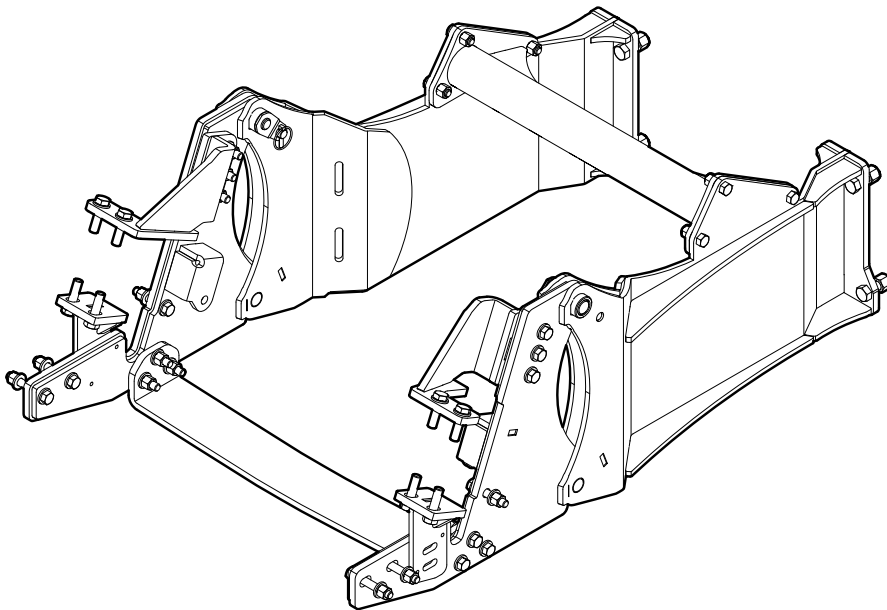


INSTALLATION INSTRUCTIONS

3633A150 Backhoe Subframe Kit



Introduction

This subframe is designed to work with Wallenstein Backhoes.

The Wallenstein backhoe is designed to work with a wide variety of tractors. With this Subframe Kit you can easily and quickly attach and detach your Wallenstein backhoe to your tractor.

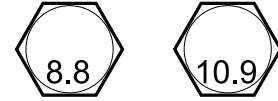
Some of the illustrations shown in this manual are general, but important features are detailed in order to install your kit successfully.

Please review the backhoe operators manual. Safe, efficient and trouble free operation of your Wallenstein Backhoe requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

NOTE: All parts and hardware shown in the Subframe Kit Parts illustration are included in the kit. Make sure the parts are not damaged from shipping.

IMPORTANT! This installation kit includes both metric and Imperial fasteners. Bolt type is identified by looking at the bolt head markings.

