



DATE: 9-29-17

APPLIES TO: This service bulletin applies to certain Spartan Emergency Response Tractor Drawn Aerial Fire Apparatus built by Spartan Motors USA, Inc. between November 2004 and December 2016

CONDITION: Loose or missing suspension fasteners / cracked suspension sub-structure

CORRECTION: Addition of reinforcing plate and increase fastener size

LABOR ALLOCATION: 45 hrs.

CLASSIFICATION: E

KIT OPTIONS:

1003400 TDA SUSP UPGRADE, 346"WB W/AC
(5-04888, 5-04948 & 8-00148)

1003401 TDA SUSP UPGRADE, 346"WB W/O AC
(5-04888 & 8-00148)

1003402 TDA SUSP UPGRADE, 313"WB W/AC
(5-04888, 5-04948 & 1003369)

1003403 TDA SUSP UPGRADE, 313"WB W/O AC
(5-04888, 1003369)

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.

ALL WELDING TO BE PERFORMED BY AN AWS D1.1 CERTIFIED WELDER.

PRIOR TO FINAL PAINT, ALL FINISHED WELDS TO BE MAGNETIC PARTICLE INSPECTED IN ACCORDANCE TO AWS D1.1 STANDARDS.

ALL WELDING TO BE PERFORMED USING WELD WIRE (OR EQUIVALENT SPECIFICATION) SHOWN BELOW.

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METAL-CORED (GMAW-C) WIRE

Metalshield® MC-6®

Mild Steel • AWS E70C-6M H4

Key Features

- ▶ Excellent performance in fast follow, high travel speed applications
- ▶ Optimal wetting action, even at low voltages
- ▶ H4 diffusible hydrogen level
- ▶ Use with Rapid-Arc® Waveform Control Technology®
- ▶ Deoxidizing arc action minimizes pre-weld work

Conformances

AWS A5.18/A5.18M: 2005 E70C-6M H4
ASME SFA-A5.18: E70C-6M H4
CWB/CSA W48-06: E491 C-6MJ-H4

Welding Positions

All

Typical Applications

- ▶ Robotics/Hard automation
- ▶ Automotive
- ▶ Structural fabrication
- ▶ Process piping and pressure vessels
- ▶ General fabrication

Shielding Gas

75-95% Argon / Balance CO₂
Flow Rate: 40-60 CFH

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Steel Spool	50 lb (22.7 kg) Fiber Spool	60 lb (27.2 kg) Coil	500 lb (227 kg) Accu-Trak® Drum
0.045 (1.1)	ED030392	ED030554	ED030549	ED031011
0.052 (1.3)	ED030393	ED030556	ED030550	ED030946
1/16 (1.6)	ED030394	ED030555	ED030577	ED030947

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.18/A5.18M: 2005

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbft)	
				@ -29°C (-20°F)	@ -40°C (-40°F)
Requirements - AWS E70C-6M H4	400 (58) min.	480 (70) min.	22 min.	27 (20) min.	Not Specified
Typical Performance ⁽³⁾					
As-Welded with 75% Argon / 25% CO ₂ ⁽⁴⁾	450-510 (65-75)	510-590 (75-85)	24-28	81-122 (60-90)	47-75 (35-55)
As-Welded with 90% Argon / 10% CO ₂	480-550 (70-80)	550-620 (80-90)	24-28	75-102 (55-75)	61-81 (45-60)

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STEP-BY-STEP INSTRUCTIONS:

1. Remove and properly dispose of gussets or angles and mounting plate shown below. Grind area flush, prime & paint. Refer to FIG. 3-1.
 - a. Front power steering gearbox bolt may be removed and retained for access
 - b. Remove and retain two outboard 5/8" vertical bolts for access
 - c. If equipped, remove and retain for reuse AC condenser and filter from current mounting locations

NOTE: If crack exist in suspension mounting structure, grind out crack, and re-weld before step 2.

