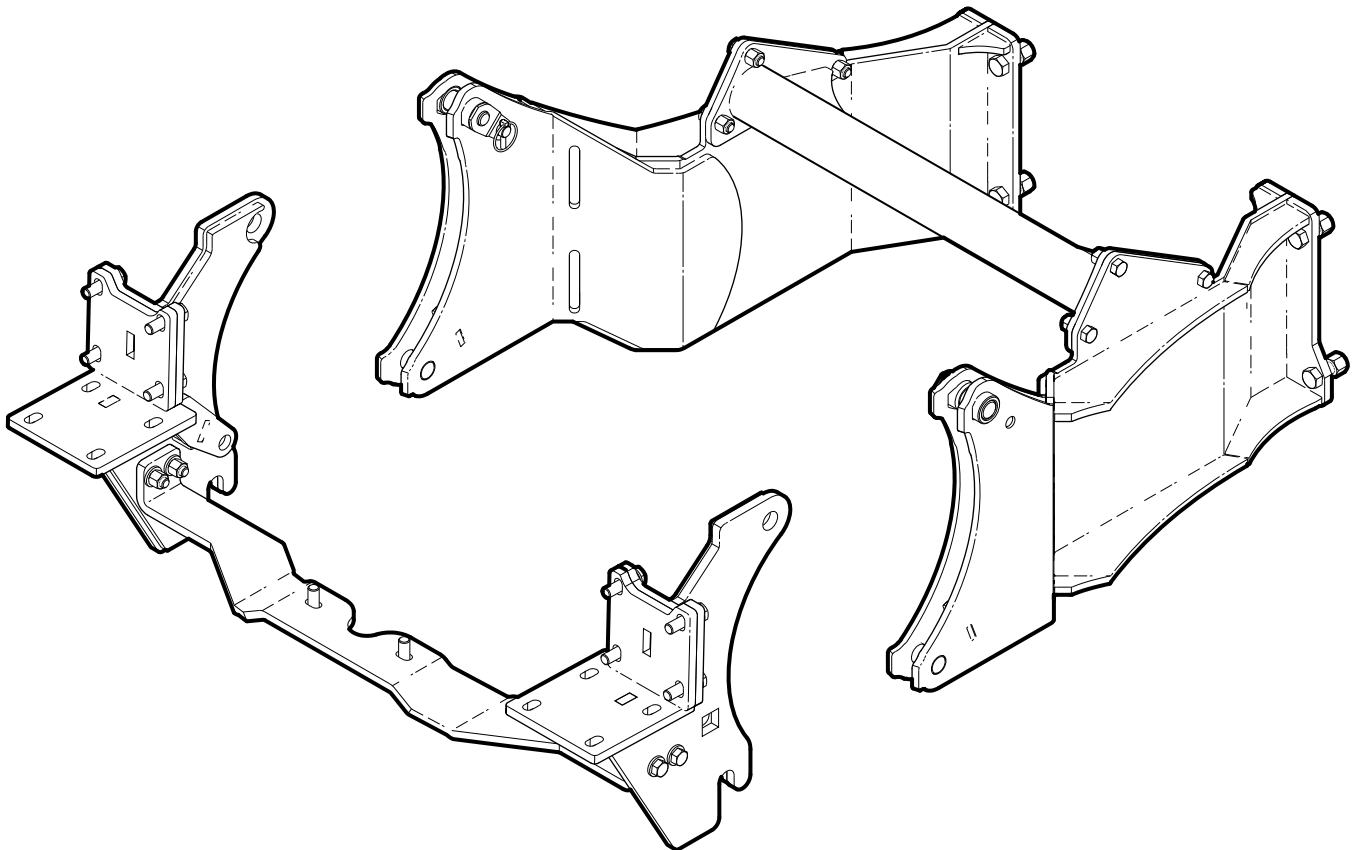


INSTALLATION INSTRUCTIONS

3684A100 Backhoe Subframe Kit



Introduction

This subframe is designed to work with Wallenstein GX720, GX920 and GX920XT 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.

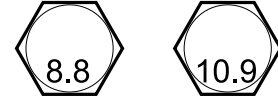
Some of the illustrations shown in this manual are general, but important features are detailed in order to install your kit successfully.

