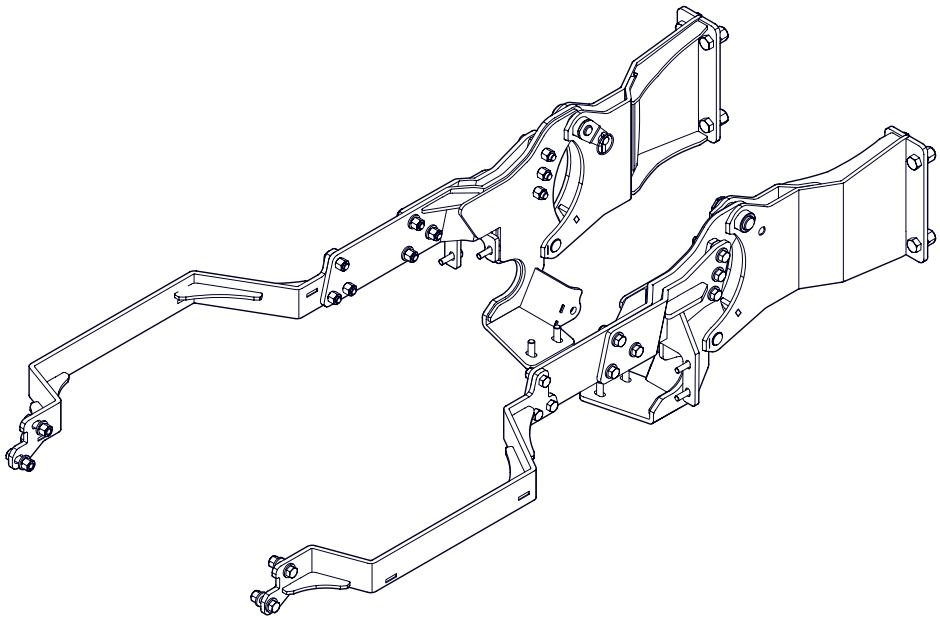
INSTALLATION INSTRUCTIONS

3683A850

Backhoe Subframe Kit



Rev Dec-2021

WALLENSTEIN

Introduction

This subframe is designed to work with Wallenstein Backhoes.

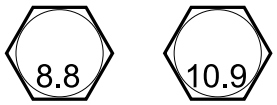
The Wallenstein backhoe is designed to work with a wide variety of tractors. With this Subframe Kit you can easily and quickly attach and detach your Wallenstein backhoe to your tractor.

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.