Metric

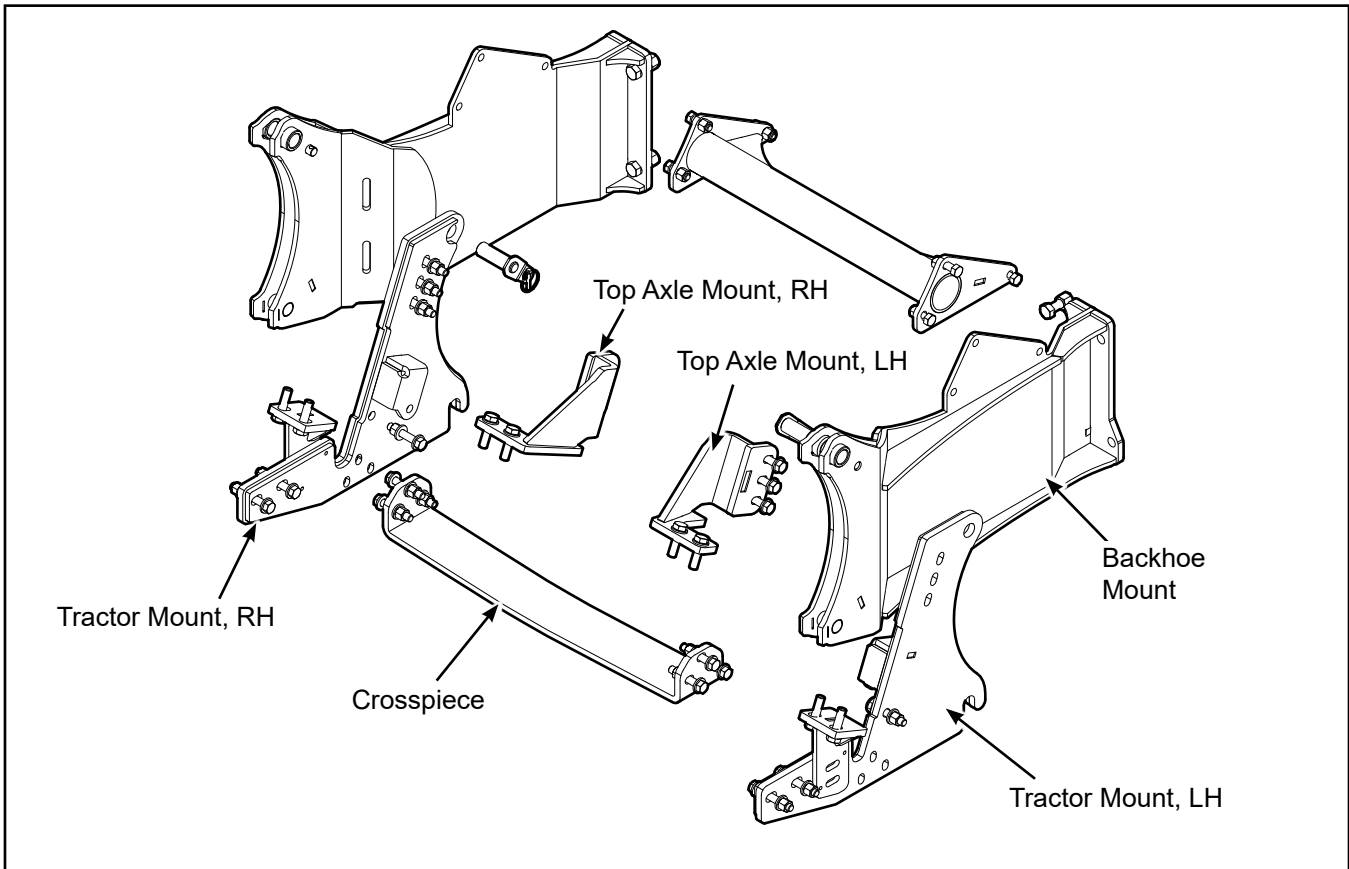


Imperial



Operator Orientation

The directions left, right, front and rear as mentioned throughout this instruction, are determined when sitting in the tractor driver's seat, facing the direction of forward travel.



Safety Rules

WARNING!

ATTENTION! BE ALERT! YOUR SAFETY IS INVOLVED!

Working around equipment can be dangerous. Always be aware of bystanders, the area around the machine, and what to do in case of emergency.

Learn how to install and operate the new equipment safely. Read and understand these instructions before attempting installation.

W007

WARNING!

Before operating the backhoe:

- Check that all pins and adapter plates are secure and correctly attached to the sub-frame.
- Ensure that all fasteners are correctly torqued according to the bolt torque table.
- Inspect and test all hydraulic connections.
- Thoroughly read the backhoe operator's manual for safe operation.

W008

WARNING!

Make sure the tractor is parked on a level surface with the front wheels chocked to prevent movement. Use properly rated jack stands to support the tractor.

W009

WARNING!

Make sure the subframe, backhoe and tractor are positioned on dry, level ground. The area around them should be clear and free of debris. Make sure the tractor is shut off, the brake is applied, and key is removed.

WARNING!