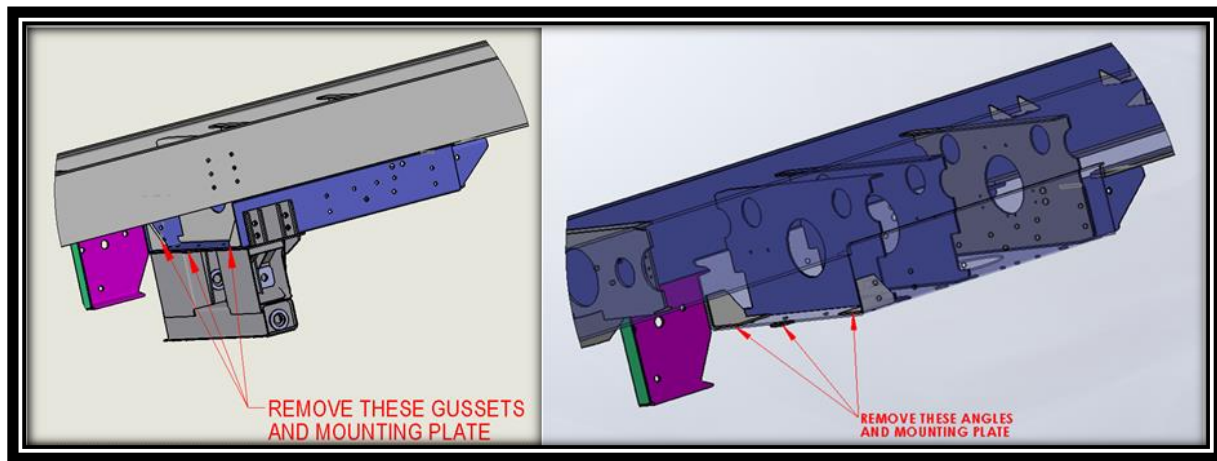


FIG. 3-1

2. Remove and properly dispose of existing 5/8" hardware shown below. Enlarge holes for suspension hanger and suspension mount to .906 dia. Refer to FIG. 4-1.

NOTE: Clear any hoses/wiring inside of suspension mount before drilling

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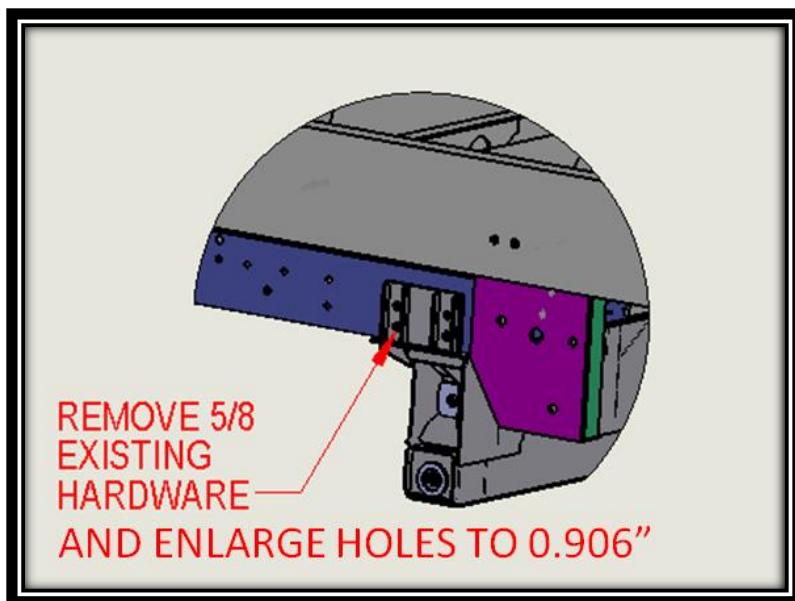


FIG. 4-1

3. Install 7/8 bolt, flat washer, from inside of suspension mount & thru Ridewell suspension hanger. Install spacer 4-17825, with bevels facing Ridewell suspension hanger, flat washer & hex nut. Torque to 505 lbf-ft. (4) places. Refer to FIG. 4-2.

