

# Cost-effective Rollover Protective Structure (CROPS)

for Wheeled Agricultural Tractors

FORD 4000 SERIES

INSTALLATION INSTRUCTIONS

Note: “Left” and “Right” refer to the tractor operators’ left or right as they sit in the seat looking forward.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health



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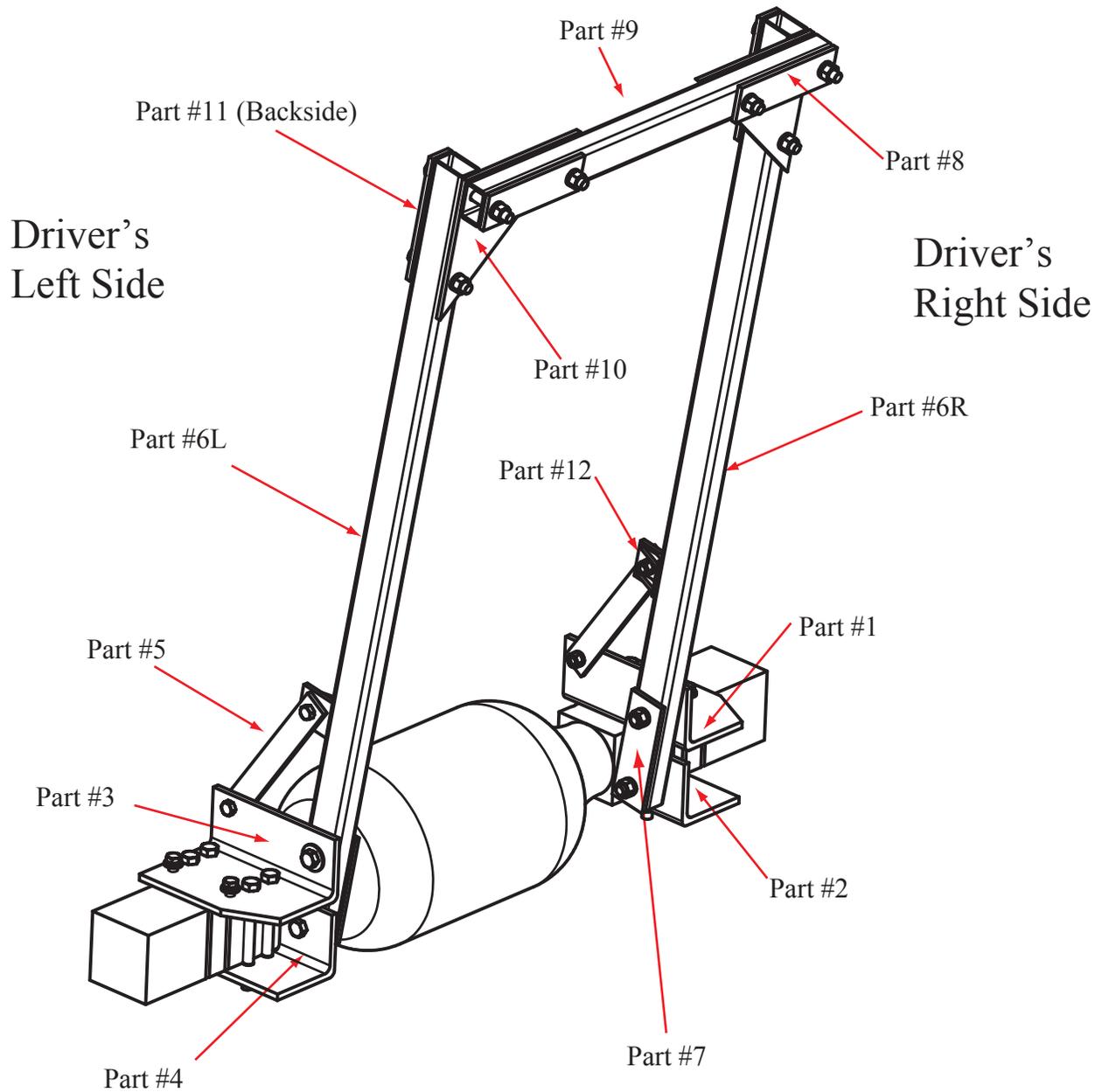
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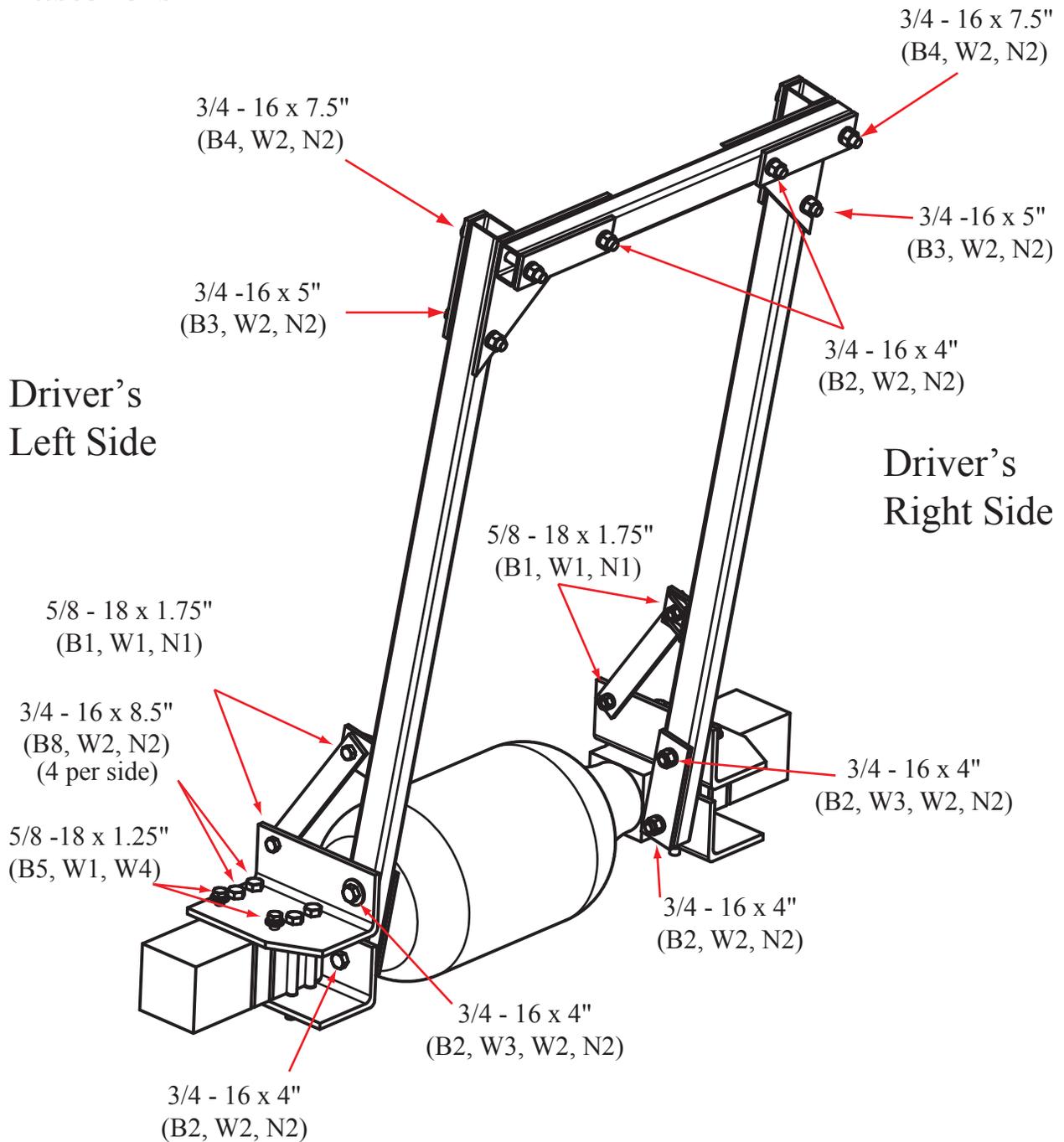
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# CROPS Ford 4000 Parts