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

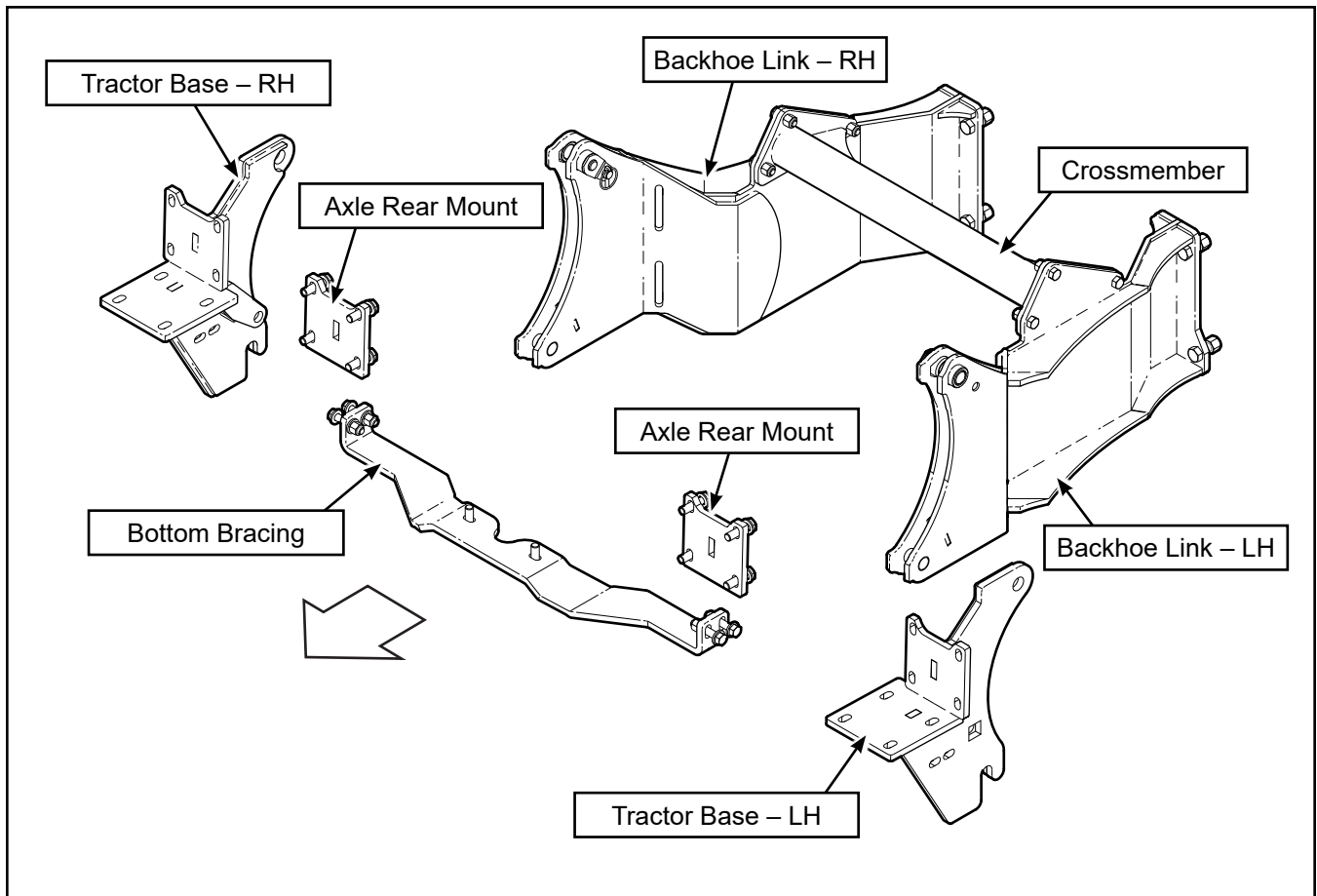


Imperial



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!

