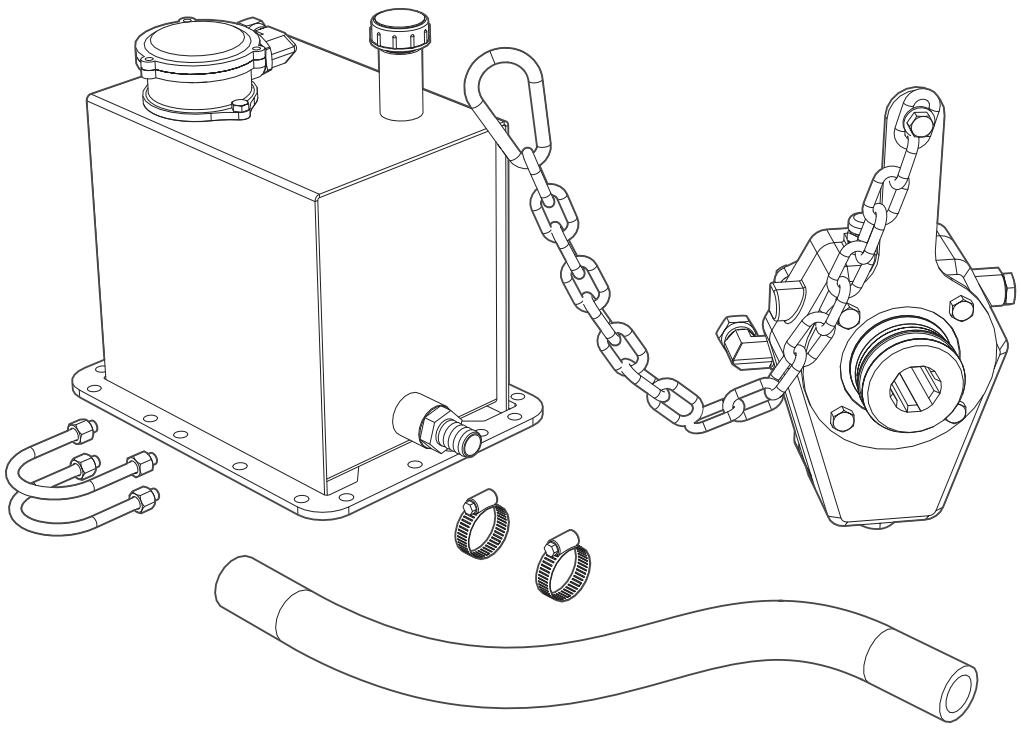
INSTALLATION INSTRUCTIONS

W4180
Hydraulic Pump Kit



Rev Apr-2024

Part Number: Z97820_En

WALLENSTEIN

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1. Introduction

⚠ WARNING!

Read the machine Operator's Manual before you install or use this accessory. Carefully read all the safety information and understand all the safety labels that are on the machine. If you do not read and obey the machine information, there is a risk of serious injury or machine damage.

The W4180 hydraulic pump kit is necessary to connect a WX310 or WX370 log splitter to a tractor that has a limited or nonexistent hydraulic system. The W4180 kit attaches to the tractor power take-off (PTO) shaft and uses the PTO to provide power to the pump kit hydraulic system.

Illustrations are provided for reference only. Not all details are shown.

For support or service, contact your local Wallenstein Equipment dealer or distributor.

1.1 Orientation

When describing controls throughout this manual, the directions for left side, right side, front, and rear are determined when sitting in the tractor driver's seat, facing the direction of forward travel.

2. Safety

⚠ WARNING!

Read the machine Operator's Manual before you install or use this accessory. Carefully read all the safety information and understand all the safety labels that are on the machine. If you do not read and obey the machine information, there is a risk of serious injury or machine damage.

2.1 Safety Alert Symbol

This Safety Alert Symbol means:

ATTENTION! BE ALERT!

YOUR SAFETY IS INVOLVED!

The safety alert symbol identifies important safety messages on the machine and in the manual.

When you see this symbol, be aware of the possibility of personal injury or death. Obey the instructions in the safety message.

2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** identify the severity of a hazard to anyone who uses the machine. The applicable signal word for each message was selected using the following guidelines:

DANGER

Identifies a hazardous situation that, if not avoided, **will** result in serious injury or death. This signal word is used to tell anyone who uses the machine about the most hazardous situations and machine components that cannot be guarded against.

WARNING

Identifies a hazardous situation that, if not avoided, **could** result in serious injury or death. This signal word includes hazards that occur when guards are removed and can be used to tell anyone who uses the machine about unsafe practices.

CAUTION

Identifies a hazardous situation that, if not avoided, **could** result in minor or moderate injury. It can also be used to tell anyone who uses the machine about unsafe practices.

IMPORTANT – Identifies a situation that could result in damage to the machine or property, but is not a personal injury hazard.

☞ Provides additional information that is helpful.