# CROPS Ford 4000 Fasteners



## Special Notes

- a. Check that all parts are present before assembling the unit.
- b. Separate parts into groups for easier identification during assembly.
- c. For large parts, you may need another person to help you with assembly. Before installing the CROPS, the fenders of the tractor must be removed from the axles, and the axles should be brushed clean.
- d. Install the seat belt attachment kit using the provided instructions.

## Tools Needed

tape measure

½" drive standard socket set with sockets up to 1-1/8"

½" drive deep well sockets 15/16" and 1-1/8"

open/box combination wrench set up to 1-1/8"

½" drive torque wrench with a 240 ft-lb capacity

wire hand brush

hammer

small step stool

eye protection

# CROPS Ford 4000 Parts List

## CROPS Parts

Item #	Quantity	Description
1	1	top right axle bracket
2	1	bottom right axle bracket
3	1	top left axle bracket
4	1	bottom left axle bracket
5	2	vertical tube bolted brace
6R	1	right vertical tube
6L	1	left vertical tube
7	2	bottom vertical tube backing plate
8	2	cross bar backing plate
9	1	cross bar
10	2	corner plate
11	2	top vertical tube backing plate
12	2	vertical tube welded brace
13	2	fender spacer

## CROPS Fasteners

Bolts						
Item #	Quantity	Grade	Diameter	Thread	Length	Thread Length
B1	4	8	5/8	18	1.75	full thread
B2	6	5	3/4	16	4	partial thread
B3	2	5	3/4	16	5	partial thread
B4	2	5	3/4	16	7.5	partial thread
B5	4	8	5/8	18	1.25	full thread
B8	8	5	3/4	16	8.5	partial thread

Washers				
Item #	Quantity	Type	ID	OD
W1	8	locking	5/8	-
W2	18	locking	3/4	-
W3	2	flat	3/4	2
W4	4	flat	5/8	1-5/16
W5	4	flat	3/4	1-1/2

