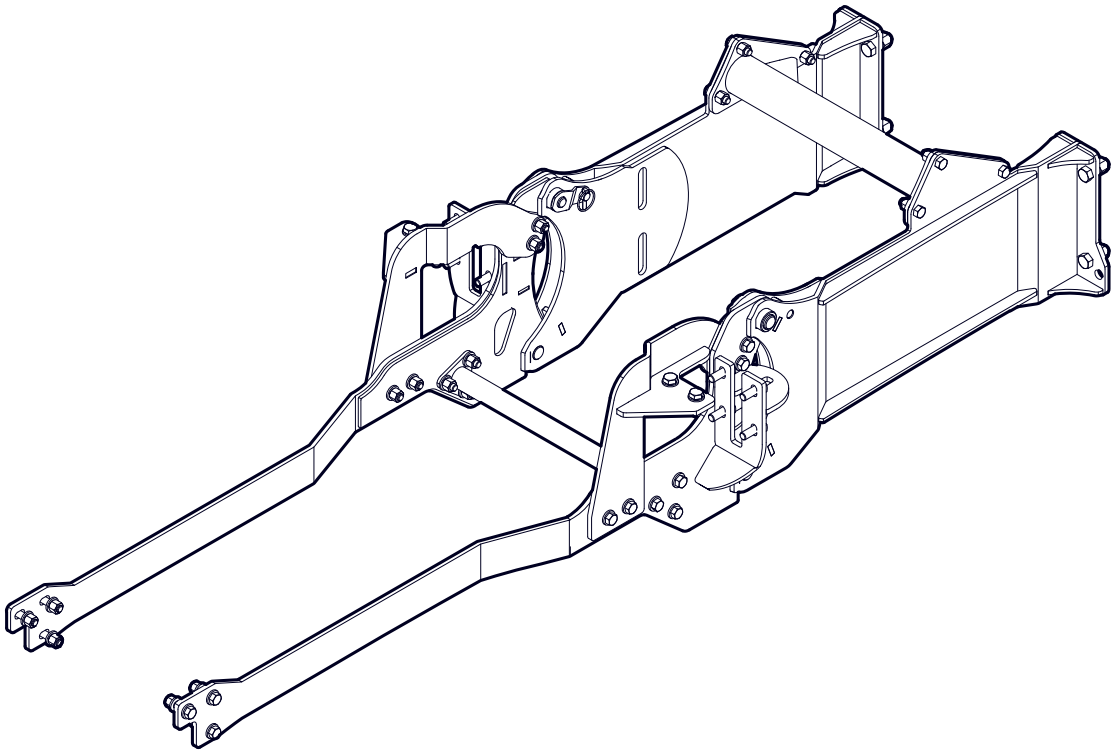
INSTALLATION INSTRUCTIONS

3683A900

Backhoe Subframe Kit



Rev Dec-2021

WALLENSTEIN

Introduction

This subframe is designed to work with Wallenstein Backhoes.

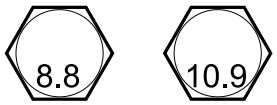
The Wallenstein backhoe is designed to work with a wide variety of tractors. With this Subframe Kit you can easily and quickly attach and detach your Wallenstein backhoe to your tractor.

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.