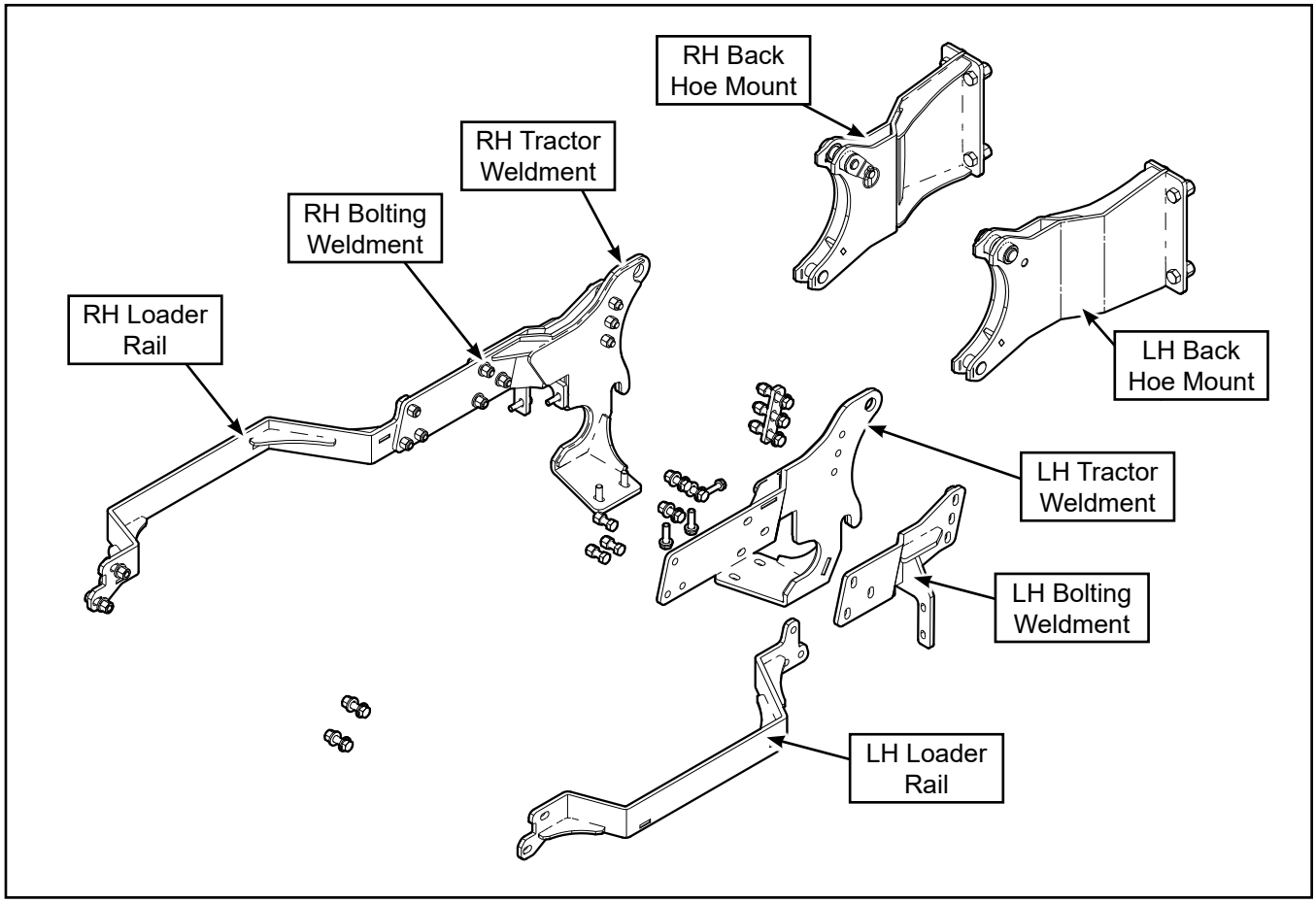
Metric



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!

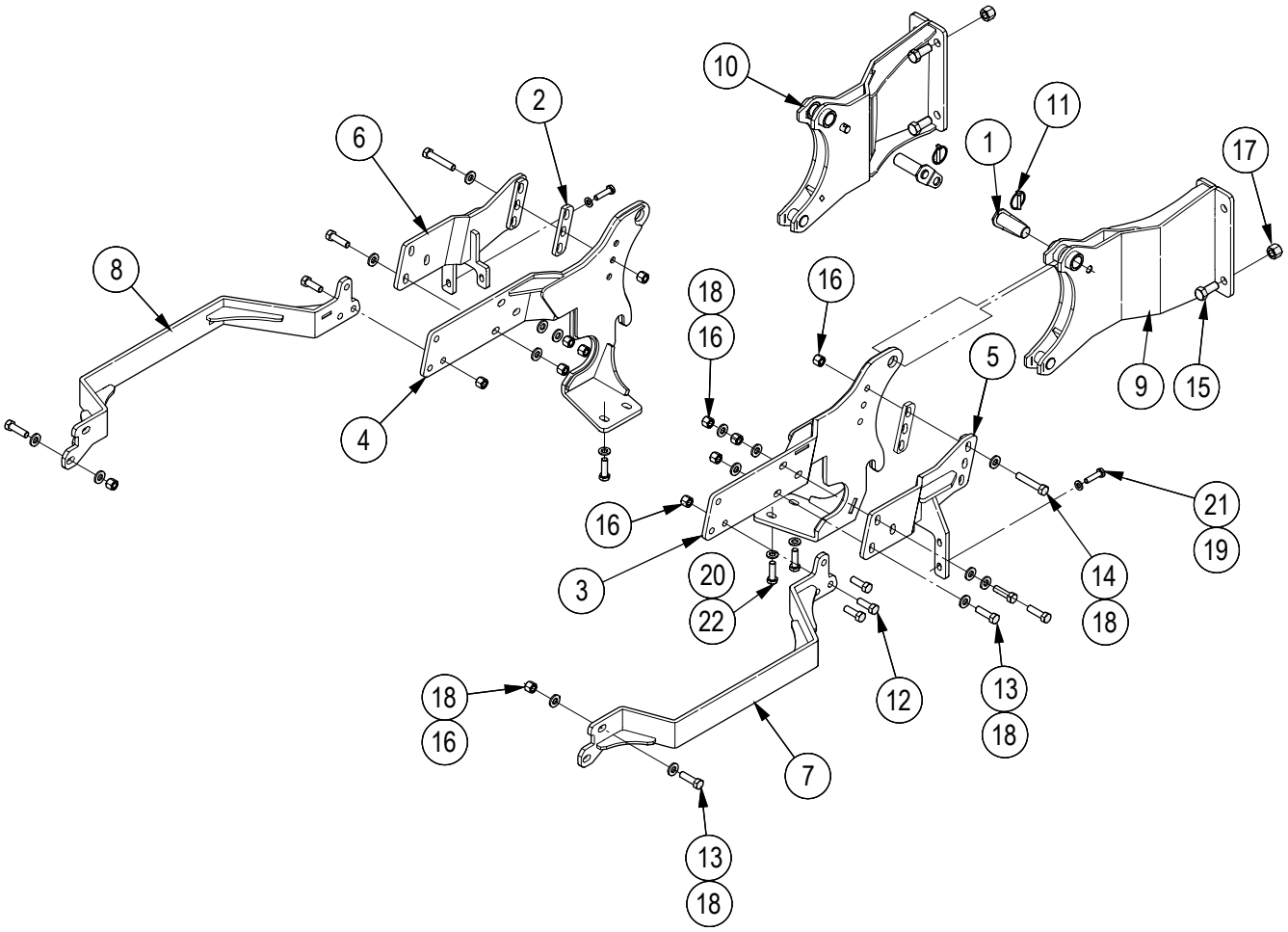
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