Nuts				
Item #	Quantity	Grade	ID	Thread
N1	4	8	5/8	18
N2	18	5	3/4	16

\*The seat belt and mounting bolts must be purchased separately

# CROPS Ford 4000 Steps 1-3

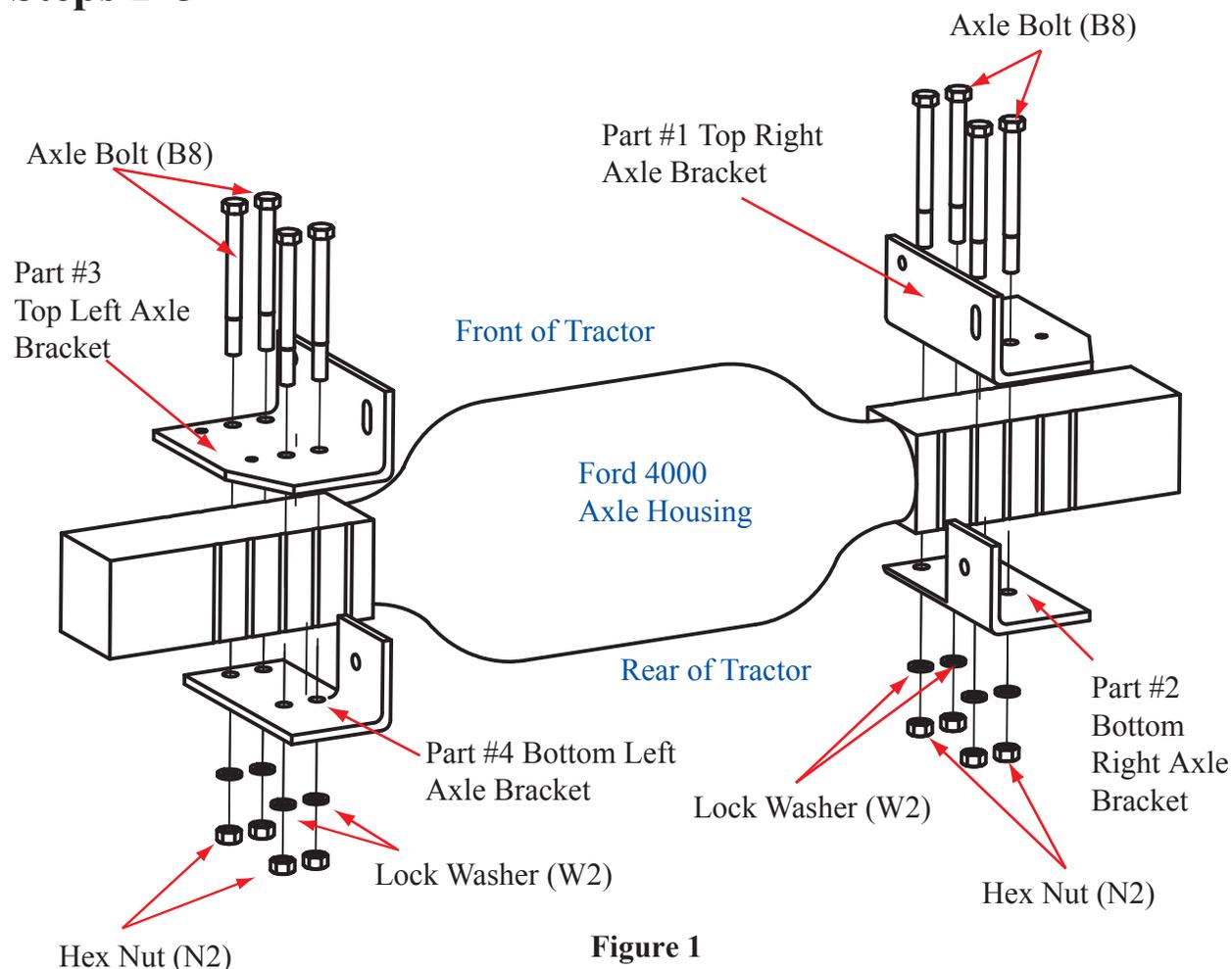


Figure 1

**Step 1.** Read the “special notes” section on page 5 and “fender mounting instructions” on pages 14-16. (NOTE: Fender installations options “B” or “C” are installed at this time. Fender Option “A” is installed after Step 23). Place the top right axle bracket (#1) on top of the right axle. Insert four axle bolts (B8) down through the axle bracket pattern and through the second and third axle slots of the tractor located between the center of the tractor and the tire. (Figure 1)

**Step 2.** Align and install the bottom right axle bracket (#2) to the bottom of the tractor axle using the four-hole bolt pattern of the axle bracket and the bolts inserted in step 1. If needed for a draw bar link, install a bottom right lower link support bracket to the axle bolts (B8) and the bottom surface of the axle bracket (#2). Install lock washers (W2) and nuts (N2) to axle bolts (B8). Tighten bolts and nuts until axle brackets are “snug fit” to axle. (Figure 1)

**Step 3.** Repeat steps 1 and 2 for the left tractor axle using the top left axle bracket (#3), bottom left axle bracket (#4), corresponding axle bolts (B8), lock washers (W2), and nuts (N2).

# CROPS

## Ford 4000

### Steps 4 - 7

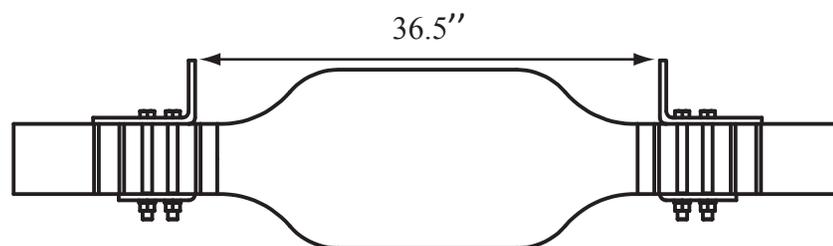


Figure 2

Step 4. Adjust (with hammer taps if needed) left and right axle brackets so that the inside measurement of axle brackets is 36 1/2". (Fig.2)

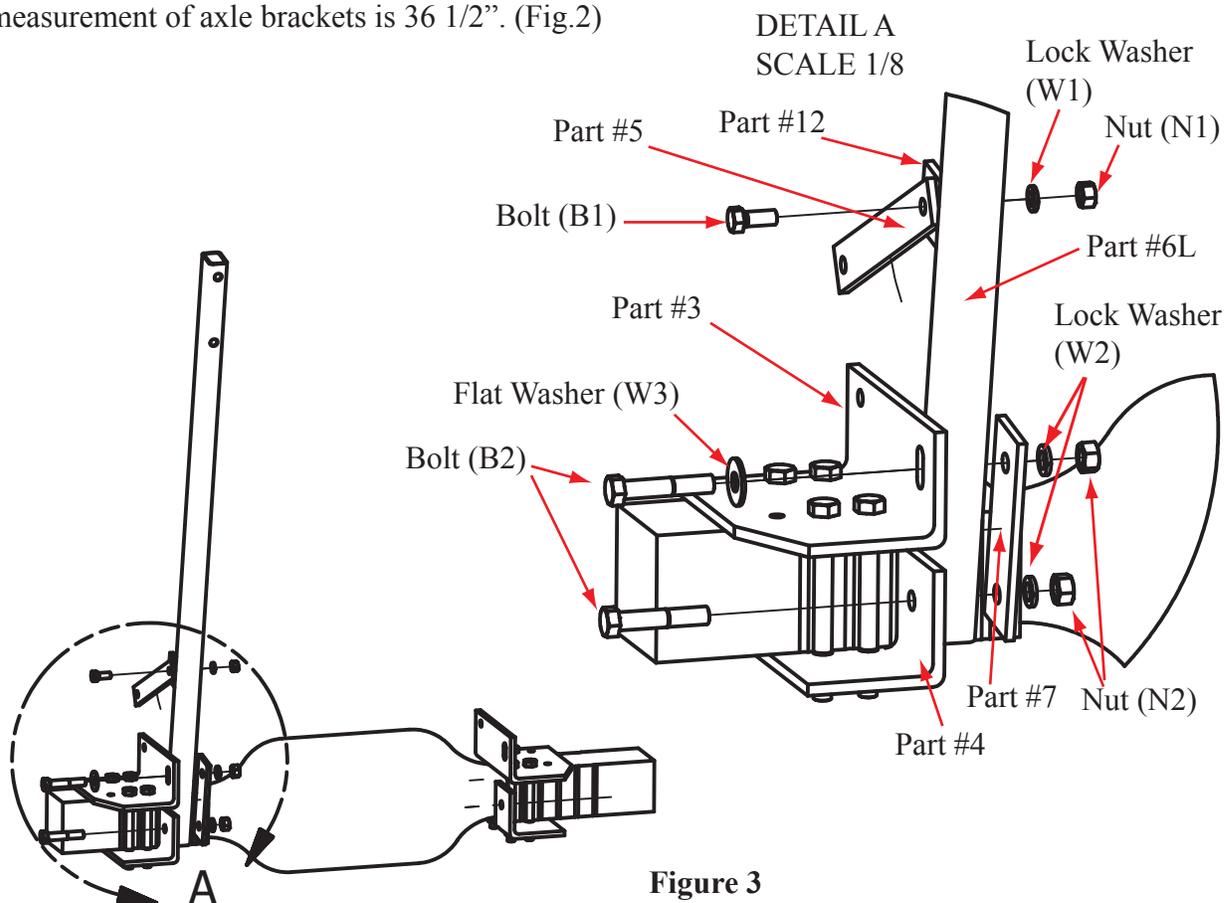


Figure 3

**Step 5.** Insert bolt (B1) into the vertical tube bolted brace (#5) and the vertical tube welded brace (#12), use lock washer (W1) and nut (N1) to create a snug fit. (Figure 3)

**Step 6.** Insert bolt (B2) through the bottom left bracket (#4). Slide the bottom hole of vertical tube (#6L) onto bolt (B2), then place backing plate (#7) onto bolt (B2), secure with lock washer (W2) and nut (N2), create a snug fit. The welded brace (#12) [this is welded to part (#6L)] should be facing up and toward the axle bracket side as shown in Figure 3.