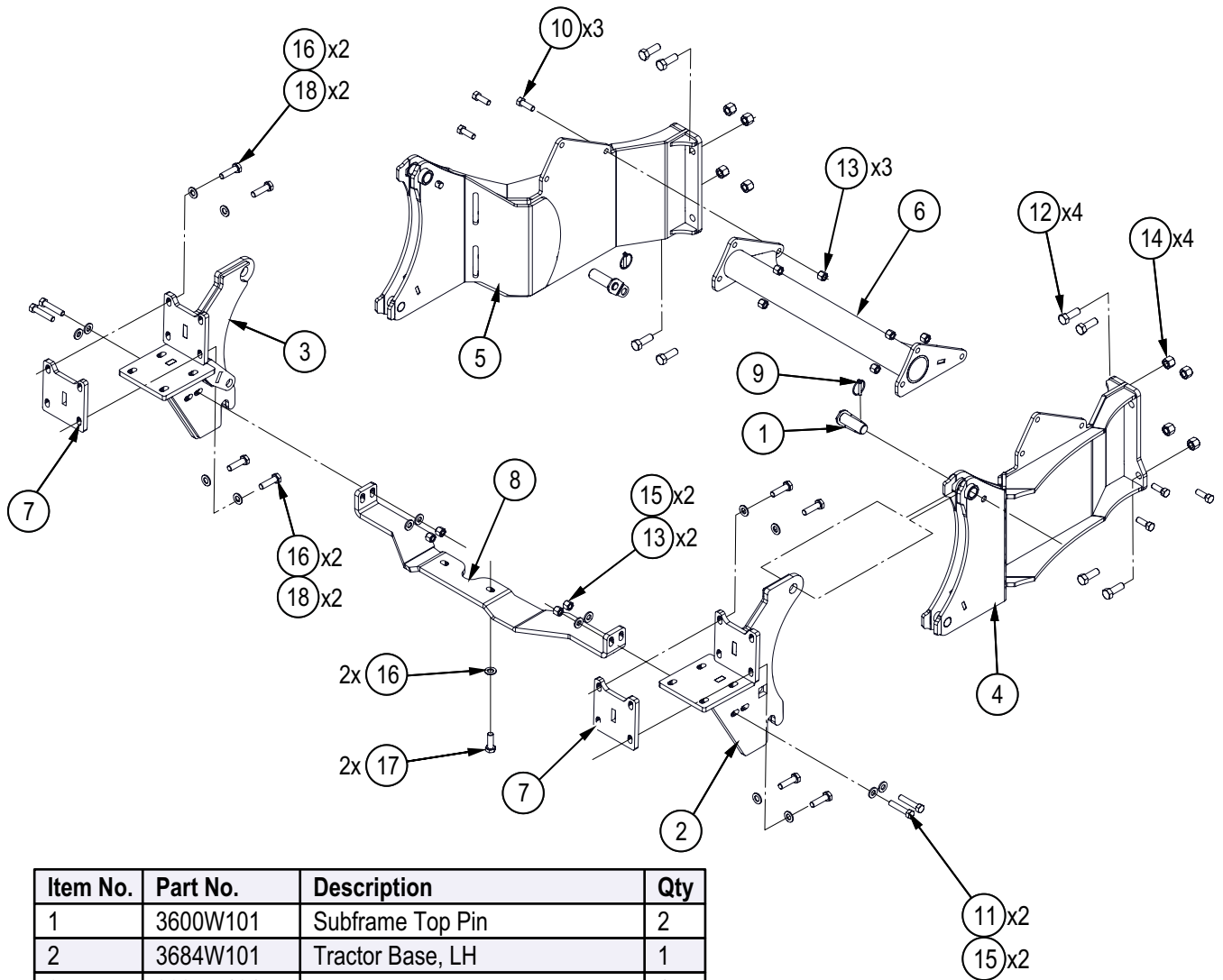
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

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 No.	Part No.	Description	Qty
1	3600W101	Subframe Top Pin	2
2	3684W101	Tractor Base, LH	1
3	3684W101H	Tractor Base, RH	1
4	3684W130	Backhoe Link, RH	1
5	3684W130H	Backhoe Link, LH	1
6	3684W131	Crossmember	1
7	3684L104	Axle Rear Mount	2
8	3684L105	Bottom Bracing	1
9	Z12120	Lynch Pin, 1/4"	2
10	Z71515	Hex Bolt, 1/2NC x 1-1/2"	6
11	Z71525	Hex Bolt, 1/2NC x 2-1/2"	4
12	Z71617	Hex Bolt, 5/8NC x 1-3/4"	8
13	Z72251	Hex Lock Nut, 1/2NC	10
14	Z72261	Hex Lock Nut, 5/8NC	8
15	Z73151	SAE Washer, 1/2"	8
16	Z77381	DIN 125 Washer, M14	10
17	Z77682	Hex Bolt, M14x1.5 x 40mm	2
18	Z77683	Hex Bolt, M14x1.5 x 50mm G10.9	8

Preparation:

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.
- Removing the tractor rear wheels can make the installation easier.

