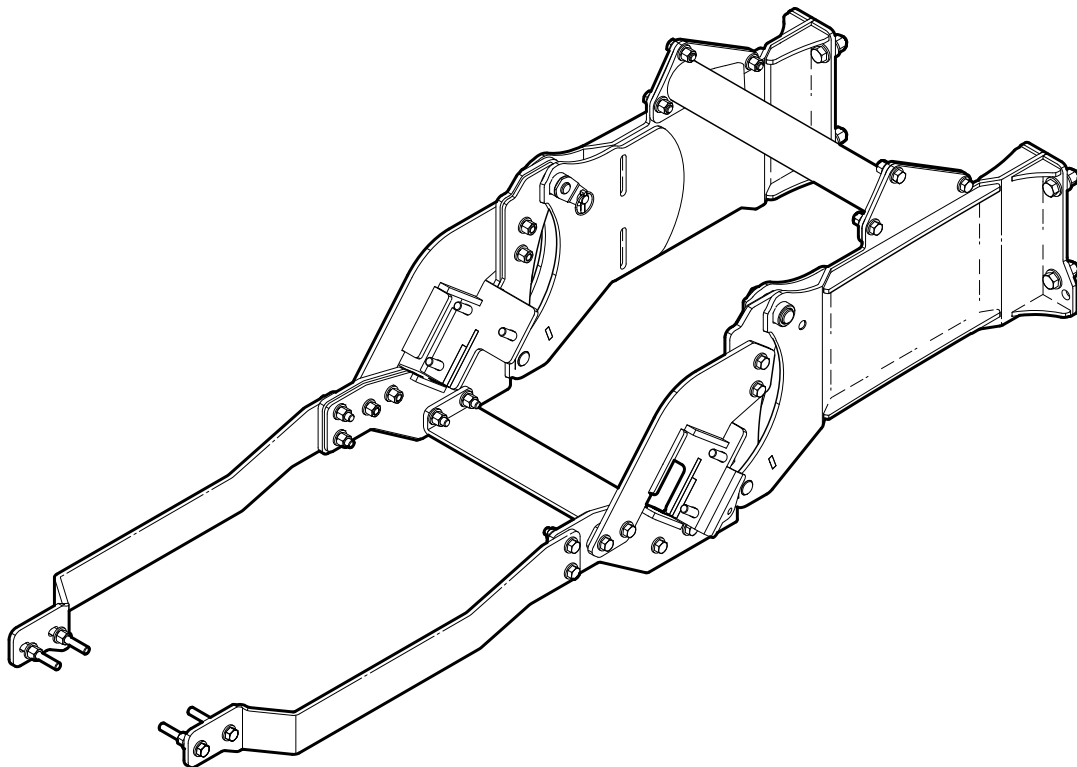


# INSTALLATION INSTRUCTIONS

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## 3683A700 Backhoe Subframe Kit



## Introduction

This subframe is designed to work with Wallenstein Backhoes.

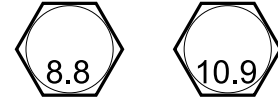
With this Subframe Kit you can easily and quickly attach and detach your Wallenstein backhoe to your tractor.