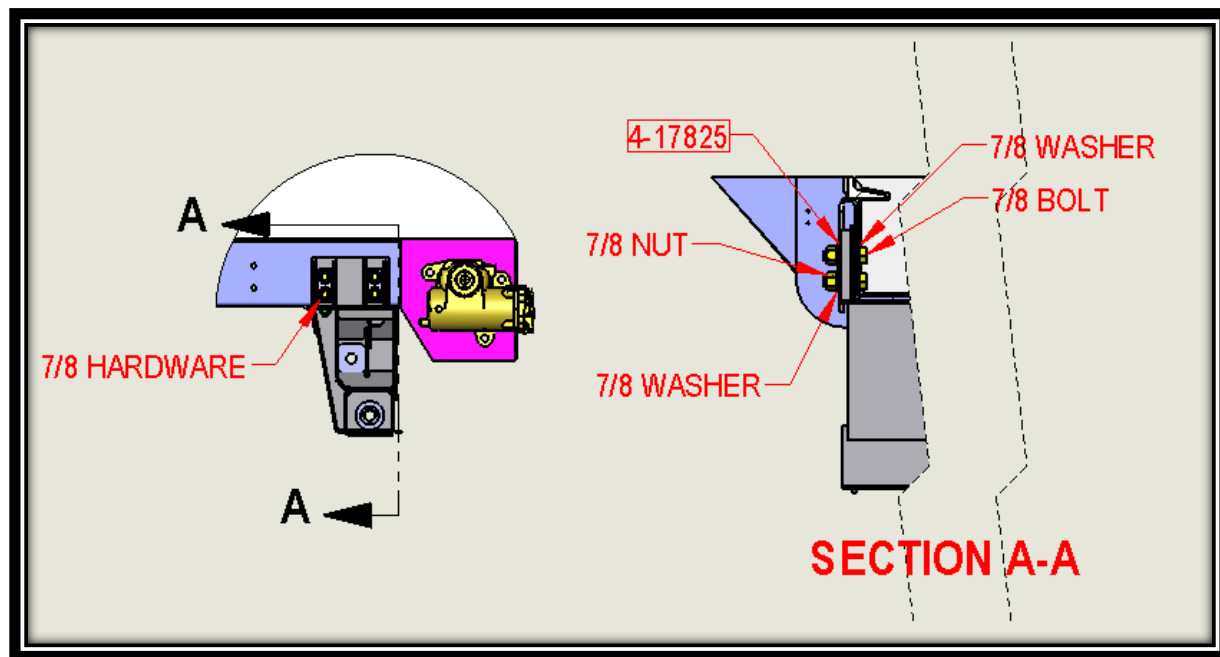


FIG. 4-2

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4. Remove and properly dispose of existing 5/8" hardware shown below. Enlarge holes for suspension hanger and suspension mount .781 dia. Refer to FIG. 5-1.

NOTE: Clear any hoses/wiring inside of suspension mount before drilling

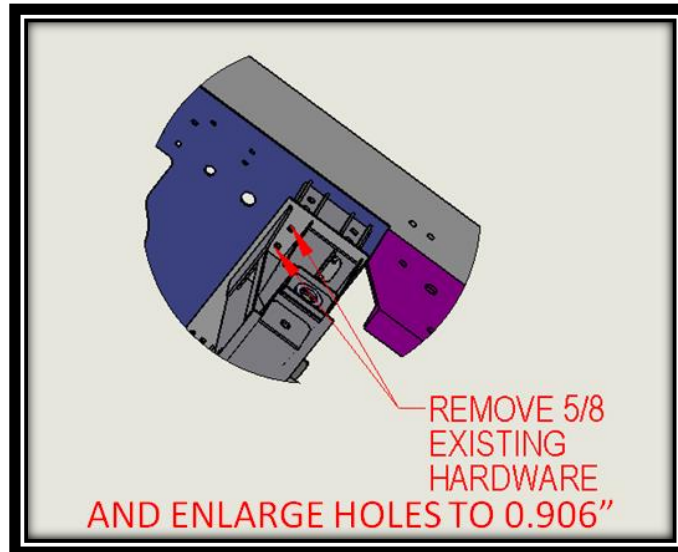


FIG. 5-1

5. Install 3/4 x 2 1/2 lg flange head bolt, spacer 4-17906, from inside of suspension mount & thru Ridewell suspension hanger. Install 3/4 flange nuts torquing inside to out, to 375 lbf-ft. (2) places Refer to FIG. 5-2

