

PTO Hydraulic Power Pack

OPERATOR'S MANUAL

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1 INTRODUCTION

1.1 Overview

Congratulations on your choice of a PTO Hydraulic Power Pack. This equipment has been designed and manufactured to meet the needs of a discriminating buyer.

Safe, efficient and trouble free operation of your power pack requires that you and anyone else who will be operating or maintaining the power pack read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within the Operator's Manual.

This manual covers the PTO Hydraulic Power Pack. Use the Table of Contents as a guide to locate required information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your dealer, distributor or the factory if you need assistance, information or additional copies of the manuals.

When this machine is worn out and no longer in use, it should be returned to the retailer or other party for recycling.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the tractor driver's seat and facing in the direction of travel.

1.2 Intended Use And Foreseeable Misuse

The power pack is designed to be used by experienced operators, trained in the safe operation of a tractor and trained in the hazards related to using power pack and attachments, and the safe use of the equipment for the intended purpose. Operators will require personal protective equipment to reduce the risk from some hazards that cannot be completely eliminated or controlled by the design of the tool.

Power packs are not designed for use in hazardous atmospheres where there is a risk of fire or explosion due to flammable gases or vapors. Use in hazardous, explosive atmospheres is prohibited.

Serious injury or death of the operator or bystanders may be caused if the power pack is misused. Misuse may also cause damage to the machine carrying the implement.

2 SAFETY

2.1 Safety Alert Symbol And Safety Words

You must read, understand and follow the instructions given by the operating unit manufacturers, as well as the instructions in this manual.

The safety information in this manual is denoted by the safety alert symbol:



This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

The level of risk is indicated by the following signal words:

 DANGER
DANGER - Indicates a hazardous situation, which, if not avoided, WILL result in death or serious injury.

 WARNING
WARNING - Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

 CAUTION
CAUTION - Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE
NOTICE - Indicates a situation that could result in damage to the equipment or other property.

2.2 Operational Hazards



WARNING

Prevent serious injury or death.

Read and understand this manual before operating power pack.

Always stop engine and remove key before leaving operators seat.

Never allow anyone near the power pack during operation.

Travel at a safe speed.



WARNING

Prevent serious injury or death from moving parts.

Moving parts can crush and dismember.

Do not operate without guards and shields in place.

Disconnect and lock out power source before adjusting or servicing.



WARNING

Use power pack only for the designed applications.

Any other use may result in personal injury, damage to equipment and may void the warranty.



WARNING

Prevent serious injury or death.

Verify power pack is attached to tractor before operation or transport.

Carefully read all safety messages in this manual and on equipment safety signs. Keep safety signs in good condition and replace missing or damaged safety signs.

New equipment components and repair parts must include the current safety decal.

Learn how to properly operate equipment. NEVER operate or work around this equipment without proper instruction, while fatigued or under the influence of alcohol, prescription or non-prescription medication or if feeling ill.

Keep your equipment in proper working condition.

Know the regulations and laws that apply to you and your industry. This manual is not to replace any regulations or laws. Additional information may be found at: www.asae.org or www.osha.gov.

If you do not understand any part of this manual, contact your dealer.

Prepare For Emergencies

- Be prepared in case of emergencies.
- Keep a fire extinguisher and first aid kit close to the machine.
- Keep emergency phone numbers close to your phone.
- Know your address so emergency services can locate you if an emergency arises.

Replace Safety Signs

- Replace missing or damaged safety signs.
- Safety signs are identified in Section 3 of this manual.
- Replacement safety signs are available from your dealer.

Do Not Allow Riders

- NEVER lift or carry anyone with power pack.
- NEVER use power pack as a work platform.
- NEVER allow passengers on power pack.

Lower Operating Speed

- Lower operating speed while loading, unloading or performing heavy operations.
- Keep load low and move at slow speeds on rough or uneven terrain.

Avoid Rollover

The equipment may rollover, resulting in death or serious injury. To help prevent rollover:

- Travel at a slow speed.
- Avoid sharp turns & sudden movement on slopes.
- Carry loads close to the ground.
- Avoid holes, ditches and other obstructions which may cause equipment to rollover.
- Balance load so weight is evenly distributed and load is stable.
- Use caution when operating on slopes and do not operate on excessively steep slopes.
- Do not exceed load capacity of equipment.

Avoid Powerlines & Underground Utilities



DANGER

Prevent electrocution.

Death or serious injury can result if equipment comes near or contacts power lines.

Electrocution can occur without direct contact.

DO NOT leave the operator's seat if any part of the equipment contacts electric lines or cables.

Detach Safely

Detach power pack on a firm and level surface. Power pack may fall over if detached on sloping or soft surface. Be sure people, livestock and pets are clear of machinery.

Raised Attachment



WARNING

Crushing hazard.

Raised, unsupported power pack can fall, resulting in death or serious injury.

Never enter the area under a raised power pack.

A raised power pack can lower unexpectedly, resulting in death or serious injury.

NEVER enter area under a raised power pack.

Lower power pack to ground, engage parking brake, shut off engine and remove key before servicing.

Avoid Loud Noise



WARNING

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

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Hazards From Modifying Equipment

Do not make any alterations to your power pack. Altering the equipment may cause unsafe conditions and may void the manufacturer's warranty.

Stay Clear Of Rotating Driveshaft



WARNING

Entanglement in a rotating driveshaft can cause serious injury or death.

Keep tractor shields and driveshaft shields in place at all times. DO NOT operate without driveshaft guards.

DO NOT wear loose fitting clothing.