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**

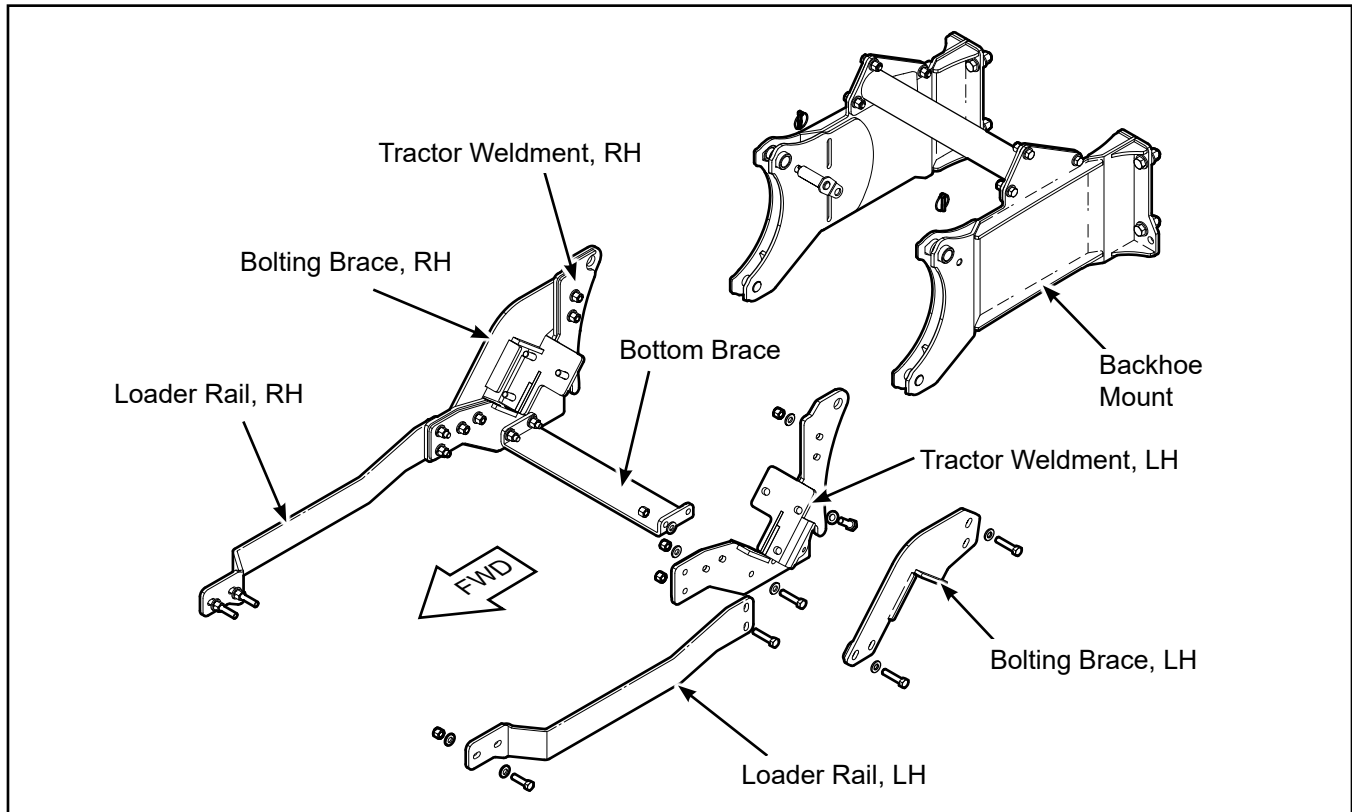


**Imperial**



## 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!

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!

