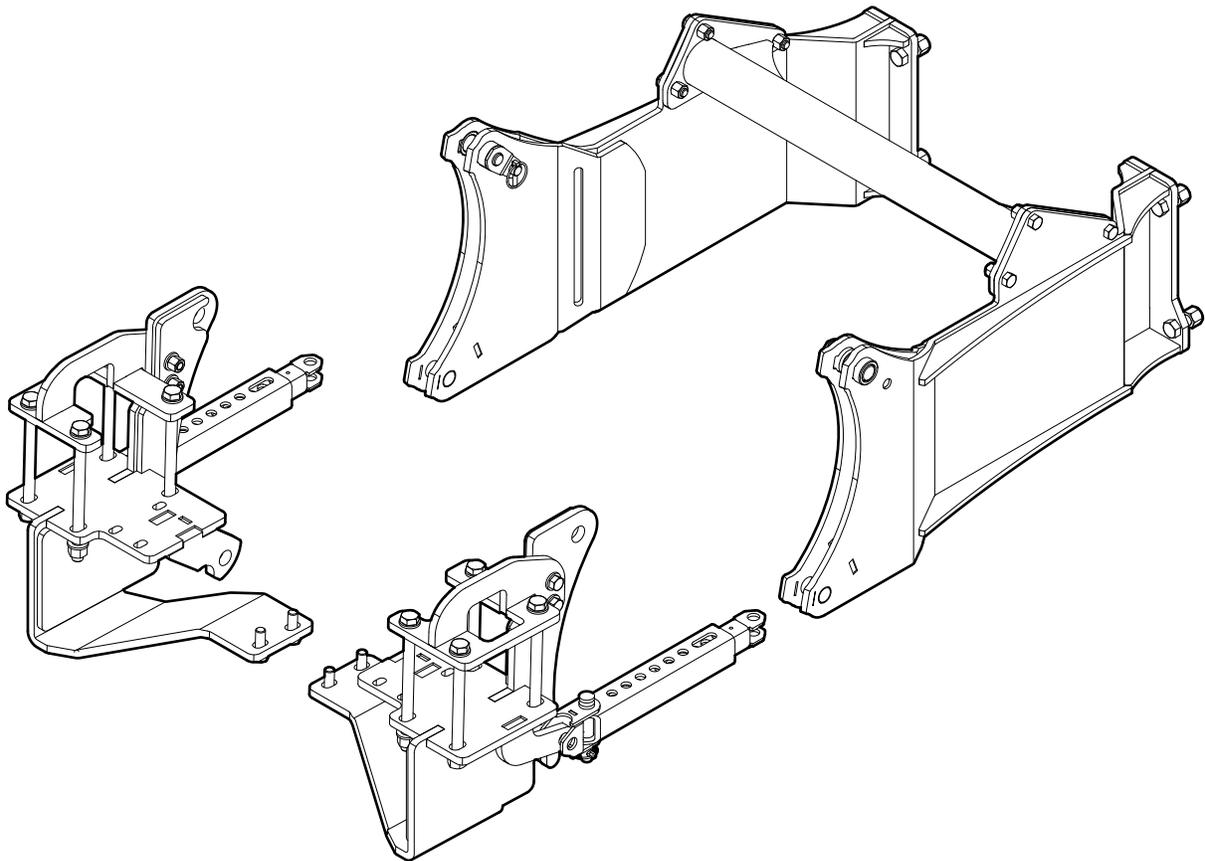


INSTALLATION INSTRUCTIONS

3686A500 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 the Wallenstein Subframe Kit you can easily and quickly attach and detach your Wallenstein backhoe to your particular tractor.

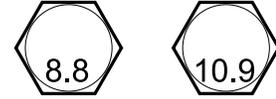
Some of the illustrations shown in this manual are general, but important features are detailed in order to install your kit successfully.

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. Bolt torque tables are included at the end of this instruction.

