



DATE: 6-15-17

APPLIES TO: This service bulletin applies to 2002 through 2017 model year, Diamond, Furion, Gladiator, and MetroStar Emergency Response chassis cabs built between March 28, 2002 and May 25, 2017.

CONDITION: Cab clunking at lift cylinder.

CORRECTION: Install spacer.

LABOR ALLOCATION: 3 ½ Hrs.

CLASSIFICATION: E

PARTS NEEDED:

<u>QTY</u>	<u>Part Number</u>	<u>Description</u>
1	S-2592-001	Cab Cylinder Spacers– Large Cylinder
2	S-2592-002	Cab Cylinder Spacers- Std. Cylinder

Kit # S-2592-001 Contains:

<u>QTY</u>	<u>Part Number</u>	<u>Description</u>
1	1360-EE1	Instal. Drawing-Cab Cylinder Spacers
2	0965-EE1-001	Pin Cylinder Anchor
16	16FWSAE8Y	Washer 1 flat SAE Yel.
6	188X200CP	Pin - Cotter 3/16" x 2.0"
6	0424-BB1-002	Belleviell Washer 2.00 OD
2	1283-EE1-001	Pin Cylinder Anchor Lower
1	TSB17-230-003	Instruction Document
1	TSB17-230-004	Instruction Document

Kit # S-2592-002 Contains:

<u>QTY</u>	<u>Part Number</u>	<u>Description</u>
1	1360-EE1	Instal. Drawing-Cab Cylinder Spacers
2	0965-EE1-001	Pin Cylinder Anchor
16	16FWSAE8Y	Washer 1 flat SAE Yel.
6	188X200CP	Pin - Cotter 3/16" x 2.0"
4	0424-BB1-002	Belleviell Washer 2.00 OD
2	1283-EE1-001	Pin Cylinder Anchor Lower
1	TSB17-230-003	Instruction Document
1	TSB17-230-004	Instruction Document

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GENERAL INSTRUCTIONS:

Thoroughly review entire service bulletin before starting work. If there are questions or concerns with steps defined in this service bulletin, contact Spartan Motors USA, Inc. Customer & Product Support Group.

All applicable industry safety standards must be followed when performing work identified in this procedure.

STEP-BY-STEP INSTRUCTIONS:

1. Confirm that all parts have been included in the kit.
2. Make sure the vehicle is switched off and the batteries are disconnected.
3. Location of the driver side lift cylinder. Refer to FIG 2-1.

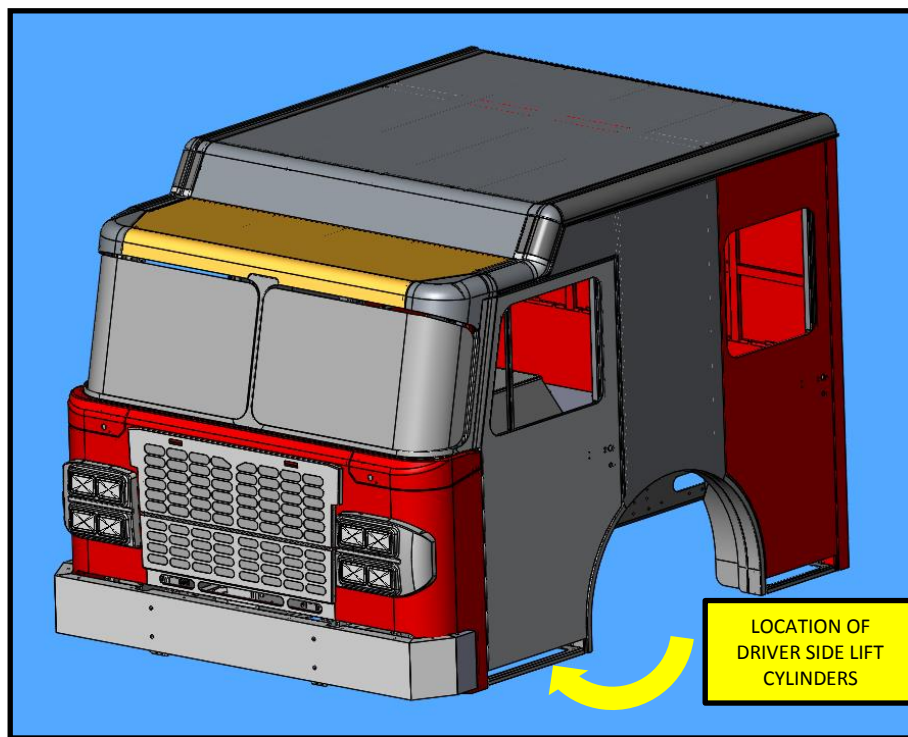


FIG. 2-1

4. Driver side lift cylinder viewed from underneath. Refer to FIG 3-1.

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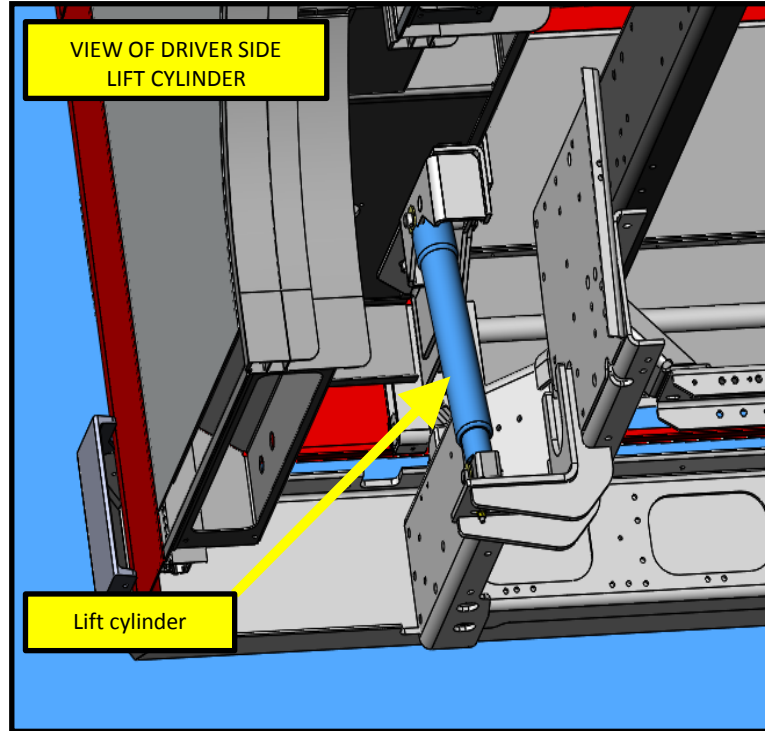


FIG. 3-1

5. Driver side lift cylinder viewed from underneath with all structure removed for clarity. Refer to FIG 3-2

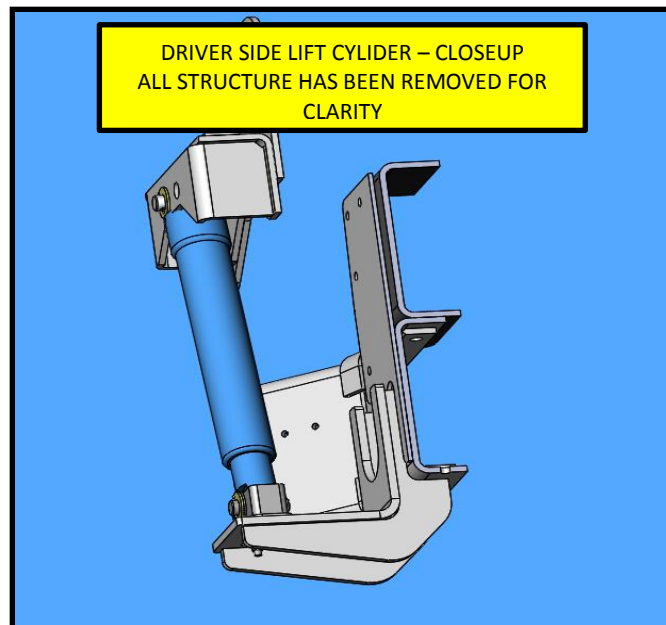


FIG. 3-2

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6. Loosen, but do not remove the 3/8-16 flange nuts under the lower mount foot. Refer to FIG. 4-1

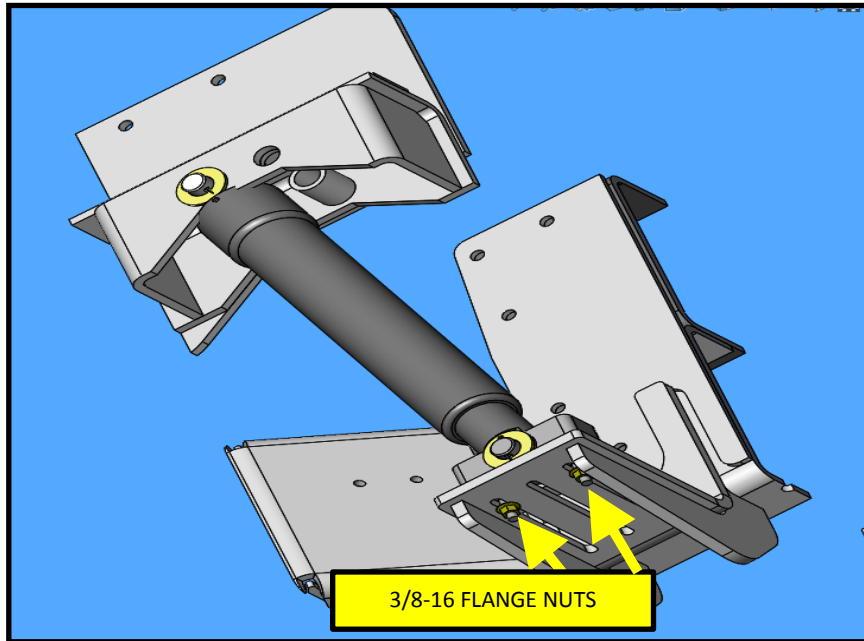


FIG 4-1

7. Remove and properly dispose of (2) 3/16 cotter pins. Refer to FIG 4-2.

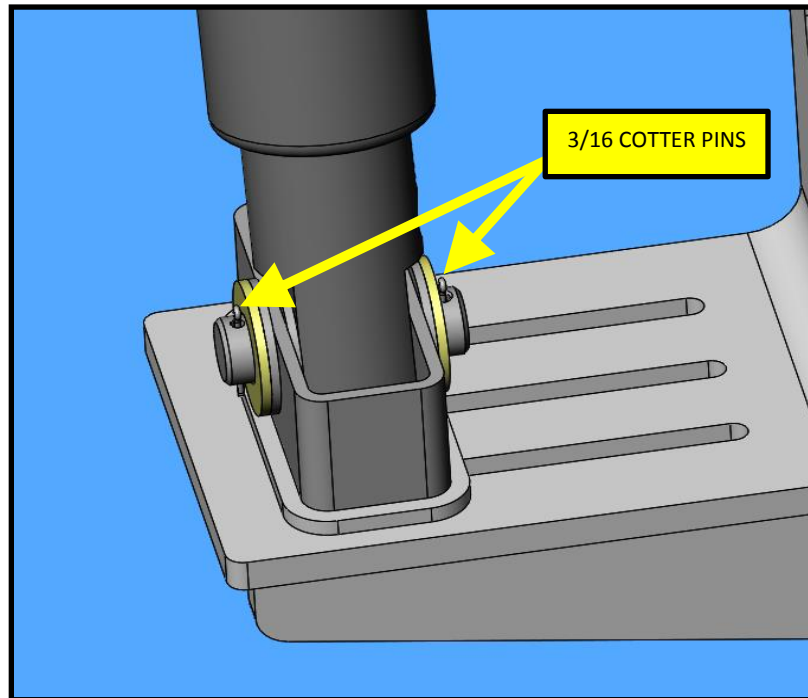


FIG. 4-2

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- Slide out lower pin and remove all steel and rubber washers and properly dispose of. Refer to FIG. 5-1.