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

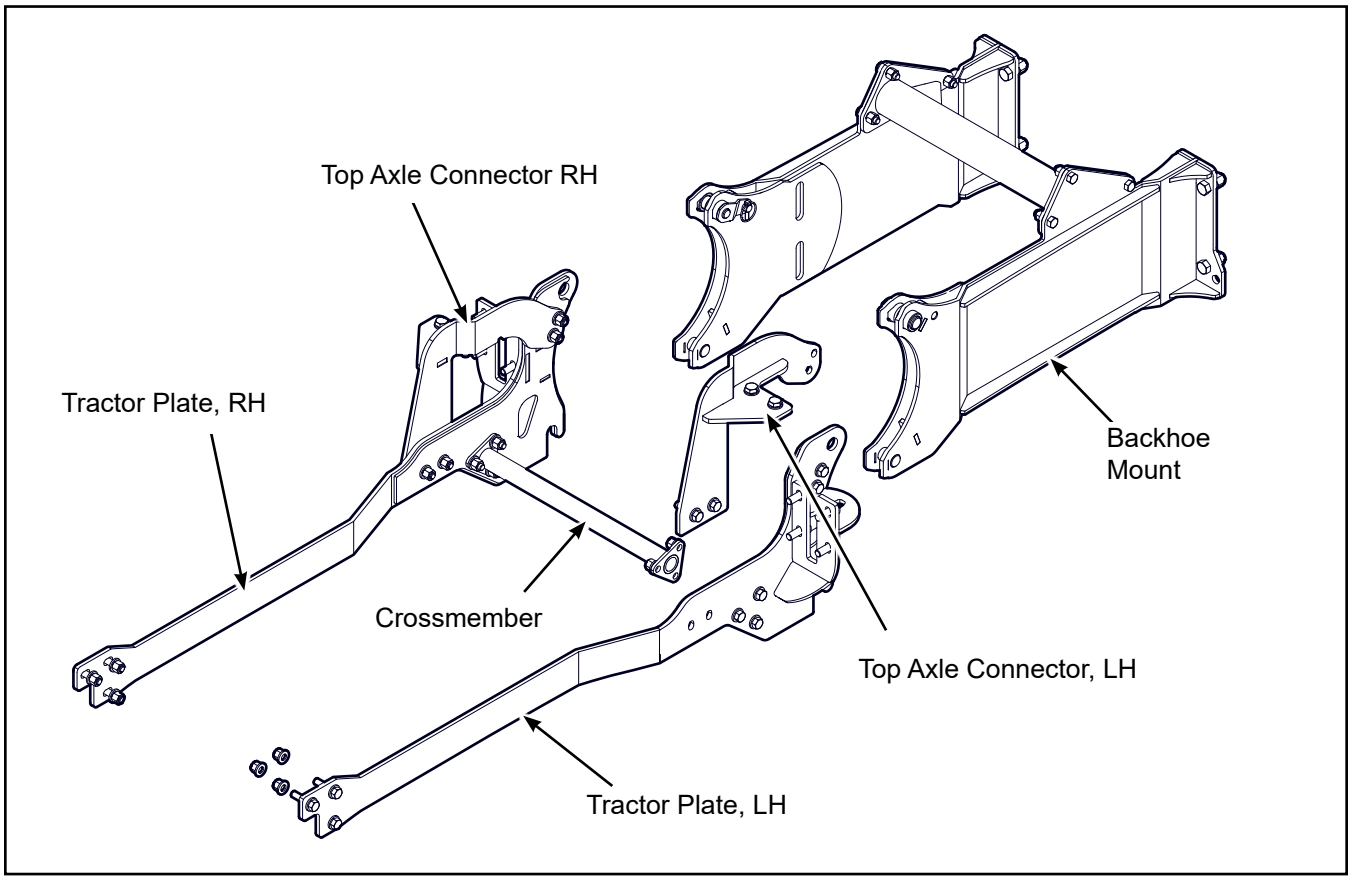
Metric



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.



Subframe Main Components

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!

The loader frame could move unexpectedly when the mounts are disconnected. Make sure loader is resting on the ground in a relaxed state.

W018

⚠ 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!