2.3 Maintenance Hazards

Maintenance

Before servicing, park machine on a firm and level surface, set parking brake, chock wheels, and place a “Do Not Operate” tag on control panel. Read and understand this manual. If you do not understand any part of the manual, contact your dealer.

Always wear face and/or eye protection, safety shoes, and other protective equipment appropriate for the job.

Do not make unauthorized modifications. Contact your dealer before you weld, cut/drill holes, or make any other modifications.

Always use OEM replacement parts.



WARNING

Moving parts can crush and cut.

Keep clear of moving components.

Follow lockout procedure before servicing.



WARNING

Crushing hazard.

Before performing inspections, service or maintenance:

Park machine on firm, level surface.

Engage parking brake.

Turn engine off and remove key.

Place “Do Not Operate” tag on control panel.



WARNING

Entanglement hazard.

Keep clear of moving components.

Wear proper protective equipment appropriate for the job.



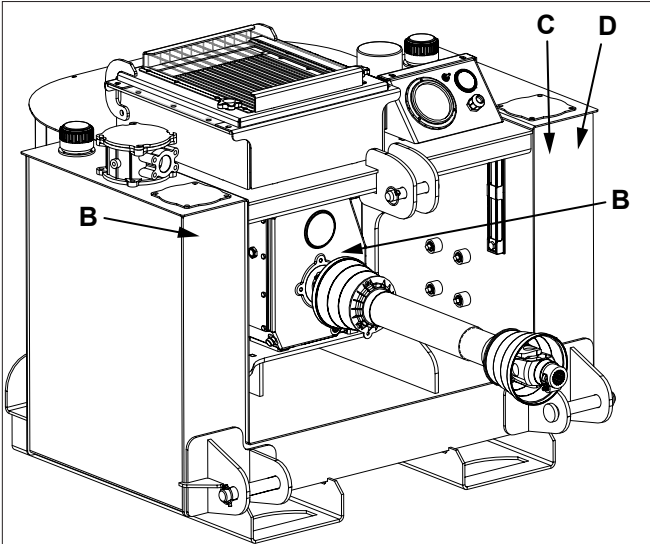
WARNING


Burn hazard.

Hot and high pressure hydraulic oil.

Allow oil to cool before servicing.

3 SAFETY SIGNS




- A. D005262  WARNING - P65 warning information.



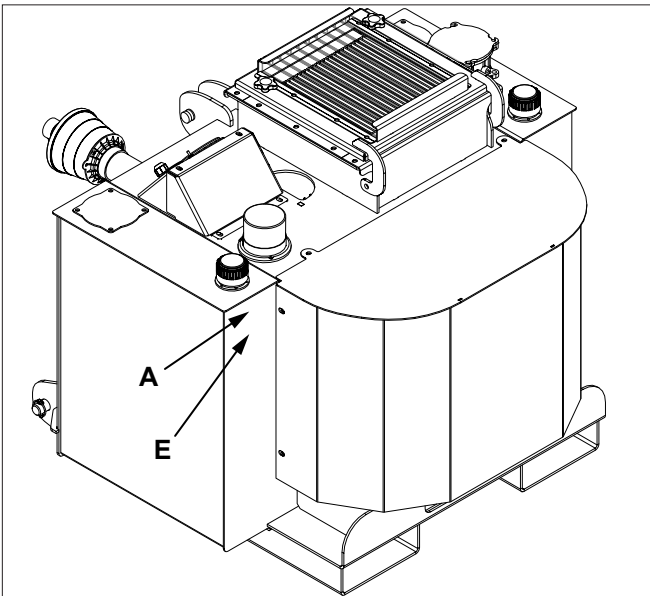
WARNING: This product can expose you to chemicals including 1,3-Butadiene and lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

D005262

- B. D005224  WARNING - Rotating driveshaft. Entanglement hazard. Keep away from driveshaft while it is rotating.




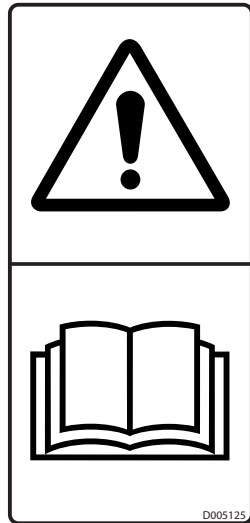
D005224




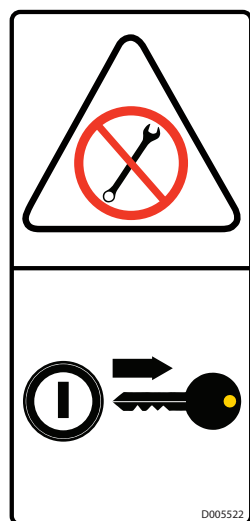
The two and four panel safety decals are pictorial and have a yellow background. The panel with a triangle indicates the potential hazard. The panel without a triangle indicates how to avoid the hazard.


If any of the decals are missing, are damaged, or if you do not understand the decal, please contact your dealer.

- C. D005152  WARNING - Read and understand safety signs on the machine and operating instructions in this manual before operating machine.



- D. D005517  WARNING - Remove key before servicing.



- E. D005126  WARNING - Pressurized fluid hazard. Pressurized fluids can penetrate the skin. Do not check for leaks with your hands. Keep back a safe distance when pressurized.



4 OPERATION

4.1 Preparation For Use



WARNING

Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer.

Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.



WARNING

Wear an approved dust mask or respirator.

Follow local, state and federal regulations.

Although the power pack has been carefully inspected and checked prior to shipment from manufacturer, it is recommended that the unit be thoroughly inspected.

Check all bolts for tightness and remove all shipping tags, bags, skids, and blocking.

Review and understand this manual and operating unit manual.