**Step 7.** Rotate the vertical tube (#6L) towards the front of the tractor insert bolt (B2) through flat washer (W3), the slotted opening in the left top axle bracket (#3), the corresponding hole in the vertical tube (#6L), and backing plate (#7), secure with lock washer (W2) and nut (N2) to create a snug fit. (Figure 3)

# CROPS Ford 4000 Steps 8–10

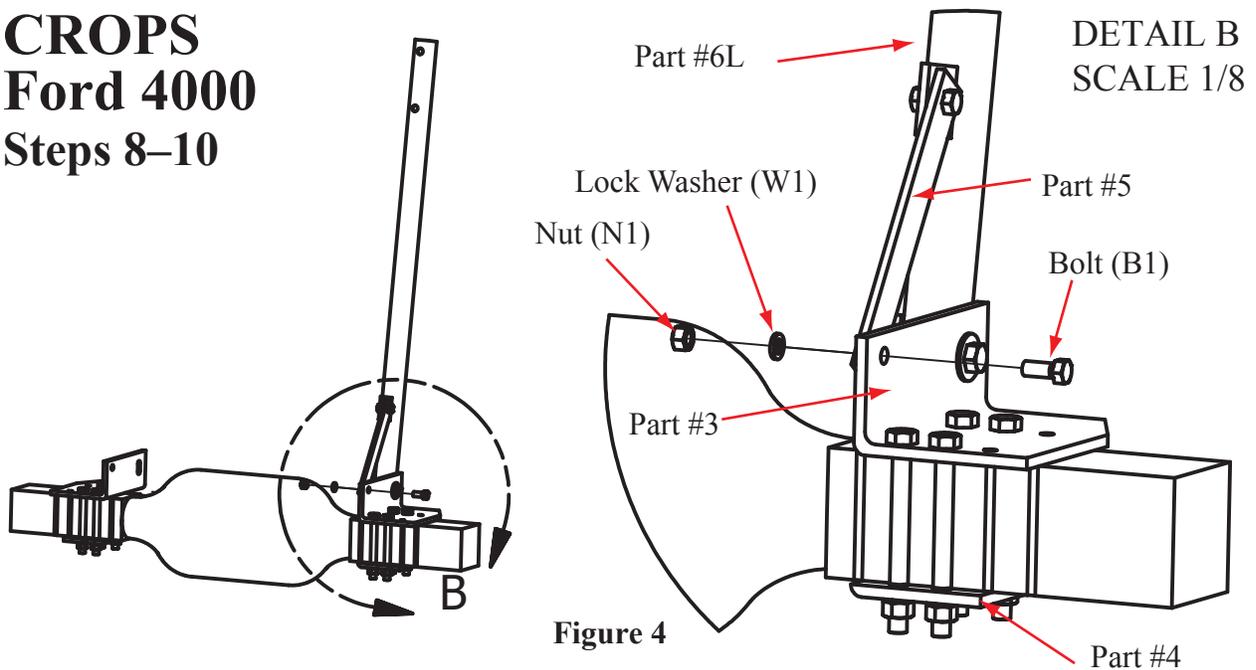


Figure 4

**Step 8.** Attach the vertical tube bolted brace (#5) to the top left axle bracket (#3) with a bolt (B1), lock washer (W1), and a nut (N1). Tighten to a snug fit. (Figure 4)

