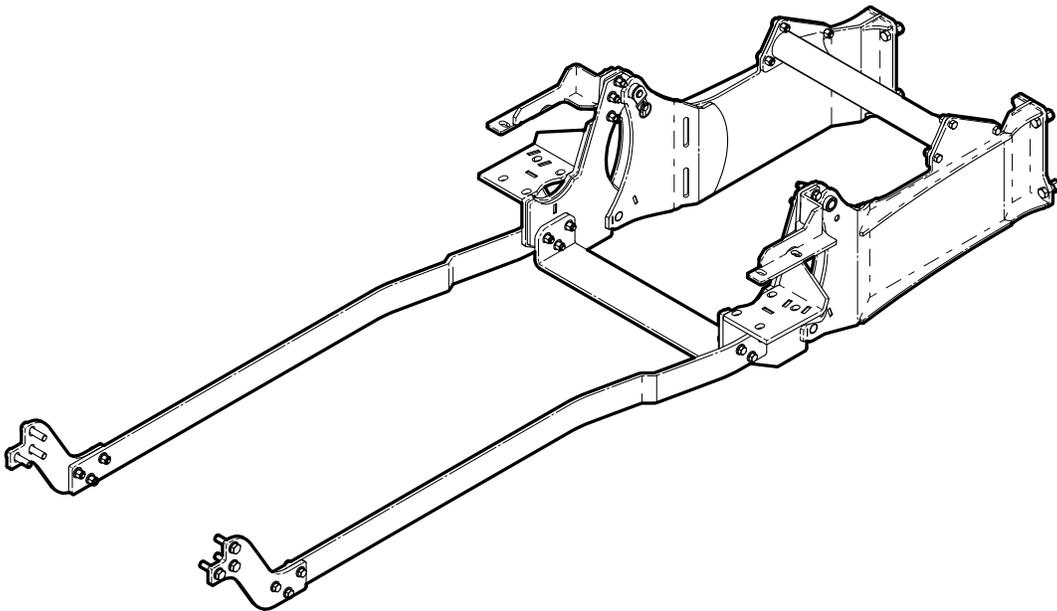


INSTALLATION INSTRUCTIONS

3652A300 Backhoe Subframe Kit



Introduction

This subframe is designed to work with Wallenstein Backhoes. Wallenstein backhoes are 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.

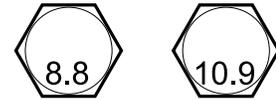
Some of the illustrations shown in this manual are general, but important features are detailed in order to install your kit successfully.

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 subframe parts and hardware to mount them 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