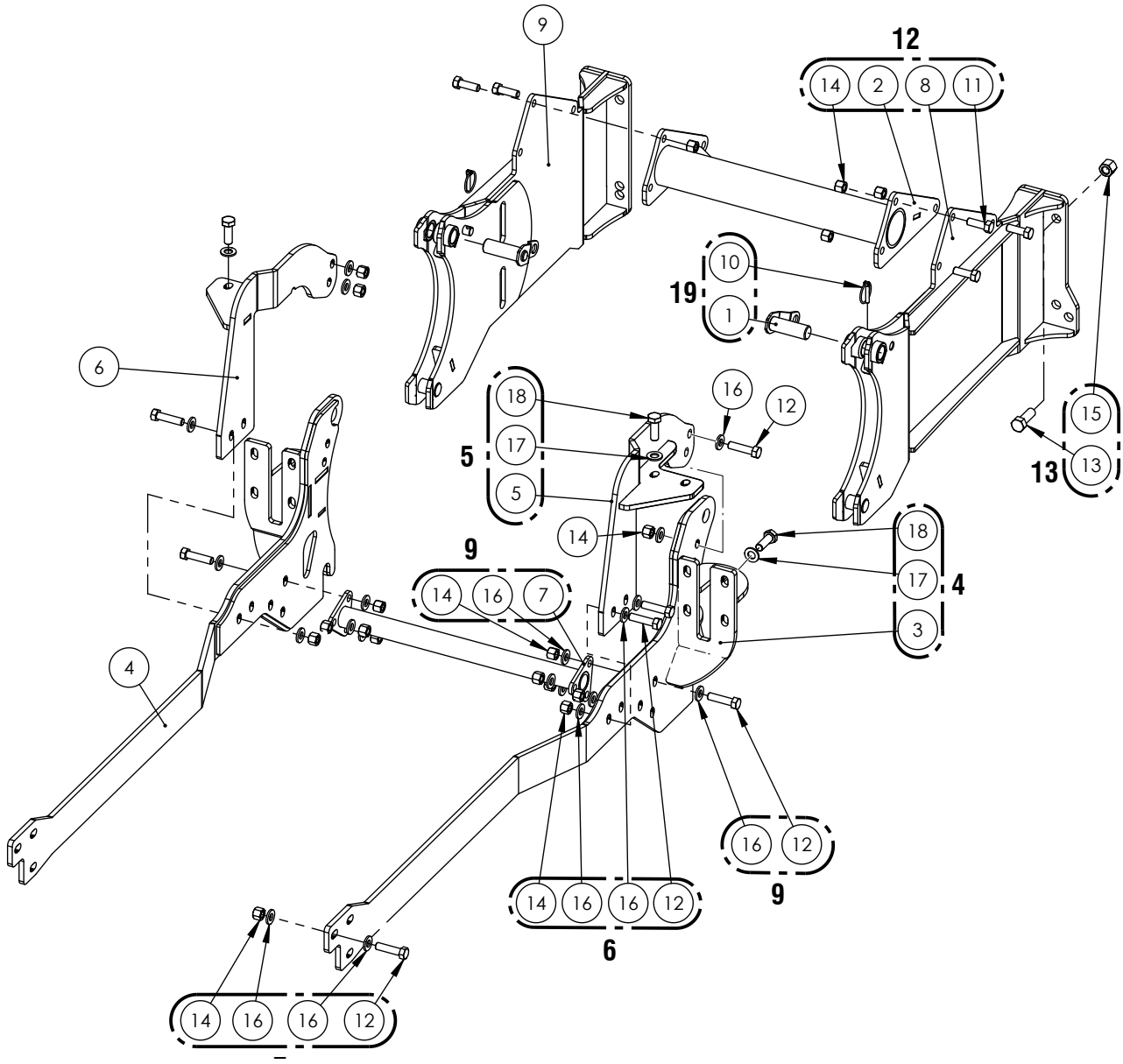
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

⚠ 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



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.