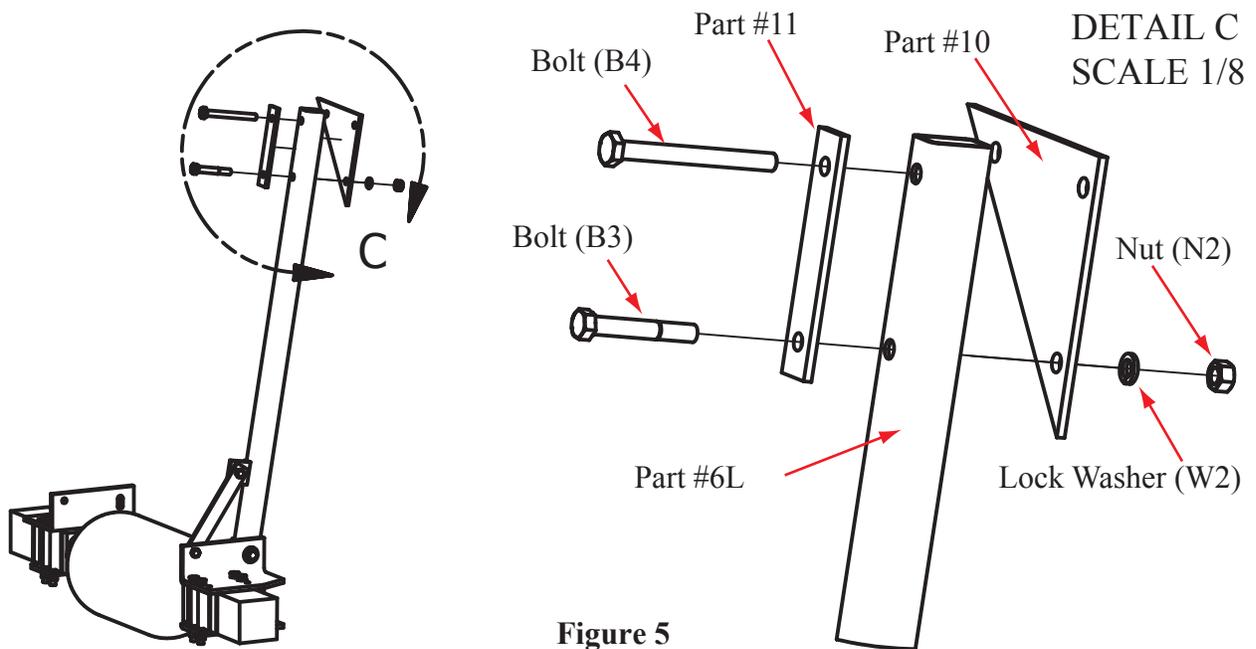


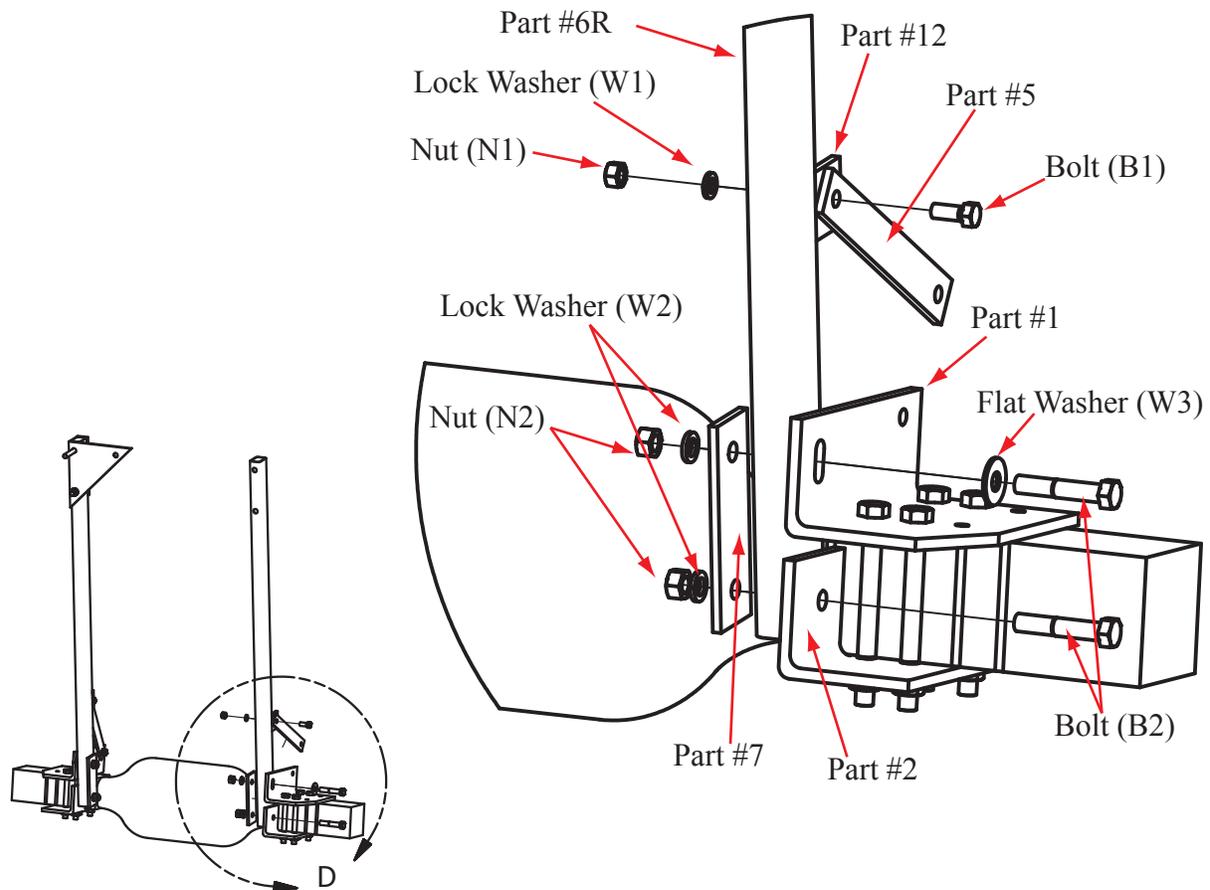
Figure 5

**Step 9.** Install corner plate (#10) by aligning the bottom and corner holes of the corner plate with the top two holes on the left vertical tube (#6L). Insert bolt (B3) through the top vertical tube backing plate (#11), then through the lower hole in the vertical tube (#6L) and the bottom hole of the corner plate. Place lock washer (W2) and nut (N2) onto the bolt (B3) and secure a snug fit. (Figure 5)

**Step 10.** Insert a bolt (B4) through the top hole of the top vertical tube backing plate (#11), the top holes of the vertical tube (#6L), and the corner hole of the corner plate. (Figure 5)

**CROPS  
Ford 4000  
Steps 11–13**

DETAIL D  
SCALE 1/8



**Figure 6**

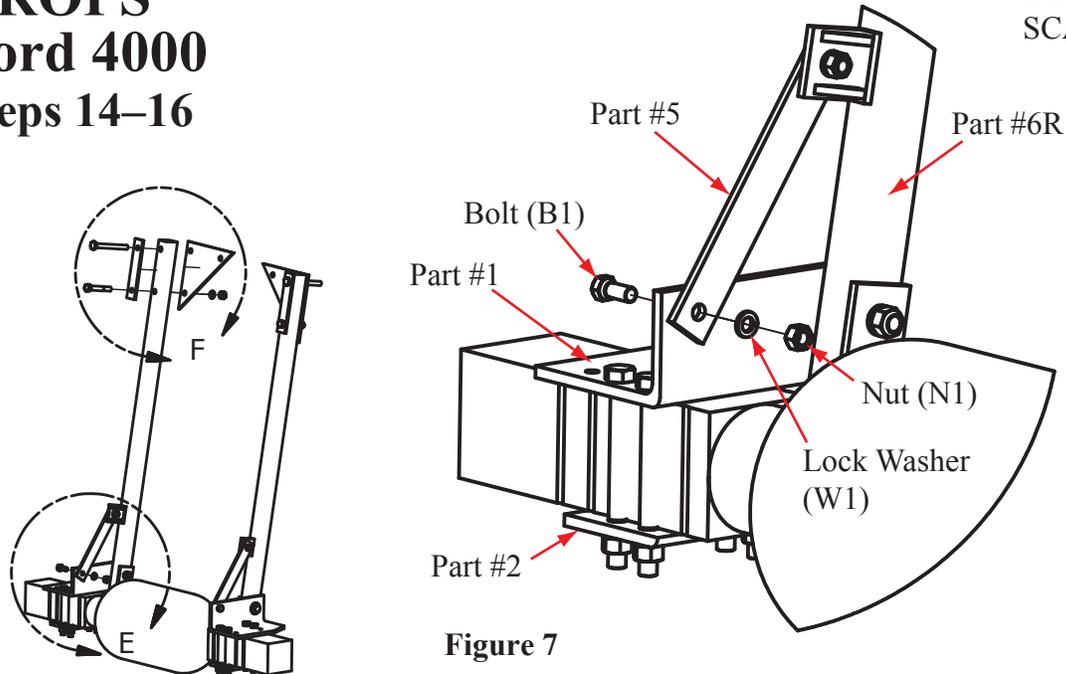
**Step 11.** Attach a vertical tube bolted brace (#5) to the vertical tube welded brace (#12) of the right vertical tube (#6R) using a bolt (B1), a lock washer (W1), and nut (N1) to create a snug fit. (Figure 6)

**Step 12.** Insert bolt (B2) through the bottom right axle bracket (#2). Slide the bottom holes of the right vertical tube (#6R) onto the bolt (B2), then place the bottom vertical tube backing plate (#7) onto the bolt (B2). Secure with a lock washer (W2) and a nut (N2) to create a snug fit. The vertical tube welded brace (#12) (welded to part #6R) should be facing up and toward the axle bracket side as shown in Figure 6.