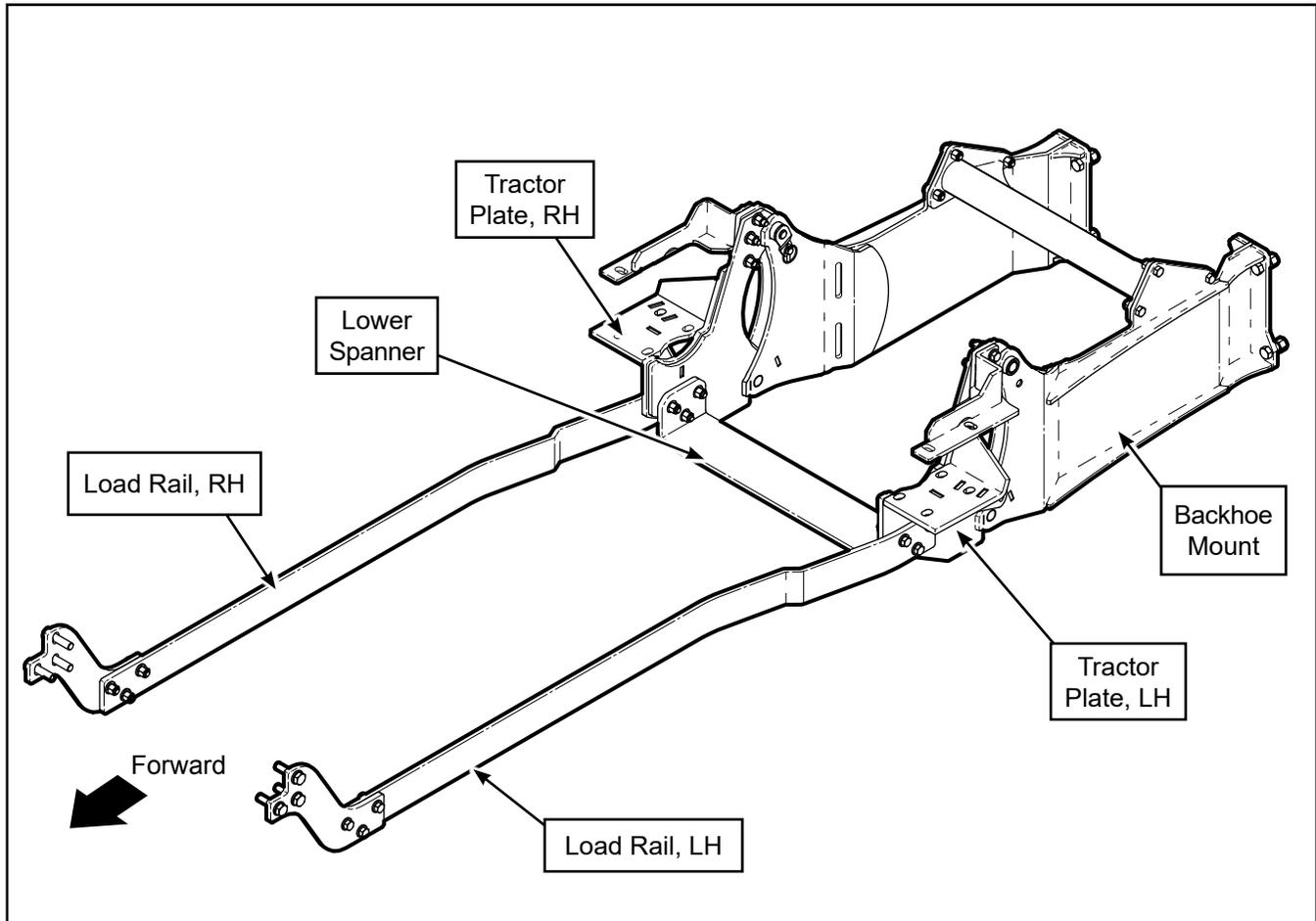


Imperial



Operator Orientation

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



Subframe Kit 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 subframe, backhoe and tractor are positioned on dry level ground before beginning. The area around them should be clear and free of debris. Make sure the tractor is shut off, the parking 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.

WARNING!

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

W009

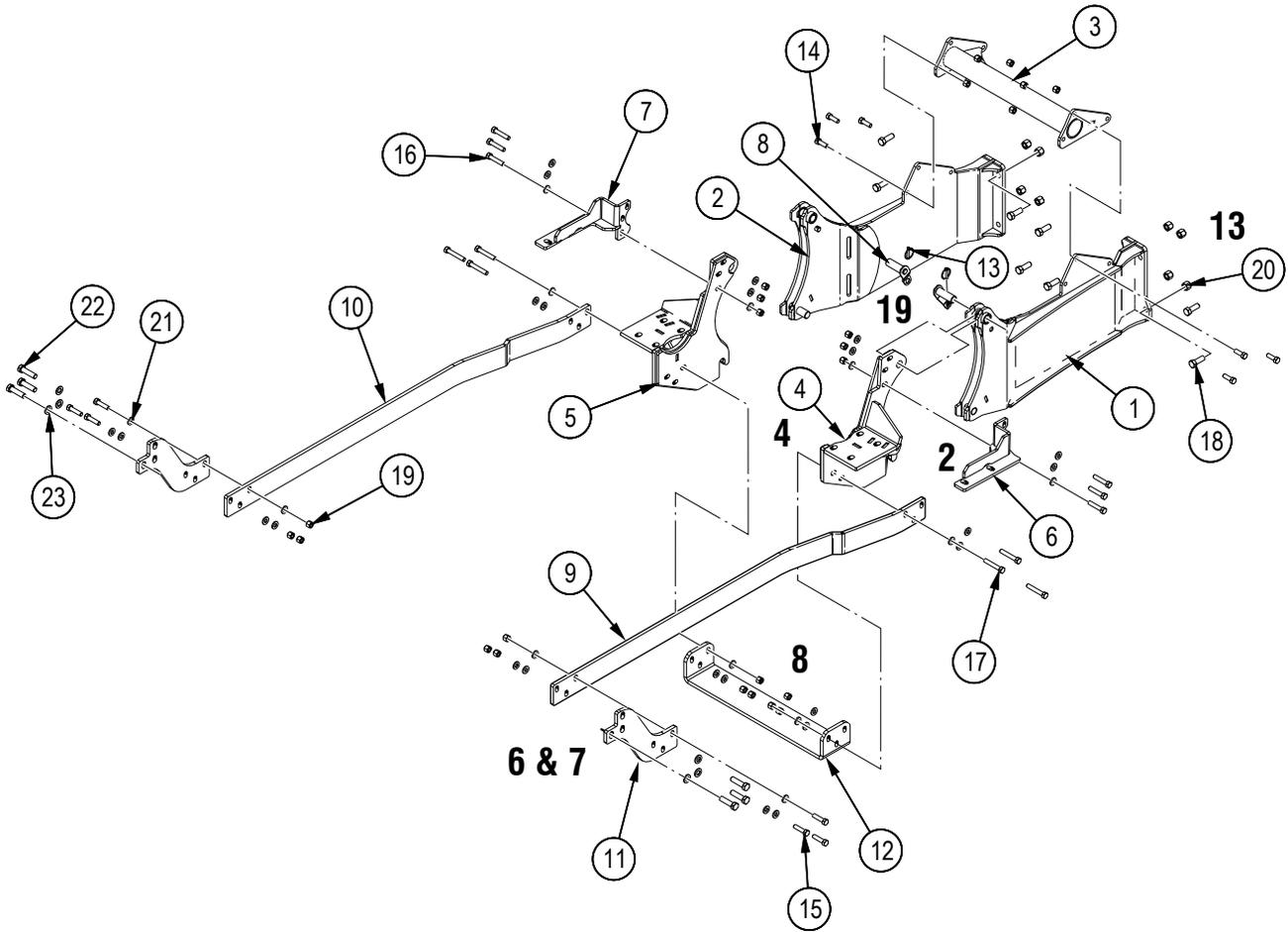
WARNING!