3. Accessory Components

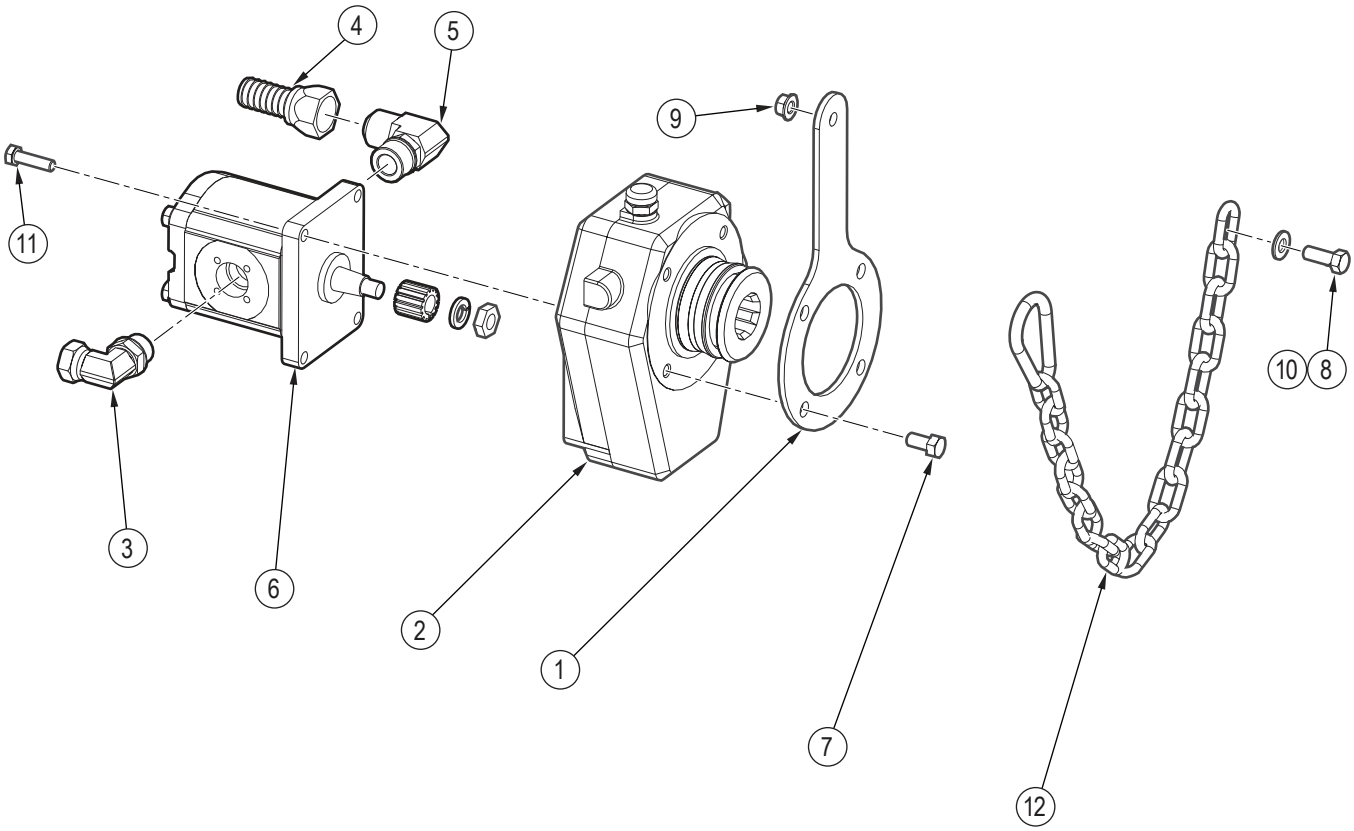


Figure 1–Gearbox and pump assembly components

Item	Part Number	Description	Quantity
1	2081L104	Connector plate	1
2	Z43102	Gearbox	1
3	Z51384	Elbow fitting, MORB x FPX 1008	1
4	Z51591	Straight fitting, MHB x FJICX 1212	1
5	Z516501	Elbow fitting, MJIC x MORB 1212	1
6	Z53106	Gear pump	1

Item	Part Number	Description	Quantity
7	Z71307	Hex bolt, 3/8" NC x 3/4"	4
8	Z71310	Hex bolt, 3/8" NC x 1"	1
9	Z72531	Serrated flange lock nut, 3/8" NC	1
10	Z73131	SAE washer, 3/8"	1
11	Z77153	Hex bolt, M8 x 1.25 x 30 mm	4
12	Z92303	Safety chain, 1/4" x 2'	1