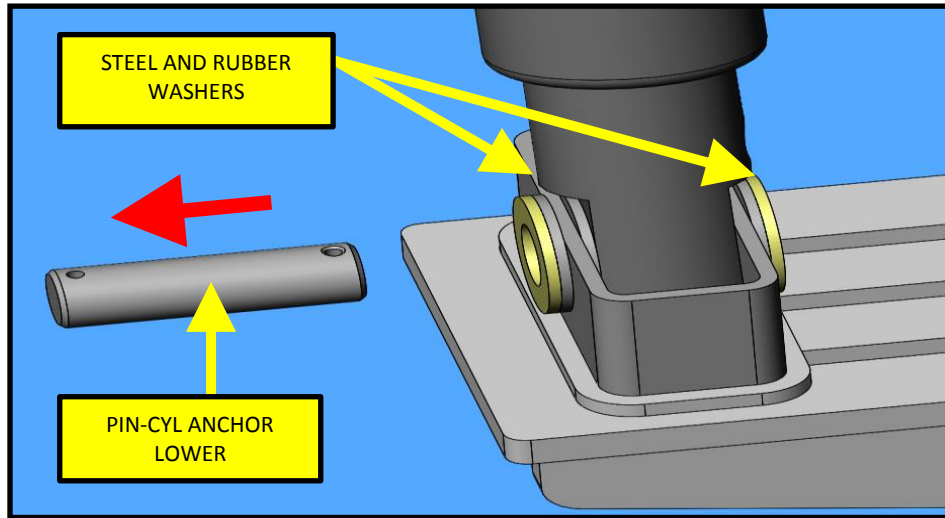


FIG. 5-1

- Place (4) 16FWSAE8Y washers and (1) 0424-BB1-002 Belleville washer, then slide the New 1283-EE1-001 lower pin into location. Insure that the Belleville washer is oriented correctly. Refer to FIG. 5-2 and FIG. 6-1.

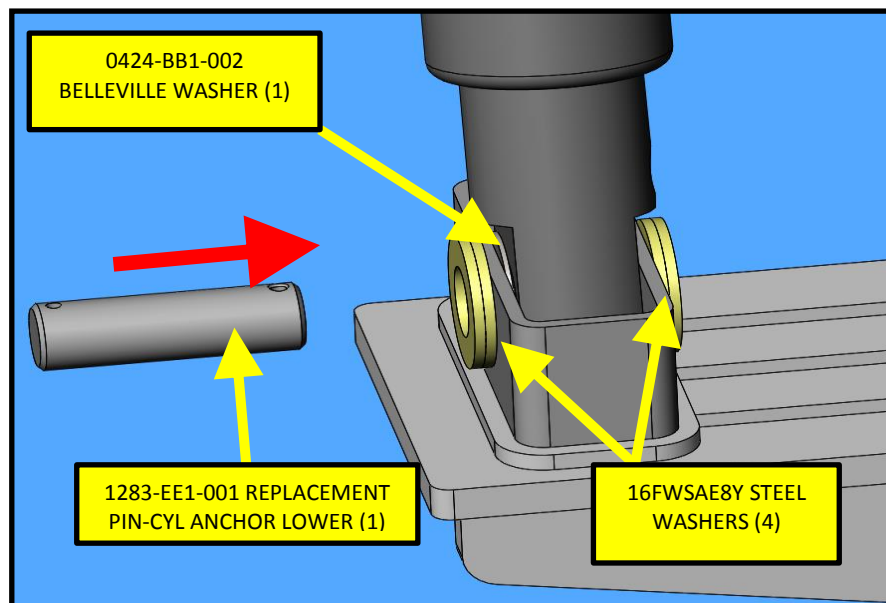


FIG. 5-2

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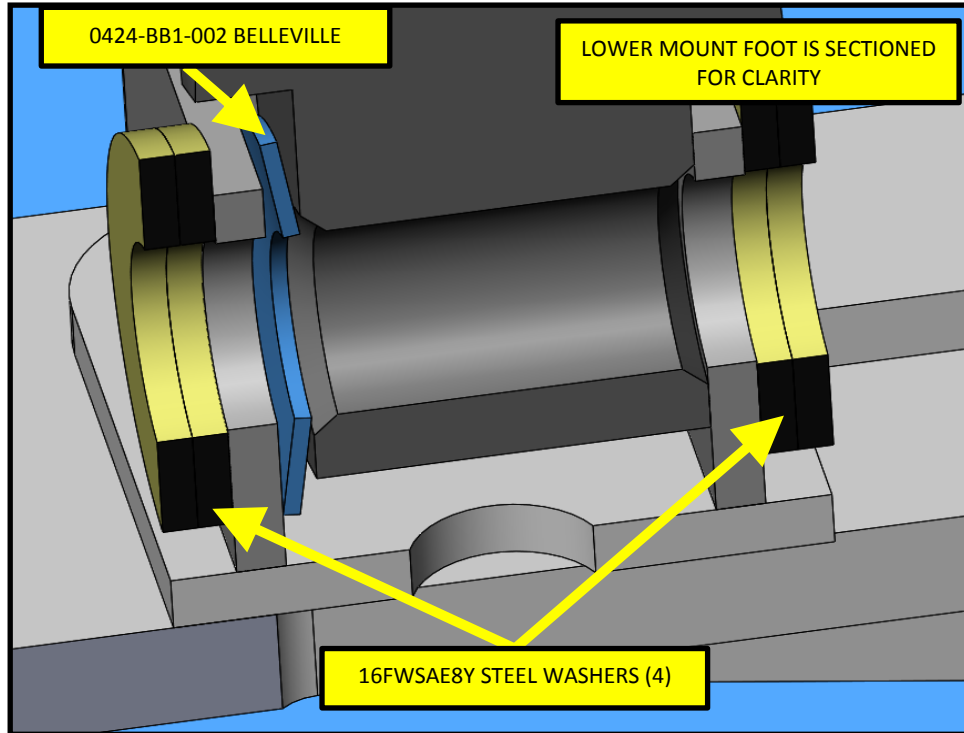


FIG. 6-1

10. After 1283-EE1-001 lower pin is installed, insert (2) 088X3200CP 3/16" X 2.0" cotter pins as indicated, then bend legs to prevent the cotter pins from falling out. Refer to FIG. 6-2.

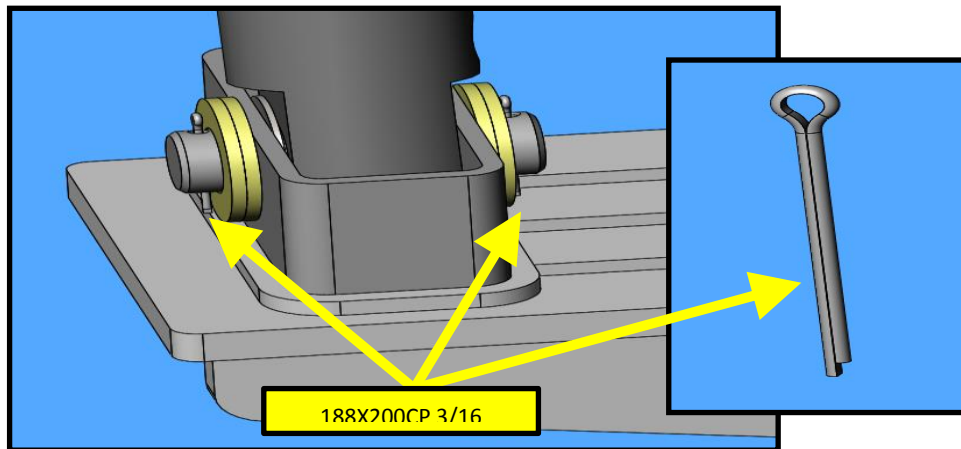


FIG. 6-2

11. Remove and discard (1) 3/16 cotter pin from the upper mount of the driver side lift cylinder. Refer to FIG. 7-1

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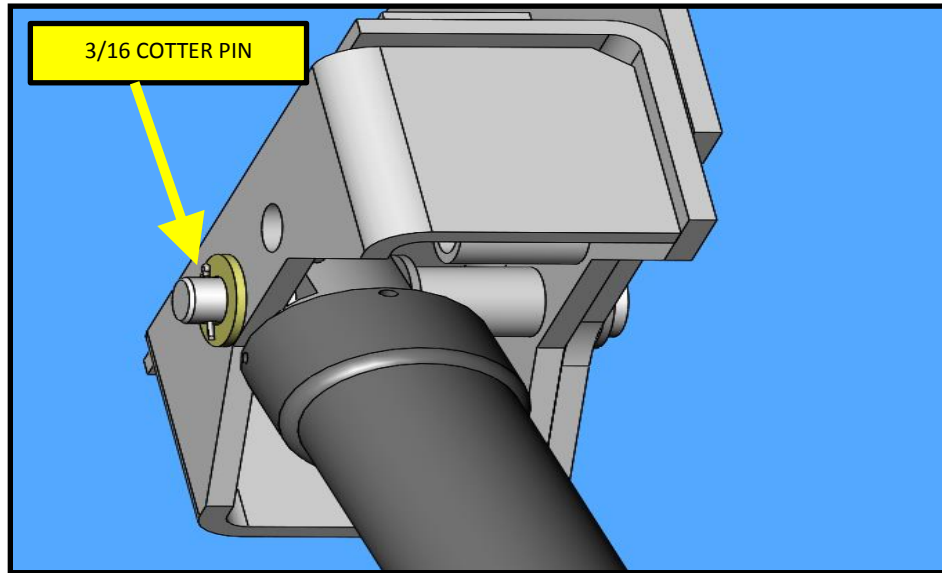


FIG. 7-1

- Slide out upper pin and remove all steel and rubber washers and properly dispose of. Refer to FIG. 7-2.