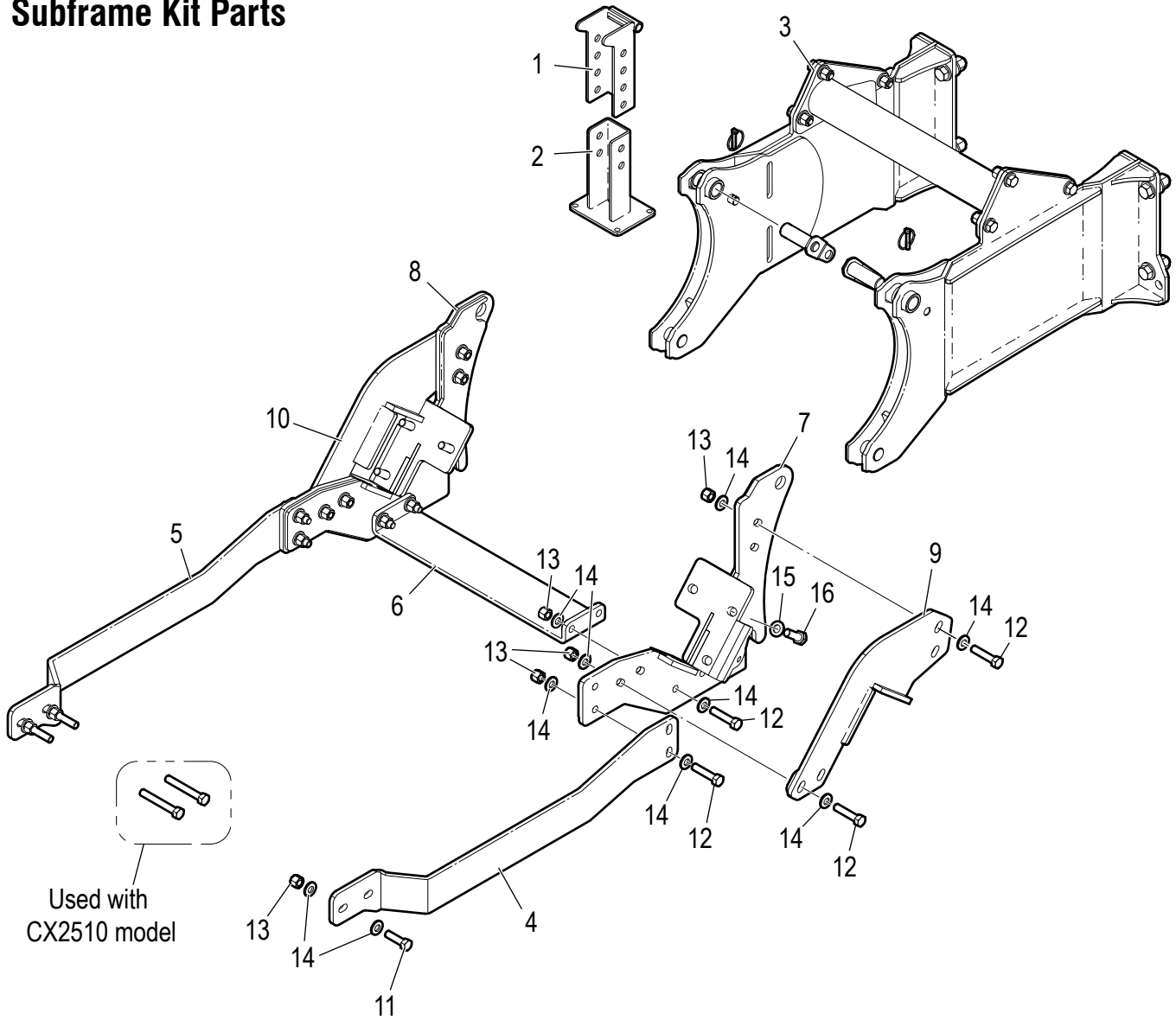
Review and understand the operating instructions for the backhoe. Part of the installation process includes operating the hydraulics to position the attachment points on the tractor.

### 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	3011W120	Seat Post, Straight Upper	1
2	3011W121	Straight Seat Base	1
3	3683A730	Backhoe Mount	1
4	3683L708	Rail, LH Loader	1
5	3683L708H	Rail, RH Loader	1
6	3683L711	Brace, Bottom	1
7	3683W701	Weldment, Tractor LH	1
8	3683W701H	Weldment, Tractor RH	1
9	3683W702	Weldment, LH Bolting Brace	1
10	3683W702H	Weldment, RH Bolting Brace	1
11	Z71517	Hex Bolt, 1/2NC x 1-3/4"	4
12	Z71522	Hex Bolt, 1/2NC x 2-1/4"	16
13	Z72251	Hex Lock Nut, 1/2NC	20
14	Z73151G8	SAE Washer, 1/2" Grade 8	40
15	Z77381G 10-9	DIN 125 Washer, M 14 Grade 10.9	6
16	Z77682	Hex Bolt, M 14x1.5 x 40m m	6
17	Z71535	Hex Bolt, 1/2NC x 3-1/2"	4

**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.

## 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.

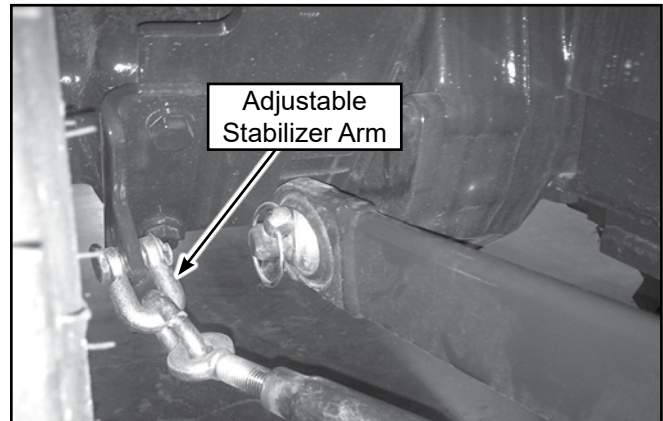
## Tools required:

- Basic shop tools
- 3/4" 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, disconnect the adjustable stabilizer arm from the mount underneath the axle.