⚠ 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	3683L859	Spacer, Rear End	2
3	3683W851	LH Tractor	1
4	3683W851H	RH Tractor	1
5	3683W852	LH Bolting Plate	1
6	3683W852H	RH Bolting Plate	1
7	3683W853	LH Loader Rail	1
8	3683W853H	RH Loader Rail	1
9	3683W880	LH Backhoe Link	1
10	3683W880H	RH Backhoe Link	1
11	Z12120	Lynch Pin, 1/4"	2

Item	Part Number	Description	Quantity
12	Z71515	Hex Bolt, 1/2"NC x 1-1/2"	6
13	Z71517	Hex Bolt, 1/2"NC x 1-3/4"	10
14	Z71527	Hex Bolt, 1/2"NC x 2-3/4"	6
15	Z71615	Hex Bolt, 5/8"NC x 1-1/2"	8
16	Z72251	Hex Lock Nut, 1/2"NC	22
17	Z72261	Hex Lock Nut, 5/8"NC	8
18	Z73151	SAE Washer, 1/2"	26
19	Z77361	DIN 125 Washer, M10	6
20	Z77372	DIN 125 Washer, M12	4
21	Z77661	Hex Bolt, M10 x 1.25 x 40 mm	6
22	Z77674	Hex Bolt, M12 x 1.25 x 40 mm	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
- 1/2", 5/8" wrenches and sockets
- M10, M12 wrenches and sockets
- Overhead lifting device
- Jack stands
- Torque wrench

Step 1

Remove the toplink from the tractor. Unhook the bottom 3-point links and the lift arms and secure them up as close to the tractor as possible as shown. Remove the PTO guard for sub frame installation.

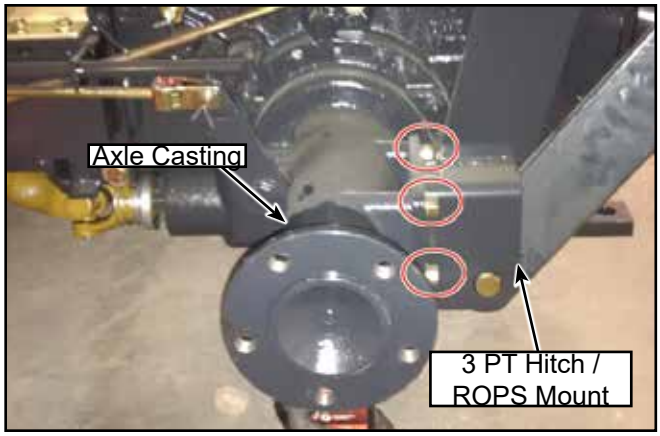
Step 2

Remove any obstructions to seating for the backhoe such as slow moving vehicle signs, toolbox, or brackets.