Item	Part Number	Description	Quantity
1	3600W201	Subframe Top Pin	2
2	3600W603	Crossmember	1
3	3683W901	Tractor Plate LH	1
4	3683W901H	Tractor Plate RH	1
5	3683W902	Top Axle Connector LH	1
6	3683W902H	Top Axle Connector RH	1
7	3683W903	Cross Brace	1
8	3683W930	LH Backhoe Link	1
9	3683W930H	RH Backhoe Link	1

Item	Part Number	Description	Quantity
10	Z12120	Lynch Pin, 1/4"	2
11	Z71515	Hex Bolt, 1/2"NC x 1-1/2"	6
12	Z71520	Hex Bolt, 1/2"NC x 2"	20
13	Z71617	Hex Bolt, 5/8"NC x 1-3/4"	8
14	Z72251	Hex Lock Nut, 1/2"NC	26
15	Z72261	Hex Lock Nut, 5/8"NC	8
16	Z73151	SAE Washer, 1/2"	40
17	Z77381	DIN 125 Washer, M14	12
18	Z77682	Hex Bolt, M14 x 1.5 x 40 mm	12

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

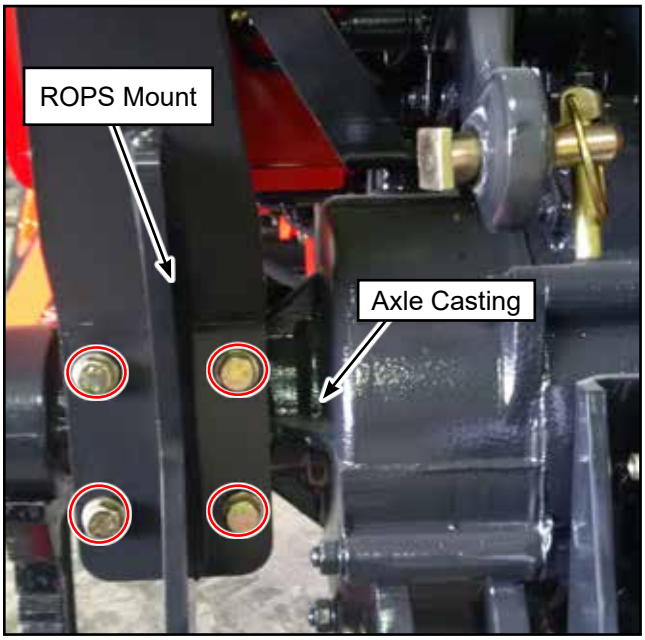
Step 1

Starting on the left-hand side of the tractor, remove the anti-sway bars from the ROPS mounts and swing the lift arms in as far as they will go. Secure them in that position to keep them out of the way.

Step 2

Remove the four rear bolts holding the ROPS mount to the axle, as circled in the image.

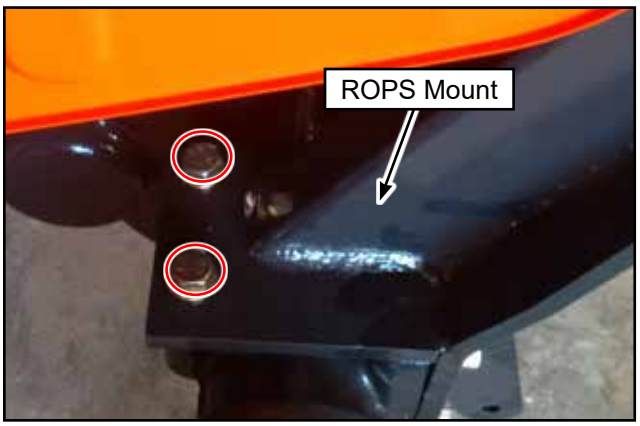
Set these bolts and washers aside as they are not reused in the subframe installation.



Step 3

Remove the top two bolts holding the ROPS mount to the axle, as circled.

Set these bolts and washers aside as they are not reused in the subframe installation.