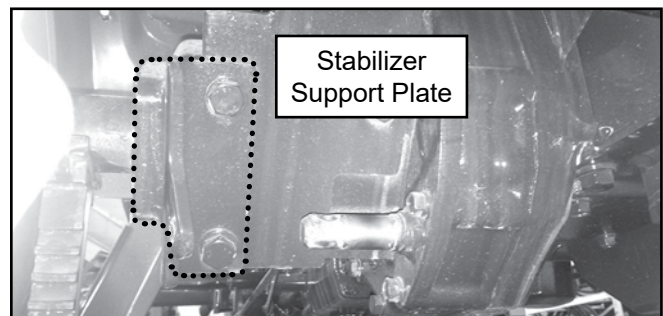
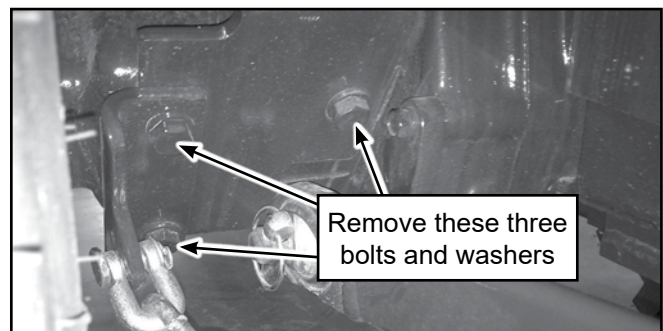
Swing the stabilizer arm and lift arm inward as far as they can go. Secure them there out of the way.



## Step 2

Remove the three bolts and washers from the ROPS / Cab support on the underside of the axle. Remove the stabilizer support plate.

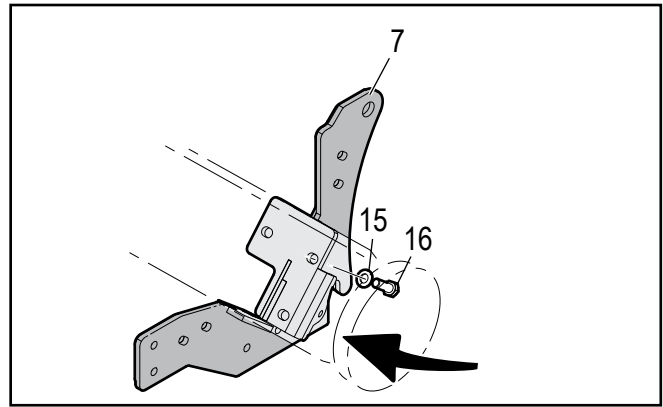
Set the support plate and fasteners aside as they are not reused on assembly.



**Step 3**

Fasten **3683W701** Tractor Weldment, LH (item 7) to the underside of the left-hand axle with three of **Z77682** M14 x 40 mm Hex head Bolts (item 16) and **Z77381G 10-9** M14 Flatwashers (item 15).

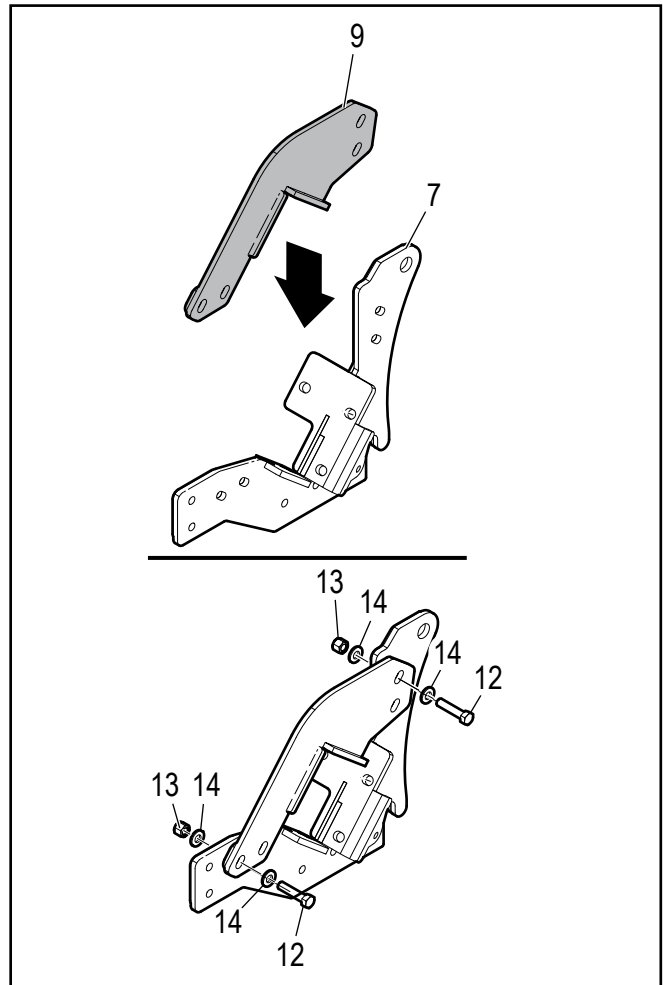
Torque-tighten M14 Hex Bolts to – **83 lbf•ft (112 N•m)**.