Metric

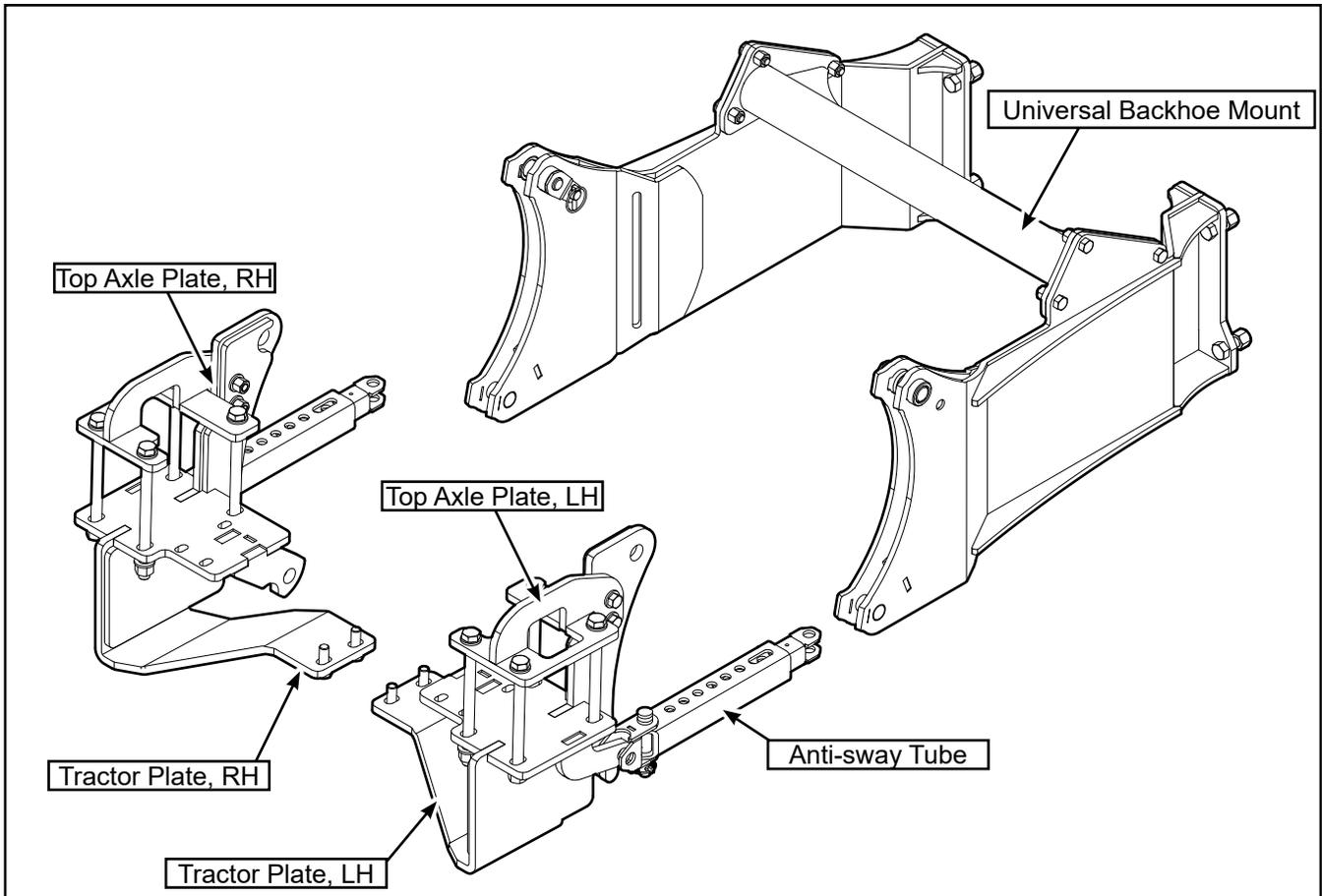


Imperial



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 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!