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.

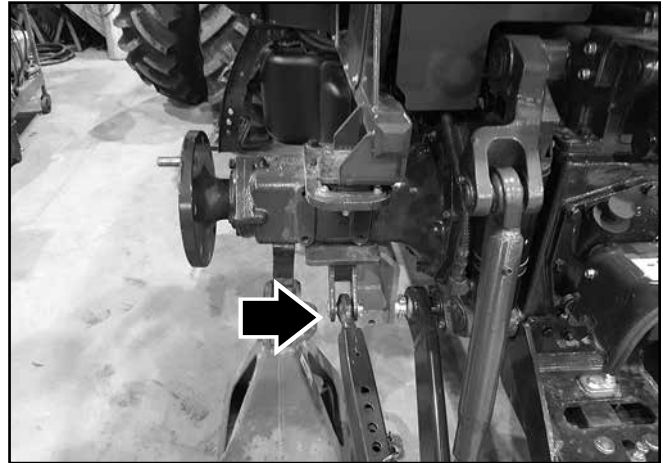
W009

Tools required:

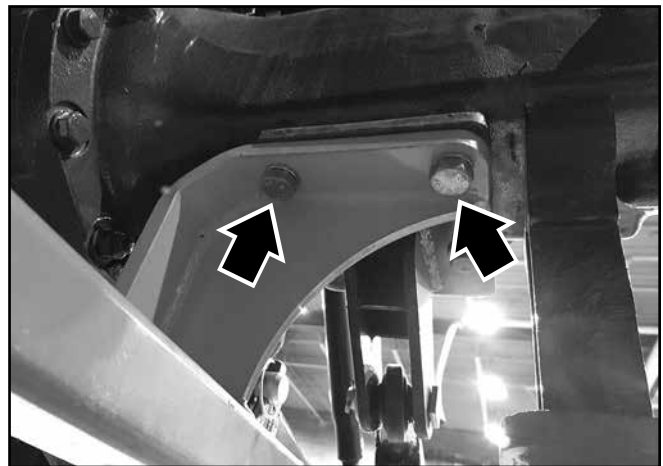
- Basic shop tools
- Standard 3/4", 15/16" spanner and socket wrenches
- Metric 21 mm spanner and socket wrenches
- Overhead lifting device
- Jack stands
- Torque wrench

Procedure

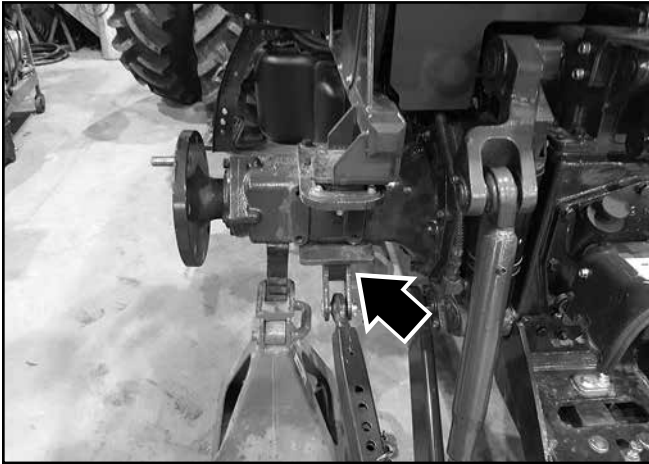
1. Starting on the left-hand side of the tractor, remove the anti-sway bar from the axle mount. Set the pin and lynch pin aside to be reused. Swing the lift arm in as far as it will go and secure it out of the way.



2. Disconnect the tractor load rail from the cab axle mount. Set the bolts and flat washers aside as they will be reused.