Remove any masking materials affixed during painting. Inspect the tractor and any accessory equipment to verify that nameplates and all safety warning, caution signs and decals provided with the equipment are in place and clearly visible.

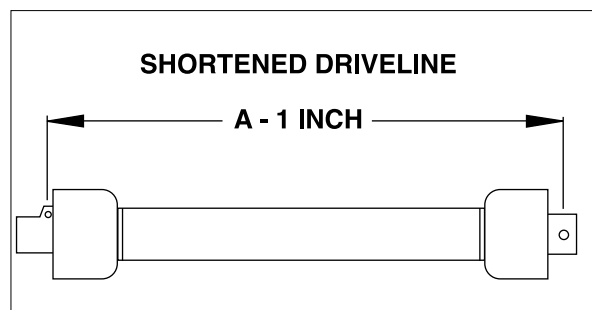
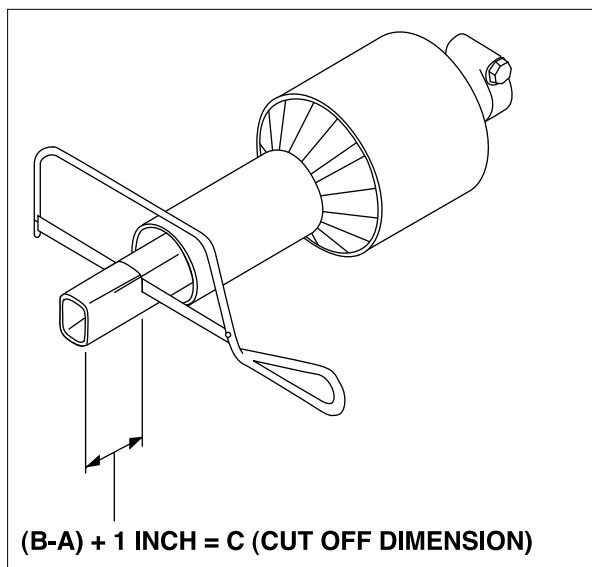
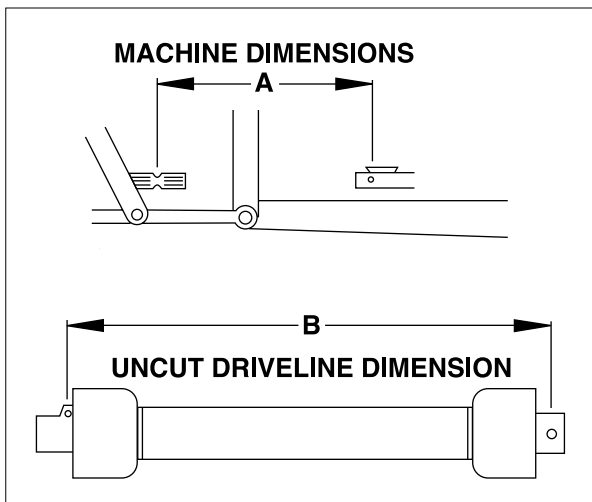
Visually inspect the unit before each start up. Check for loose or missing parts and any damage that may have occurred during moving or shipping.

Review all tractor pre-start instructions, and be sure that all recommended steps and procedures have been followed.

4.2 Driveshaft Dimension

A PTO driveshaft is supplied with the machine. To accompany the variety of 3 point hitch geometry available today, the driveshaft can be too long for most machines or too short for others. It is very important that the driveshaft be free to telescope but not to bottom out when going through its working range. If the driveshaft bottoms out, the bearings on both the machine and tractor PTO shaft will be overloaded and fail in a short time.

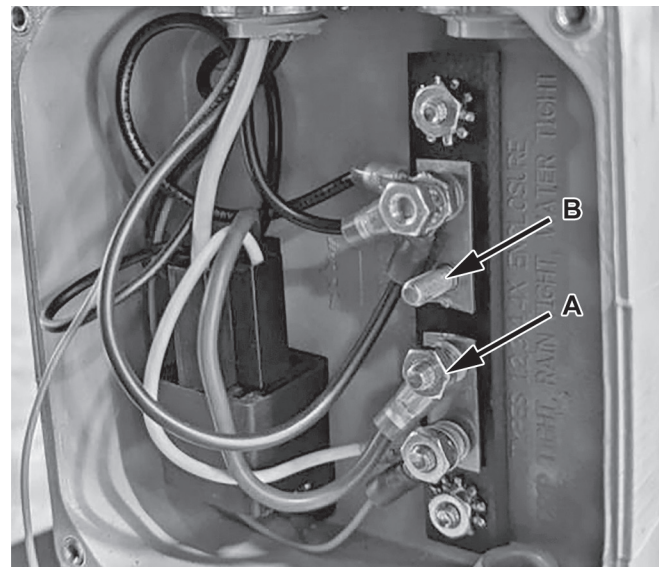
1. To determine the proper length of the driveshaft, follow this procedure:
 - a. Clear the area of all bystanders.
 - b. Attach power pack to tractor (see section 4.5) but do not attach driveshaft.
 - c. Raise power pack until the input shaft is level with tractor PTO shaft.
 - d. Measure dimension between locking grooves on tractor PTO shaft and machine input shaft.
 - e. Measure the same dimensions on the compressed driveshaft.
 - f. If compressed driveshaft dimension exceeds the machine dimension, driveshaft will have to be cut.
2. When cutting the driveshaft, follow this procedure:
 - a. Subtract machine dimension (A) from uncut driveshaft dimension (B) or (B-A). This dimension determines how much too long the driveshaft is.
 - b. Add another 1 inch (25 mm) to the dimension to be sure it doesn't bottom out, to determine (C) the cut off dimension.
 - c. Use a hacksaw to cut dimension (C) from both ends. Cut both plastic tubes and metal cores.
 - d. Use a file to remove burrs from edges that were cut.
 - e. Assemble the 2 ends of the shaft.
 - f. Make sure shaft can telescope freely. If it does not, separate the 2 parts and inspect for burrs or cuttings on shaft ends. Be sure it telescopes freely before installing.