**Step 13.** Rotate the vertical tube (#6R) toward the front of the tractor. Insert a bolt (B2) through a flat washer (W3), the slotted opening in the top right axle bracket (#1), the corresponding holes in the right vertical tube (#6R), and the backing plate (#7). Secure with a lock washer (W2) and a nut (N2) to create a snug fit. (Figure 6)

**CROPS**  
**Ford 4000**  
**Steps 14–16**

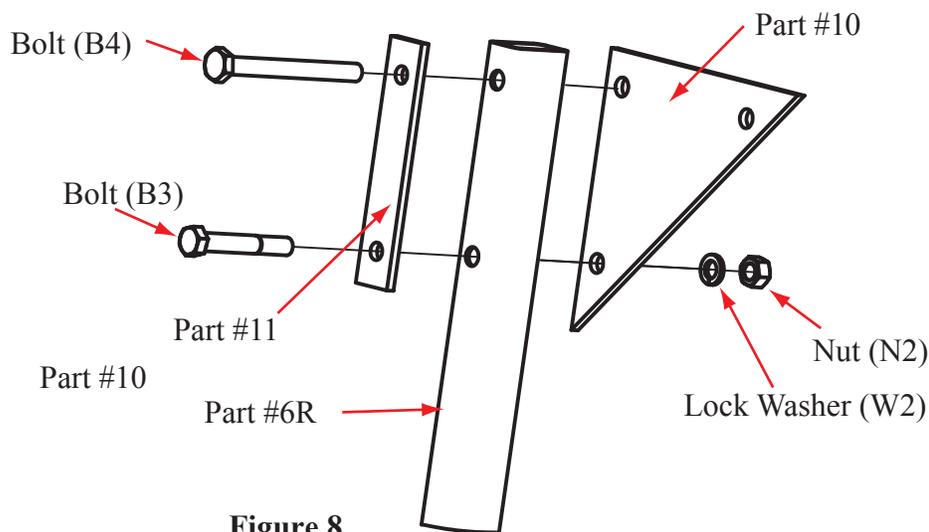
DETAIL E  
 SCALE 1/8



**Figure 7**

**Step 14.** Bolt vertical tube bolted brace (#5) to the top right axle bracket (#1) with a bolt (B1), a lock washer (W1), and a nut (N1). Tighten to a snug fit. (Figure 7)

DETAIL F  
 SCALE 1/8



**Figure 8**

**Step 15.** Install the corner plate (#10) by aligning the bottom and corner holes of the corner plate with the top two holes on the right vertical tube (#6R). Insert bolt (B3) through the top vertical tube backing plate (#11), then through the lower holes in the right vertical tube (#6R) and the bottom hole of the corner plate. Place a lock washer (W2) and a nut (N2) onto the bolt (B3) and secure a snug fit. (Figure 8)

**Step 16.** Insert a bolt (B4) through the top hole of the top vertical tube backing plate (#11), the top holes of the right vertical tube (#6R), and the corner hole of the corner plate. (Figure 8)

**CROPS**  
**Ford 4000**  
**Steps 17–19**

DETAIL G  
 SCALE 1/8

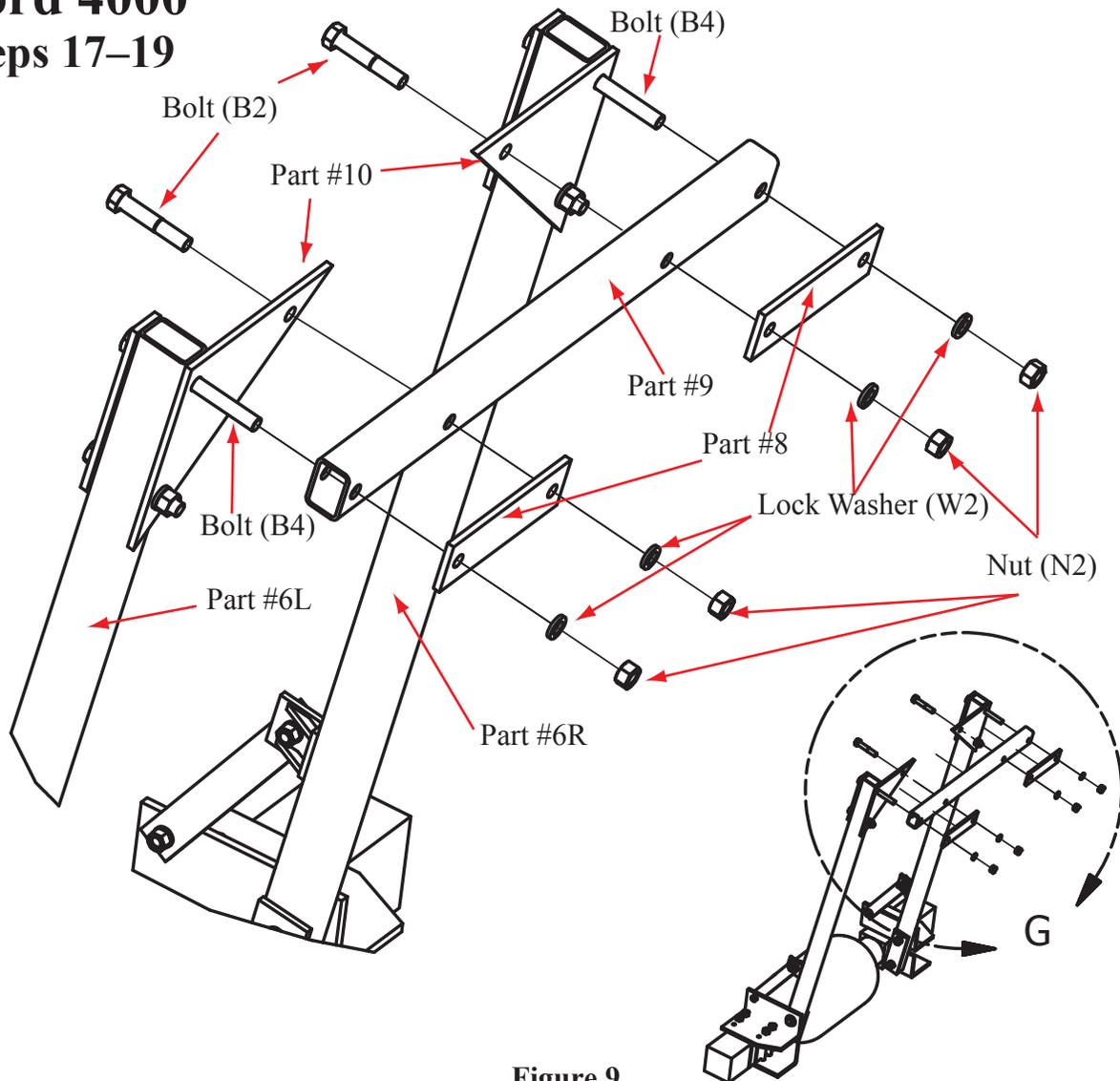


Figure 9

**Step 17.** Attach the cross bar (#9) on the left vertical tube (#6L) by inserting a bolt (B4) through the outside holes on the cross bar (#9) and the cross bar backing plate (#8). Secure a loose fit with a lock washer (W2) and a nut (N2).