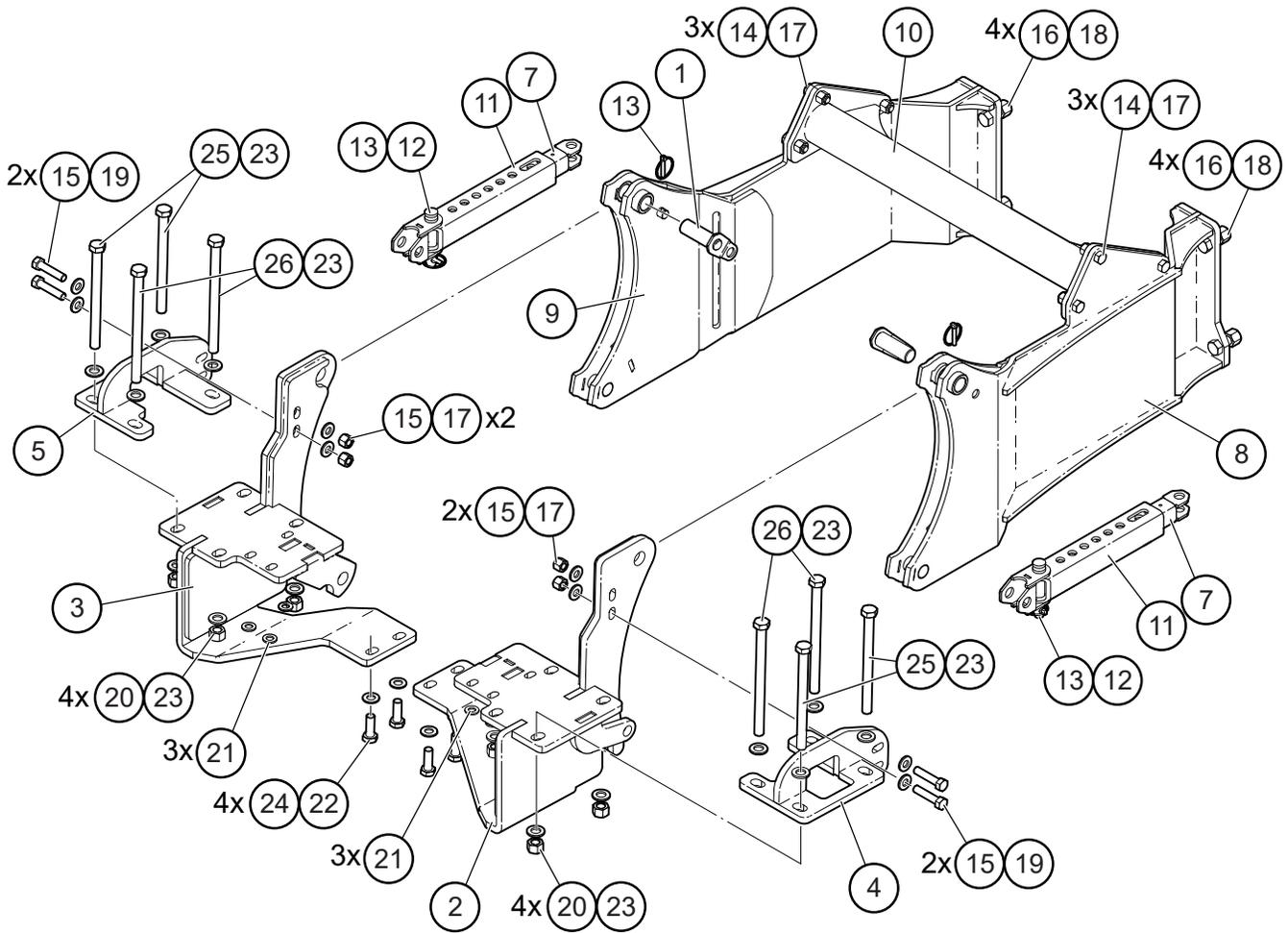
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

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	PART NO.	DESCRIPTION	QTY
1	3600W101	Weldment, Subframe Top Pin	2
2	3686W501	Weldment, LH Tractor	1
3	3686W501H	Weldment, RH Tractor	1
4	3686W502	Weldment, LH Top Axle	1
5	3686W502H	Weldment, RH Top Axle	1
6	3686W503	Weldment, Swivel	2
7	3686W504	Weldment, Inner Anti-sway Tube	2
8	3686W530	Weldment, RH Backhoe Link	1
9	3686W530H	Weldment, LH Backhoe Link	1
10	3686W531	Weldment, Crossmember	1
11	3686S501	Outer Tube, Anti-sway	2
12	Z11121	Toplink Pin, 3/4" x 2-3/4"	2
13	Z12120	Lynch Pin, 1/4"	4
14	Z71515	Hex Bolt, 1/2NC x 1-1/2"	6
15	Z71522	Hex Bolt, 1/2NC x 2-1/4"	4
16	Z71617	Hex Bolt, 5/8NC x 1-3/4"	8
17	Z72251	Hex Lock Nut, 1/2NC	10
18	Z72261	Hex Lock Nut, 5/8NC	8
19	Z73151	SAE Washer, 1/2"	8
20	Z77294	Hex Lock Nut, M16x2.0	8
21	Z77372	DIN 125 Washer, M12	6
22	Z77381	DIN 125 Washer, M14	4
23	Z77391	DIN 125 Washer, M16	16
24	Z77682	Hex Bolt, M14x1.5 x 40mm	4
25	Z771925	Hex Bolt, M16x2.0 x 200mm	4
26	Z771926	Hex Bolt, M16x2.0 x 220mm	4

Preparation:



Removing the tractor rear 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.