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

W018

1. Do not install backhoe and required counterweights on tractor if the total tractor and equipment weight then exceeds the ROPS weight certification of the tractor.
2. Be sure machine is properly mounted, adjusted and in good operating condition.
3. Ensure 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	3652W330	Backhoe Link, LH	1
2	3652W330H	Backhoe Link, RH	1
3	3652W331	Crossmember	1
4	3652W300	Tractor Plate, LH	1
5	3652W300H	Tractor Plate, RH	1
6	3652W301	Top Axle Mount, LH	1
7	3652W301H	Top Axle Mount, RH	1
8	3600W101	Subframe Top Pin	2
9	3652L308	Load Rail, LH	1
10	3652L308H	Load Rail, RH	1
11	3652L309	Loader Mount	2
12	3652L310	Lower Spanner	1

Item	Part Number	Description	Quantity
13	Z12120	Lynch Pin, 1/4"	2
14	Z71515	Hex Bolt, 1/2NC x 1-1/2"	6
15	Z71520	Hex Bolt, 1/2NC x 2"	6
16	Z71525	Hex Bolt, 1/2NC x 2-1/2"	6
17	Z71530	Hex Bolt, 1/2NC x 3"	6
18	Z71617	Hex Bolt, 5/8NC x 1-3/4"	8
19	Z72251	Hex Lock Nut, 1/2NC	24
20	Z72261	Hex Lock Nut, 5/8NC	8
21	Z73151	SAE Washer, 1/2"	36
22	Z77192G10-9	Hex Bolt, M16x2.0 x 60mm G10.9	6
23	Z77391	DIN 125 Washer, M16	6

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.

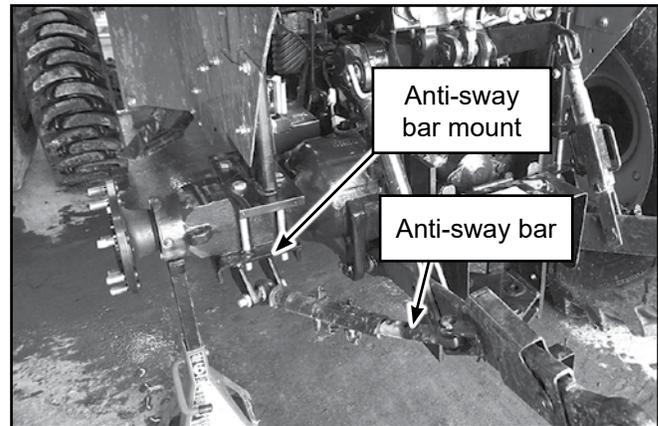
Tools required:

- Basic shop tools
- Wrenches / sockets for 1/2", 5/8" bolts
- Wrenches / sockets for M16 bolts
- Overhead lifting device
- Jack stands
- Torque wrench

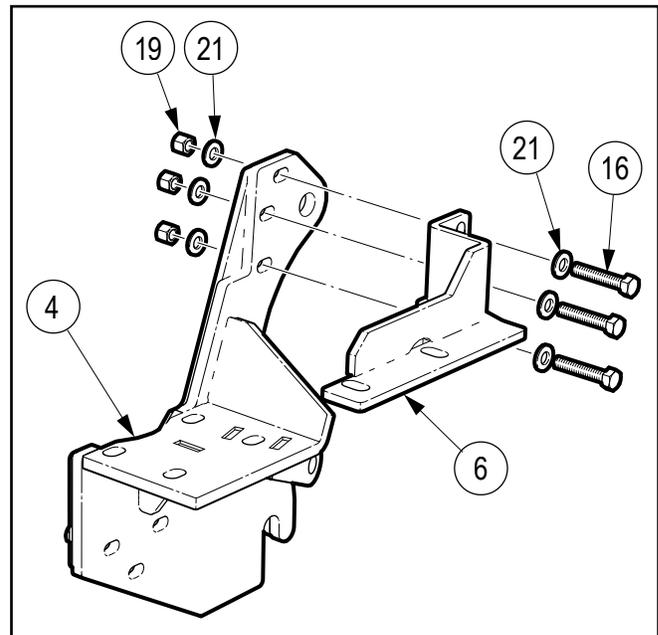
 **NOTE:** *Installation is made easier if rear tractor wheels are removed beforehand.*

Procedure

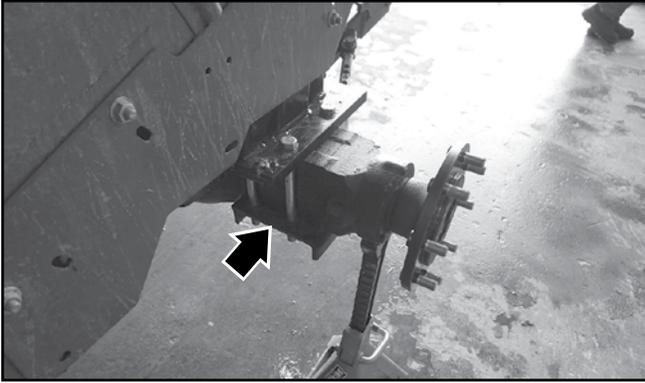
1. Starting on the left-hand side of the tractor, remove the anti-sway bar from the axle mount. Swing the lift arm in as far as it will go and secure it out of the way.



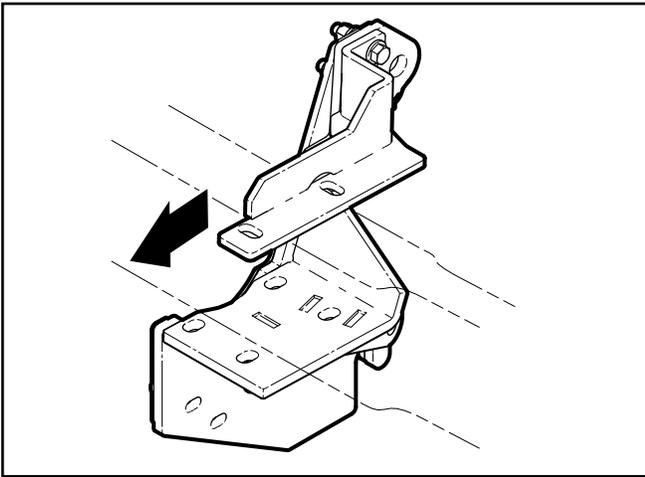
2. Assemble **(3652W300)** Tractor Plate, LH (4) and **(3652W301)** Top Axle Mount, LH (6). Use three **(Z71525)** 1/2" NC x 2 1/2" Lg. hex head bolts (16), **(Z72251)** 1/2" NC lock nuts (19), and **(Z73151)** 1/2" flat washers (21).
Hand tighten only at this time.