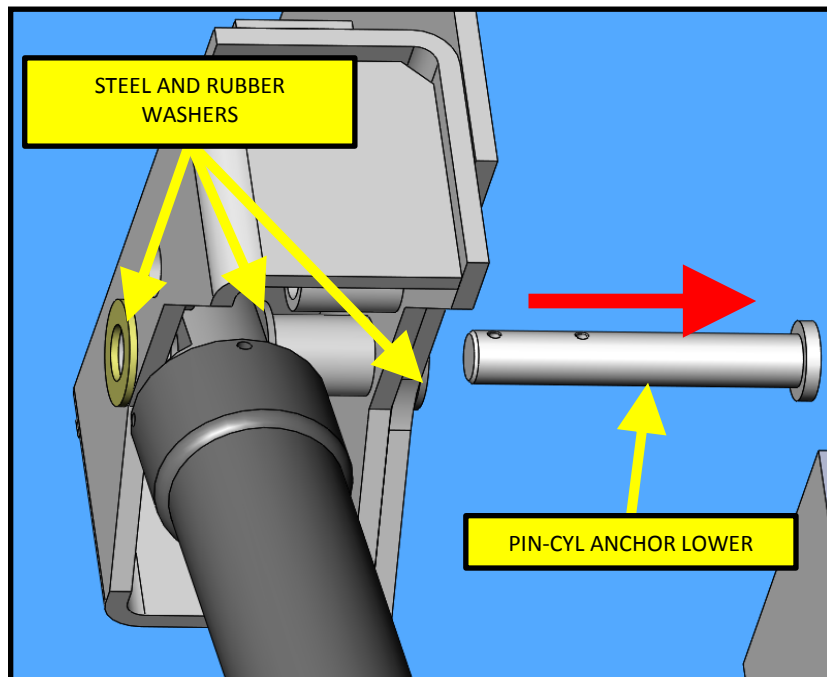


FIG. 7-2

- If your vehicle is equipped with large lift cylinders follow step 15. Refer to FIG. 8-1

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14. If your vehicle is equipped with standard lift cylinders follow step 16. Refer to FIG. 8-1

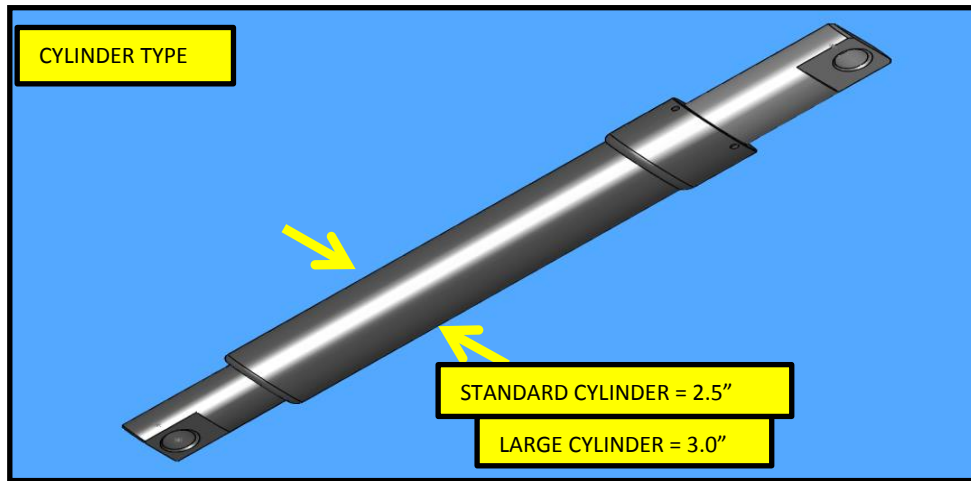


FIG. 8-1

15. Large cylinder setup:

- a. Locate (4) 16FWSAE8Y washers and (2) 0424-BB1-002 Belleville washers, then slide 0965-EE1-003 pin-cyl anchor into place. Refer to FIG. 8-2.

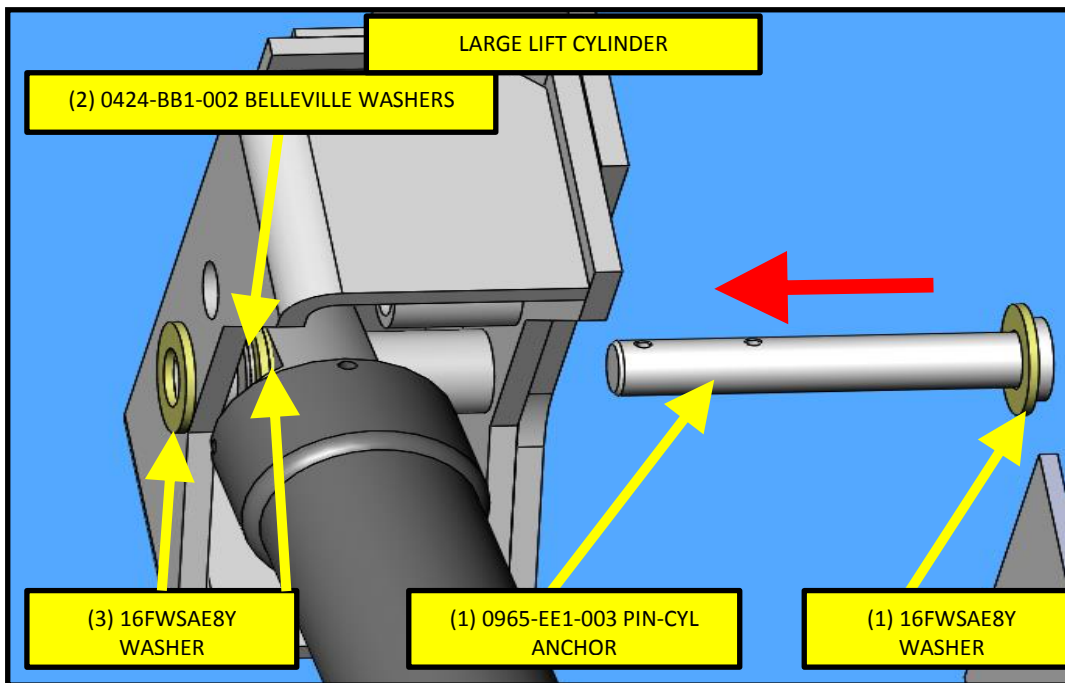


FIG. 8-2

- b. Insure that the Belleville Washers are oriented correctly. Refer to FIG. 9-1.

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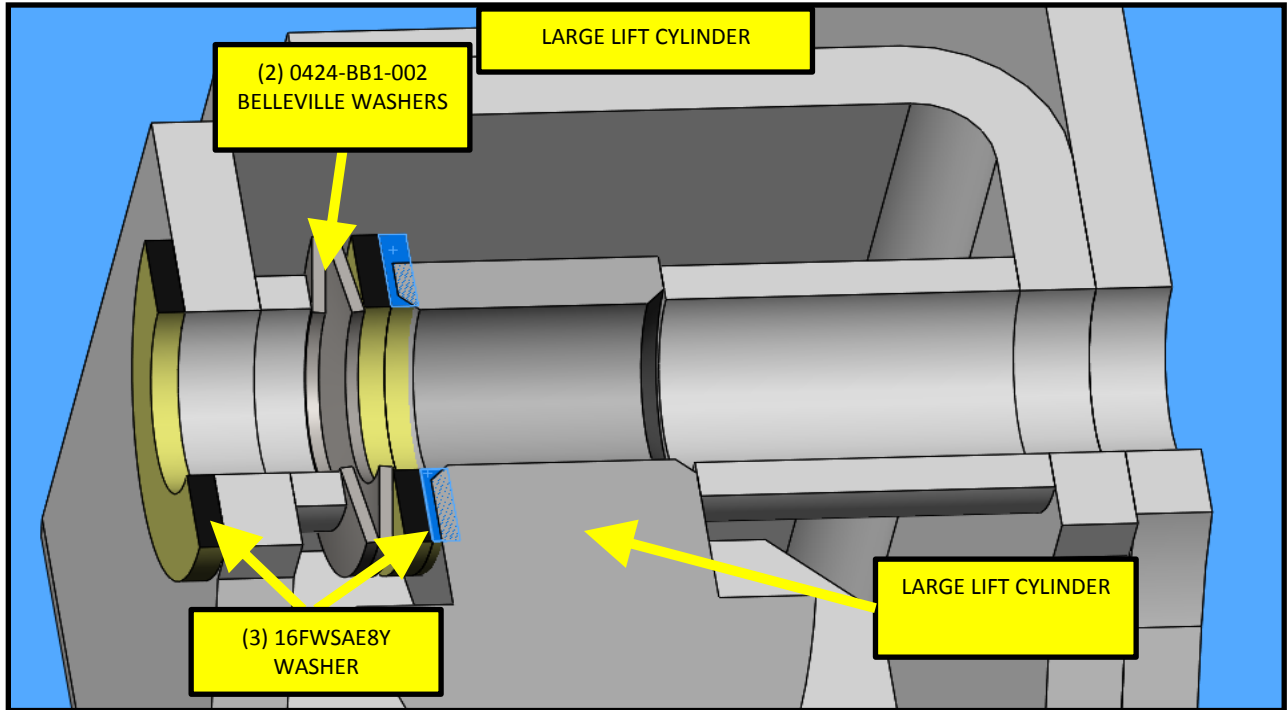


FIG. 9-1

- c. The Belleville washers will compress upon installation. The interference between the inboard 16FWSAE8Y washer and the lift cylinder, will be removed once the (2) 0424-BB1-002 Belleville washers are compressed.

16. Standard Cylinder Setup:

- a. Locate (2) 16FWSAE8Y washers and (2) 0424-BB1-002 Belleville washers then slide 0965-EE1-003 pin cylinder anchor into place. Refer to FIG. 10-1.