**Step 4**

Install **3683W702** LH Bolting Brace (item 9) on the top side of the axle, and to the outside of item 7.

Fasten the two plates together using four **Z71522** Hex Head Bolts 1/2"NC x 2-1/4" (Item 12), **Z72251** 1/2"NC Hex Locknut (item 13) with **Z73151G8** 1/2" Flatwashers (Item 14).

Hand-tighten only for now.



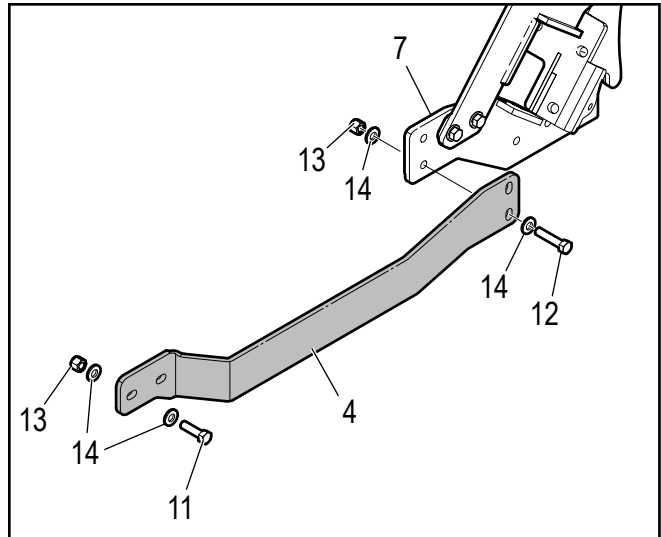
## Step 5

Install **3683L708** Loader Rail, LH (item 4) between the front loader mount on the tractor frame and the **3683W701** Tractor Weldment, LH (item 7).

At the rear connection, use two **Z71522** Hex Head Bolts 1/2"NC x 2-1/4" (Item 12), **Z72251** 1/2" Hex Locknuts (item 13) with **Z73151G8** 1/2" Flatwashers (Item 14).

At the front loader mount on the frame, use two **Z71517** 1/2"NC x 1-3/4" Hex Head Bolts (item 11) with **Z72251** 1/2"NC Hex Locknuts (item 13) and **Z73151G8** Flatwashers (item 14).

Hand tighten only at this time.



## Step 6

Perform Steps 1–5 on the right-hand side of the tractor.

## Step 7

Install **3683L711** Bottom Brace (item 6) between the two Loader Rails. Use two **Z71522** Hex Head Bolts 1/2"NC x 2-1/4" (Item 12), **Z72251** 1/2" Hex Locknut (item 13) with **Z73151G8** 1/2" Flatwashers (Item 14).