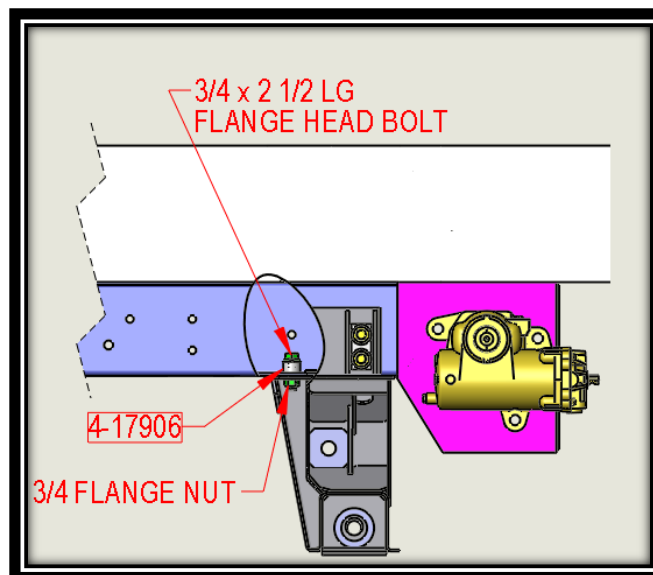


FIG. 5-2

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6. Repeat steps 2-5 on opposite side.
7. Remove and properly dispose of existing 5/8" hardware shown below. Refer to FIG. 6-1.

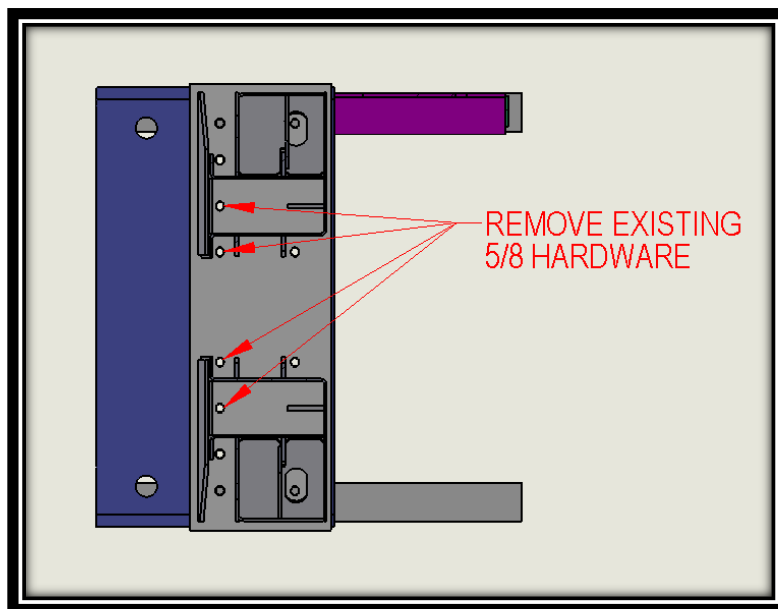


FIG. 6-1

8. Install 5/8 x 2 1/2 lg flange head bolt, spacer 4-17905, from inside of suspension mount & thru Ridewell suspension hanger. Install 5/8 flange nut torquing from inside to out, to 216 lbf-ft. (4) places. Refer to FIG. 6-2.

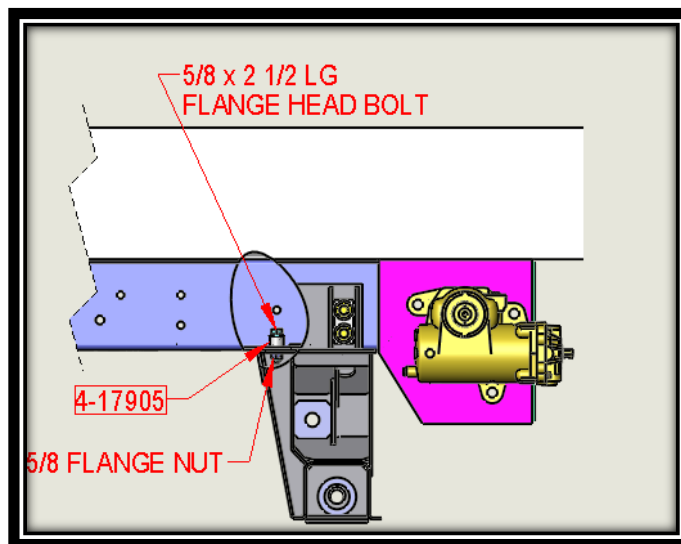


FIG. 6-2

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9. For units with a 346" wheel base and power steering lines located forward of the steering gear centerline use kit 8-00148. Relocate bulkhead fittings as shown below. Refer to FIG. 7-1.
10. Disconnect power steering hoses from bulkhead and steering gear fittings, seal off to insure no contaminants are introduced into hoses or steering gear. Relocate existing hoses & bulkhead fittings in new locations shown in FIG. 7.1 & tighten.