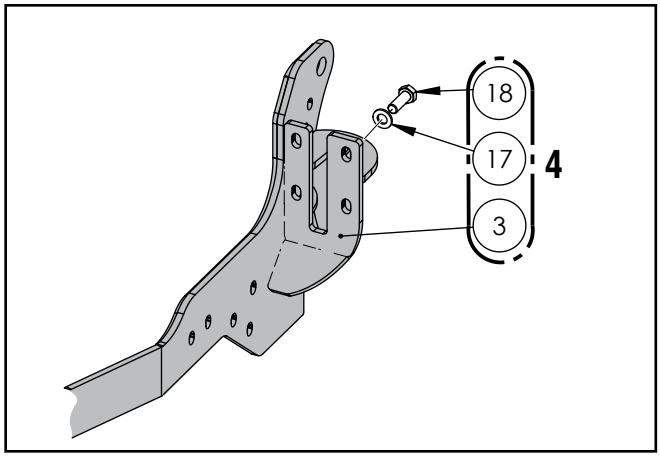


Step 4

Place (**3683W901**) Tractor Plate LH (item 3) under the axle, up against the ROPS mount.

Fasten to the back of the ROPS mount using four (**Z77682**) Hex Bolts M14 x 1.5 x 40 mm (item 18) with (**Z77381**) M14 Flatwashers (item 17).

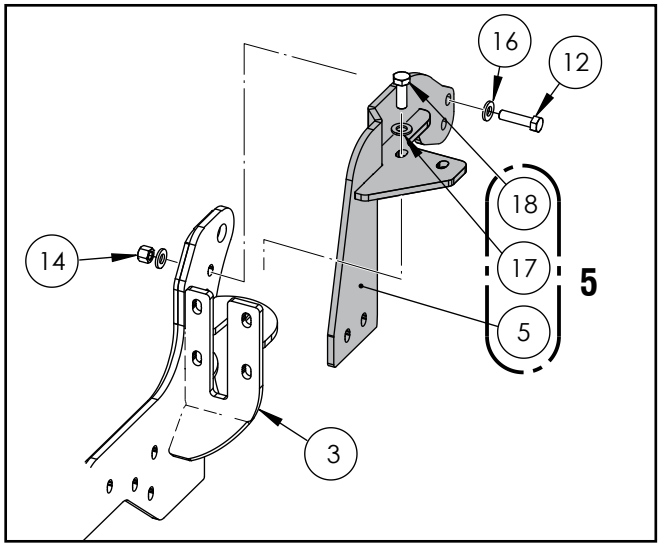
Hand-tighten only for now.



Step 5

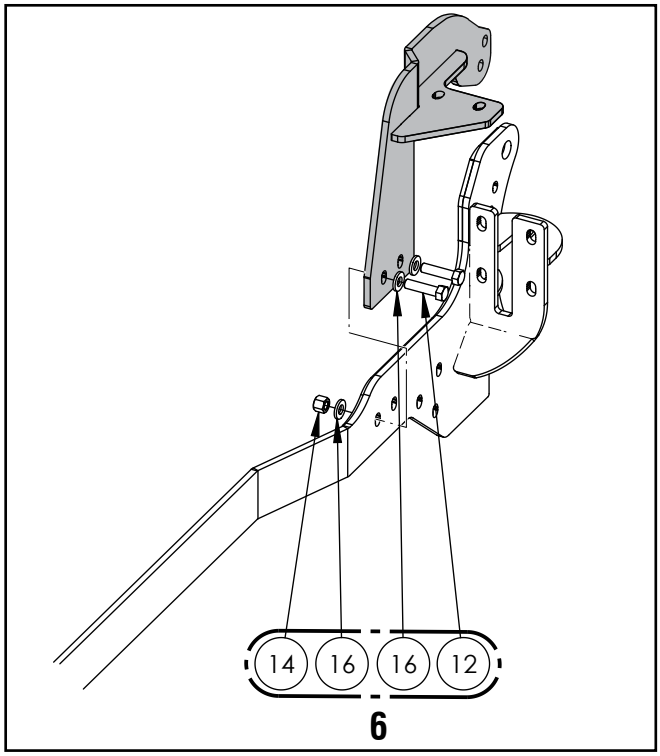
Place (**3683W902**) Top Axle Connector LH (item 5) over the axle and up against the ROPS mount. Bolt to the axle with two (**Z77682**) Hex Bolt M14 x 1.5 x 40 mm (item 18) and (**Z77381**) M14 Flatwasher (item 17). Hand-tighten only.