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

Tools required:

- 3/4", 15/16" spanner and socket wrenches
- 21, 24 mm spanner and socket wrenches
- Basic shop tools
- Overhead lifting device
- Jack stands
- Torque wrench

Procedure

Step 1

Starting on the left-hand-side of the tractor, remove the anti-sway bar and 3-point hitch arm from the mount.

Swing the lift arm in as far as it can go and secure there out of the way.

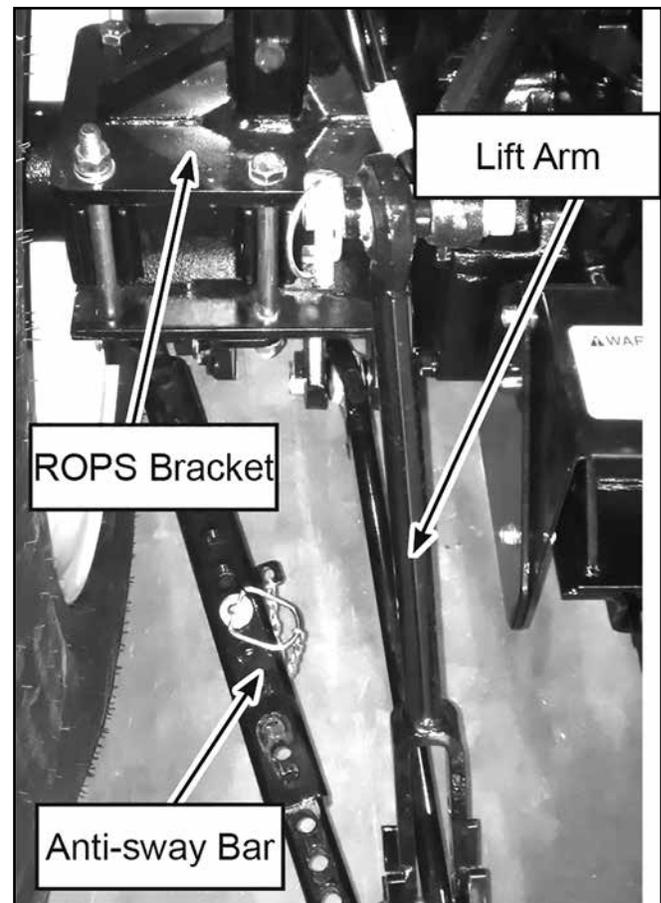
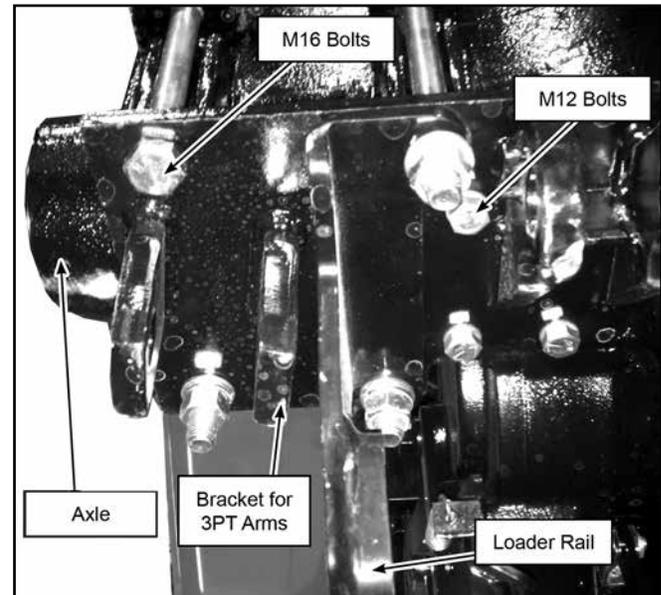
Remove the anti-sway bar. Set the M12 bolts and washers aside for later re-use.

Step 2

Remove the stabilizer arm and 3-point link.