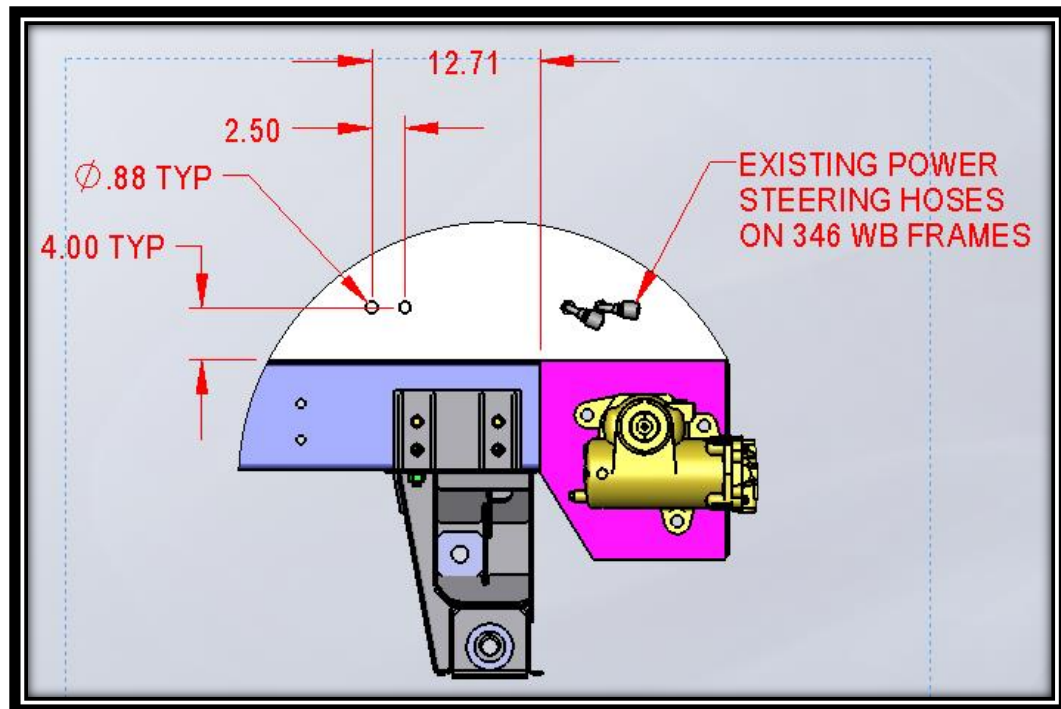
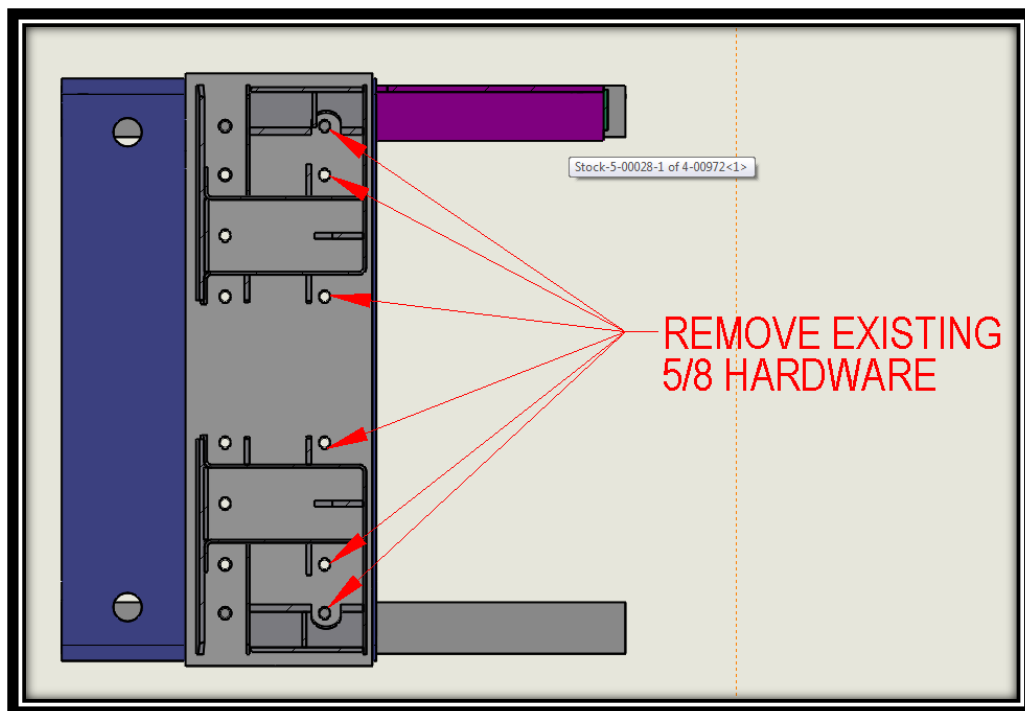