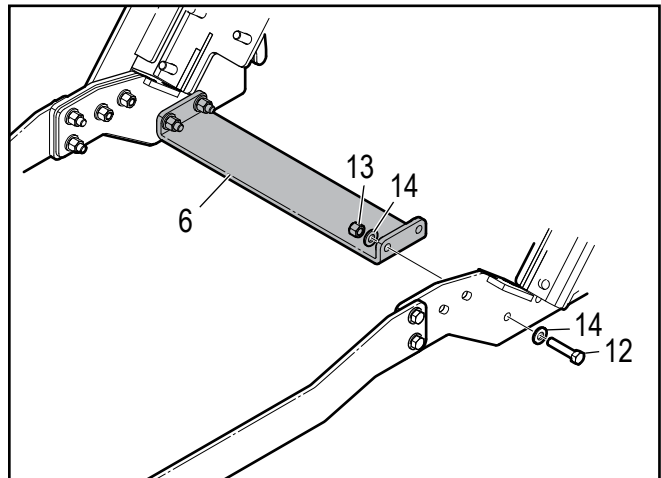
## Step 8

**Torque-tighten all fasteners on the subframe.**

1/2" fasteners – 80 lbf•ft (100 N•m)

M14 fasteners – 83 lbf•ft (112 N•m)

This concludes the subframe installation.



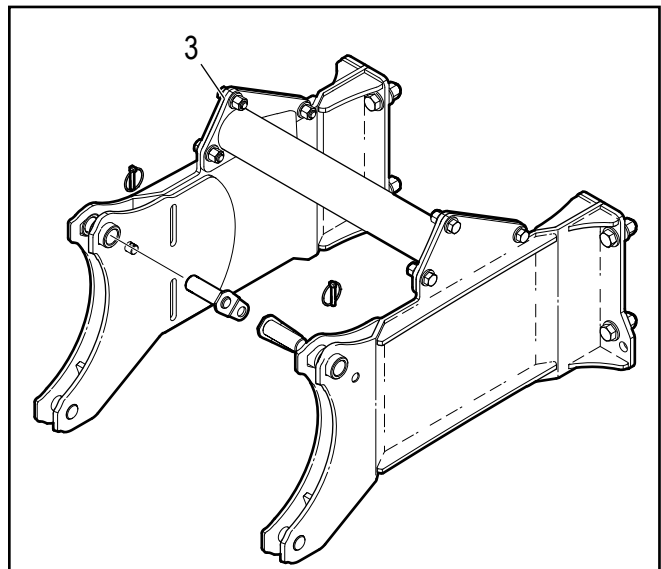
## Step 9

If not already assembled, the Backhoe Mount (item 3) can be put together.

## Step 10

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 adjustable stabilizer arm to the hole provided in plate **3683W701** Tractor Weldment, LH (item 7) installed in Step 3.



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

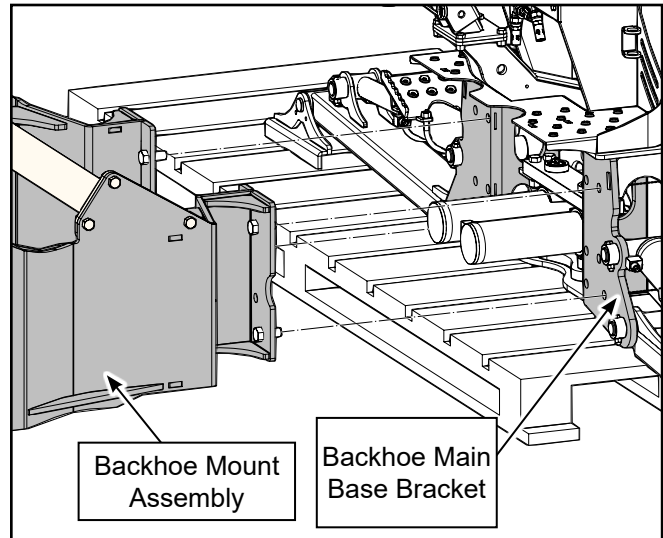
### Step 11

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 12

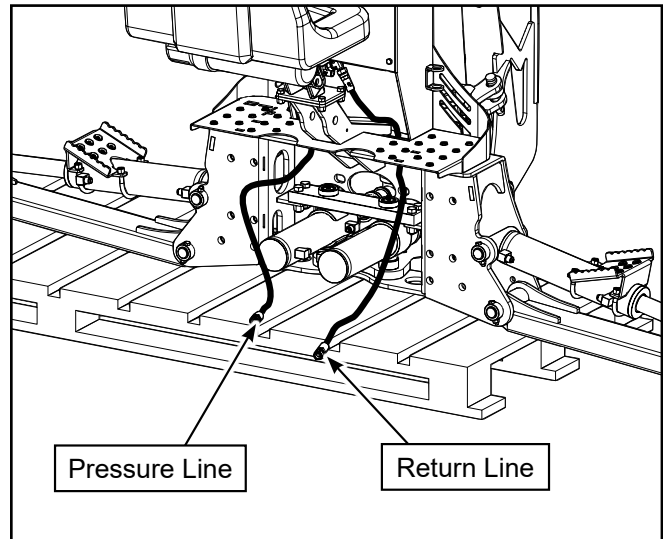
Align and reverse the tractor up to the bracket. Get close enough to attach the hydraulic hoses to the backhoe.