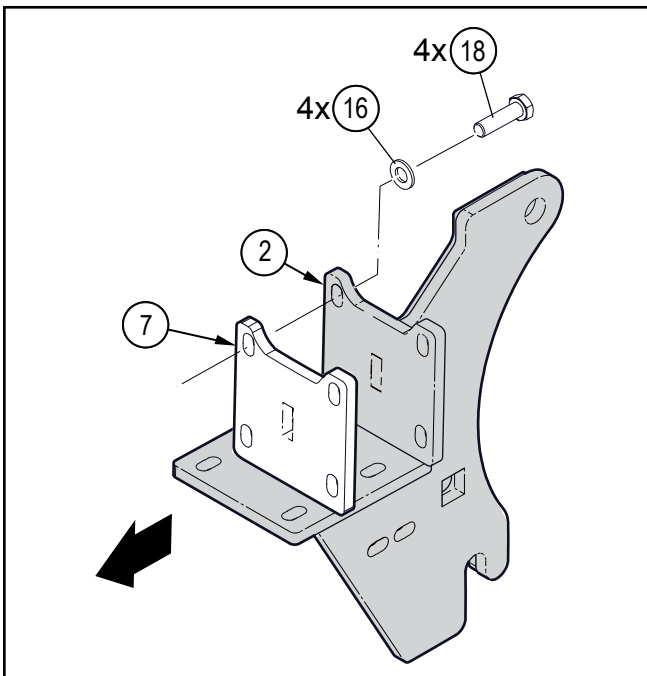


3. Remove the anti-sway bar mount from the underside of axle. It will not be reused with the installation of the subframe.

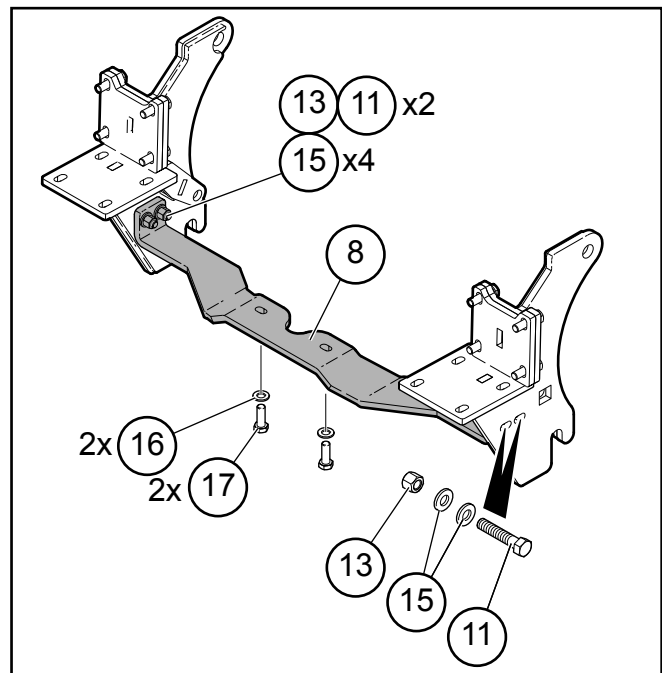


4. Install **(3684W101)** Tractor Base, LH (2) up against the axle. If your tractor has a cab, **(3684L104)** Axle Rear Mount (7) plate is also required as a spacer. Insert four **(Z77683)** M14 x 1.5 x 50 mm hex head bolts (18) with **(Z77381)** M14 flat washers (16) into the axle. Torque-tighten these bolts to **104 lbf•ft (141 N•m)**.

NOTE: If your tractor has a ROPS instead of a cab, item 7 is not required.



5. Perform the same exercise on the right-hand side of the tractor. Place **(3684W101H)** Tractor Base, RH (3) up against the axle with **(3684L104)** Axle Rear Mount (7) plate (if required). Insert four **(Z77683)** M14 x 1.5 x 50 mm hex head bolts (18) with **(Z77381)** M14 flat washers (16) into the axle. Torque-tighten these bolts to **104 lbf•ft (141 N•m)**.
6. Install **(3684L105)** Bottom Bracing (8) between the two Tractor Base brackets. Use **(Z71525)** 1/2"NC x 2-1/2" hex head bolts (11) with **(Z73151)** 1/2" flat washers (15) and **(Z72251)** 1/2" hex locknuts (13) — 2 each for left- and right-hand sides. Hand-tighten only.
7. Fasten it to the bottom of the tractor with two **(Z77682)** M14 x 1.5 x 40 mm hex head bolts (17) and **(Z77381)** M14 flat washers (16). Torque-tighten these bolts to **104 lbf•ft (141 N•m)**.