4.3 Hydraulic Oil Temperature Sensor

Note: It is recommended to use ringlet style connectors for the 12V power supply connections.

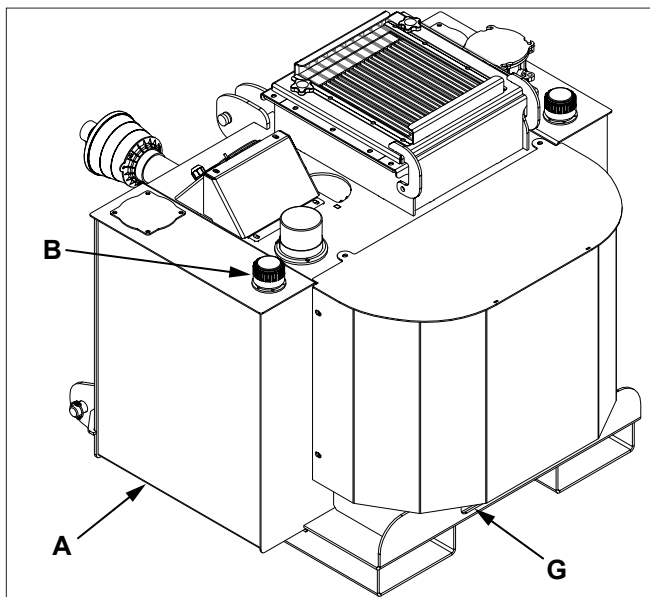
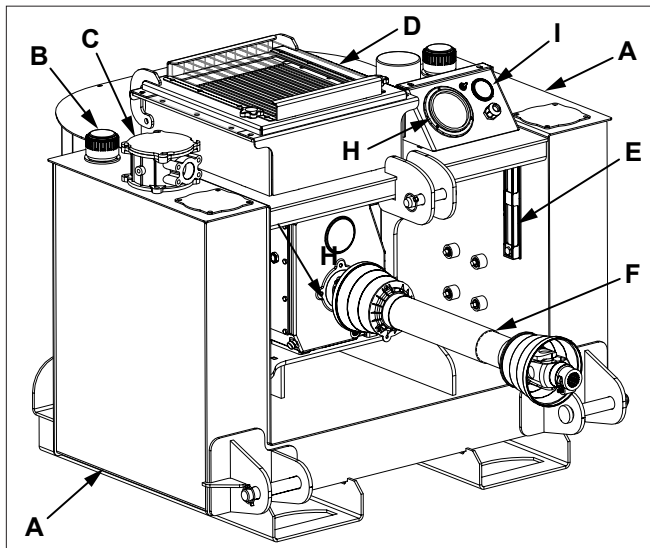
1. Attach power pack to tractor. See Attaching Power Pack To Tractor in this section.
2. Connect power supply positive (+) connector to terminal (A). Connect power supply negative (-) connector to terminal (B).



3. Connect attachment to power pack.
4. Connect attachment hydraulic lines to power pack.
5. Run the machine letting the oil heat up. The hydraulic cooling fan should automatically start at 120° F (49° C).
6. Shut off tractor engine and remove key.
7. Unplug cooling fan wire (C) from the hydraulic temp sensor. Run the machine letting the oil heat up.

4.6 Machine Components

- A. Hydraulic Tank
- B. Hydraulic Tank Fill
- C. Hydraulic Filter
- D. Hydraulic Cooler
- E. Hydraulic Oil Sight Gauge
- F. PTO Shaft
- G. Hydraulic Strainer/Inlet
- H. Hydraulic Oil Pressure Gauge
- I. Hydraulic Oil Temperature Gauge.



4.7 Attach Power Pack

WARNING

To prevent injury or machine damage put transmission in “Park” and check the full range of hitch for interference, binding or PTO separation.

Never position yourself between tractor and power pack.

Only experienced and properly trained operator's should operate the tractor and power pack.

1. Back up tractor to power pack with hitch points approximately in alignment.
2. Engage tractor park brake and/or place transmission in “Park”.
3. Shut off engine and remove key.
4. Attach lower links to power pack and retain using linch pins. To avoid machine damage, verify linch pins are locked on lower links.
5. Align top link with hole in top of frame and retain with pin and linch pin. Verify linch pin is locked on pin.
6. Pull PTO collar back toward the power pack. Align splines on tractor PTO shaft and driveshaft by rotating power pack driveshaft. Push driveshaft onto tractor PTO shaft until it snaps into place.
7. Pull back on driveshaft to make sure it is locked on shaft.
8. Attach safety shield chain.
9. Connect hydraulic hoses.