Fasten at the top to (**3683W901**) Tractor Plate LH (item 3) using two (**Z71520**) Hex Bolts 1/2"NC x 2" (item 12) with (**Z72251**) Hex Locknuts 1/2"NC (item 14) and (**Z73151**) 1/2" Flatwashers (item 16). Hand-tighten only.



Step 6

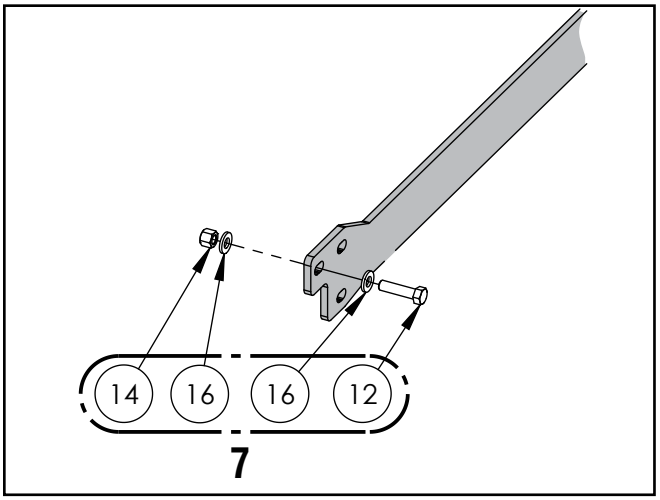
Fasten at the bottom with two (**Z71520**) Hex Bolts 1/2"NC x 2" (item 12) with (**Z72251**) Hex Locknuts 1/2"NC (item 14) and (**Z73151**) 1/2" Flatwashers (item 16). Hand-tighten only.



Step 7

At the loader mount, connect (**3683W901**) Tractor Plate LH (item 3) using three (**Z71520**) Hex Bolts 1/2"NC x 2" (item 12) with (**Z72251**) Hex Locknuts 1/2"NC (item 14) and (**Z73151**) 1/2" Flatwashers (item 16). Hand-tighten only.

Hand tighten only at this time.

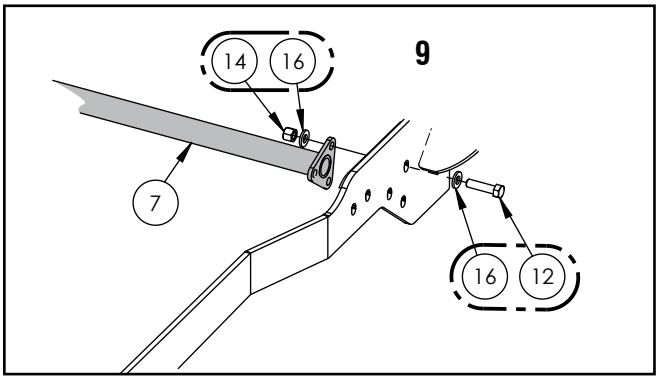


Step 8

Perform Steps 1–7 on the right-hand side of the tractor.

Step 9

Install (3683W903) Cross Brace (item 7) between the sides of the subframe. Use three (**Z71520**) Hex Bolts 1/2"NC x 2" (item 12) with (**Z72251**) Hex Locknuts 1/2"NC (item 14) and (**Z73151**) 1/2" Flatwashers (item 16).



Step 10

Torque-tighten all fasteners on the subframe.

Step 11

Re-install the wheels if removed and torque lug nuts/bolts (see torque chart or tractor owner's manual). Note that depending on the wheels it may be necessary to reverse the offset for clearance to the subframe.