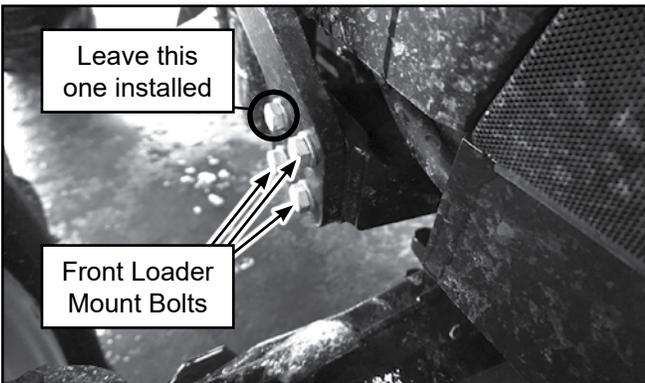
- Remove the anti-sway bar mount from the axle. Set the long bolts, hex nuts and washers aside for later reuse.



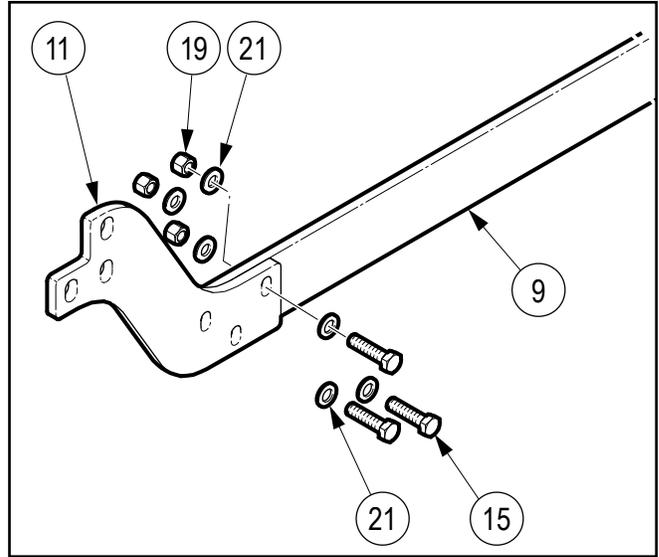
- Slide the Tractor Plate / Top Axle Mount assembly onto the axle. Reinstall the long axle bolts, washers and hex nuts. **Hand tighten only at this time.**



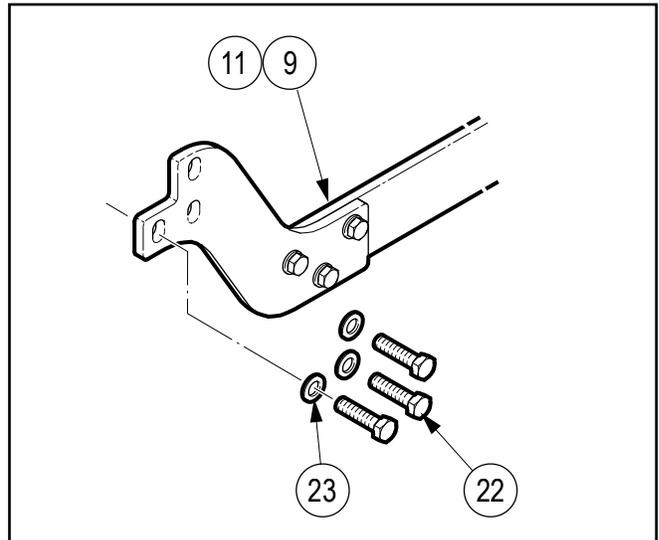
- Remove three of the bolts on the front left-hand loader mount. Remove the rear most upper bolt and the two lower bolts.