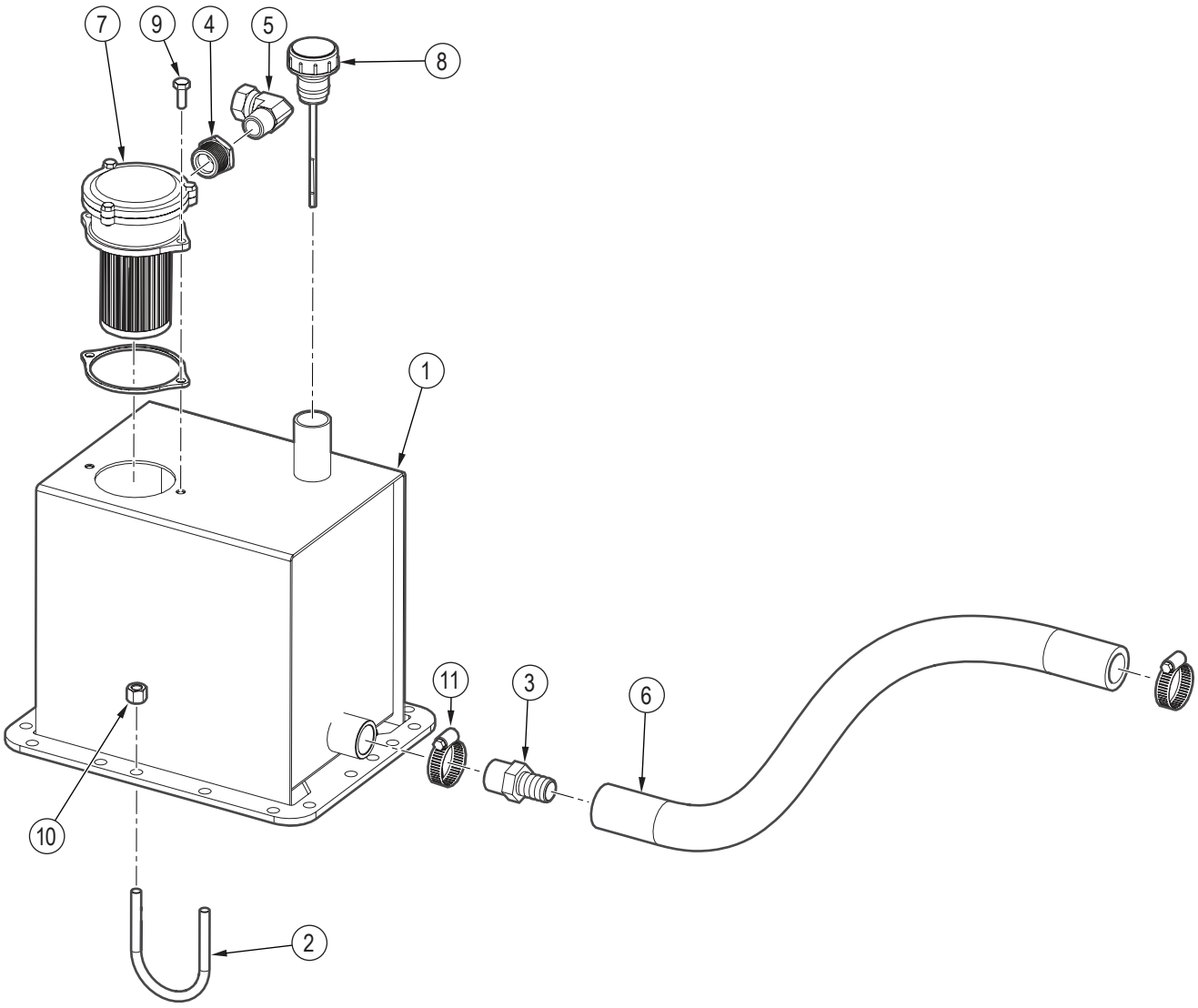


Figure 2–Hydraulic-fluid reservoir components

Item	Part Number	Description	Quantity
1	2081W102	Hydraulic-fluid reservoir	1
2	2081S102	U-bolt, 3/8" x 3-1/2"	2
3	Z51181	Straight fitting, MHB x MP 1212	1
4	Z51221	Straight fitting, MP x FP 1208	1
5	Z51331	Elbow fitting, MP x FPX 0808	1
6	Z52403	Hose, 3/4" x 36"	1

Item	Part Number	Description	Quantity
7	Z55201	Hydraulic-fluid filter, FP12 (includes the gasket)	1
8	Z55402	Cap and dipstick, 5"	1
9	Z71107	Hex bolt, 1/4" NC x 3/4"	2
10	Z72231	Hex lock nut, 3/8" NC	4
11	Z79401	Hose clamp, 1-1/2"	2

4. Prepare the Gearbox

IMPORTANT! Keep the work area clean to prevent internal gearbox and oil contamination.

Before you can install the W4180 kit, you must fill the gearbox with gear oil.

Do the following to prepare the gearbox:

Step 1

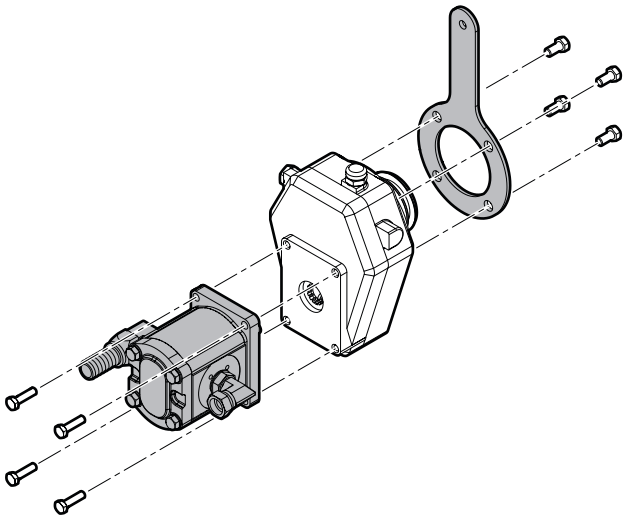
Assemble the gearbox and gear pump:

a. Align the gearbox with the gear pump.

b. Install the four bolts through the gear pump and into the gearbox.

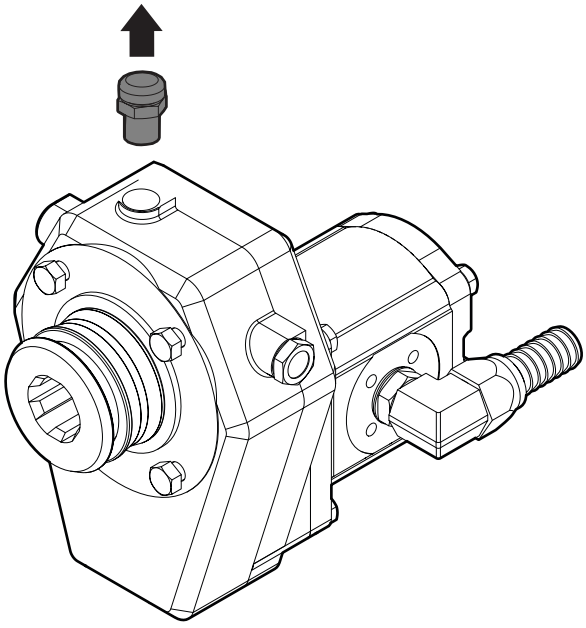
c. Align the connector plate with the gearbox.

d. Install the four bolts through the connector plate and into the gearbox.



Step 2

Remove the fill cap from the top of the gearbox.



Step 3

Add gear oil to the gearbox:

a. Put the end of a clean funnel in the gearbox fill hole.

b. Put 0.22 L (7.4 US oz) of 85W-140 gear oil into the gearbox.

c. Remove the funnel.

d. Install the fill cap.
Make sure that the cap is tight.