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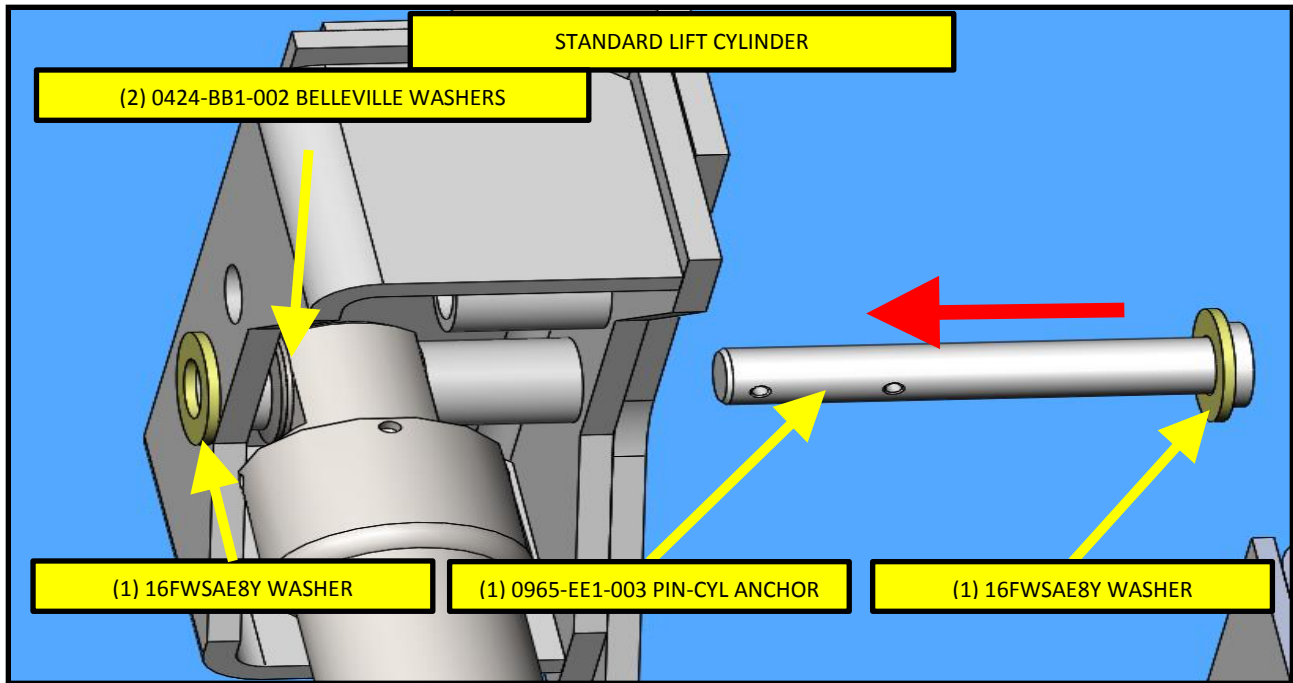


FIG. 10-1

b. Insure that the Belleville washers are oriented correctly. Refer to FIG. 10-2.

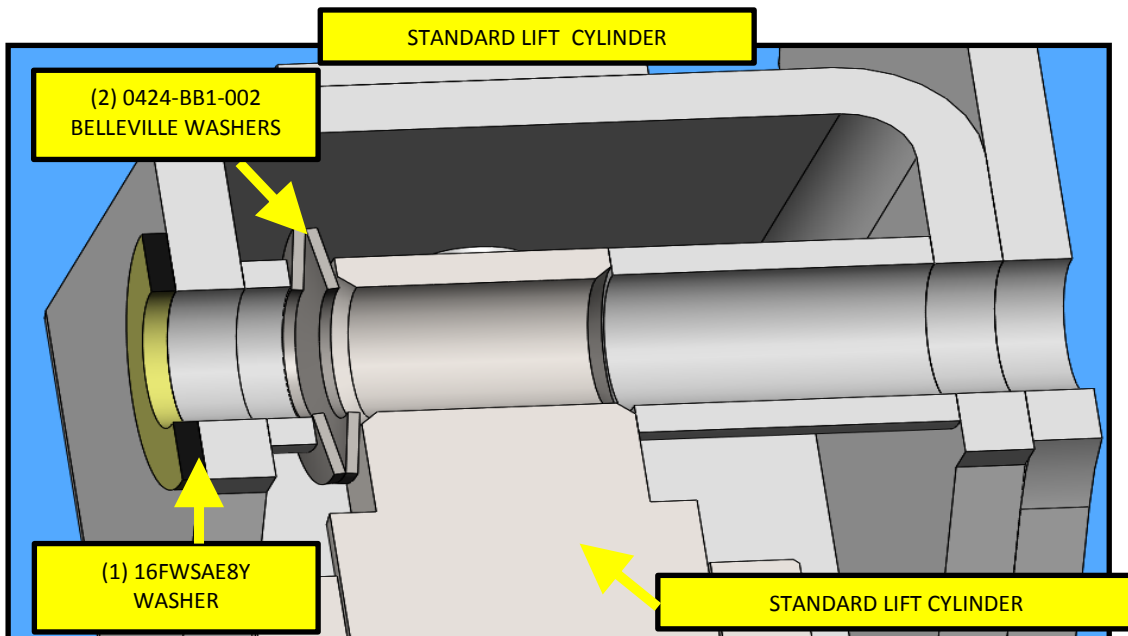


FIG. 10-2

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- c. The Belleville washers will compress upon installation.
- 17. After the new 0965-EE1-003 upper pin is installed, insert (1) 188X3200CP 3/16" X2.0" cotter pin as indicated, then bend legs to prevent the cotter pin from falling out. Refer to FIG. 11-1.

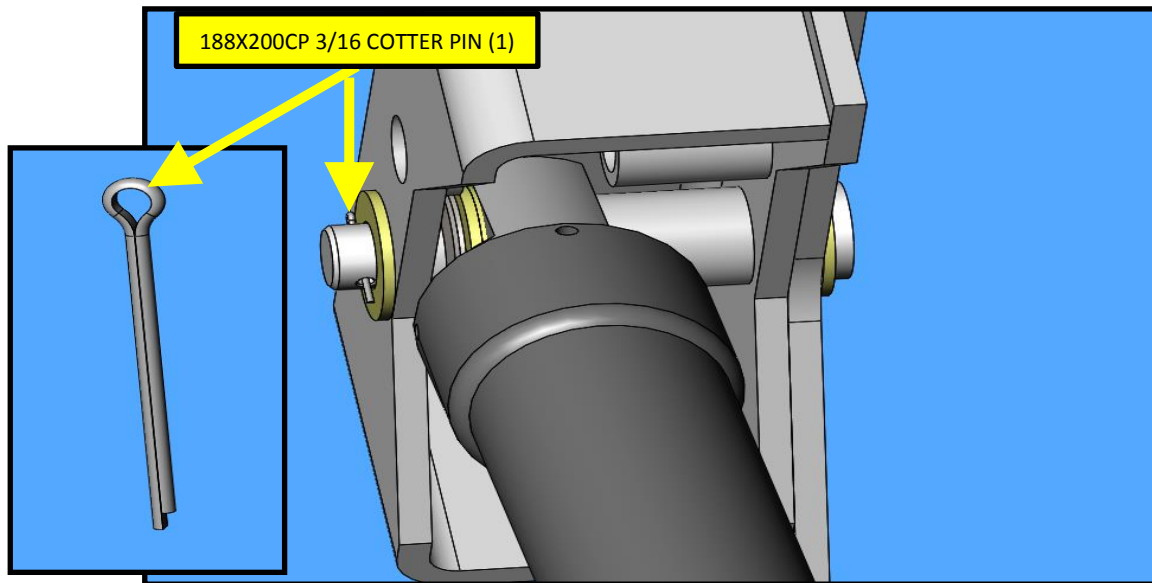


FIG. 11-1

- 18. Slide the lower mount foot laterally so that the lift cylinder is set to 90 degrees. Refer to FIG. 11-2.

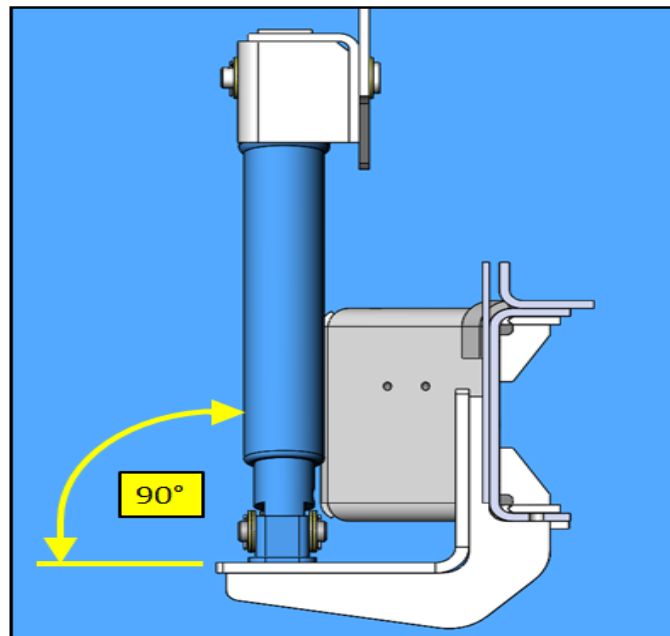


FIG. 11-2

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19. Re-tighten the 3/8-16 flange nuts that were previously loosened in step 6. Making sure to torque to 31 lbf-ft. Refer to Fig 12-1.