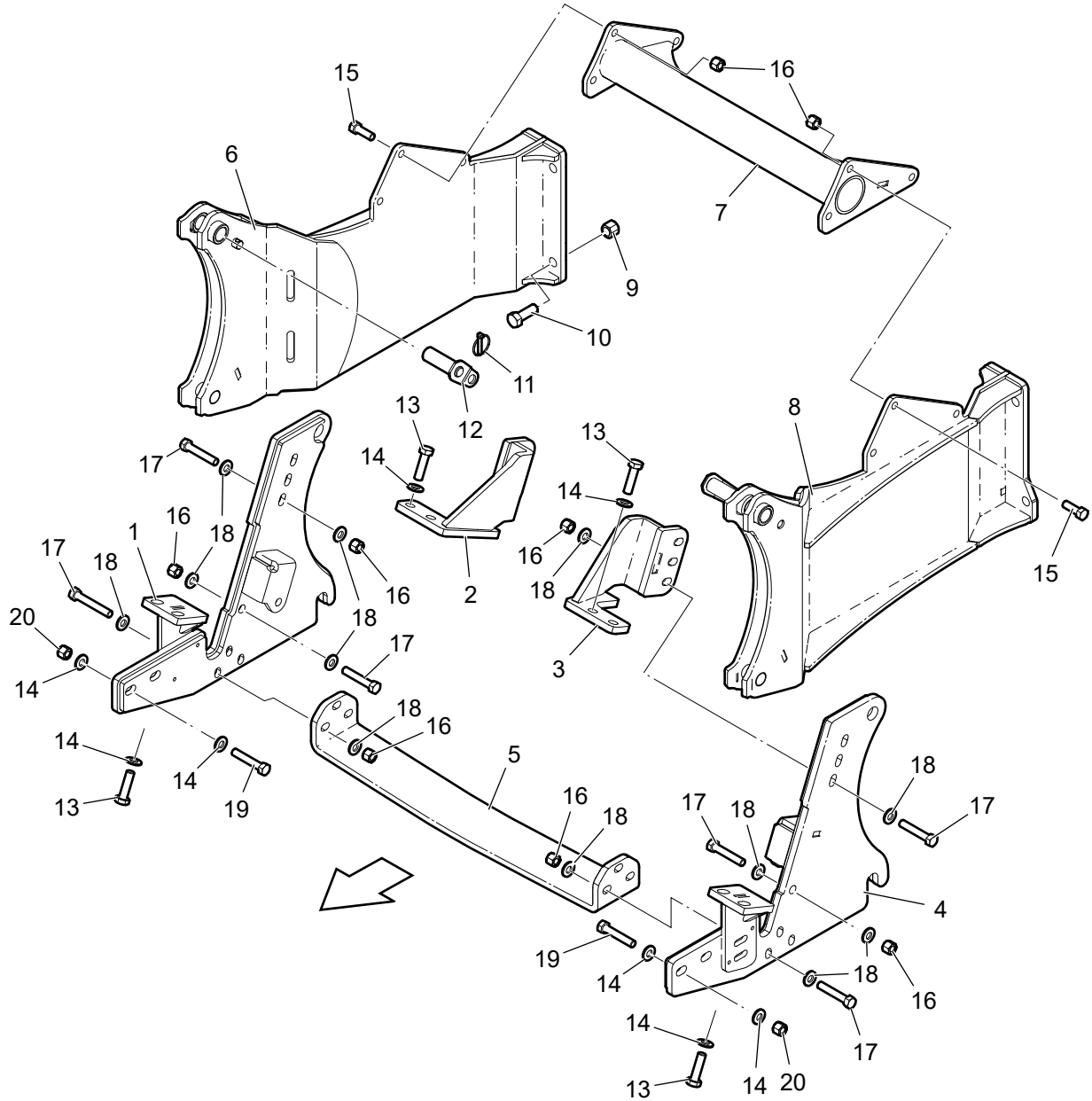
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

WARNING!

Proceed with caution. During the course of assembly, the ROPS / cab support bolts are removed. Support for the cab may be required when removing cab mounting bolts. Remove and replace bolts one side at a time.

- Do not install backhoe and required counterweights on tractor if the total tractor and equipment weight exceeds the tractor ROPS weight certification.
- Make sure equipment is properly mounted, adjusted and in good operating condition.
- Make sure that all safety shielding and safety signs are properly installed and in good condition.

Subframe Kit Parts



| Item No. | Part No. | Description | Qty |
|----------|-----------|---------------------------|-----|
| 1 | 3633W150H | Tractor Mount, RH | 1 |
| 2 | 3633W151H | Top Axle Mount, RH | 1 |
| 3 | 3633W151 | Top Axle Mount, LH | 1 |
| 4 | 3633W150 | Tractor Mount, LH | 1 |
| 5 | 3633L157 | Crosspiece | 1 |
| 6 | 3633W180H | Backhoe Link, RH | 1 |
| 7 | 3633W181 | Crossmember | 1 |
| 8 | 3633W180 | Backhoe Link, LH | 1 |
| 9 | Z72261 | 5/8"NC Hex Locknut | 8 |
| 10 | Z71617 | Hex Bolt, 5/8"NC x 1-3/4" | 8 |