Step 3

Remove three of the rear bolts of the frame, as shown for the left hand side in the image.

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

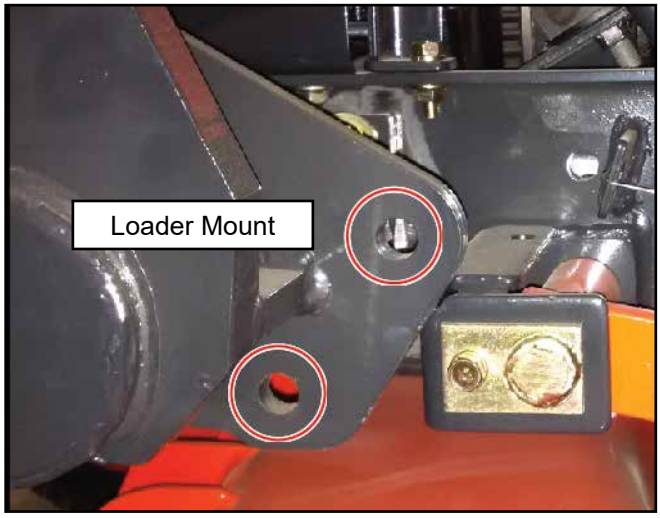


Step 4

Remove the two bolts from the hitch left-hand side. Set bolts and washers aside.

Step 5

Make sure the loader mount is unobstructed and the two holes in the bolting bracket are clean.



Step 6
Place tractor weldment between the frame and ROPS mount. Leave loose for the next step.

Step 7
Place bolting weldment over top of the ROPS mount, sliding it underneath the tractor weldment. Hand-tighten only with new hardware. See page 4 for parts breakdown.

Step 8
Connect the hitch and the tractor weldment together with new hardware. Hand tighten only.

Step 9
Connect tractor weldment and bolting weldment together using new hardware. Hand tighten only.

Step 10
Place the loader rail weldment against the loader mount, and hand tighten only with hardware.

Step 11
Connect the tractor weldment and loader rail weldment together using hardware. Hand tighten only.

Step 12
Repeat steps 3–11 for the right-hand side. Hand tighten only.

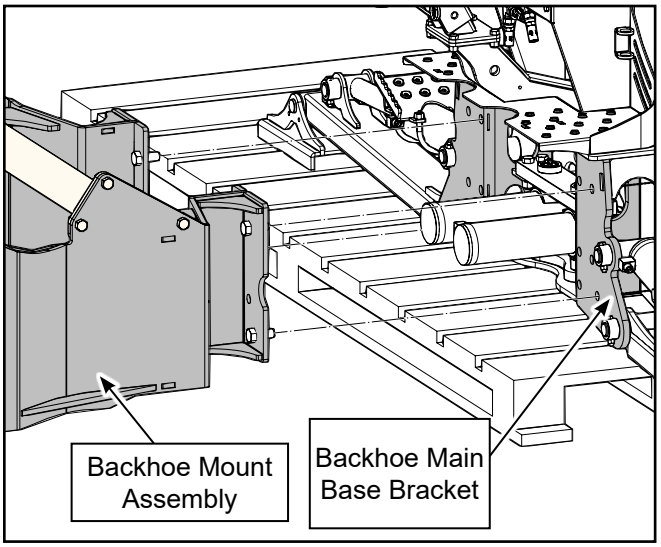
Step 13
Torque down all nuts and bolts on the subframe (see torque table on the last page).

Step 14
Reinstall the PTO guard and tires. Torque down nuts and bolts (see torque chart or tractor owner's manual).

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

Step 15

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).