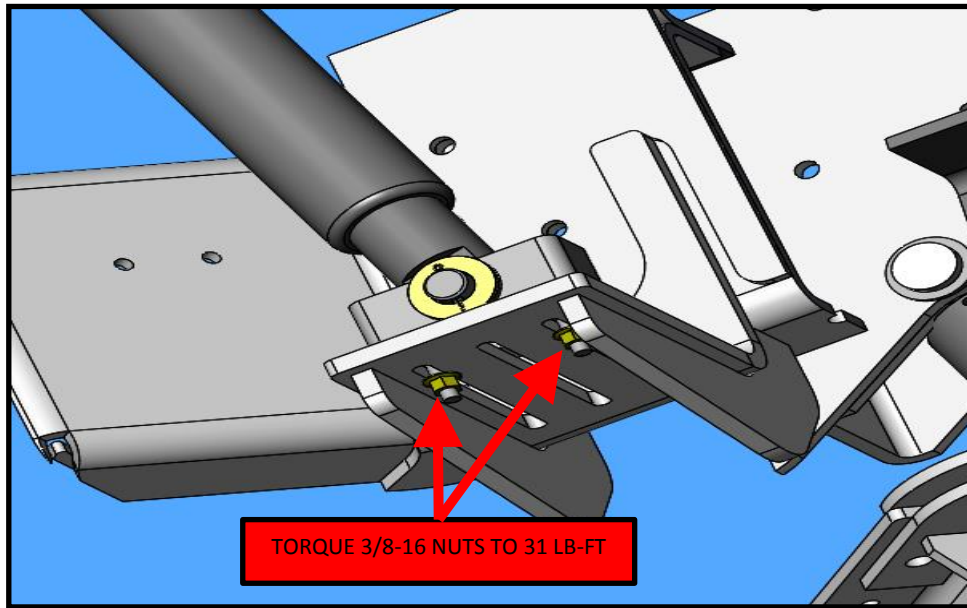


FIG. 12-1

20. Location of the officer side lift cylinder, Refer to FIG. 12-2.

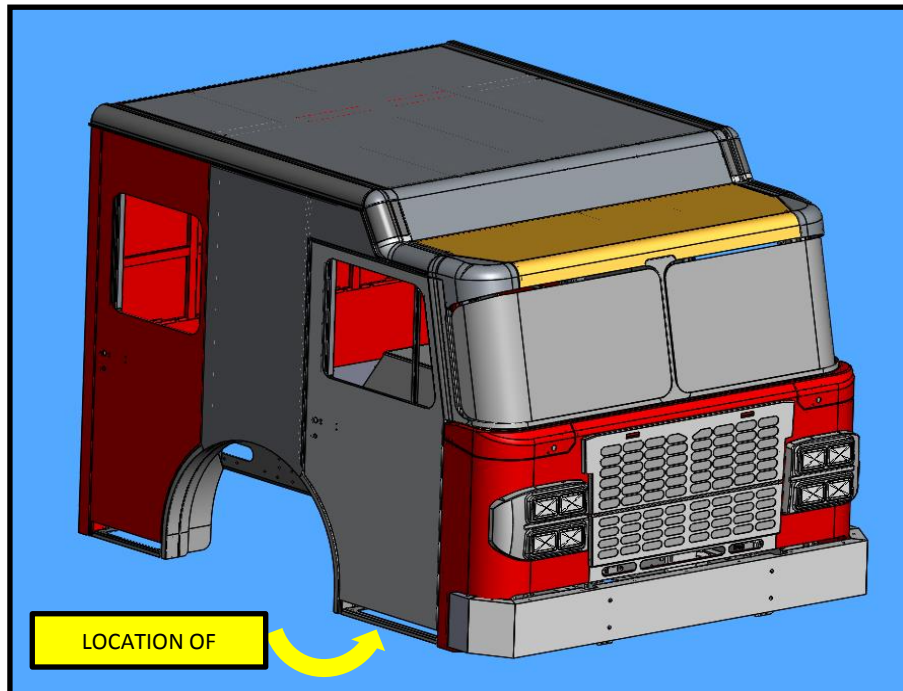


FIG. 12-2

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21. Officer side lift cylinder, viewed from underneath. Refer to FIG. 13-1.

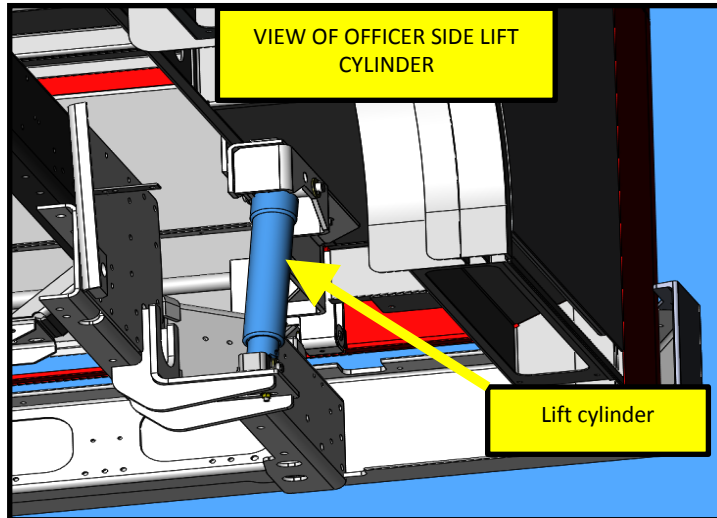


FIG. 13-1

22. Officer side lift cylinder, viewed from underneath with all structure removed for clarity. Refer to FIG. 13-2.

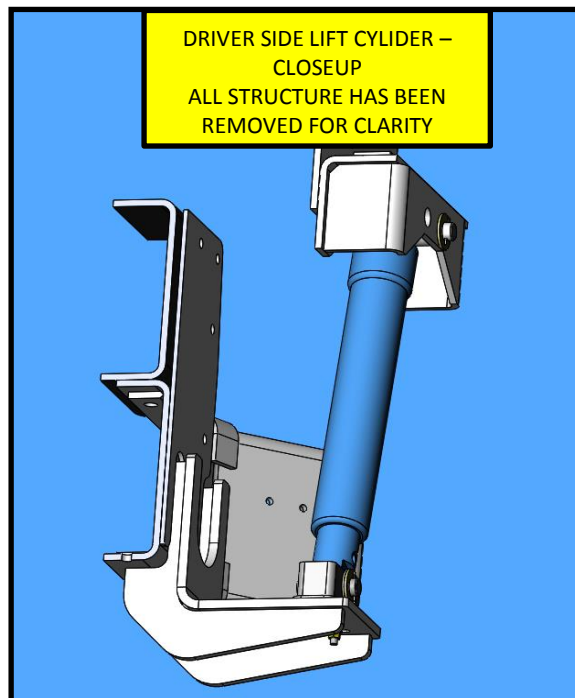


FIG. 13-2

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23. Loosen, but do not remove the 3/8-16 flange nuts under the lower mount foot. Refer to FIG 14-1.

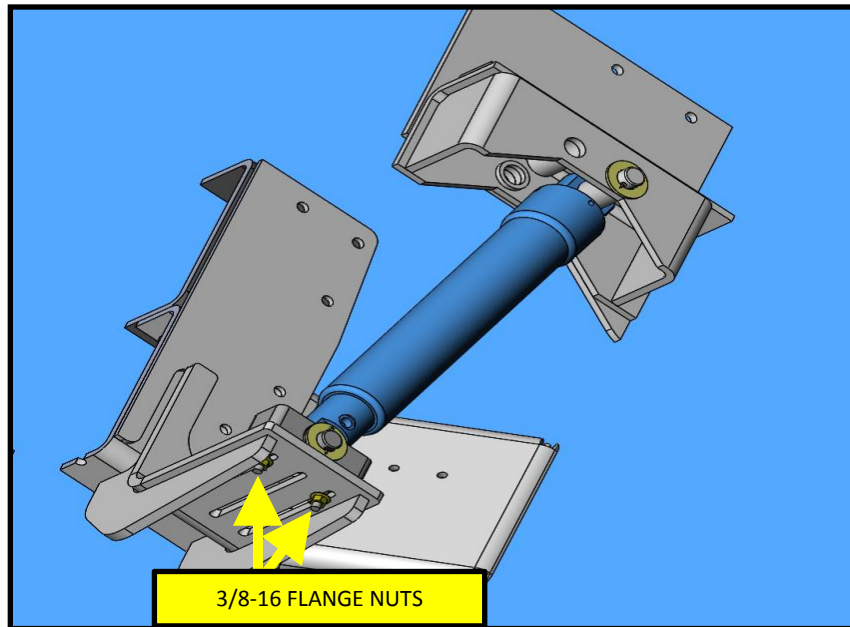


FIG. 14-1

24. Remove and properly dispose of (2) 3/16 cotter pins. Refer to FIG 14-2.

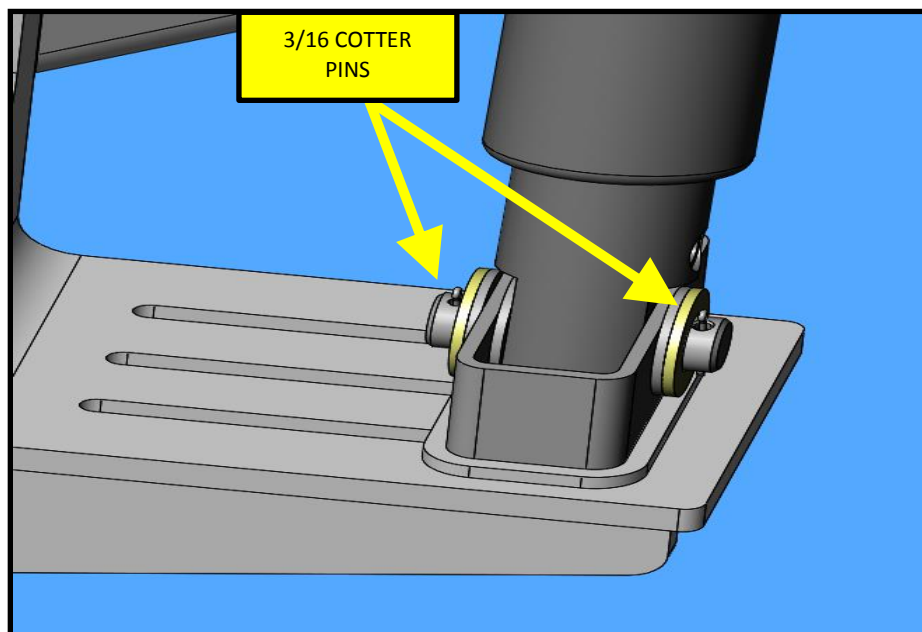


FIG. 14-2

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25. Slide out lower pin and remove all steel and rubber washers and properly dispose of. Refer to Fig 15-1.