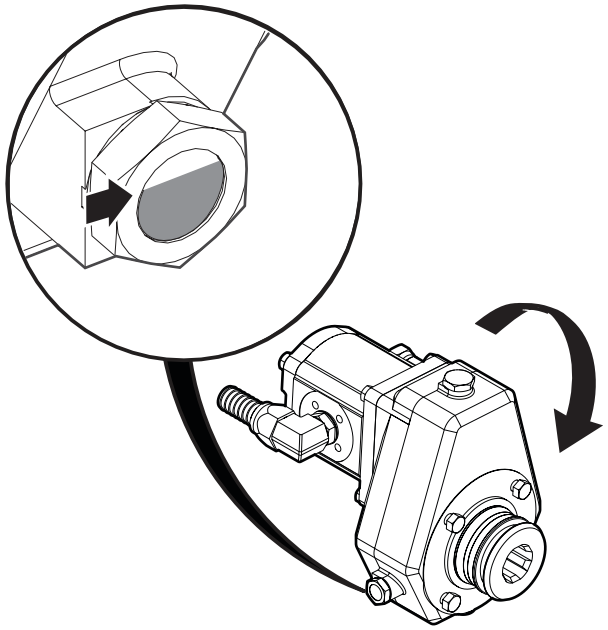
e. Clean the area around the fill cap and remove any spilled fluid.

f. Turn the gearbox and pump assembly until the bottom faces up.

g. Look at the gearbox sight glass.
The gearbox is full when the gear oil fills 3/4 of the sight glass.

h. Do one of the following:

- If the gear oil level is correct, the procedure is complete.
- If the gear oil level is not correct, turn the gearbox and pump assembly until the top faces up, and then do step 2 and 3 again.



5. Install a W4180 Kit

⚠ WARNING!

Read the installation instructions fully before you start. Make sure that the accessory is installed correctly. Do not change any components. Incorrect installation or changes to the equipment can cause serious injury or damage the machine.

The W4180 kit comes partially assembled. Illustrations in this document show the typical installation method. This procedure is one-time only; it is not necessary to do it again. After the pump kit is assembled, only minor maintenance is necessary.

5.1 Preparation

a. Remove all debris and make sure that no unauthorized people are in the work area.

b. Assemble the log splitter and keep it on the shipping skid.

c. Put the hydraulic pump kit on level ground, close to the tractor's three-point hitch (3PH).

d. Align the tractor's 3PH with the log splitter's 3PH connections.
Keep the tractor a sufficient distance from the log splitter.

e. Apply the tractor parking brake, stop the engine and remove the key.

5.2 Tools

- 3/8" and 9/16" wrenches and sockets.
- 13 mm wrench and socket
- Calibrated torque wrench.

5.3 Procedure

Do the following to install the W4180 kit on your tractor and log splitter:

Step 1

It helps to have two people to do this step.

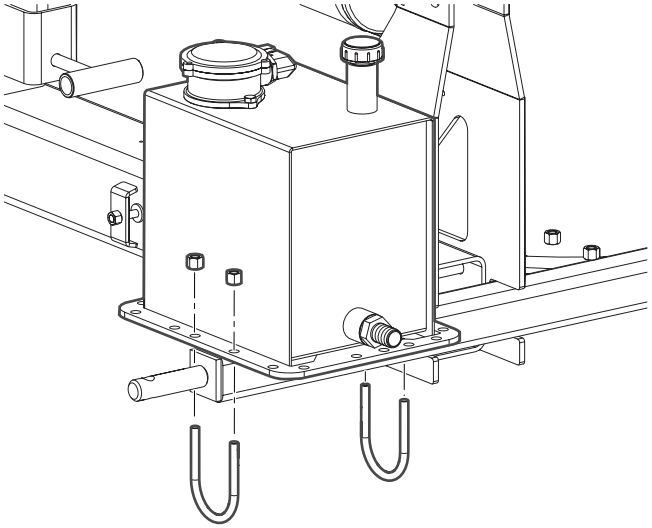
Install the hydraulic fluid reservoir on the right side of the log splitter:

a. Carefully, lift the hydraulic fluid reservoir and put it on top of the 3PH connection bar.

b. Align the bolt holes on each side of the reservoir flange with the front and rear of the 3PH connection bar.

c. Install the two U-bolts around the 3PH bar and through the reservoir flange.

d. Install the four nuts.



Step 2

Align the tractor with the log splitter:

a. Start the tractor engine.
For instructions, see the tractor Operator's Manual.

b. Put the tractor in reverse and move it until there is sufficient space to connect the hydraulic hoses from the log splitter to the tractor.

c. Apply the tractor parking brake, stop the engine, and remove the key.

Step 3

⚠ WARNING!

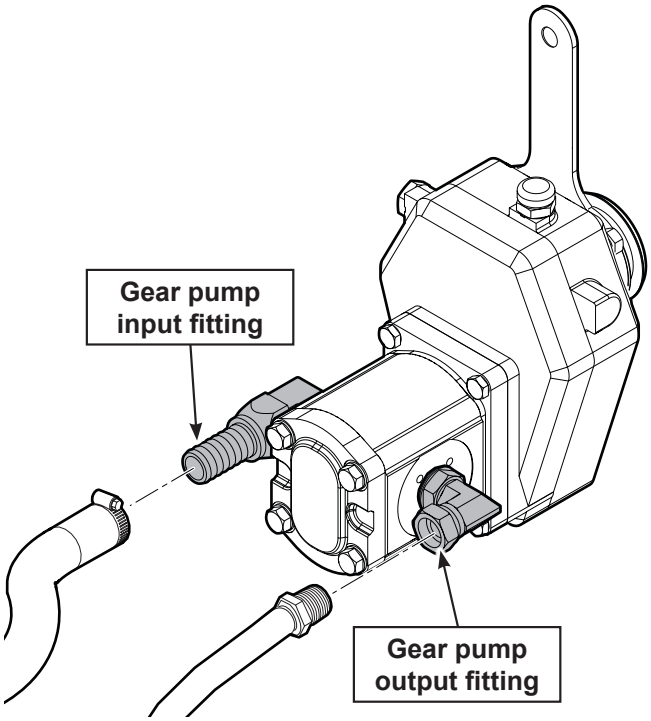
Make sure that all hydraulic hose connections are tight and torqued to the correct specifications before you operate the machine. Put on heavy gloves and use a piece of cardboard, wood, or plastic to check for leaks. Injection of pressurized hydraulic fluid from a leak can cause serious illness, injury, or death.