### Step 13

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!**

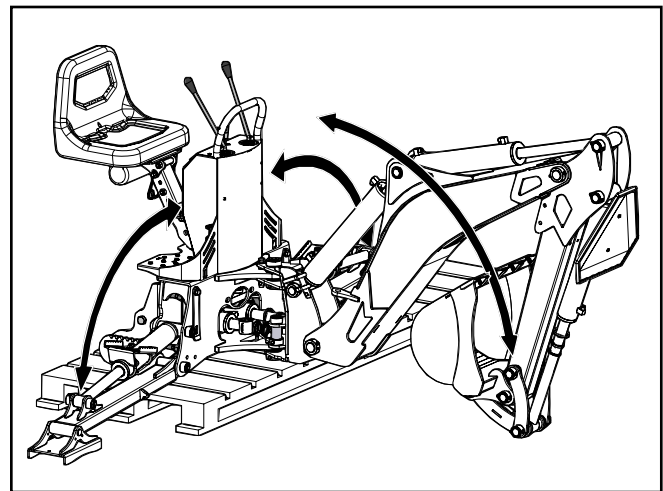
**When operating the boom and stabilizers, ensure the area is clear of bystanders and operator is safely positioned.**

### Step 14

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 15

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



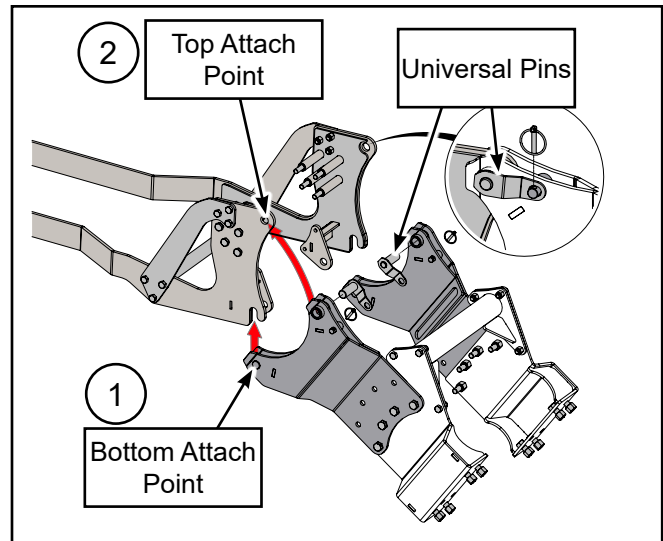


### Step 16

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 17

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



Generic illustration showing hitching principal.

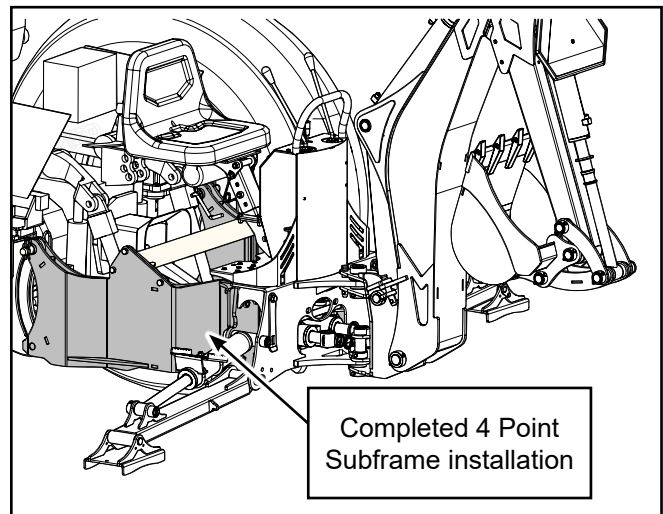
### Step 18

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