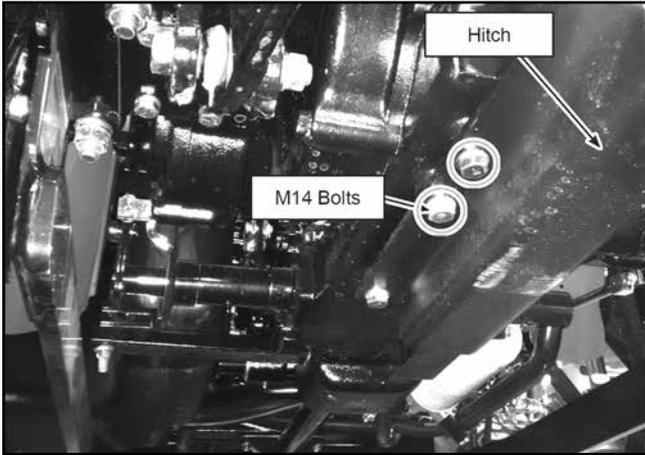
Unbolt the left 3-point arm bracket and ROPS bracket from the axle.

Set the M16 bolts and 3-point arm bracket aside. Keep the M12 bolts for re-use.



Step 3

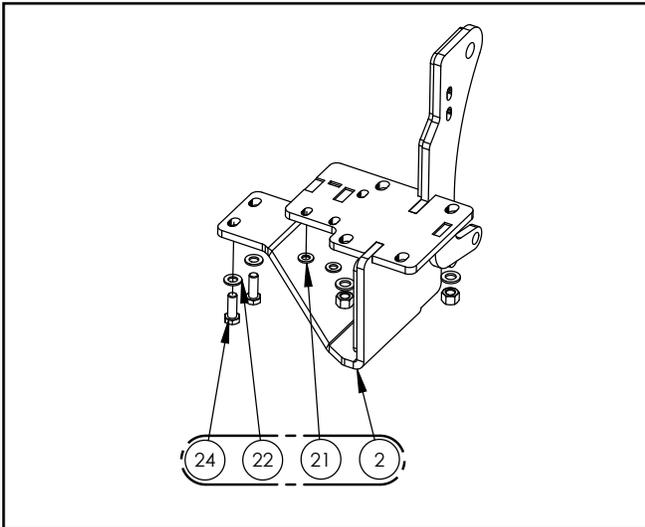
Remove two of the bolts at the rear of the hitch as shown below. Set the bolts aside.



Step 4

Place Tractor Weldment, LH (2) underneath the axle against the cab mount. Use the hardware from Step 3 in addition to new hardware as shown.

Hand-tighten only.

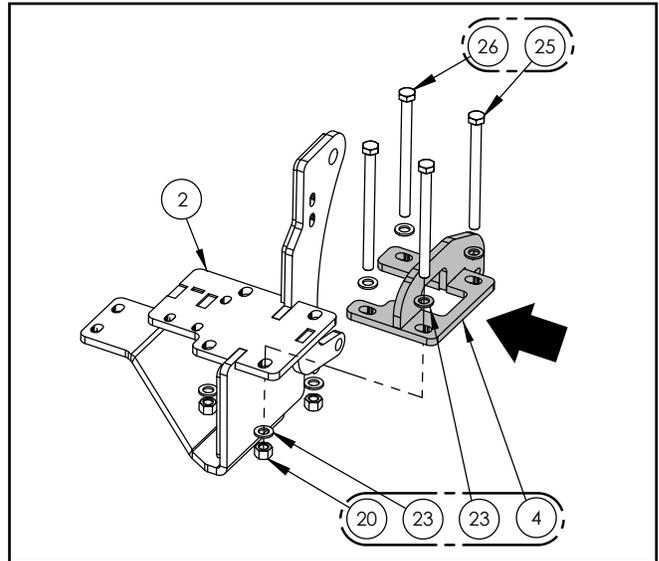


Step 5

Place Top Axle Weldment (4) over the axle and against cab mount.