| Item No. | Part No. | Description | Qty |
|----------|----------|----------------------------|-----|
| 11 | Z12120 | Lynch Pin | 2 |
| 12 | 3600W101 | Subframe Top Pin | 2 |
| 13 | Z77683 | Hex Bolt M14 x 1.5 x 50 mm | 8 |
| 14 | Z77381 | Flatwasher M14 | 12 |
| 15 | Z71515 | Hex Bolt 1/2"NC x 1-1/2" | 6 |
| 16 | Z72251 | Hex Locknut 1/2"NC | 20 |
| 17 | Z71527 | Hex Bolt 1/2"NC x 2-3/4" | 14 |
| 18 | Z73151 | Flatwasher 1/2" | 36 |
| 19 | Z77188 | Hex Bolt M14 x 2.0 x 80 mm | 4 |
| 20 | Z77284 | Locknut M14 | 4 |

Preparation:



Removing the rear tractor wheels can make the installation easier.

Position the tractor with the backhoe lined up behind it.

- Backhoe should be assembled but left on the shipping skid.
- The tractor must have a front bucket loader installed. The front loader is required to offset the weight of the backhoe, as well as provide the stability required to operate the backhoe safely.
- The loader should be in the lowered position, resting on the ground.

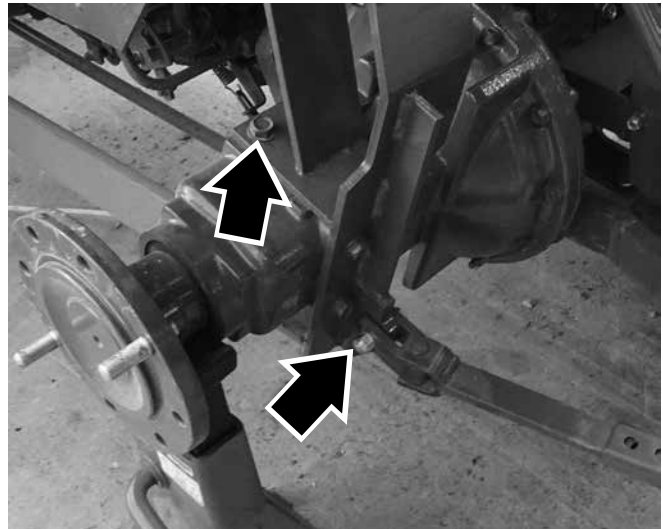
Tools required:

- Basic shop tools
- M21 wrenches and sockets
- 3/4", 15/16" wrenches and sockets
- Overhead lifting device
- Jack stands
- Torque wrench

Step 1

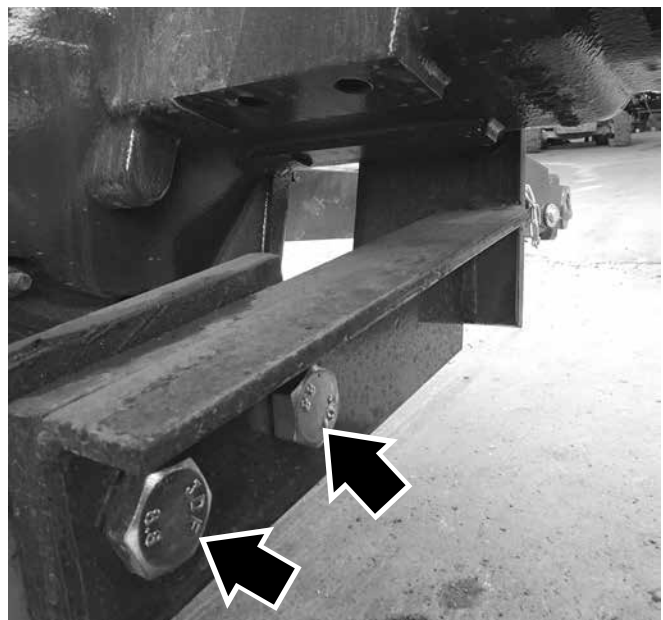
Starting on the left-hand side of the tractor, remove the Anti-sway Bar from the Axle Mount. Swing the lift arm in as far as it will go and secure it out of the way.

Remove the two cab/ROPS mount bolts and washers on the top side of the axle.