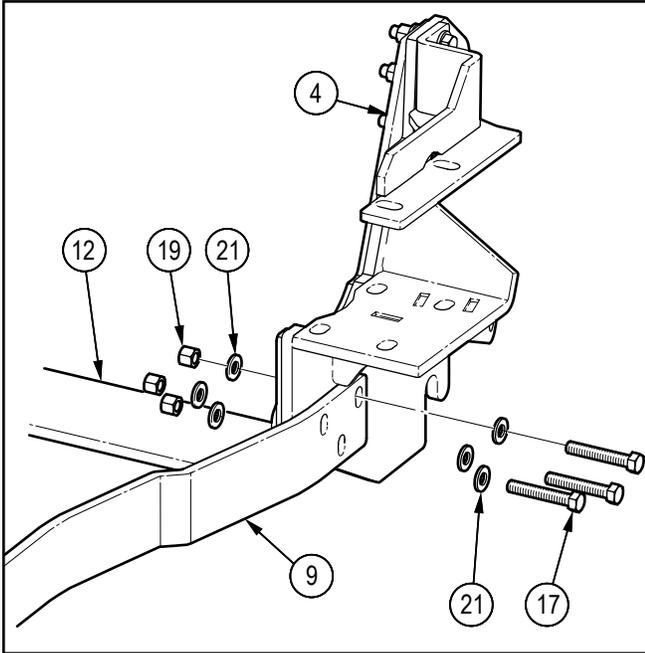
- Assemble the **(3652L308)** Load Rail, LH (9) with a **(3652L309)** Loader Mount (11). Use three **(Z71520)** 1/2" NC x 2" Lg hex head bolts (15), **(Z73151)** 1/2" washers (21), and **(Z72251)** 1/2" NC lock nuts (19). **Hand tighten only at this time.**



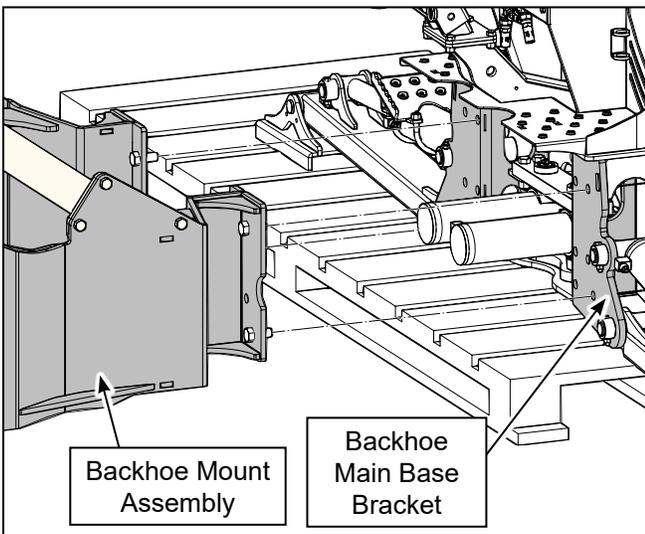
- Install the **(3652L309)** Loader Mount and **(3652L308)** Load Rail assembly (11 and 9) at the front left-hand loader mount position on the tractor. Use three **(Z77192G10-9)** M16 x 2.0 x 60 mm hex head bolts (22) and **(Z77391)** M16 washers (23). **Hand tighten only at this time.**



8. Assemble **(3652L308)** Load Rail, LH (9) and **(3652L310)** Lower Spanner (12) to **(3652W300)** Tractor Plate, LH (4). Use **(Z71530 x3, Z73151 x3, Z73151 x3)** 1/2" NC x 3" Lg. hex head bolts, washers, and lock nuts (17, 21, 19). **Hand tighten only at this time.**



9. Repeat steps 1–8 for the right-hand side. Hand tighten only until fully assembled.
10. Torque-tighten all subframe fasteners.
11. Reattach the anti-sway bars.
12. Re-install the wheels if removed, and torque lug nuts / bolts. Refer to tractor owner's manual.
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 side.
14. Torque-tighten all the bolts.

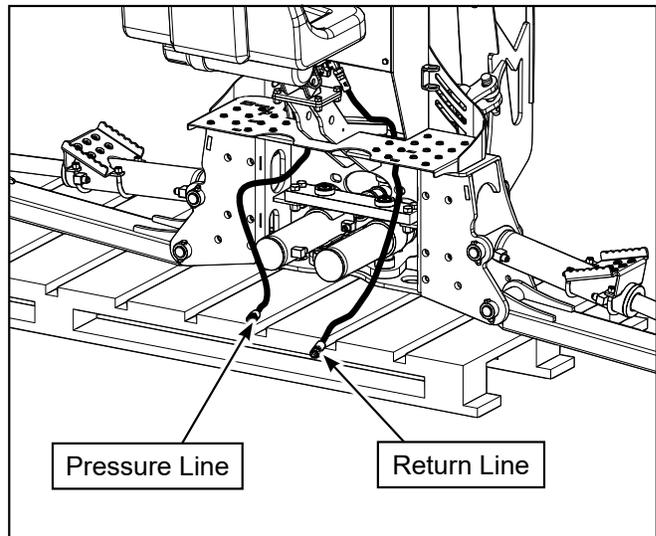


The subframe, backhoe mount and backhoe should remain on the tractor and not be removed. Check that the lift arms move freely with the subframe installed.