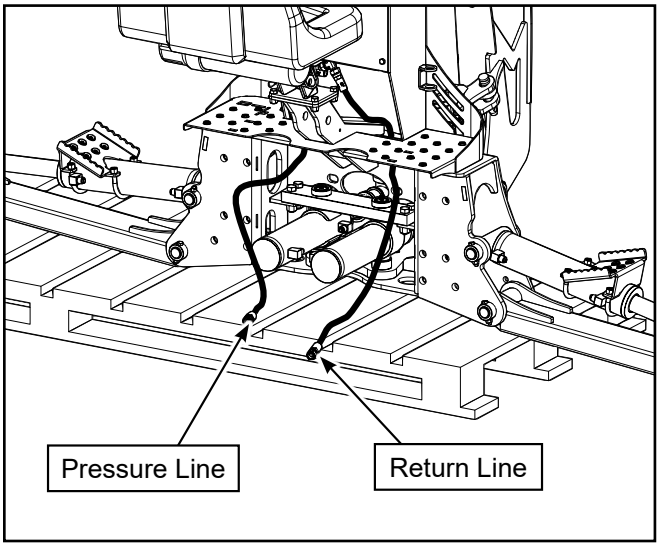
Step 16

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

Step 17

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!

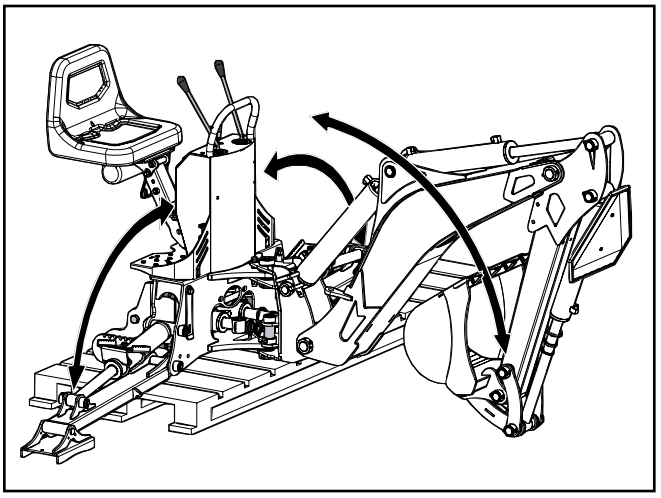
When operating the boom and stabilizers, ensure the area is clear of bystanders and operator is safely positioned.

Step 18

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 19

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

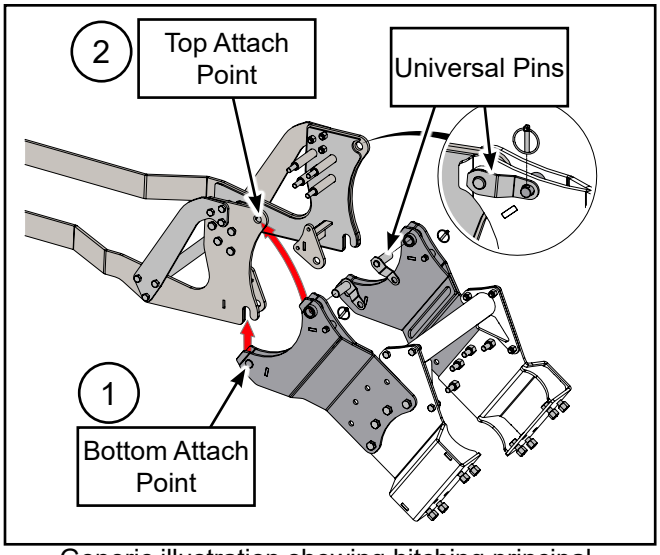


Step 20

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 21

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



Generic illustration showing hitching principal.

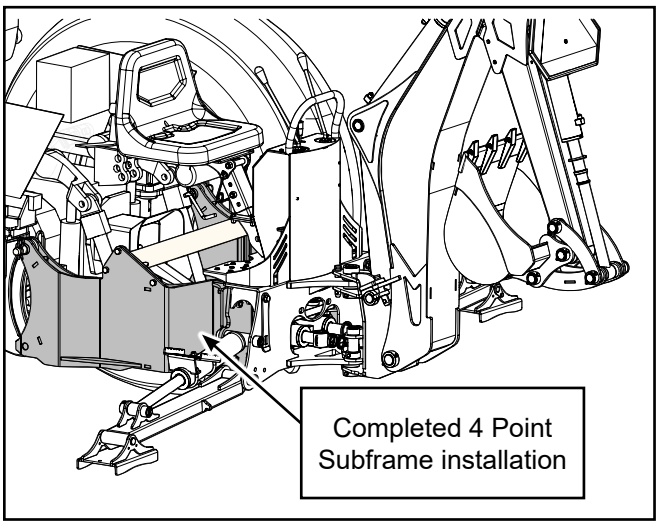
Step 22

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