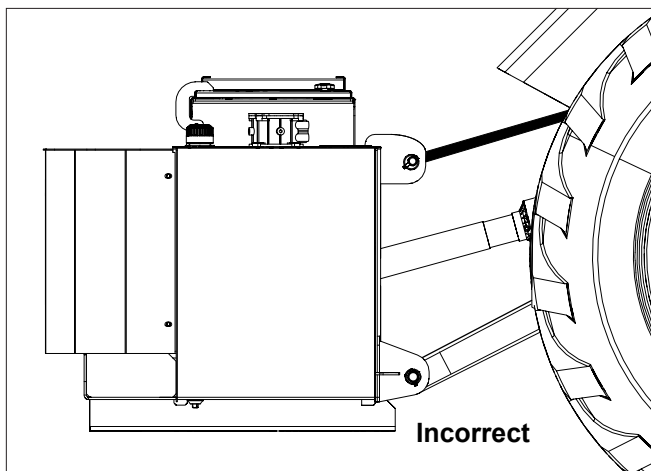
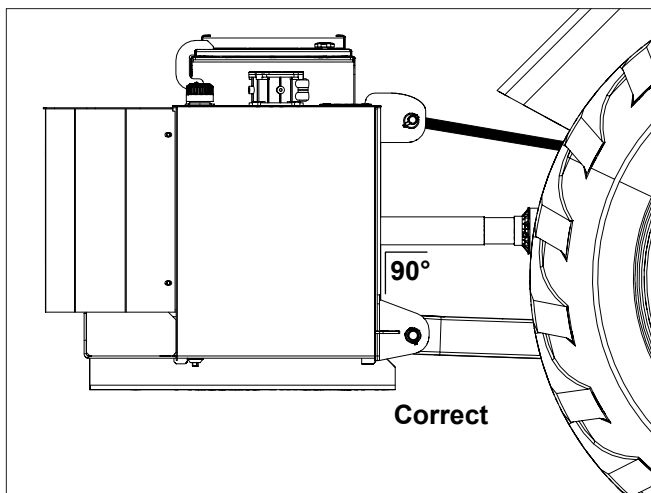
10. The driveshaft must be straight with no bend in the universal joint on the power pack end. A bend is allowable at the tractor PTO drive end.

NOTICE

Prevent equipment damage.

A driveshaft angle that is too severe may result in a broken shaft on pump.

11. Raise hitch arms to an acceptable operation position. Adjust top link length and/or 3-point hitch arm height as necessary to ensure that the driveshaft angle is acceptable.

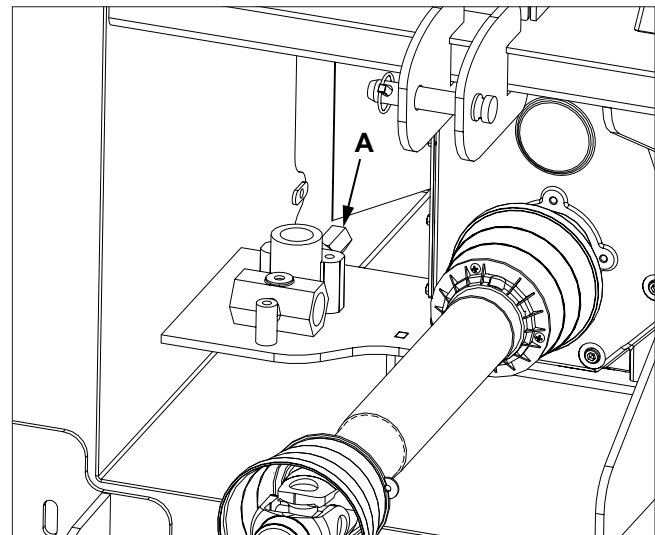


Driveshaft Angle Too Severe

A misaligned PTO shaft on the power pack end can cause power pack to shudder and shake. This may lead to pump damage and potentially void the warranty.

12. Check attachment hydraulic pressure operating range. Adjust power pack relief valve (A) so that the pressure is lower than attachment maximum hydraulic pressure.

1/4 turn out from closed position is approximately 3000 psi (207 bar). To adjust, hold hex screw with hex wrench and loosen lock nut. Turn hex screw in to increase pressure, or out to decrease pressure. Turn hex screw in 1/4 turn increments until desired pressure is achieved. Hold hex screw in position while tightening lock nut.



4.8 Detach Power Pack



WARNING

Prevent serious injury or death caused by unexpected movement:

1. **Park tractor on a level surface.**
2. **Engage tractor park brake.**
3. **Disengage PTO.**
4. **Shut off engine and remove key.**

1. Park tractor on a level surface.
2. Lower power pack to the ground.
3. Shut off engine and remove key.
4. Disconnect driveshaft safety chain.
5. Support driveshaft with your hand.
6. Pull collar back toward power pack and slide off shaft.
7. Remove linch pin and pin.
8. Place top link in storage position.
9. Remove linch pins and pins from both lower links.

4.9 Transporting

1. Verify all reflectors and Slow Moving Vehicle (SMV) sign are visible.
2. Raise power pack to fully raised position.
3. Verify tractor PTO is disengaged.
4. Travel at a reasonable and safe speed.



WARNING

To prevent bodily injury, disengage PTO before transporting power pack.

4.10 First Time User Tips

- Operate all functions in a clear area with the tractor at idle speed to get a good feel for the controls.
- Move slowly. Do not expect to get the first area done fast.
- Slow travel speed if pressure surges up close to max psi.



WARNING

Always turn off the tractor and disengage the PTO drive before getting off the seat and approaching the cutting wheel.

4.11 Operation



WARNING

Entanglement in a rotating driveshaft can cause serious injury or death.

Keep tractor shields and driveshaft shields in place at all times. **DO NOT** operate without driveshaft shields.

DO NOT wear loose fitting clothing.