Connect the hydraulic hoses to the gear pump:

a. Connect the hydraulic hose that is included in the pump kit to the gear pump input fitting.

b. Remove the quick-connect fitting from the splitter-control input hose.

c. Connect the splitter-control input hose to the gear pump output fitting.



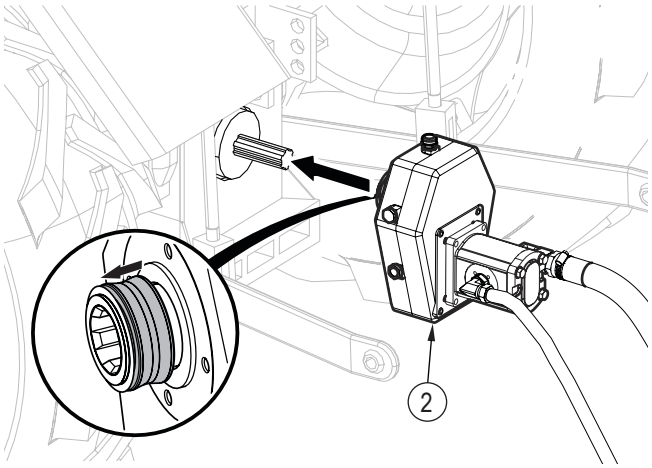
Step 4

Install the gearbox and gear pump assembly on the tractor:

a. Align the gearbox with the PTO shaft.
Make sure that the gearbox fill cap faces up.

b. Put the gearbox on the PTO shaft.

c. Pull the gearbox locking collar forward to lock the gearbox on the PTO shaft.

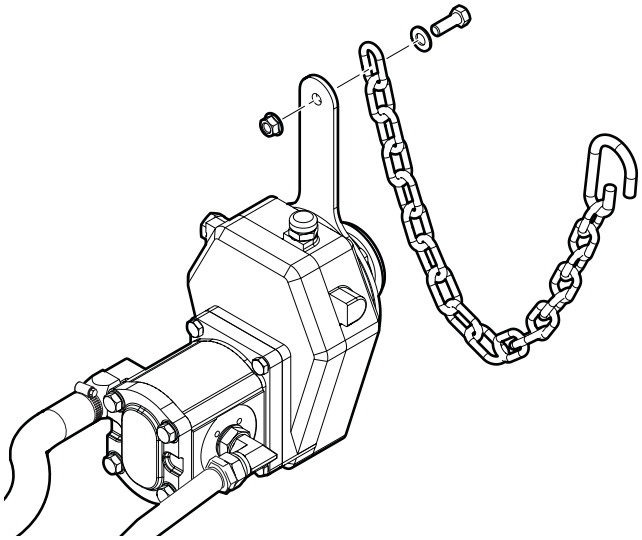


Step 5

Attach the safety chain to the tractor and the gearbox:

a. Install the fastener through the connector plate and the safety chain.

b. Put the safety chain around one of the 3PH side links. Connect the carabiner clip to one of the chain links. The safety chain keeps the gearbox and pump assembly from turning on the PTO shaft.



Step 6

⚠ WARNING!

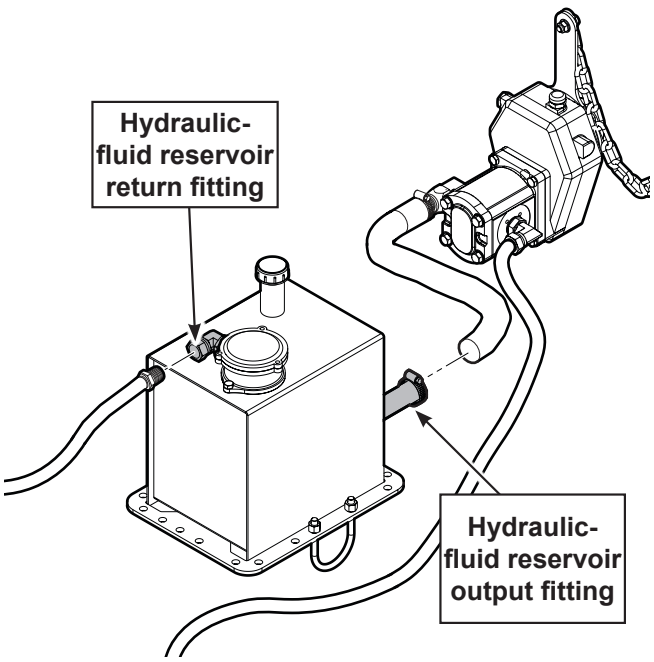
Make sure that all hydraulic hose connections are tight and torqued to the correct specifications before you operate the machine. Put on heavy gloves and use a piece of cardboard, wood, or plastic to check for leaks. Injection of pressurized hydraulic fluid from a leak can cause serious illness, injury, or death.

Connect the hydraulic hoses to the hydraulic-fluid reservoir:

a. Connect the hose that is attached to the gear pump input fitting to the hydraulic-reservoir output fitting.

b. Remove the quick-connect fitting from the log splitter output hose.

c. Connect the splitter-control output hose to the hydraulic-fluid reservoir return fitting.