Step 2

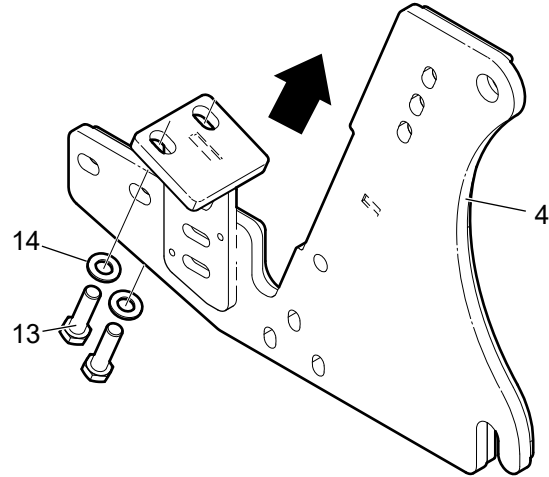
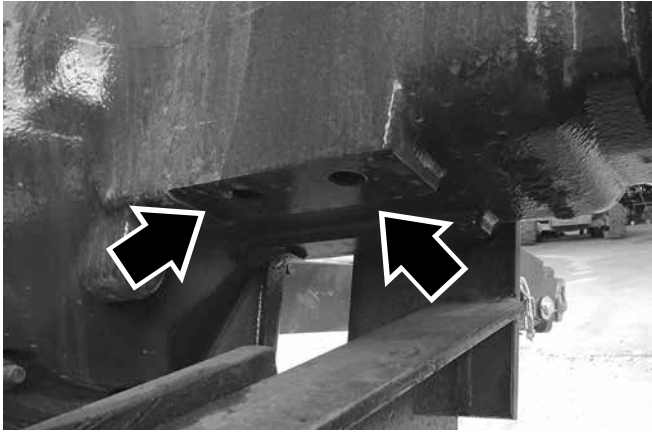
Remove the hardware connecting the lower leg of the cab/ROPS mount to the Load Rail under the axle. Discard as they are not reused on assembly.



Step 3

Install **(3633W150)** Tractor Mount, LH (item 4) to the underside of the axle. Use the two existing tapped holes in the axle housing to bolt the plate up using two **(Z77683)** M14 x 1.5 x 50 mm Hex Bolts (item 13) and **(Z77381)** M14 Flatwashers (item 14) from the kit.

Hand tighten only for now.

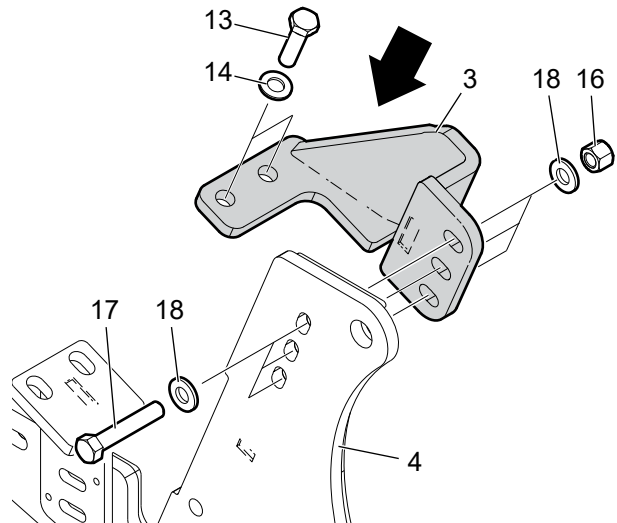


Step 4

Install **(3633W151)** Top Axle Mount, LH (item 3) over the top of the axle around the cab/ROPS mount. Bolt it to the axle using two **(Z77683)** M14 x 1.5 x 50 mm Hex Bolt (item 13) and **(Z77381)** M14 Flatwashers (item 14).

Bolt it to **(3633W150)** Tractor Mount, LH (item 4) that was installed to the underside of the axle in Step 3. Use three **(Z71527)** 1/2"NC x 2-3/4" Hex Bolts (item 17), **(Z72251)** 1/2" Locknuts (item 16), with one **(Z73151)** Flatwasher (item 18) per side.

Hand tighten only for now.