**Step 18.** Rotate the cross bar (#9) toward the right vertical tube (#6R) and insert a bolt (B4) through the outside holes of the cross bar (#9) and the cross bar backing plates (#8). Secure a snug fit with a lock washer (W2) and a nut (N2).

**Step 19.** Insert bolts (B2) through the remaining inside holes of the corner plates (#10), the cross bar (#9), and the cross bar backing plate (#8). Create a snug fit with a lock washer (W2) and a nut (N2). Snug the connections made in steps 17 and 18. (Figure 9) (NOTE: See Fender Mounting Options for torquing instructions.)

# **CROPS**

## **Ford 4000**

### **Steps 20–23**

**In order to correctly install the CROPS you MUST use the incremental tightening steps 20 - 22 listed below.**

Incremental tightening of all remaining bolted connections from a snug fit to a maximum torque of 240 ft-lbs.

In steps 20–23, always start the torquing process (achieving full torque at each step) first with the axle bolts (B8), and then proceed in a circular direction, returning to axle bolts (B8) to start the next torque increment.

**Step 20.** Torque all bolted connections to 80 ft-lbs.

**Step 21.** Torque all bolted connections to 180 ft-lbs.

**Step 22.** Torque all bolted connections to 240 ft-lbs.

**Step 23.** Install the seat belt attachment kit as instructed in the manufacturer's seat belt assembly instructions. The seat belt kit must be purchased separately. In some cases, a new seat with seat belt mounting holes must be purchased.

*Failure to install and use the seat belt will reduce the effectiveness of the CROPS. As with a ROPS, the CROPS can only provide adequate protection due to an overturn if the operator is properly using the seat belt with the CROPS properly installed.*

***Congratulations on the installation of your CROPS!  
Think and work safely!***

# CROPS

## Ford 4000

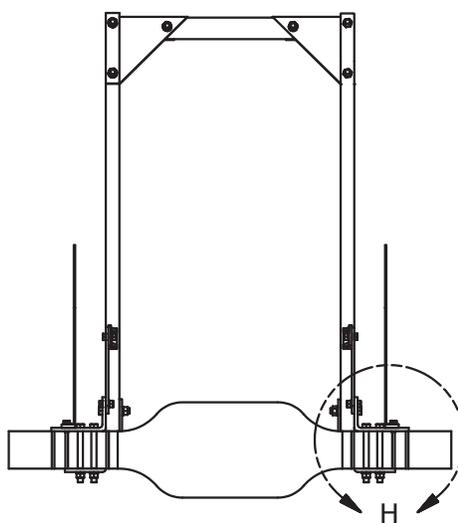
### Steps 8 - 10

### Fender Mounting

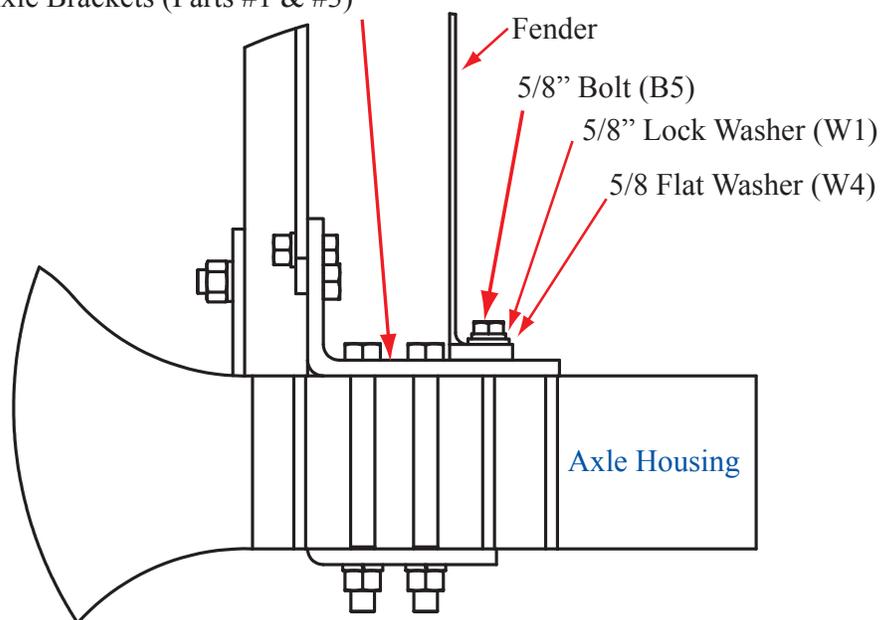
### Option A: Using the Two Fender Mounting Holes

Fender bases with a 2 hole bolt pattern that are being installed at the fourth axle slot from center of tractor will be installed after step #23. Install fenders using the 5/8-inch threaded bolt holes in the axle bracket and the corresponding 5/8-inch bolts (B5), lock washers (W1), and flat washers (W4).