Step 7

Put hydraulic fluid in the reservoir:

a. Remove the cap and dipstick.

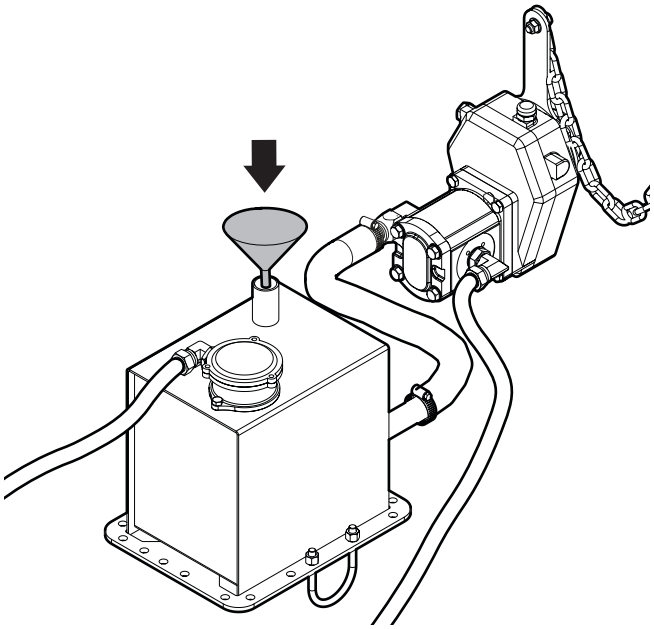
b. Put the end of a clean funnel in the reservoir fill hole.

c. Put 8.9 L (2.3 US gal) of Dexron III hydraulic fluid into the reservoir.

d. Remove the funnel.

e. Install the cap and dipstick.
Make sure that it is tight.

f. Clean the area around the cap and remove any spilled fluid.



Step 8

Attach the log splitter to your tractor.
For instructions, see the log splitter Operator's Manual.

Step 9

Use a calibrated torque wrench to torque all of the fasteners and hydraulic fittings to the correct specifications.

For the hydraulic pump kit torque specifications, see *Bolt Torque on page 20* and *Hydraulic Fitting Torque on page 21.* For tractor bolt torque specifications, see the tractor Operator's Manual.

6. Service and Maintenance

Regular preventive maintenance can improve performance and prolong the life of the machine. Machine maintenance is your responsibility.

6.1 Service and Maintenance Safety

⚠ WARNING!

Before you start service or maintenance work:

- **Set the machine to a safe condition.**
- **Wait for the machine to cool. Hot engine components and fluids can cause burns.**
- **Read and understand all the service and maintenance safety information.**

W041

⚠ WARNING!

Wear the personal protective equipment (PPE) that is necessary to do the work safely.

This includes, but is not limited to, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W135

⚠ WARNING!

After service and maintenance, install all of the guards and shields, and close all of the covers. Do not operate the machine with any guard or shield removed, or cover open.

W110

Put the machine in a safe condition before you start any service or maintenance:

SAFE CONDITION

1. Fully retract the wedge.
2. Lower the log splitter to the ground.
3. Stop the tractor. Make sure that the PTO shaft has stopped turning.
   For more information, see the tractor manufacturer's manual.
4. Set the tractor parking brake.
5. Remove the tractor ignition key.
   Keep the ignition key with you to prevent someone from starting the tractor.
6. Operate the hydraulic controls to release the pressure.
7. Wait for the hydraulic fluid to cool.

- Follow good shop practices:
  - Keep the work area clean and dry.
  - Ground electrical outlets and tools.
  - Have sufficient light for good visibility.
- Use tools that are in working condition and correct for the task. Make sure that you know how to use the tools before you use them.
- Do not work under equipment unless it is safely supported with blocks.
- Do not do service or maintenance work alone. Always have a minimum of two people in case an emergency situation occurs.
- Keep a fire extinguisher and first aid kit available at all times.
- When service or maintenance is complete, do the following:
  - Replace all guards and shields, and close the covers.
  - Torque the fasteners to the correct specifications.
  - Make sure that all the electrical, hydraulic, and fuel connections are connected in a safe working condition.
- Do not use gasoline or diesel fuel to clean parts. Use the correct cleaning product.
- When replacement parts are necessary, use genuine factory replacement parts to restore your machine to the original specifications. The manufacturer cannot be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

6.2 Accessory Break-In

After 60 to 80 hours of operation, change the gearbox oil. For instructions, see *Change the Gear Oil on page 18.*

6.3 Maintenance Schedule

Do the following maintenance tasks at the specified time or hour interval, whichever comes first.

Task	100 hours or annually	1500 hours	Reference
Change the hydraulic fluid.	◉		See *page 14.*
Clean the hydraulic fluid filter.	◉		See *page 16.*
Change the gearbox oil.		◉	See *page 18.*

6.4 Hydraulic System Maintenance

The hydraulic system provides pressurized hydraulic fluid to the splitter control. The hydraulic system extends or retracts the wedge.

6.4.1 Hydraulic System Maintenance Safety

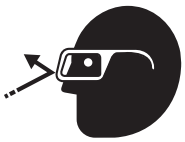
⚠ CAUTION!

Risk of burns to exposed skin. Hydraulic fluid gets hot during operation, which makes hoses, tubes, and other parts hot as well. Wait for the fluid and components to cool before you start maintenance or service.

IMPORTANT! Optimal hydraulic fluid temperatures are between 120° F and 140° F (50° C and 60° C). If the hydraulic fluid temperature is higher than 180° F (82° C), it can cause seal damage and degrade the hydraulic fluid. High hydraulic fluid temperatures often indicate that there is a problem.