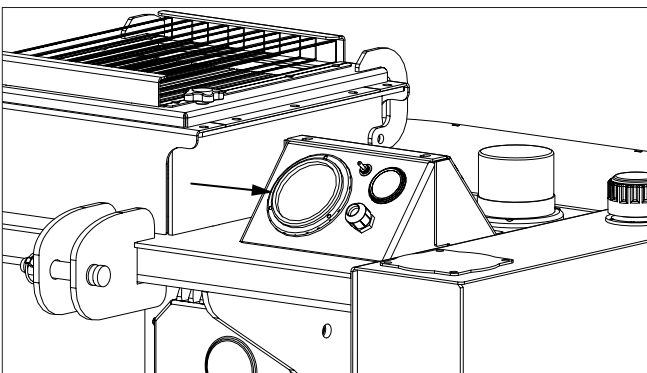


WARNING

Prevent serious injury or death caused by unexpected movement:

1. Park tractor on a level surface.
2. Engage tractor park brake.
3. Disengage PTO.
4. Shut off engine and remove key.

1. Attach power pack to tractor. See Attach Power Pack in this section.
2. Verify that the driveshaft angle is acceptable.
3. Start tractor engine and set engine speed to low idle and engage pto.
4. Slowly increase engine speed to high idle. Verify power pack is operating smoothly.
5. Hydraulic pressure gauge should be at 50-75% of the recommended hydraulic pressure for the attachment.



WARNING

Moving parts can crush and cut.

Keep clear of moving components.

Lockout operating unit before clearing jams.



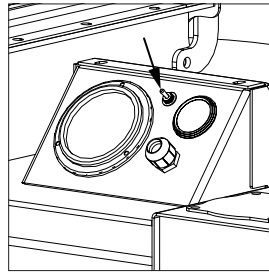
WARNING

Never approach power pack before pto has come to a complete stop.

5 SERVICE AND MAINTENANCE

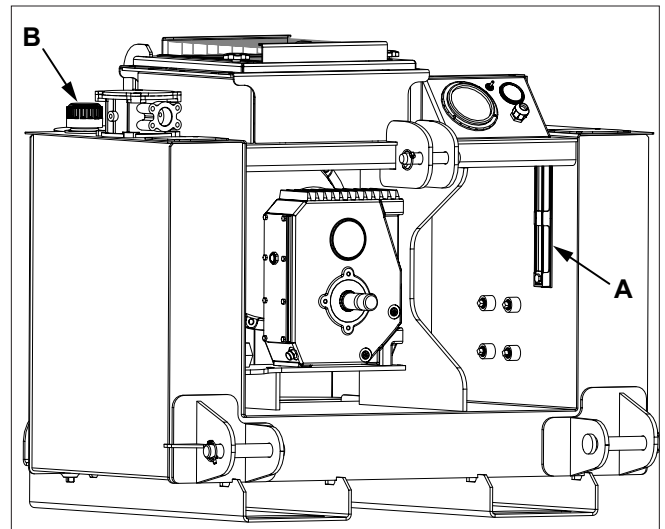
5.1 Maintenance

MAINTENANCE CHART		
General Inspection	Inspect and clean the hydraulic cooler louvers.	Daily
Fan Test Switch	Operate switch to verify oil cooling fan is operational.	Every hour.
PTO Shaft	Lubricate U-Joints on PTO shaft.	Every 250 hours.
Hydraulic Oil Filter	Change hydraulic oil filter.	Every 500 hours.
Hydraulic Oil	Change hydraulic oil. Use a common hydraulic oil typically used in a tractor.	Every 1000 hours.
Gearbox Oil	Change gearbox oil. Use synthetic 75-90W gear oil.	Every 2000 hours.



5.2 Check Hydraulic Oil Level

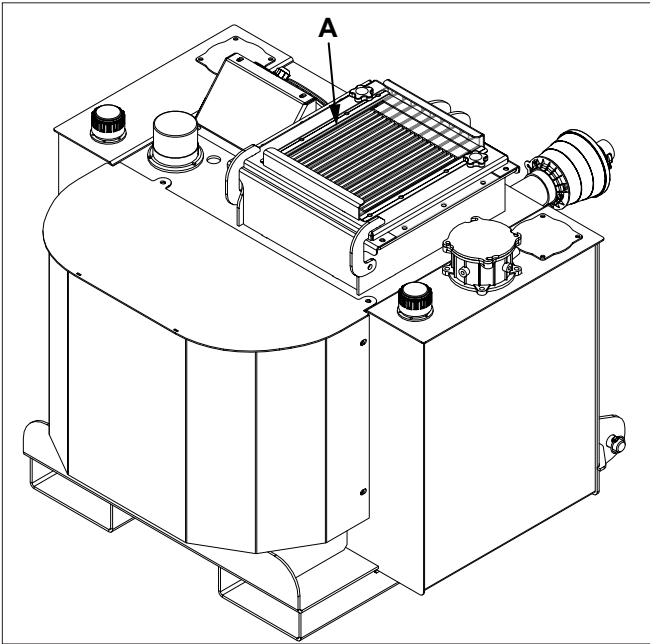
1. Power pack must be on a level surface, tractor park brake engaged, lift arms fully lowered, engine stopped and key removed.
2. Check oil level in sight glass (A). Hydraulic oil should fill approximately 50% of the sight glass. If the level is low, add enough oil to raise it to the proper level. Use a common hydraulic oil typically used in a tractor.
3. Clean the area around the filler neck of the hydraulic tank.
4. Remove cap (B) from filler neck and add hydraulic oil as needed.
5. Install cap (B) on filler neck.



5.3 Check Hydraulic Oil Cooler

Check hydraulic oil cooler screen (A) for dirt and debris before startup and every 10 hours.