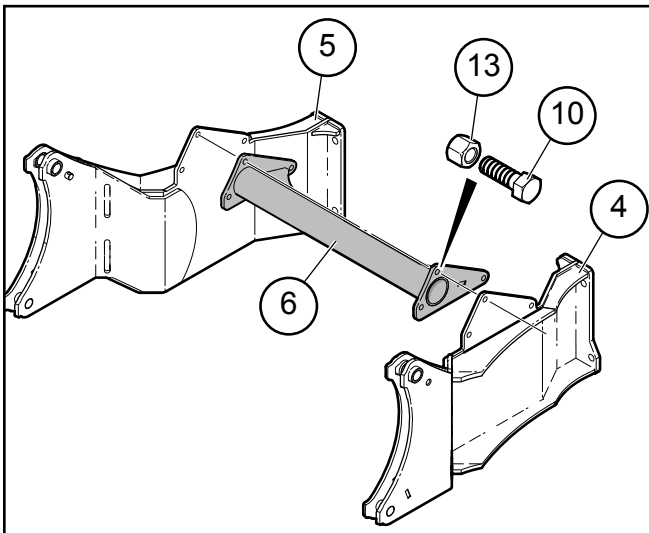
8. Reinstall the tractor load rail removed in Step 2. Refer to the tractor owners manual for bolt torque specification.



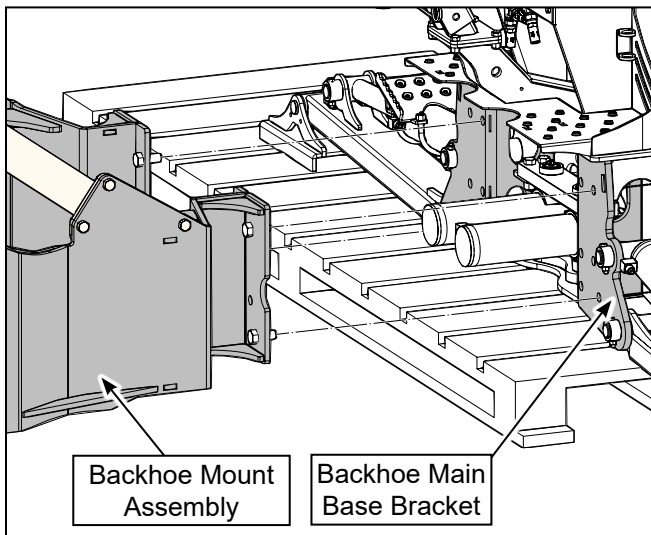
9. With the subframe installed, torque-tighten all fasteners.
10. Reinstall the anti-sway bars into the tractor mounts with the pins and lynch pins.

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


11. Install (3684W131) Crossmember (6) between (3684W130) Backhoe Link, RH (5) and (3684W101H) Backhoe Link, LH (4) using (Z71515) 1/2"NC x 1-1/2" hex bolts (10) and (Z72251) hex lock nuts (13) — 3 each for left- and right-hand sides. Torque-tighten these bolts to **80 lbf•ft (110 N•m)**.

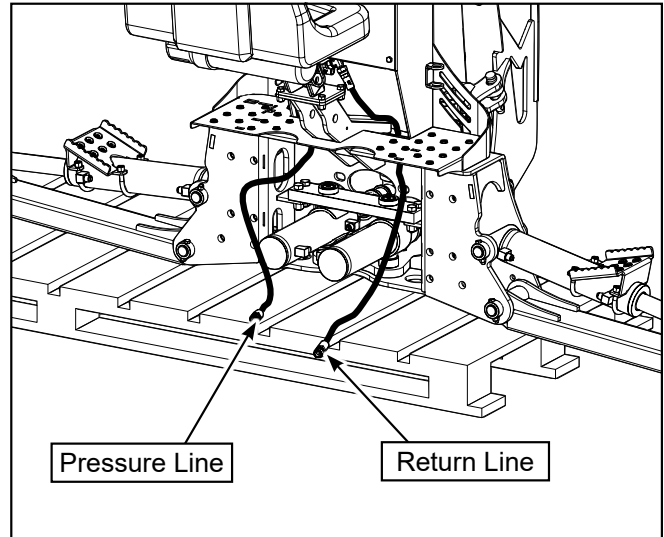


12. Take the backhoe mount assembly and attach it to the backhoe on main base bracket. Use the 5/8" NC bolts and nuts provided — 4 each for left- and right-hand sides. Torque-tighten these bolts to **160 lbf•ft (216 N•m)**.



13. Align and reverse the tractor up to the bracket. Get close enough to attach the hydraulic hoses to the backhoe.
14. Attach the hydraulic lines from the backhoe to the tractor. See illustration.