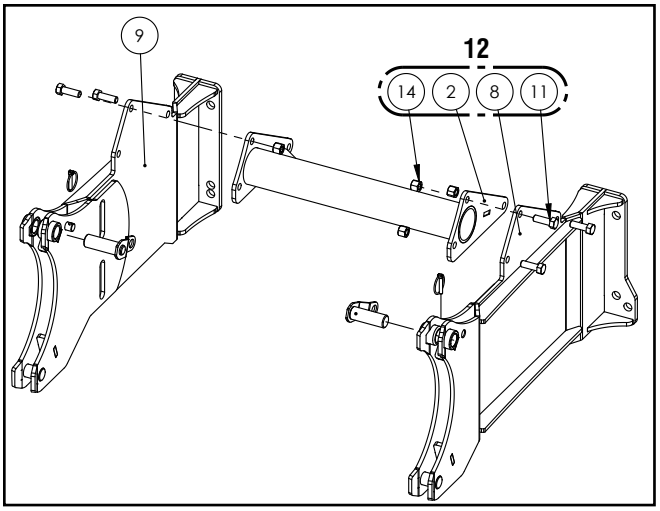
Reconnect the anti-sway bars to the ROPS mounts.

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

Step 12

If not already put together, the Backhoe Mount can be assembled. Connect (**3683W930H**) RH Backhoe Link (item 9), (**3683W930**) LH Backhoe Link (item 8) and (**3600W603**) Crossmember (item 2) with three per side of (**Z71515**) Hex Bolts 1/2"NC x 1-1/2" (item 11) and (**Z72251**) Hex Locknuts 1/2"NC (item 14).

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

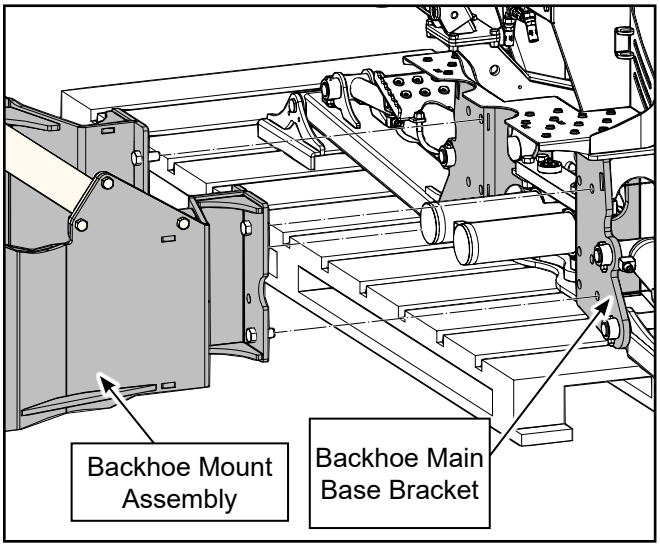


Step 13

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 14

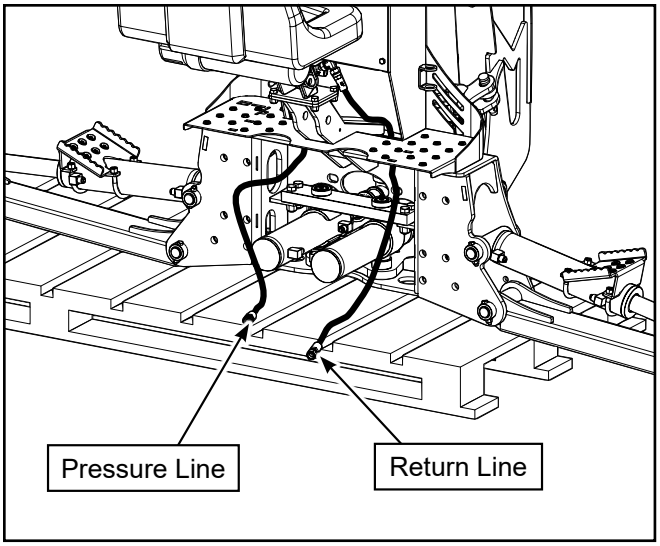
Align and reverse the tractor up to the bracket. Get close enough to attach the hydraulic hoses to the backhoe.