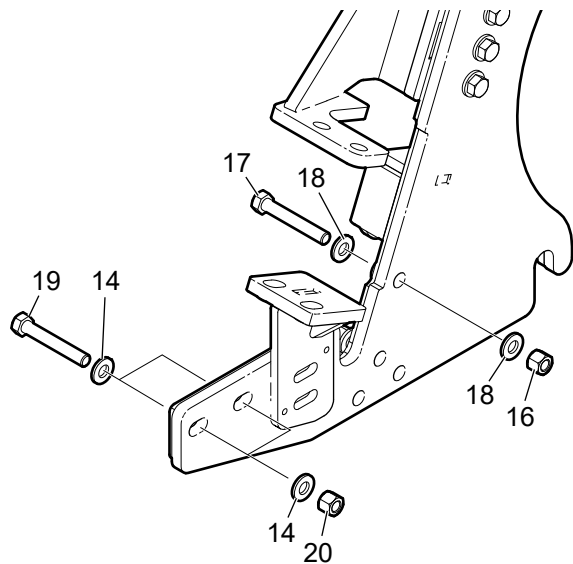
Step 5

Fasten the bottom side of **(3633W150)** Tractor Mount, LH to the Load Rail disconnected in Step 2.

In the lower two holes, use two **(Z77188)** M14 x 2.0 x 80 mm Hex Bolts (item 19), **(Z77284)** M14 Hex Locknut (item 20), and one per side **(Z77381)** M14 Flatwasher (item 14).

In the upper hole, use **(Z71527)** 1/2"NC x 2-3/4"NC Hex Bolt (item 17), **(Z72251)** 1/2"NC Hex Locknut (item 16), and one per side **(Z73151)** 1/2" Flatwasher (item 18).

Hand tighten only for now.



Step 6

Reconnect the Anti-sway Bar to the mount point provided on the Tractor Mount.

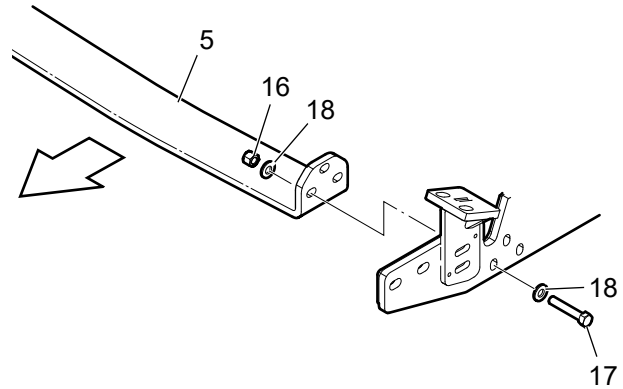
Perform Steps 1–5 on the other side of the tractor using the RH parts.

Hand tighten only for now.

Step 7

Install (**3633L157**) Crosspiece (item 5) between the left- and right-hand side tractor mounts on the underside of the tractor.

On each end, use three (**Z71527**) 1/2"NC x 2-3/4"NC Hex Bolts (item 17), (**Z72251**) 1/2"NC Hex Locknuts (item 16), and one per side (**Z73151**) 1/2" Flatwasher (item 18).



Step 8

Torque-tighten all bolted connections on the Subframe:

1/2" Fasteners – 80 lbf•ft (110 N•m)

M14 Fasteners – 83 lbf•ft (112 N•m)

The subframe should remain on the tractor and not be removed. Check that the lift arms move freely with the subframe installed.

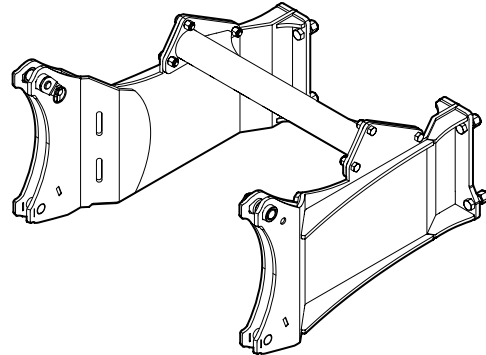
If the wheels were removed, they can be reinstalled.

Step 9

Assemble the Backhoe Mount (if not already assembled).

Bolt together (**3633W180**) Backhoe Link, LH (8), (**3633W181**) Crossmember (7) and (**3633W180H**) Backhoe Link, RH (6) using three per side of (**Z71515**) 1/2"NC Hex Bolts (15) and (**Z72251**) 1/2" Hex Locknuts (16).

Torque-tighten to 80 lbf•ft (110 N•m).