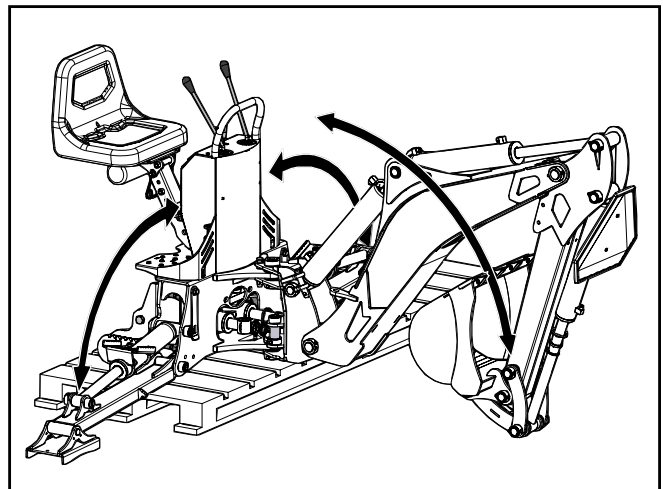
 **NOTE:** *The backhoe is equipped with a directional control valve and does not allow reverse flow if pressure and return lines are connected incorrectly.*



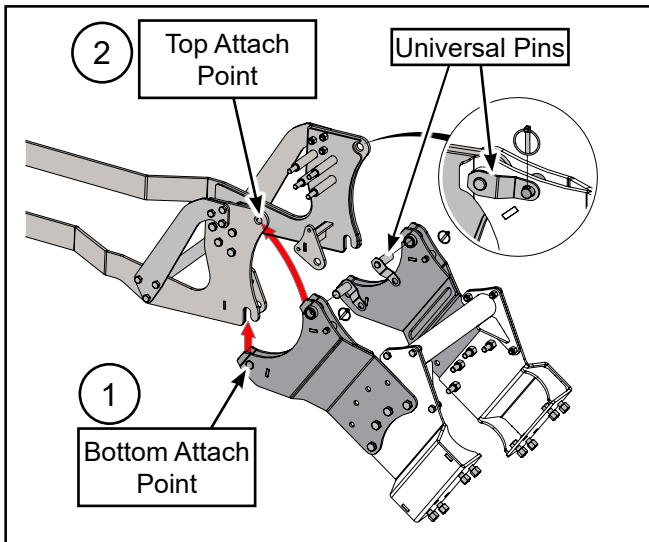
WARNING!

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

15. 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.



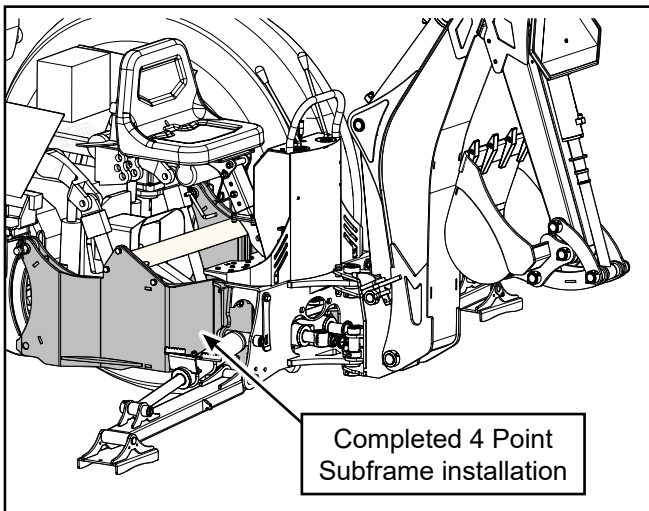
16. Carefully use the backhoe hydraulics to raise the bracket assembly into the bottom of the hooks for positive attachment.
17. Carefully use the backhoe hydraulics to rotate the bracket assembly into the top attach points on the subframe. Rotate the bracket until it reaches the stop. The pin holes will then be aligned.



Generic illustration showing hitching principal.

18. Insert the two welded universal pins into the pin holes and secure with lynch pins.
19. Check that all attach points are secure, and make sure all bolts / nuts are tightened and torqued.
20. Test the hydraulics: lift the stabilizer legs and remove the skid. Lower the stabilizers and test all boom functions.
21. Check that all moving parts have clearance and do not interfere with the subframe.

The subframe installation is now complete.




Bolt Torque

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