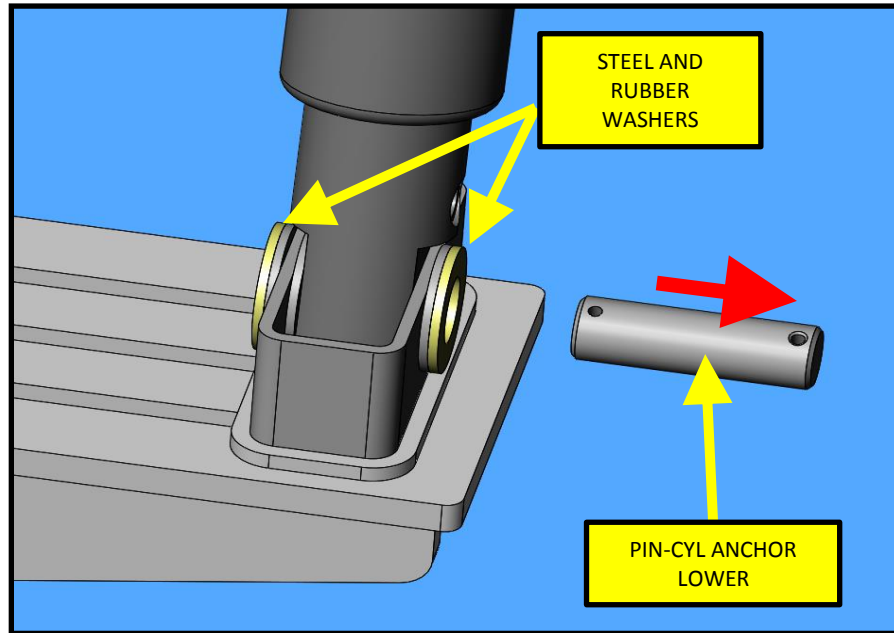


FIG. 15-1

26. Locate (4) 16FWSAE8Y washers and (1) 0424-BB1-002 Belleville washer then slide the new 1283-EE1-001 lower pin into location. Insure that the Belleville washer is oriented correctly. Refer to FIG. 15-2 and FIG. 16-1.

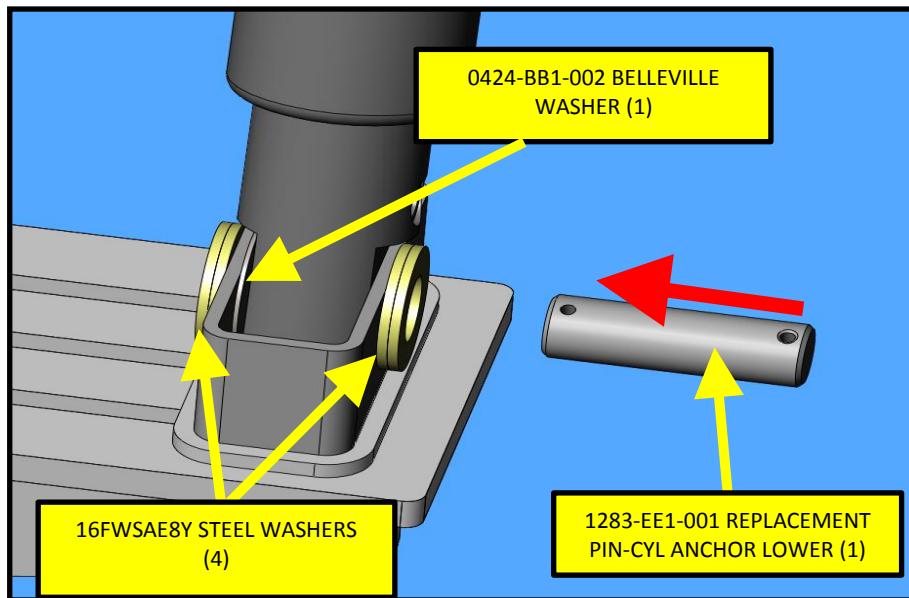


FIG. 15-2

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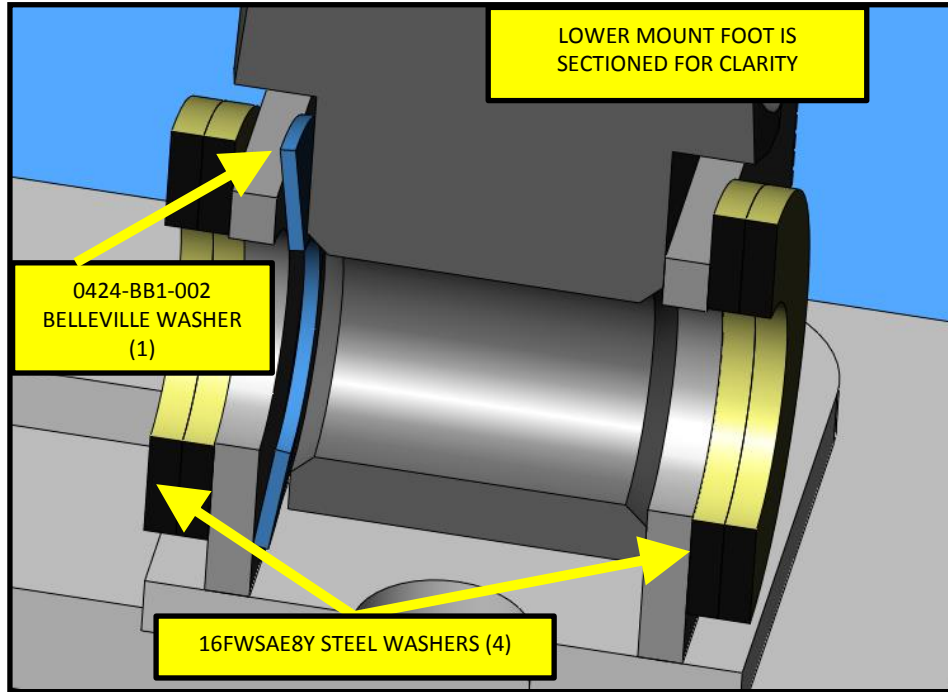


FIG. 16-1

27. After the new 1283-EE1-001 lower pin is installed, insert (2) 188X3200CP 3/16" x 2.0" cotter pins as indicated then bend legs to prevent the cotter pins from falling out. Refer to FIG. 16-2.

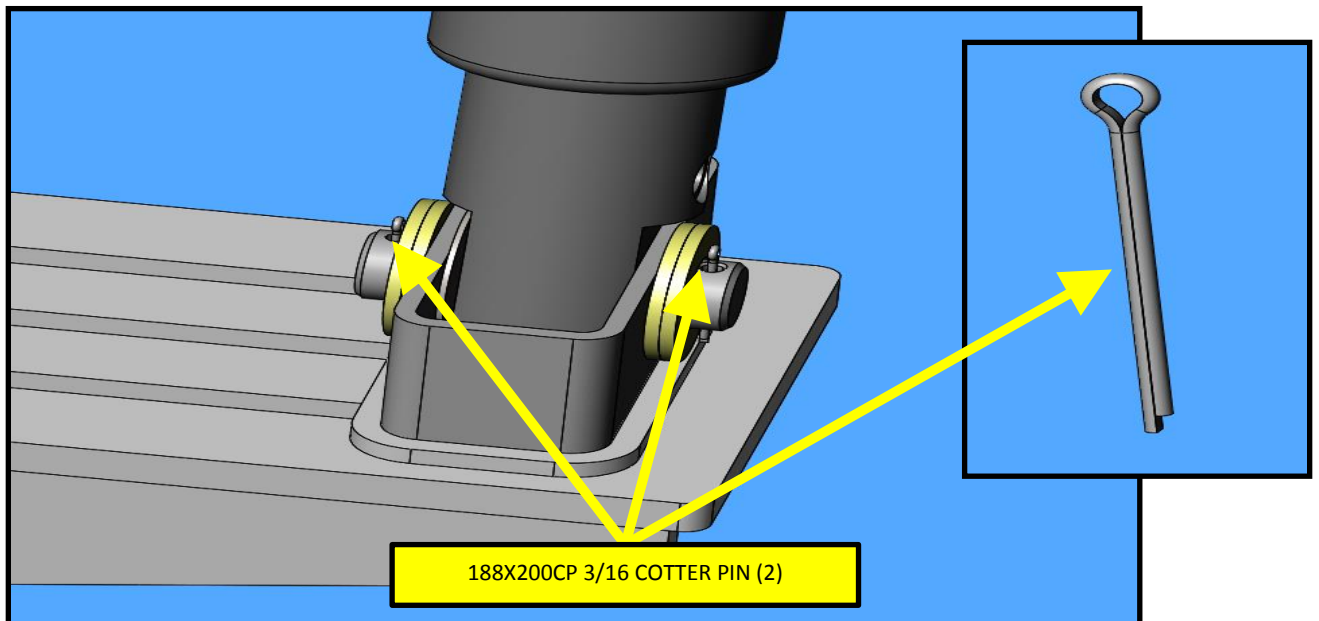


FIG. 16-2

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28. Remove and properly dispose of (1) 3/16 cotter pin located in the officer side upper mount lift cylinder. Refer to FIG 17-1.