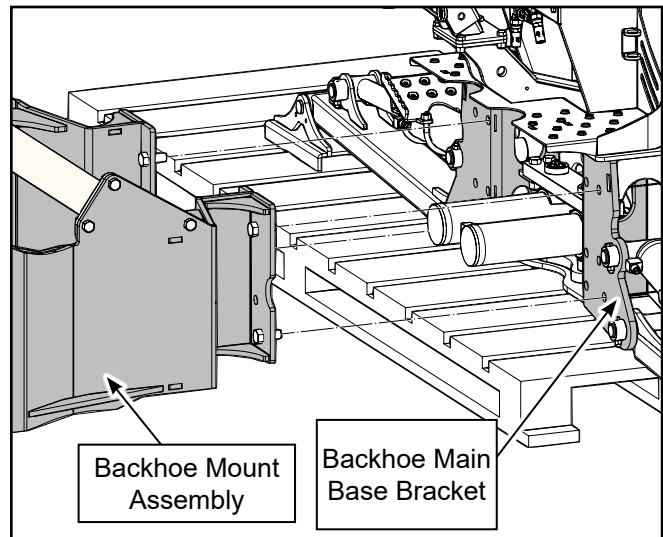
Step 10

Take the backhoe subframe mount and attach it to the backhoe on main base bracket. Use the 5/8" NC bolts and nuts provided — 4 for each left- and right-hand sides.

Torque-tighten bolts to 160 lbf•ft (215 N•m).


Step 11

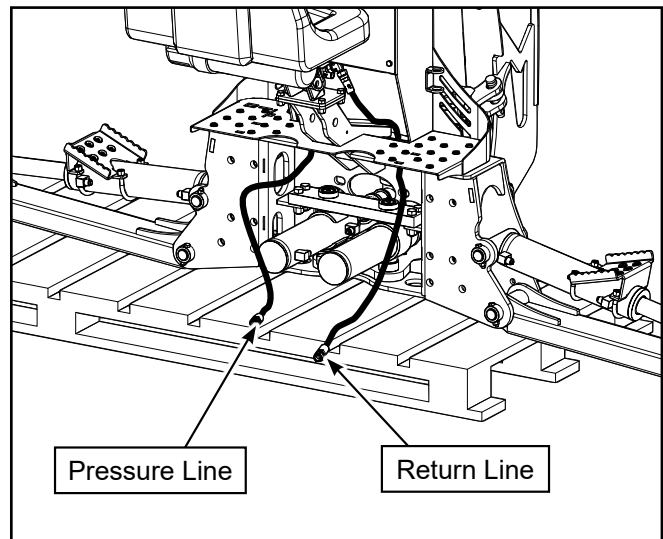
Align and reverse the tractor up to the bracket. Get close enough to attach the hydraulic hoses to the backhoe.



Step 12

Attach the hydraulic lines from the backhoe to the tractor. See illustration.

 **NOTE:** *The backhoe is equipped with a directional control valve and does not allow reverse flow if pressure and return lines are connected incorrectly.*



WARNING!

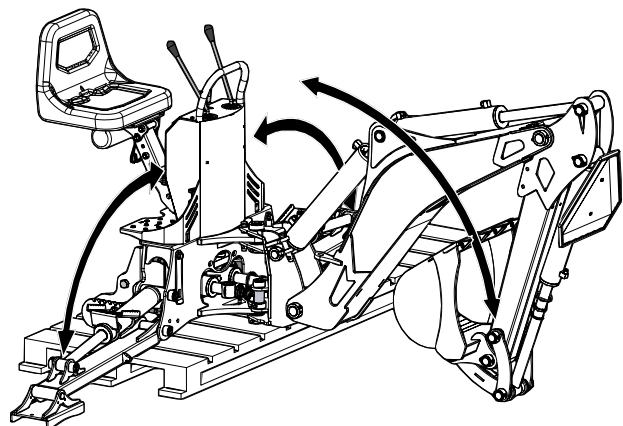
When operating the boom and stabilizers, ensure the area is clear of bystanders and operator is safely positioned.

Step 13

Carefully use the dipper arm / stabilizer legs to tilt the bracket / backhoe on an angle, so that the bottom attach points line up with the hooks on the bottom of the subframe on the tractor.

Step 14

Carefully use the backhoe hydraulics to raise the bracket assembly into the bottom of the hooks for positive attachment.