- Keep all the hydraulic system components clean and in good condition.
- Relieve pressure on the hydraulic system before working with it. The hydraulic system operates under extremely high pressure.
- Before you apply pressure to the hydraulic system, make sure that all the connections are tight, and the hoses, tubes, and fittings are not damaged.
- Immediately replace a hydraulic hose or tube that shows signs of swelling, wear, leaks, or damage. A swollen, worn, damaged, or leaking hose or tube can burst and cause a hazardous and unsafe condition.
- High-pressure hydraulic fluid leaks:
  - Do not use your hand to check for hydraulic fluid leaks. Injection of pressurized hydraulic fluid can cause serious illness, injury, or death. Put on heavy gloves and use a piece of cardboard, wood, or plastic to check for leaks.

  - Put on the correct eye protection when doing an inspection for a high-pressure hydraulic leak.



  - Get medical attention immediately if you are injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or a toxic reaction can occur after hydraulic fluid pierces the skin.
- Do not make any temporary repairs to the hydraulic hoses, tubes, or fittings. Do not use tape, clamps, or cements to attempt a repair. This can cause sudden failure and create a hazardous and unsafe condition.
- Do not bend or strike high-pressure hoses or reinstall them in a bent or damaged condition.
- Make sure that hydraulic hoses are routed to avoid chafing.
- Do not adjust a pressure relief valve or other pressure-limiting device to a pressure that is higher than the specified rating.

6.4.2 Change the Hydraulic Fluid

⚠ CAUTION!

Risk of burns to exposed skin. Hydraulic fluid gets hot during operation, which makes hoses, tubes, and other parts hot as well. Wait for the fluid and components to cool before you start maintenance or service.

Change the hydraulic fluid every 100 hours of operation or annually.

Wait for the machine to cool before you change the hydraulic fluid. However, it is recommended to drain the fluid while it is warm. When the fluid is cool, any contaminants collect in the bottom of the reservoir.

Step 1

Set the machine to a safe condition.
For instructions, see *Safe Condition on page 12.*

Step 2

Put a drain pan below the hydraulic fluid reservoir.
Make sure that the size of the drain pan is sufficient to collect and contain the hydraulic fluid that will drain from the reservoir.

Step 3

Remove the hydraulic fluid from the reservoir:

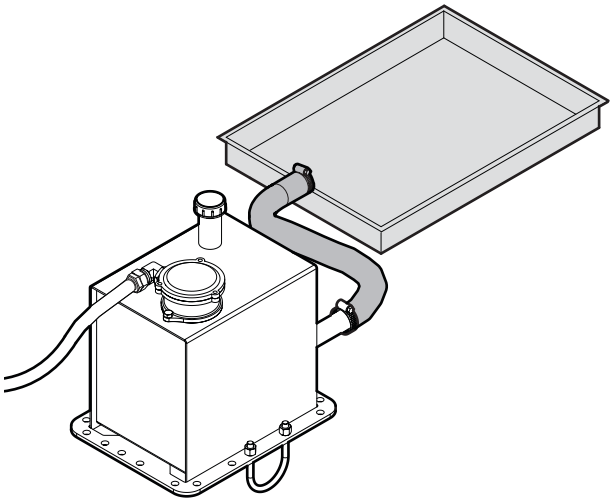
a. Disconnect the hose from the gear pump input fitting. Put the end of the hose on the drain pan.

b. Wait for the hydraulic fluid to fully drain from the reservoir.

c. Connect the hose to the gear pump input fitting.

d. Use a calibrated torque wrench to torque the hydraulic fitting to the correct specifications.
For hydraulic fitting torque specifications, see *Hydraulic Fitting Torque on page 21.*

e. Use an environmentally safe method to discard the used hydraulic fluid.



Step 4

Put the correct type and quantity of hydraulic fluid into the reservoir.
For instructions, see *Step 7 on page 11.*

Step 5

Flush the hydraulic system with pressurized fluid:

a. Start the machine.
For instructions, see the log splitter Operator's Manual.

b. Operate the hydraulic controls for 1 to 2 minutes to remove air from the hydraulic system.

c. Set the machine to a safe condition.
Make sure that the hydraulic fluid and the components are cool.
For instructions, see *Safe Condition on page 12.*

d. Remove the hydraulic fluid cap and dipstick.

e. Do one of the following:

- If the hydraulic fluid is at the fill line on the dipstick, install the cap and dipstick. The procedure is complete.
  Make sure that the cap is tight.
- If the hydraulic fluid is not at the fill line on the dipstick, put more hydraulic fluid in the reservoir, and then do step 5 again.
  For more information, see *Step 7 on page 11.*

6.4.3 Clean the Hydraulic Fluid Filter

⚠ CAUTION!

Risk of burns to exposed skin. Hydraulic fluid gets hot during operation, which makes hoses, tubes, and other parts hot as well. Wait for the fluid and components to cool before you start maintenance or service.

Clean the hydraulic fluid filter every 100 hours of operation or annually.

Step 1

Set the machine to a safe condition.
For instructions, see *Safe Condition on page 12.*

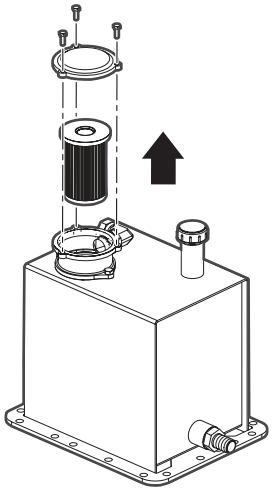
Step 2

Remove the hydraulic fluid filter:

a. Remove the three fasteners from the hydraulic-fluid filter cover.

b. Remove the filter cover.

c. Lift the filter out of the hydraulic-fluid reservoir.



Step 3

Clean the hydraulic-fluid filter with a product that is intended to clean hydraulic system components.
Do not use gasoline or diesel fuel to clean the filter.

Step 4

Examine the hydraulic-fluid filter. If the filter is damaged, replace it.