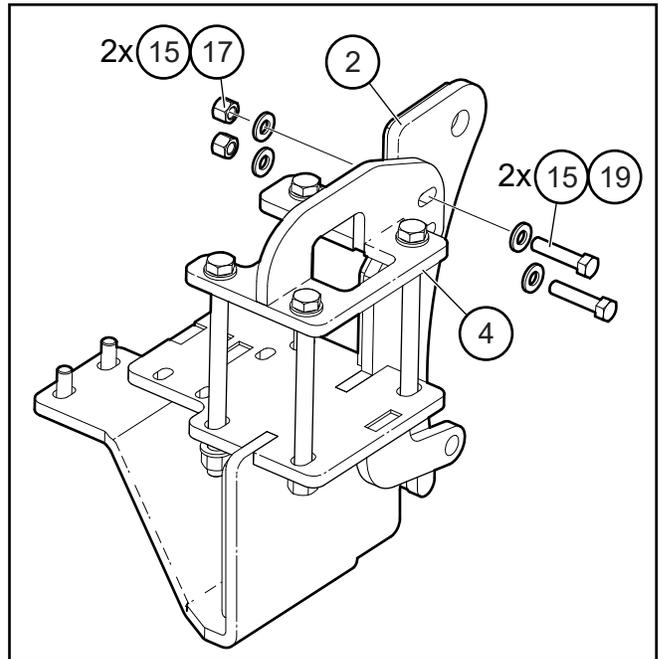
Hand tighten with new hardware, and reuse one bolt from Step 2 as shown.

Make sure weldment sits flat on top of the cab mount.



Step 6

Tie Top Axle Weldment (4) to the Tractor Weldment LH (2) using hardware as shown.



Step 7

Repeat steps 1–6 for the right-hand side.

Hand tighten only.

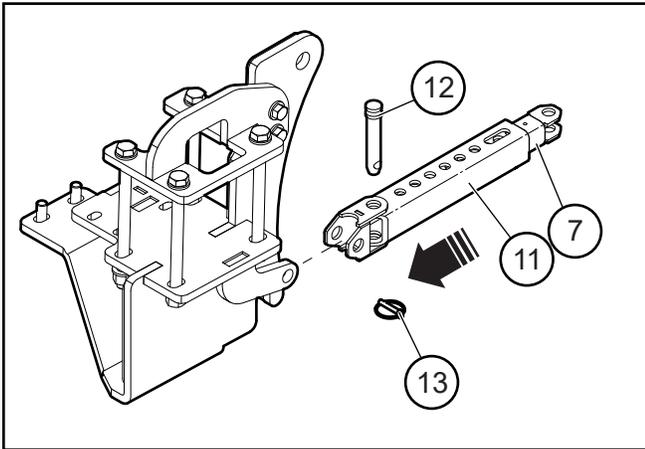
Step 8

Torque-tighten all nuts and bolts on the subframe. See Common Bolt Torque Table on the last page.

Re-attach the wheels if removed and torque lug nuts.

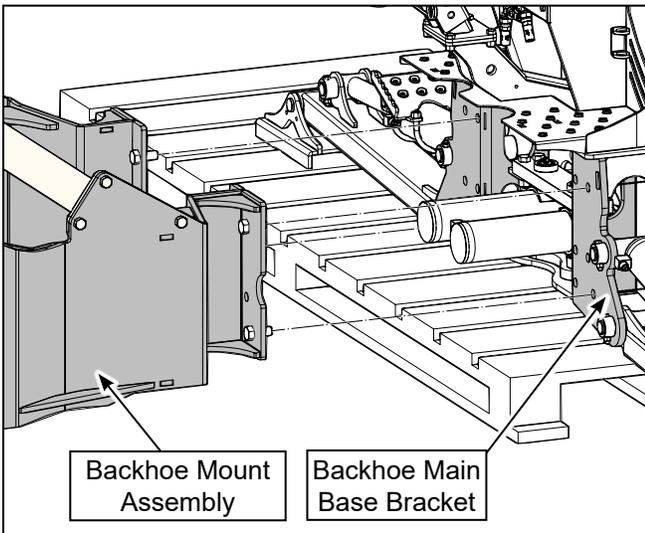
Step 9

Attach the new anti-sway bars with hardware from Step 1. Connect to the 3-point arms for subframe installation.



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 side. Tighten down the bolts.