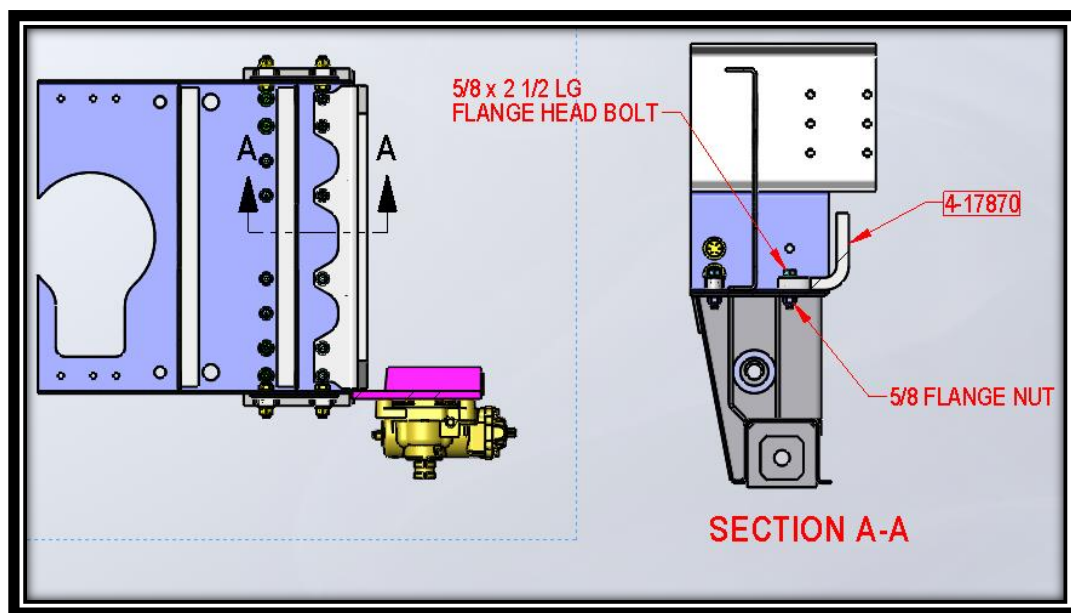
FIG. 7-1

11. For units with a 313" wheel base and power steering lines rearward of steering gear centerline, use kit 1003369.
12. Disconnect power steering hoses from bulkhead fittings inside of frame. Mark and seal hose to insure no contaminants are introduced into hoses.
13. Remove existing 5/8" hardware and properly dispose of. Refer to FIG. 8-1.

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**FIG. 8-1**

14. Install 4-17870 as shown, with 5/8 x 2 1/2 lg bolt thru 4-17870, suspension mount & thru Ridewell suspension hanger. Install 5/8 flange nut torquing from inside to out, to 216 lbf-ft. (6) places. Refer to FIG. 8-2.

**FIG. 8-2**

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15. P-clamps securing wiring on both sides of frame rail may be temporarily removed to get wiring out of way.
16. Install parts shown below in frame and tighten, but do not torque. Use angle brackets 4-17875 & 4-17877 as a fixture to locate and mark (12) .656 dia holes on frame rail. Refer to FIG. 9-1.