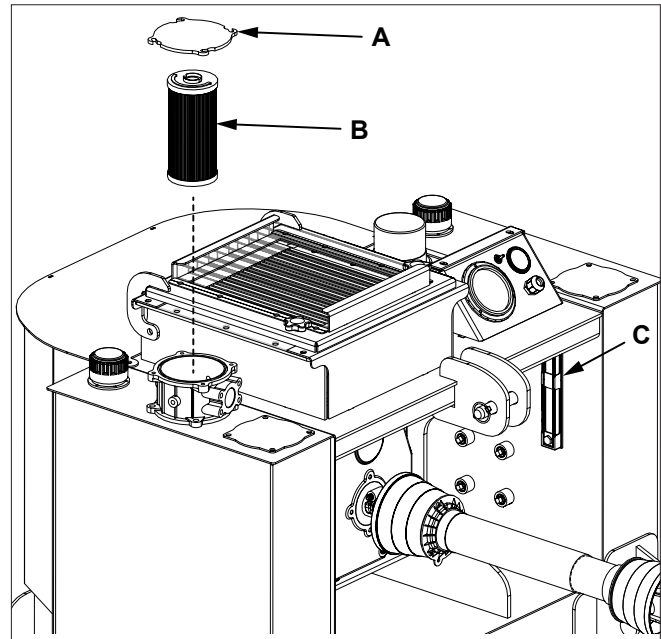
Clean with compressed air or spray wash if required. Do not damage fins with high pressure air or water.



5.4 Replace Hydraulic Filter

Replace hydraulic filter every 500 hours.

1. Park tractor on a level surface, park brake engaged, lift arms fully lowered, engine stopped and key removed. Allow hydraulic system to cool to ambient temperature.
2. Remove cover (A) and hydraulic filter (B).



3. Install hydraulic filter (B) and cover (A).
4. Check hydraulic oil level on sight glass (C). Hydraulic oil should fill approximately 50% of the sight glass. Add hydraulic oil if necessary. Use a common hydraulic oil typically used in a tractor.

5.5 Change Hydraulic Oil

Change hydraulic oil and replace filter every 1000 hours. Change oil and replace filter every 500 hours if operating in extreme conditions.

NOTICE

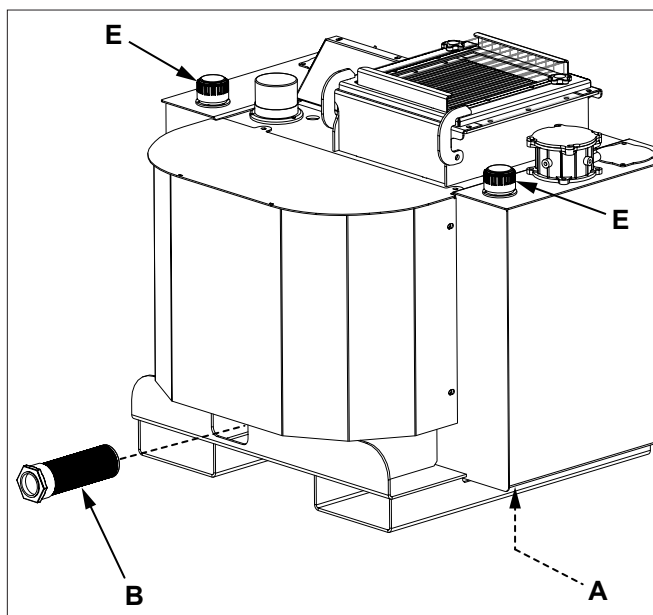
Dispose of waste properly.

Improper disposal of waste can harm the environment.

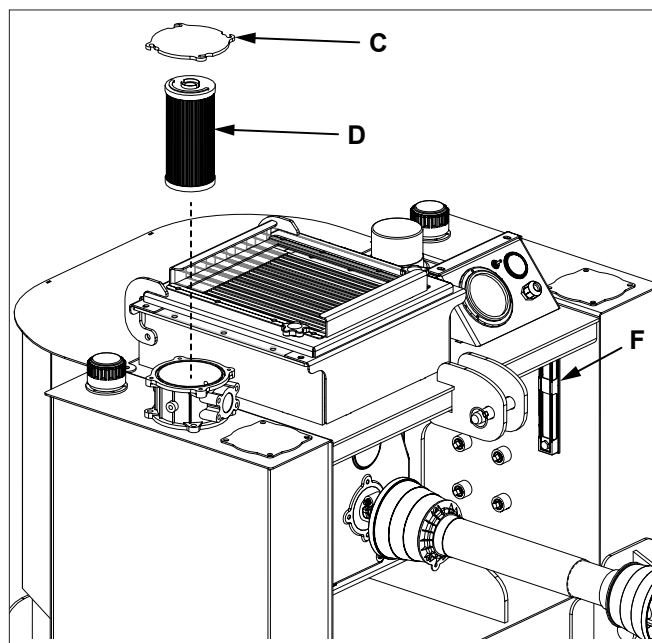
Use leak proof container when draining oils. Do not use food or beverage containers.

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

1. Park tractor on a level surface, park brake engaged, lift arms fully lowered, engine stopped and key removed.
2. Remove drain plug (A) and drain hydraulic oil into a suitable container. Install plug after draining.