DETAIL H  
SCALE 1/5



CROPS top Axle Brackets (Parts #1 & #3)

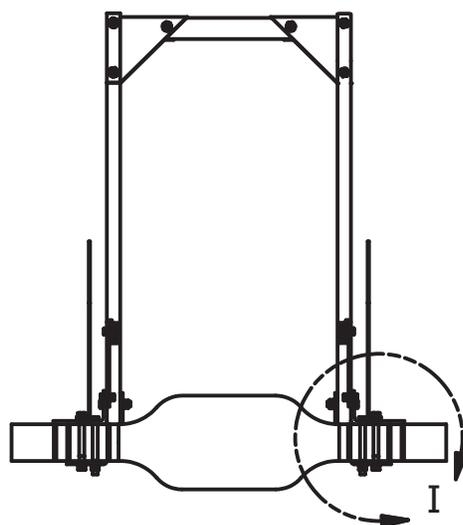


# CROPS Ford 4000

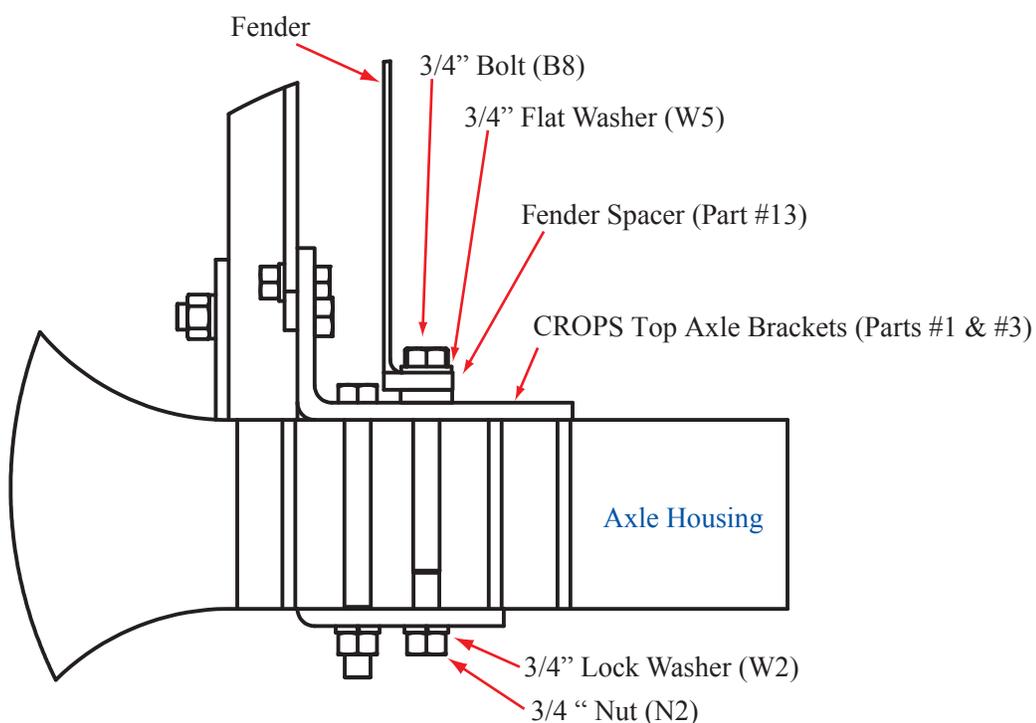
## Fender Mounting

### Option B: *Using the Two CROPS Mounting Holes*

Fender bases with a 2-hole bolt pattern being installed at the third axle slot from the center of the tractor will be installed during step 1. Install fenders using the 3/4-inch bolts (B8), flat washers (W5), and fender spacers (#13). Secure with a lock washer (W2) and a nut (N2). After step 19, torque to 240 ft-lbs.



DETAIL I  
SCALE 1/5

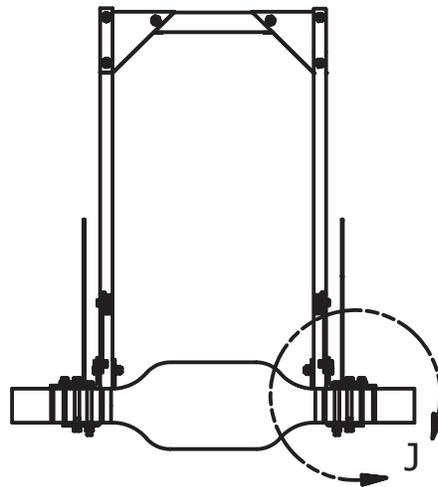


# CROPS Ford 4000

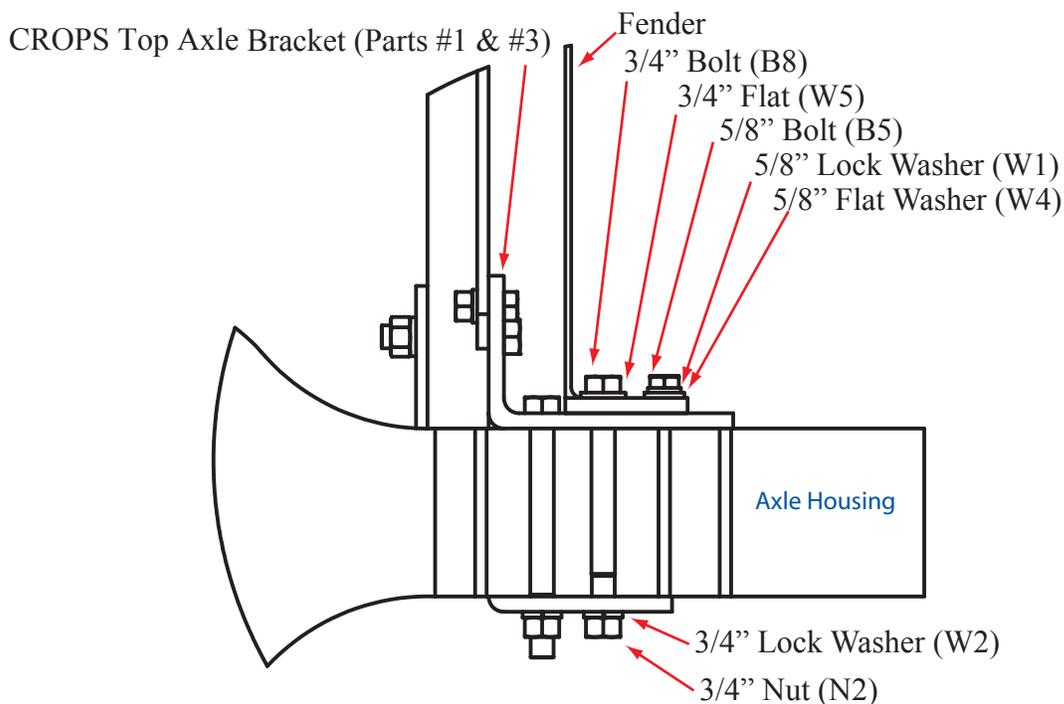
## Fender Mounting

### Option C: Using the Two Fender Mounting Holes and the Two CROPS Mounting Holes

Fenders with a 4-hole bolt pattern being installed at the third and fourth axle slots from the center of the tractor will be installed during step 1. Install fenders using the two 3/4-inch bolts (B8) and flat washers (W5); secure with a lock washer (W2) a nut (N2). Using the 5/8-inch bolt holes, install the corresponding 5/8-inch bolts (B5), lock washers (W1), and flat washers (W4). After step #19, torque to 240 ft-lbs.



DETAIL J  
SCALE 1/5





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