Step 5

Install the hydraulic-fluid filter:

a. Put the hydraulic-fluid filter in the hole in the hydraulic-fluid reservoir.

b. Align the hydraulic-fluid filter cover with the filter.

c. Install the three fasteners.

6.5 Gearbox Maintenance

⚠ CAUTION!

Do not remove the gearbox or the gear pump while the tractor is on or the PTO shaft is turning. Put the machine and tractor in a safe condition before you do any maintenance. Your hands, fingers, hair, jewelry, loose clothing, or other things can become entangled in the PTO shaft and cause personal injury.

⚠ CAUTION!

Do not remove the gearbox from the tractor or change the gear oil when the gearbox is hot. Wait for the gear oil and components to cool before you start maintenance or service.

6.5.1 Change the Gear Oil

Change the gear oil after the first 60 to 80 hours of operation and every 1500 hours of operation after that.

Step 1

Set the machine to a safe condition.
For instructions, see *Safe Condition on page 12.*

Step 2

Put a drain pan under the gearbox.
Make sure that the size of the drain pan is sufficient to collect and contain the gear oil that will drain from the gearbox.

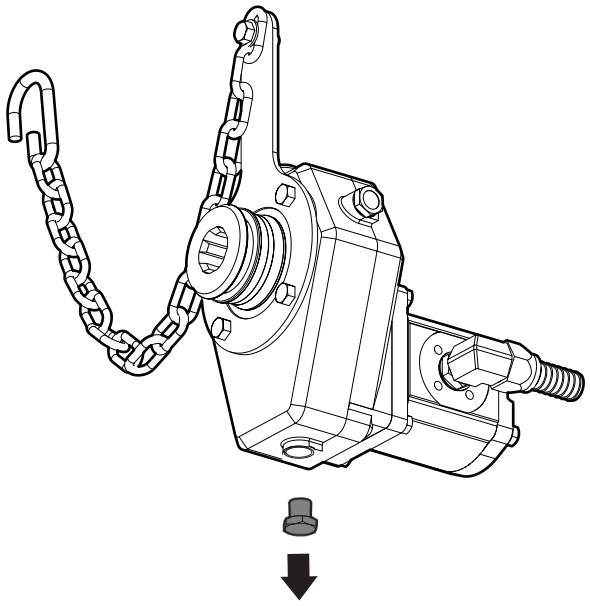
Step 3

Remove the gear oil from the gearbox:

a. Remove the drain cap from the bottom of the gearbox.

b. Wait for the gear oil to fully drain from the gearbox.

c. Install the drain cap in the bottom of the gearbox.
Make sure that the drain cap is tight.



Step 4

Fill the gearbox with the correct type and quantity of gear oil. For instructions, see *Step 2 on page 6* and *Step 3 on page 7.*

Step 5

Use an environmentally safe method to discard the used gear oil.

7. Torque Specifications

This section provides general torque specifications for your reference.

7.1 Bolt Torque

IMPORTANT! If you replace hardware, use fasteners of the same grade.

IMPORTANT! The torque specifications in these tables are for non-greased or non-oiled threads. Do not grease or oil fastener threads unless otherwise indicated. When using a thread lock, increase the specified torque 5%.

☞ Bolt grades are identified by the marks on top of the bolt head.

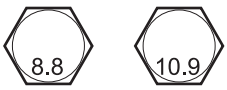
These bolt torque specification tables give the correct torque settings for common bolts and capscrews. Tighten all bolts to the torque that is specified in the table, unless otherwise indicated. Check the bolt tightness periodically.

Imperial Bolt Torque Specifications

Bolt Diameter	Torque					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4 inch	6	8	9	12	12	17
5/16 inch	10	13	19	25	27	36
3/8 inch	20	27	33	45	45	63
7/16 inch	30	41	53	72	75	100
1/2 inch	45	61	80	110	115	155
9/16 inch	60	95	115	155	165	220
5/8 inch	95	128	160	215	220	305
3/4 inch	165	225	290	390	400	540
7/8 inch	170	230	420	570	650	880

Metric Bolt Torque Specifications

Bolt Diameter	Torque			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1,495	1,550	2,100



7.2 Hydraulic Fitting Torque

Tighten flare-type tube fittings:

a. Check the flare and flare seat for defects that might cause leaks.

b. Align the tube with the fitting before tightening.

c. Hand-tighten the swivel nut until it is snug.

d. To prevent the tube from twisting, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second wrench. Torque the fitting to the correct specification.

If a torque wrench is not available, use the flats from finger tight (FFFT) method.

Hydraulic Fitting Torque Specifications

Tube size OD	Hex size across flats	Torque		Flats from finger tight	
Inches	Inches	lbf•ft	N•m	Flats	Turns
3/16	7/16	6	8	2	1/6
1/4	9/16	11–12	15–17	2	1/6
5/16	5/8	14–16	19–22	2	1/6
3/8	11/16	20–22	27–30	1-1/4	1/6
1/2	7/8	44–48	59–65	1	1/6
5/8	1	50–58	68–79	1	1/6
3/4	1-1/4	79–88	107–119	1	1/8
1	1-5/8	117–125	158–170	1	1/8

Specifications are for non-lubricated connections.

8. Warranty

LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five Years for Consumer Use

Two Years for Commercial/Rental Use

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

This warranty does not cover the following:

1) Normal maintenance or adjustments
2) Normal replacement of wearable and service parts
3) Consequential damage, indirect damage, or loss of profits
4) Damages resulting from:
   - Misuse, negligence, accident, theft or fire
   - Use of improper or insufficient fuel, fluids or lubricants
   - Use of parts or aftermarket accessories other than genuine Wallenstein parts
   - Modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
   - Any device or accessories installed by parties other than an authorized dealer
5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at www.wallensteinequipment.com

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