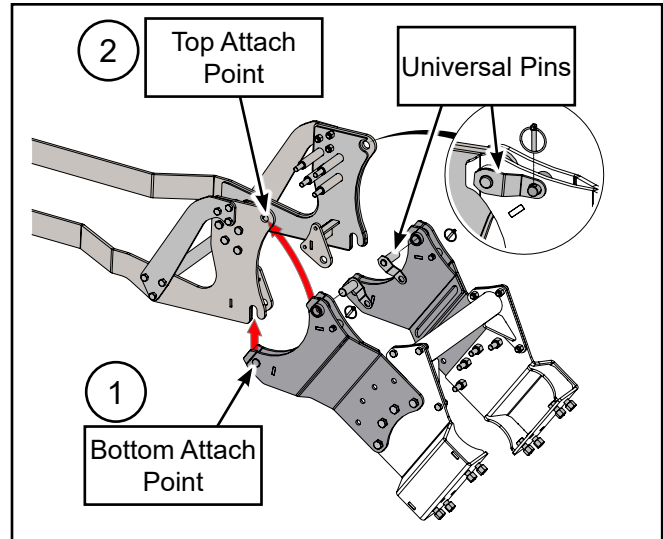


Step 15

Carefully use the backhoe hydraulics to rotate the bracket assembly into the top attach points on the subframe. Rotate the bracket until it reaches the stop. The pin holes will then be aligned.

Step 16

Insert the two welded universal pins into the pin holes and secure with lynch pins.



Generic illustration showing hitching principal.

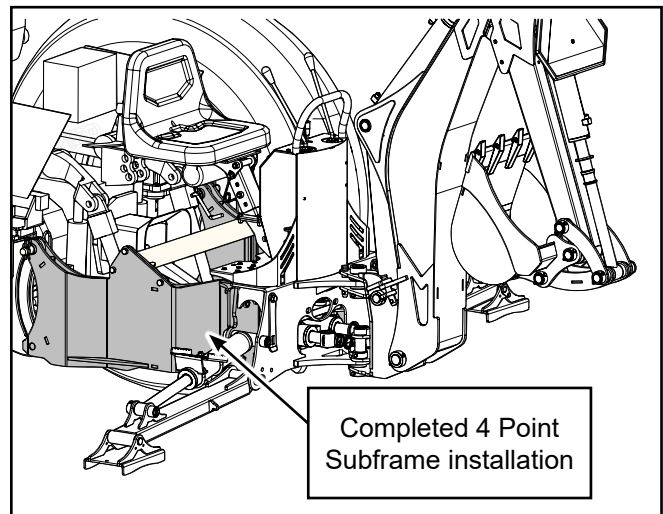
Step 17

Check that all attach points are secure, and make sure all bolts / nuts are tightened and torqued.

Test the hydraulics: lift the stabilizer legs and remove the skid. Lower the stabilizers and test all boom functions.

Check that all moving parts have clearance and do not interfere with the subframe.

The subframe installation is now complete.




Common Bolt Torque values

Checking Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

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

IMPORTANT! Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

 **NOTE:** Bolt grades are identified by their head markings.

| Imperial Bolt Torque Specifications | | | | | | |
|-------------------------------------|--------------|-----|-----------|-----|-----------|------|
| Bolt Diameter | Torque Value | | | | | |
| | SAE Gr. 2 | | SAE Gr. 5 | | SAE Gr. 8 | |
| | lbf•ft | N•m | lbf•ft | N•m | lbf•ft | N•m |
| 1/4" | 6 | 8 | 9 | 12 | 12 | 17 |
| 5/16" | 10 | 13 | 19 | 25 | 27 | 36 |
| 3/8" | 20 | 27 | 33 | 45 | 45 | 63 |
| 7/16" | 30 | 41 | 53 | 72 | 75 | 100 |
| 1/2" | 45 | 61 | 80 | 110 | 115 | 155 |
| 9/16" | 60 | 95 | 115 | 155 | 165 | 220 |
| 5/8" | 95 | 128 | 160 | 215 | 220 | 305 |
| 3/4" | 165 | 225 | 290 | 390 | 400 | 540 |
| 7/8" | 170 | 230 | 420 | 570 | 650 | 880 |
| 1" | 225 | 345 | 630 | 850 | 970 | 1320 |



| Metric Bolt Torque Specifications | | | | |
|-----------------------------------|--------------|-------|----------|-------|
| Bolt Diameter | Torque Value | | | |
| | 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 |