Step 15

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

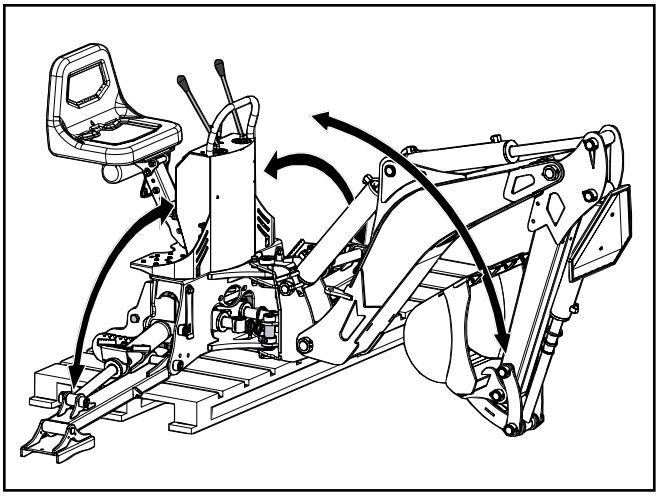
NOTE: The backhoe is equipped with a directional control valve and does not allow reverse flow if pressure and return lines are connected incorrectly.



⚠ WARNING!

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

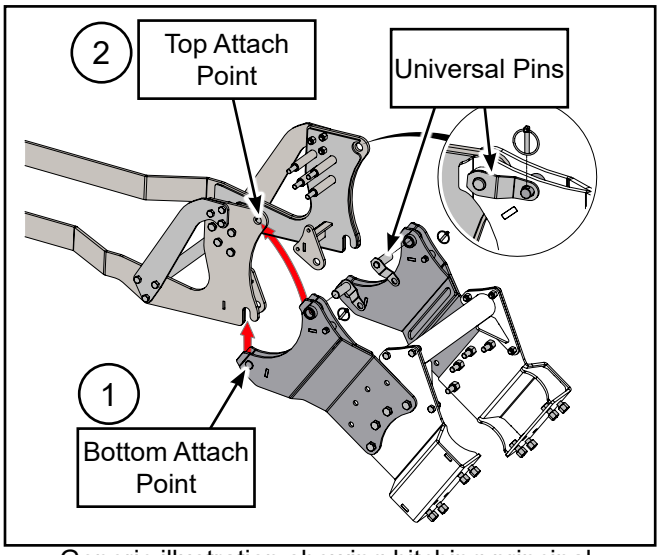
Step 16
Carefully use the dipper arm / stabilizer legs to tilt the bracket / backhoe on an angle, so that the bottom attach points line up with the hooks on the bottom of the subframe on the tractor.



Step 17
Carefully use the backhoe hydraulics to raise the bracket assembly into the bottom of the hooks for positive attachment.

Step 18
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 19
Insert the two welded universal pins into the pin holes and secure with lynch pins.



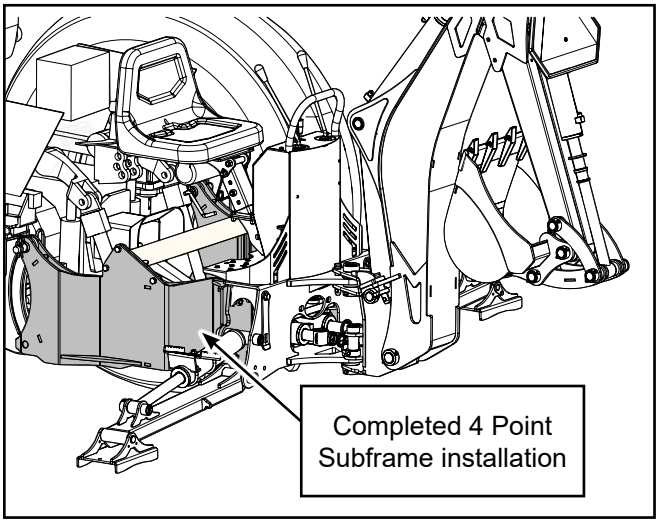
Generic illustration showing hitching principal.

Step 20
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