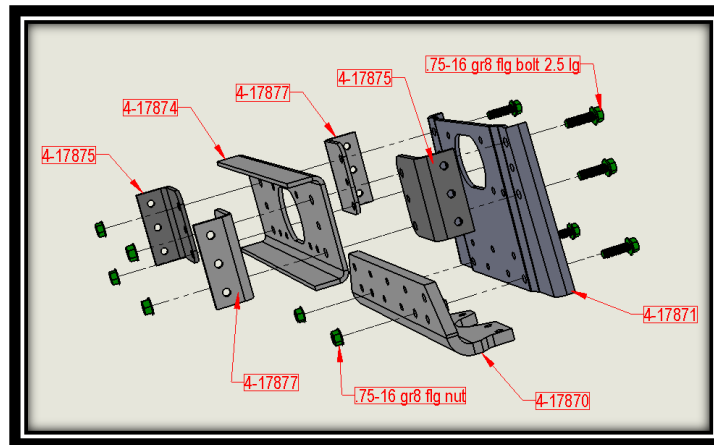


FIG. 9-1

17. Using 4-17870 as a template, drill (4) .781 dia thru in 4-17871.
18. Remove and retain for reuse parts installed in step 16 & drill (12) .656 dia holes in frame rails. Grind area prime & paint. Refer to FIG. 9-2.

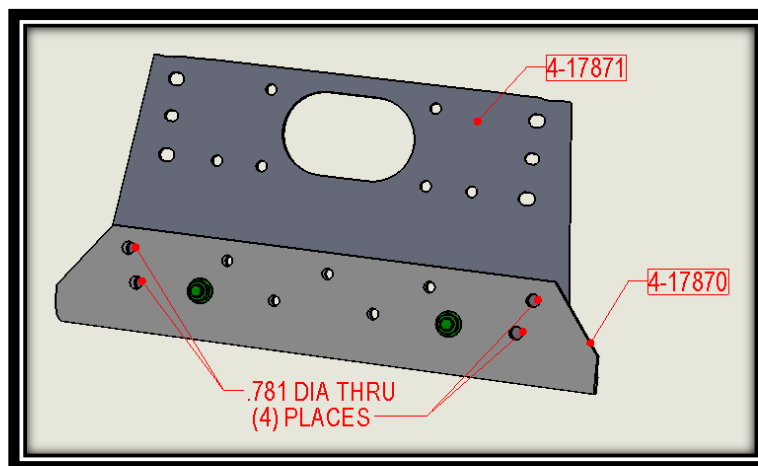
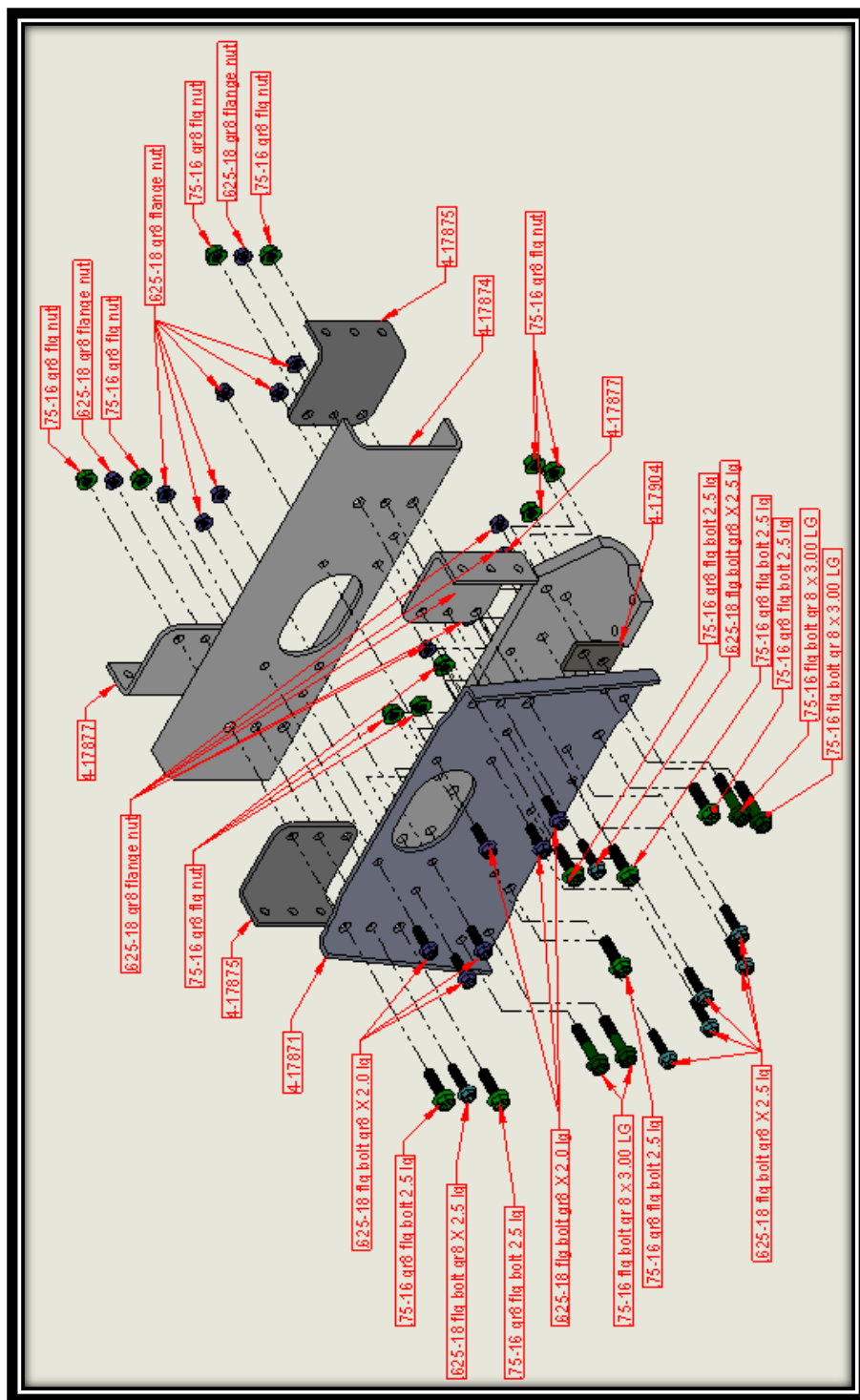