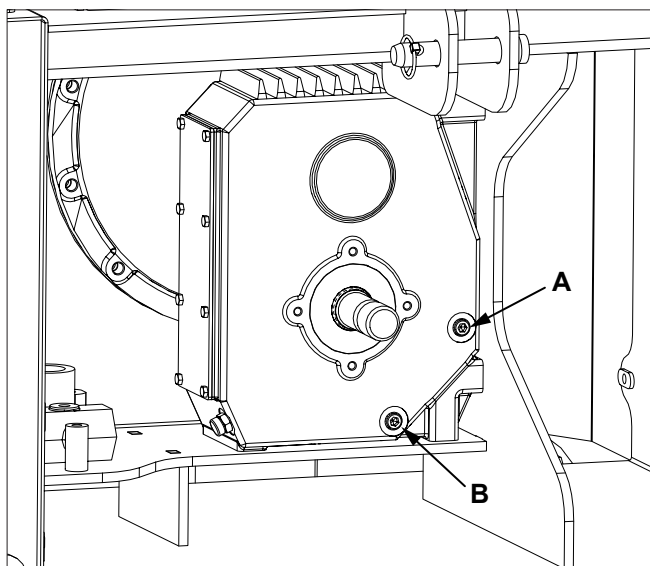
3. Remove suction hose and strainer (B). Clean strainer. Install strainer (B) and suction hose.
4. Remove cover (C) and hydraulic filter (D).



5. Install hydraulic filter (B) and cover (A).
6. Add hydraulic oil through filler caps (E).
7. Check hydraulic oil level on sight glass (F). Hydraulic oil should fill approximately 50% of the sight glass. Add hydraulic oil if necessary. Use a common hydraulic oil typically used in a tractor.

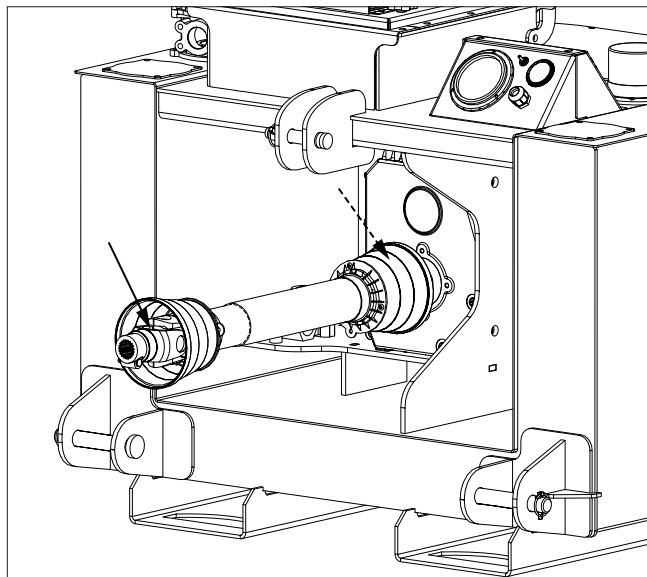
5.6 Check Gearbox Oil Level

1. Park tractor on a level surface, park brake engaged, lift arms fully lowered, engine stopped and key removed.
2. Remove plug (A). Oil level should be 2 in. (51 mm) below plug hole. Bend a piece of wire and insert into hole. Remove wire to check oil level. Add oil if low.
3. Install plug.
4. To change gearbox oil, remove plug (B) to drain oil. Dispose of used oil in an environmentally safe manner. Install plug (B) and fill gearbox through hole (A) until oil is 2 in. (51 mm) below plug hole (A).
5. Install plug (A).



5.7 Lubricate PTO Driveshaft

Lubricate U-joints on PTO driveshaft every 250 hours of use.



6 TROUBLESHOOTING

PROBLEM	CHECK	SOLUTION
High vibration, bouncing or shaking while running unit.	Misaligned PTO shaft - either vertically or horizontally (gear box side only).	Correctly align PTO shaft horizontally and vertically (gear box side only).
Tractor is not able to lift 3-point.	Tractor is too small.	Use proper size tractor.
Beacon is flashing.	Hydraulic oil is too hot.	Stop operation immediately. Check oil cooler screen for debris. Operate fan test switch to verify fan is operational. Run power pack at low-medium speed with no load to circulate and cool oil. Reduce load on power pack.

7 STORAGE

7.1 Storing Power Pack

1. Store power pack in a dry place.
2. Clean power pack thoroughly.
3. Check for loose or missing hardware.
4. Paint parts as necessary.
5. Store PTO driveshaft off the ground.

7.2 Remove From Storage

1. Review operator's manual and check adjustments.
2. Check gear box oil level. Add oil as necessary. (See Service and Maintenance section.)
3. If parts have been replaced, verify they run properly.

ATTACHMENT WARRANTY

This product is warranted to be free of defects in materials and workmanship under normal use and service, for a period of one year from the date of purchase. This warranty covers parts and labor, but does not cover misuse, negligence or dealer travel time.

Replacement of individual parts vs. assemblies are at the discretion of the manufacturer.

Products when purchased new are automatically registered for warranty on the date of purchase.

Warranty claims must include the bill of sale to the original purchaser.

This product must be operated and maintained in accordance with the Operating and Maintenance Instructions supplied with this unit.

Under no circumstances will the manufacturer be liable for any consequential damage or expense of any kind, including loss of profits. The manufacturer is under no circumstances liable for carrier unit damage of any kind. The manufacturer is not liable for the maintenance of the product.

This warranty is extended only to the original purchaser and there never is any warranty on anything sold through auction.

Units are to be returned at the customer's expense to the nearest Authorized Service Center. Damage in transit is not covered by warranty.

The work may be performed by the end user, if they are a qualified mechanic.

The Manufacturer's Liability is limited to repair of the product and/or replacement of parts and is given to the purchaser in lieu of all other remedies including incidental and consequential charges. There are no warranties, expressed or implied other than those specified herein. For the nearest Authorized Service Center call the manufacturer.

Model Number: _____ S/N: _____

Date of Purchase: _____ Owner's Name _____

For parts, specifications and the latest machine information please visit our website.

www.baumalight.com

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