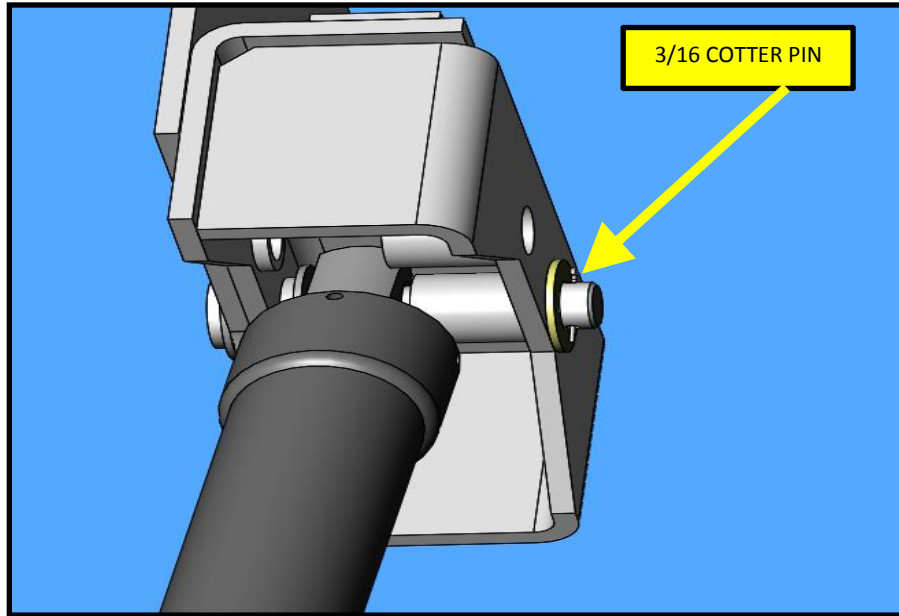


FIG. 17-1

29. Slide out upper pin and remove all steel and rubber washers and properly dispose of. Refer to FIG. 17-2.

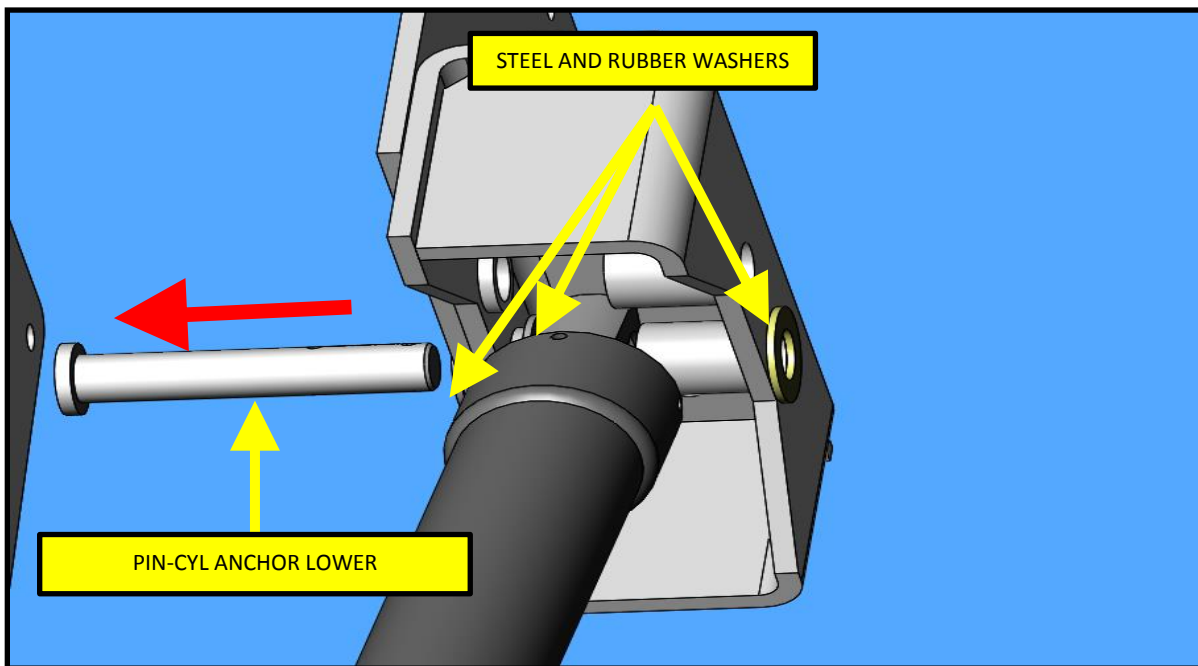


FIG. 17-2

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30. If your vehicle is equipped with large lift cylinders follow step 32. Refer to FIG. 18-1

31. If your vehicle is equipped with standard lift cylinder follow step 34. Refer to FIG. 18-1

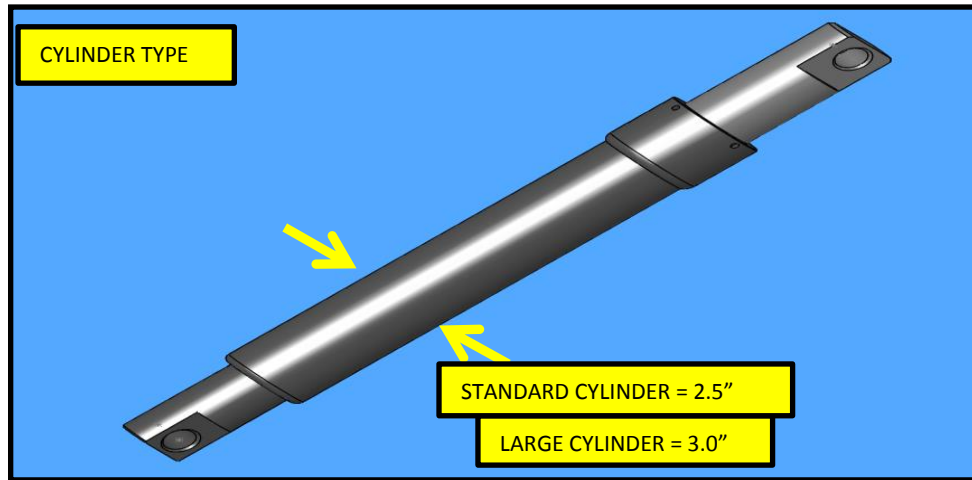


FIG. 18-1

32. Large cylinder set-up:

- a. Locate (4) 16FWSAE8Y washers and (2) 0424-BB1-003 Belleville washers, then slide 0965-EE1-003 pin-cylinder anchor into place. Refer to FIG. 18-2.

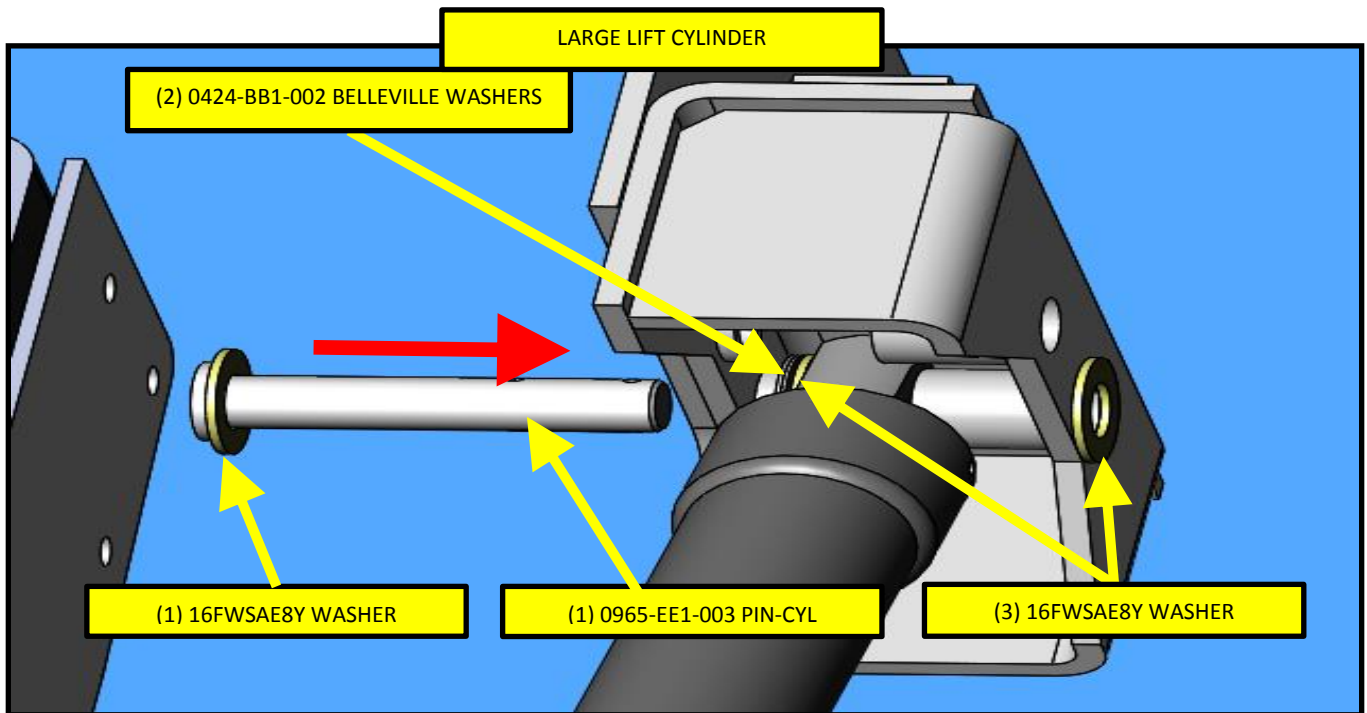


FIG. 18-2

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- b. Insure that the Belleville washers are oriented correctly. Refer to FIG. 19-1.
- c. The Bellville washers will compress upon installation. An interference between the inboard 16FWSAE8Y washer and the lift cylinder, this interference is removed once the (2) 0424-BB1-002 Bellville washers are compressed. Refer to FIG. 19-1.

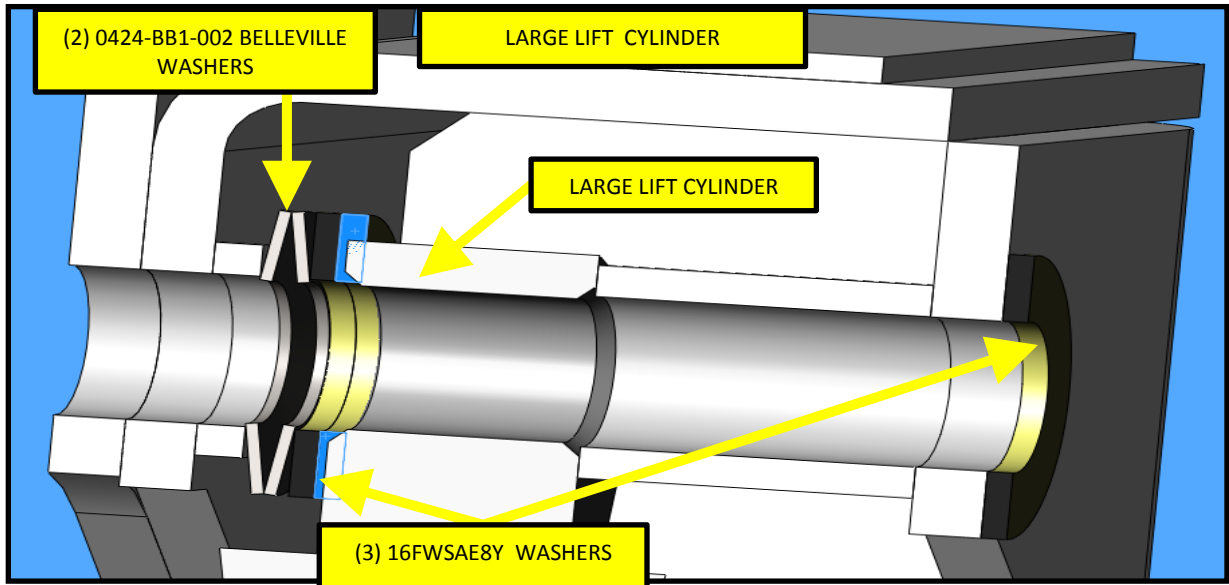


FIG. 19-1

33. Standard Cylinder Setup:

- a. Locate (2) 16FWSAE8Y washers and (2) 0424-BB1-002 Belleville washers, then slide 0965-EE1-003 pin-cylinder anchor into place. Refer to FIG. 20-1.