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

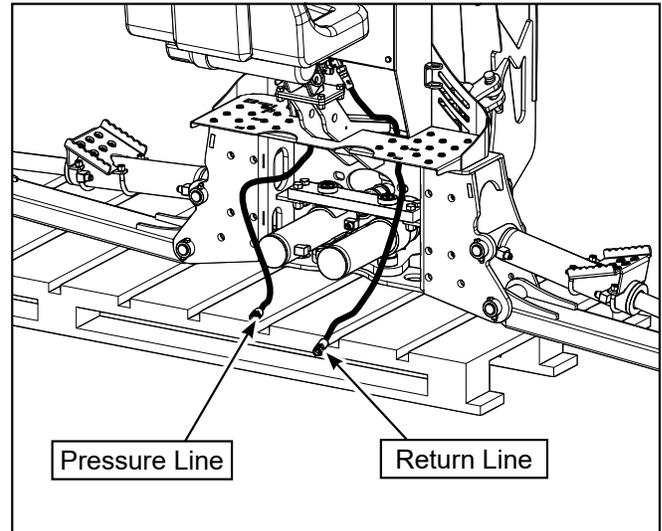
Step 11

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.

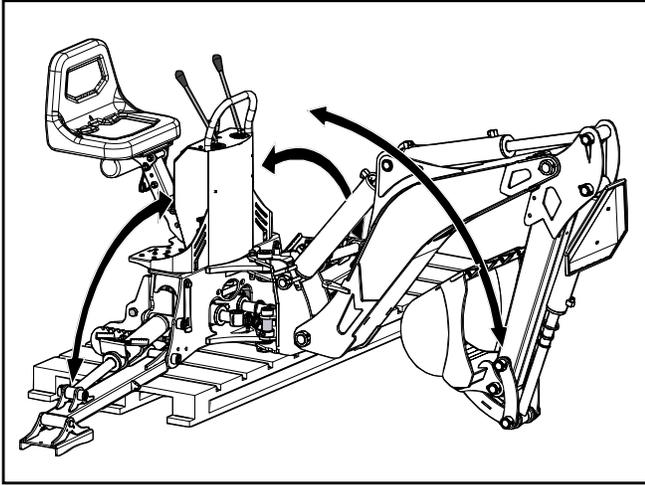


WARNING!

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 16

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

Step 17

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

Step 18

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

Step 19

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

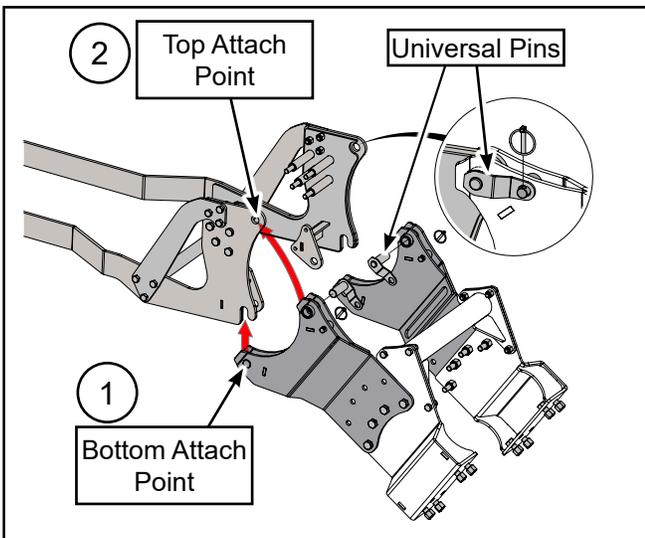
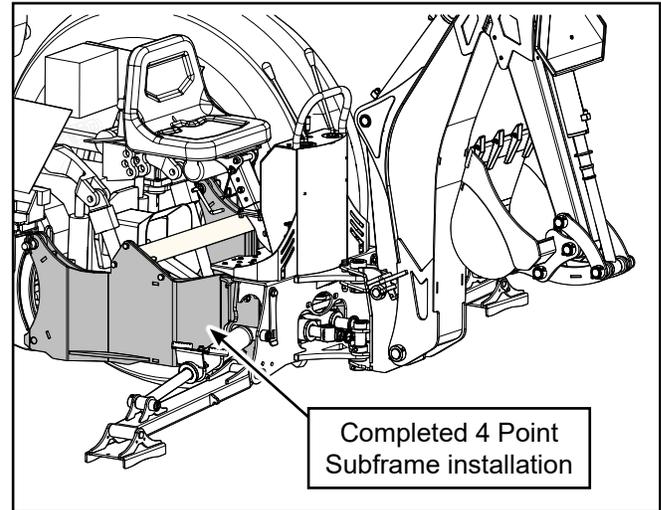
The subframe installation is now complete.

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.



Generic illustration showing hitching principal.

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