Attaching the Backhoe

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

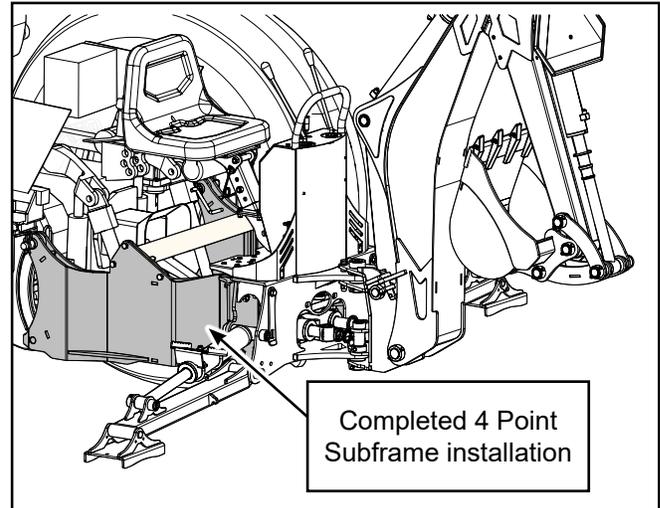
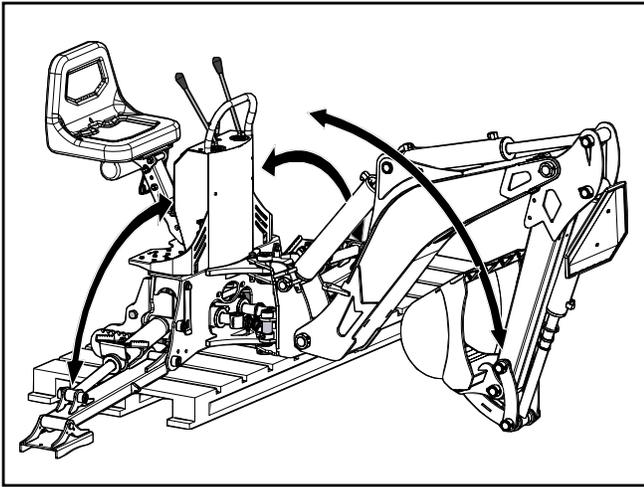
NOTE: *The backhoe is equipped with a directional control valve and does not allow reverse flow if pressure and return lines are connected incorrectly.*



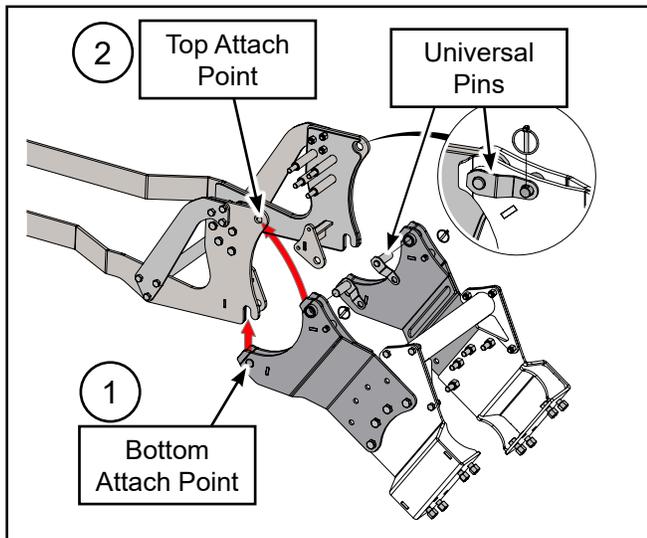
WARNING!

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

17. 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.



18. Carefully use the backhoe hydraulics to raise the bracket assembly into the bottom of the hooks for positive attachment.
19. 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.

20. Insert the two welded universal pins into the pin holes and secure with lynch pins.
21. Check that all attach points are secure, and make sure all bolts / nuts are tightened and torqued.
22. Test the hydraulics: lift the stabilizer legs and remove the skid. Lower the stabilizers and test all boom functions.
23. 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