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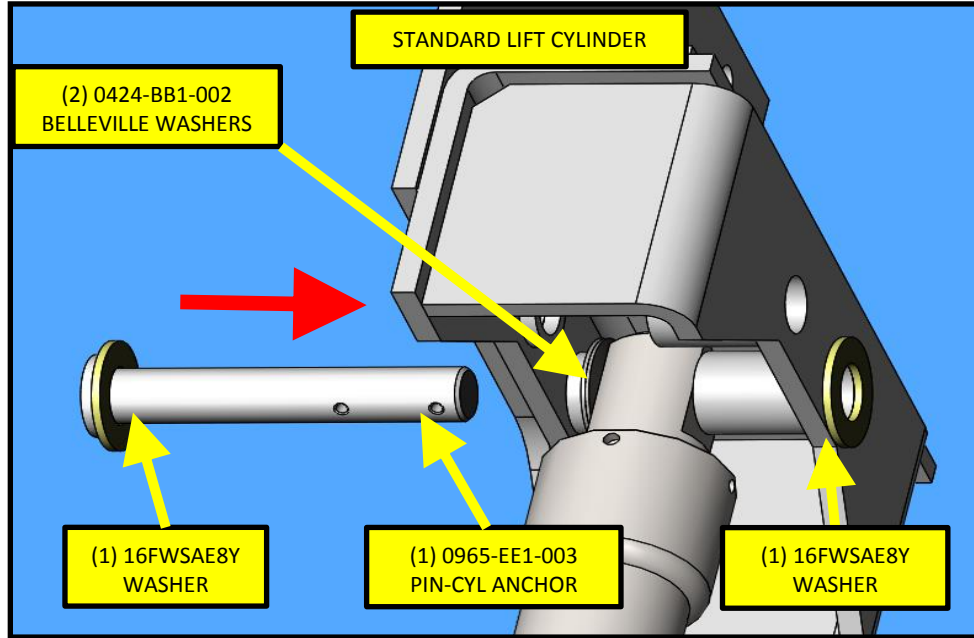


FIG. 20-1

- b. Insure that the Belleville washers are oriented correctly. Refer to FIG 20-2.
- c. The Bellville washers will compress upon installation.

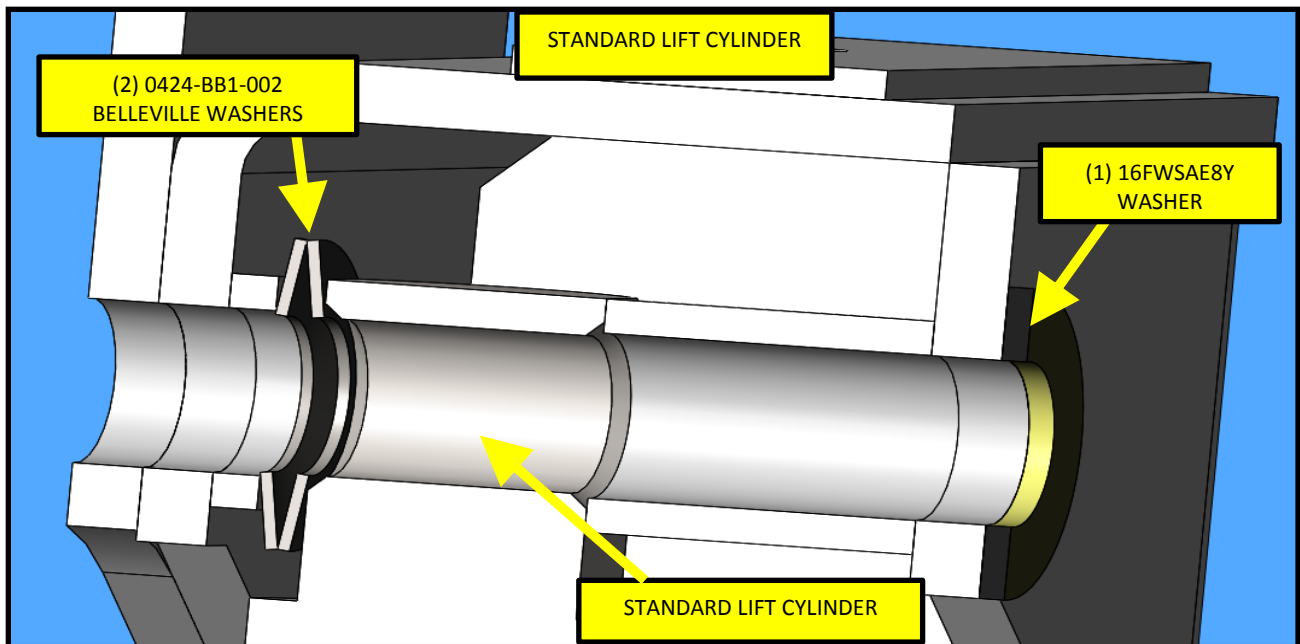


FIG. 20-2

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34. After the new 0965-EE1-003 upper pin is installed, insert (1) 188X3200CP 3/16 x 2.0" cotter pin as indicated, then bend legs to prevent the cotter pin from falling out. Refer to FIG. 21-1.

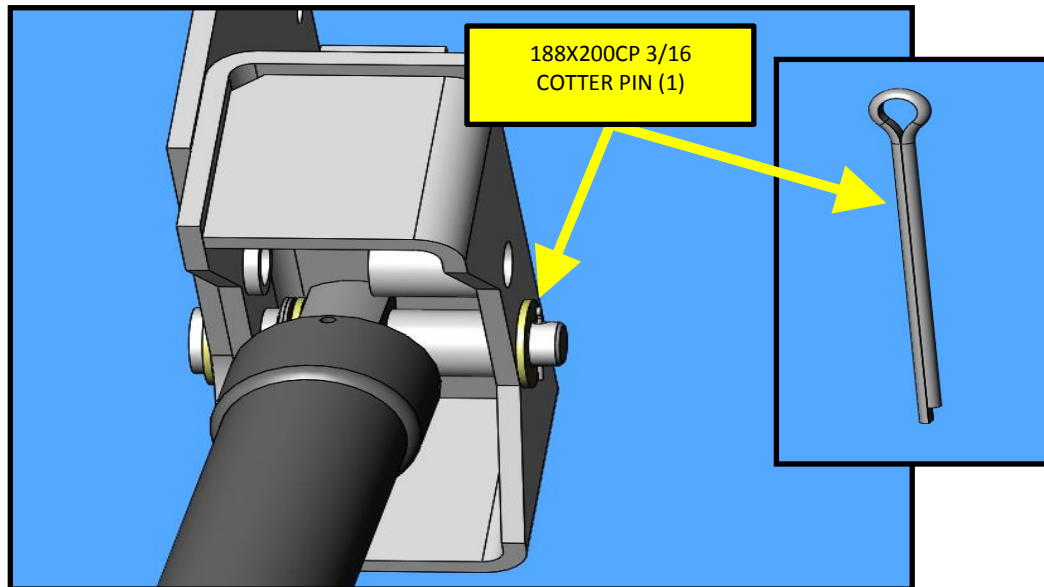


FIG. 21-1

35. Slide the lower mount foot laterally so that the lift cylinder is set to 90 degrees as indicated. Refer to FIG. 21-2.

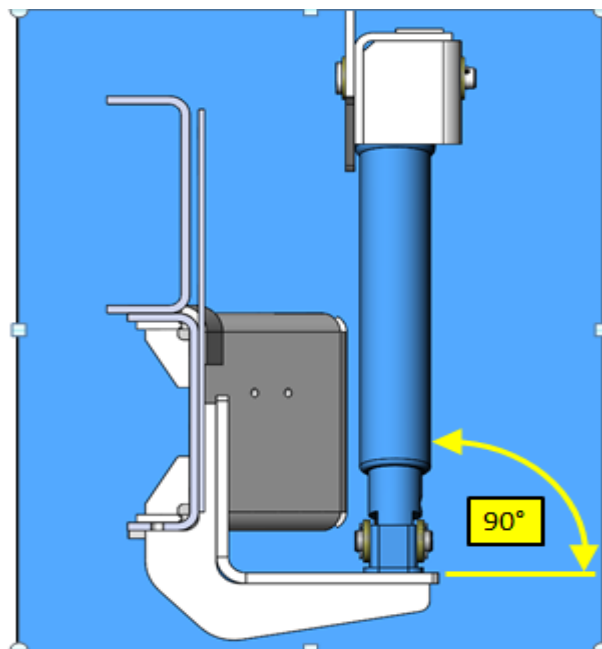


FIG. 21-2

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36. Re-tighten the 3/8-16 flange nuts that were previously loosened in step 23. Making sure to torque to 31 lbf-ft. Refer to FIG 22-1.

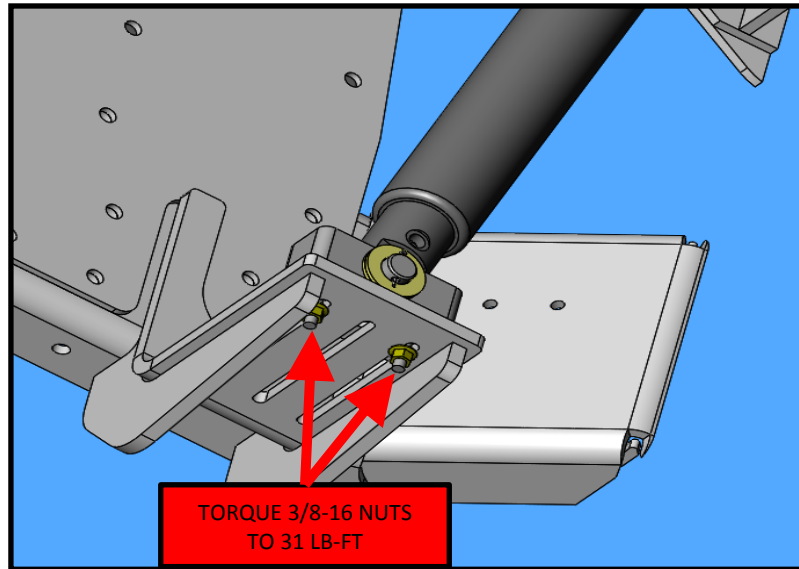


FIG. 22-1

37. Re-connect the batteries and tilt the cab up and down several times to insure correct operation.

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