Cleaner (3 cans)
Scotch Bright Scratch Pads (Red)
Open End Wrench - 15/16"
Converter 3/8" to 1/2" for Torque Wr.
The mobile tool system has been designed as a complete system of tools required for the Stripe Hog. To reduce unnecessary downtime always ensure your mobile tool system is complete during the Pre-Operational checklist

Mobile Spare Parts System

Ultra High Pressure Pump Spare Parts Organizer Box
Hog Head Spare Parts Organizer Box
Vacuum Recovery System Spare Parts

With each truck we manufacture, Waterblasting Technologies provides a spare parts system. This spare parts system consists of (2) organizer boxes including labels as well as the suggested quantity to keep in the boxes for each component.

To ensure you have what you need when you need it a physical inventory of the spare parts system should be completed at a minimum of once a week. Keeping the spare parts system fully stocked at all times will reduce unnecessary downtime and expedited freight costs.

For further information on your specific spare parts system or to request additional labels or components please contact customer support at (001) (772) 223-7393 or visit StripeHogSupport.com

PRE-OP CHECKLIST

Tires	**Grease Points**
☐ Tire Pressure - Front	☐ Cutter & Eccentric Bearings
☐ Tire Pressure - Rear	☐ Lift Arm & Skip Cylinders
Lighting Systems	☐ Gauge Wheel Bearings
☐ Brake Lights	**Tank System**
☐ Turn Signals	☐ Water Tank Full & Not Leaking
☐ Parking Lights	☐ Water Pump Valve Open
☐ 4-Way Lights	☐ Fittings, Sight Tubes OK
☐ Strobe and Work Lights	☐ Debris Pump Strainer Clean
☐ Reverse Lights	☐ Debris Tank Water Drained
☐ Headlight: High-Beams	☐ Debris Level In Tank OK
☐ Headlight: Low-Beams	☐ Debris Tank Door Closed & Latched
Electrical & Accessories	
☐ Wipers	
☐ Horn	**Cutter Components**
☐ Console Switches	☐ Cutter Hydraulic Hoses & Motors
☐ Back Up Beeper	☐ Lift Arm Slide Track Components
☐ TRAVEL/WORK LED Lights	☐ Lift & Skip Cylinders
☐ Cutting System Master Breakers ON	☐ Cutter Teeth All Present & Not Excessively Worn
☐ Digital Control Panel Operating	☐ No Loose Components Or Damage
☐ Inspect Electrical Box	**Operational Testing**
☐ Video Monitors Present & Working	☐ Truck Engine Operation
☐ Laser Guidance System Working	☐ Engage/Disengage Gearbox PTO
General	☐ Engage/Disengage Transmission PTO
☐ Filling Hose And Wrench Onboard	☐ All Joystick Switches And Controls Operating
☐ Accident/Incident Decals	☐ All Digital Control Panel Switches & Gauges Operating
☐ All Wires, Brake Lines & Hydraulic Lines Secure	☐ Wireless Remote Control Operating
☐ All Components Are Neat & Organized	☐ Engage/Disengage Water Pump
☐ Complete Tool Box Per Inventory Sheet	☐ Water Pump_____PSI
Mobile Spare Parts and Tool System	☐ Hydrostatic Drive Working Correctly
☐ Mobile Spare Parts System Complete	☐ Cutter Arm Slide Trolley Assembly Operation
☐ Mobile Tool System Complete	☐ Lift Arm Operation
Fluid Levels	☐ Locking Arm & Latch Operation
☐ Truck Engine Oil	☐ Inflate/Deflate Door Seal Operating
☐ Automatic Transmission Oil	☐ Debris Tank Dump Cylinder Operating
☐ Truck Radiator & Coolant Level	**Belts**
☐ Gearbox Rear Lube	☐ Main Eccentric Drive Shaft Belt - Tension & Alignment
☐ Gearbox PTO Lube	☐ Eccentric Drive Belts - Tension & Alignment
☐ Gearbox Hydrostatic Drive Lube	**Visual Walk-Around**
☐ Check OMSI For Oil Leaks	☐ Conduct Final Walk-Around Inspection
☐ Hydraulic Oil Level	
☐ Truck Fuel Tank Level OK	

NOTES

Basic Training Course – 5 days of on-site training to operate and maintain the stripe hog unit.

Blower – Pulls airflow through the vacuum system.

Burst Rating – The PSI at which a component will rupture.

Cam Lock Connector – Installed at the end of each vacuum hose fitting to secure the hose.

Charge Pump – Centrifugal pump that supplies water to the cutter and pressure washer pump.

Chassis – Steel frame that holds the truck body and motor.

Continuous Off-Loading - Process of continually dumping debris off of the Rumble Hog during operations.

Cutter Chassis – Steel frame that holds the cutting drum.

Debris Pump - A diaphragm pump that moves spent water from the debris tank into the bladder.

Digital console - A digital display that provides on screen programming.

Digital display - A screen that allows the operator to see a large amount of information such pictures from cameras, or a computer screen.

Display - Any instrument that shows information from a sensor to the driver / operator for evaluation.

Drum - The rotating part of the Rumble Hog holding the teeth that do the cutting work.

Drum chassis - The assembly that holds the drum and supporting mechanisms

Eccentric - A hydraulic cylinder that rotates on an out of center axis. The eccentric is timed directly with the hydrostatic drive system to ensure precisely metered plunges of the drum.

Flapper – Installed on the top of the silencer to keep water and debris from entering the system.

Float Mode – Releases up or down hydraulic pressure on the hog arm to allow the hog head assembly to float over uneven surfaces to avoid damage to the blast head.

GPM – Gallons per minute of water produced by the ultra-high pressure pump.

Hard Key - Button that sends an analogue signal. Examples include rocker switch toggle etc.

Hg – Symbol that indicates inches mercury. Used to measure vacuum air flow. Maximum vacuum is -7 inHg

Hydrostatic drive pump - Industry standard name and function

Joystick console - a box of switches holding the joystick

Kunkle Valves – Vacuum safety relief valve that opens when there is excessive vacuum.

Lift Arm - A boom mounted at the rear of the vehicle that holds the Drum chassis and Eccentric chassis.

Manhole – Opening on the top of each clean water tank that provides access to the interior of the tank. This should always remain locked.

OSHA – Government agency tasked with maintaining a safe and healthy work environment.

PLC – Programmable logic controller located in the cab of the truck and displays digital information on the water blasting system.

Plunge - The action of pushing the drum into the pavement.

Potable Water – Clean water that is suitable for drinking.

PSI – Pounds per square inch, a unit of pressure.

Remote Switch Control - A wired device used to control debris tank latches, and dumping procedures.
RPM – Revolutions per minute. The revolutions of the engine crankshaft, pump or motor each minute.

Silencer – Muffles the sound of the airflow being pulled through the vacuum blower.

Sight Tube – Clear pipe on side of the clean water tank and debris tank that indicates the level of the water.

Soft Key - Buttons that have a programmable response. These may or may not be on a digital console.

Teeth sockets - the places in the drum where teeth are installed

Teeth - the instruments installed into the drum that do the work of removing the targeted material

Wireless Remote Control - a wireless console used to control the skip function of the lift arm.

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 10 AM Eastern Standard Time

CUSTOMER SERVICE HOT LINE - 772-214-1714
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.

Rumble Hog Support Web Site

Typical Registration & Log On Window

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