FIG. 9-2

19. Reinstall retained parts in frame as shown below and loosely fasten all hardware. Refer to FIG. 10-1.

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FIG. 10-1

20. Install (12) 5/8-16 x 2.0 lg bolts thru angle mounting brackets 4-17875 & 4-17877, the TDA frame and 5/8 flange nuts. Loosely fasten hardware. Refer to FIG. 11-1.

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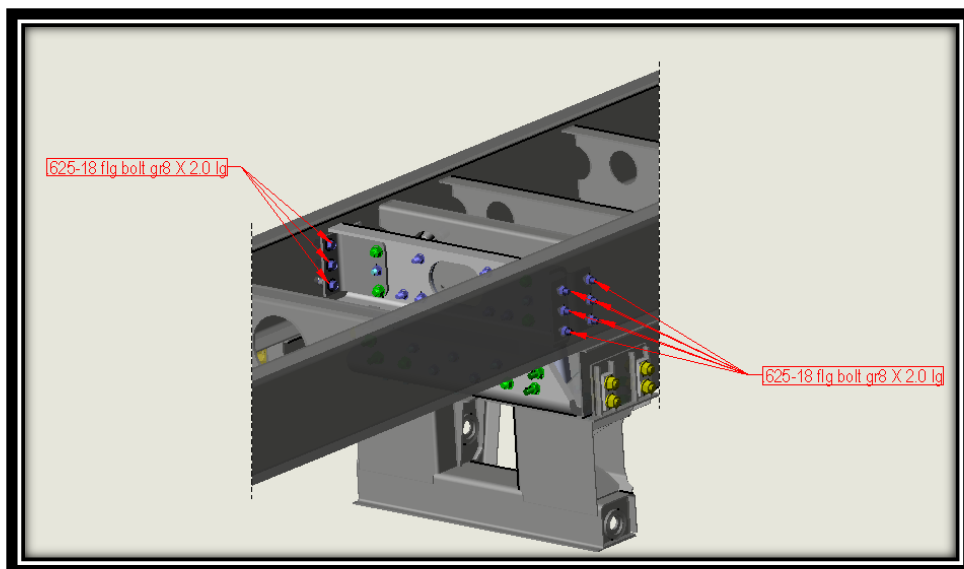


FIG. 11-1

21. If equipped, install AC brackets 4-17959 & 4-17976 as show. Refer to FIG. 11-2.

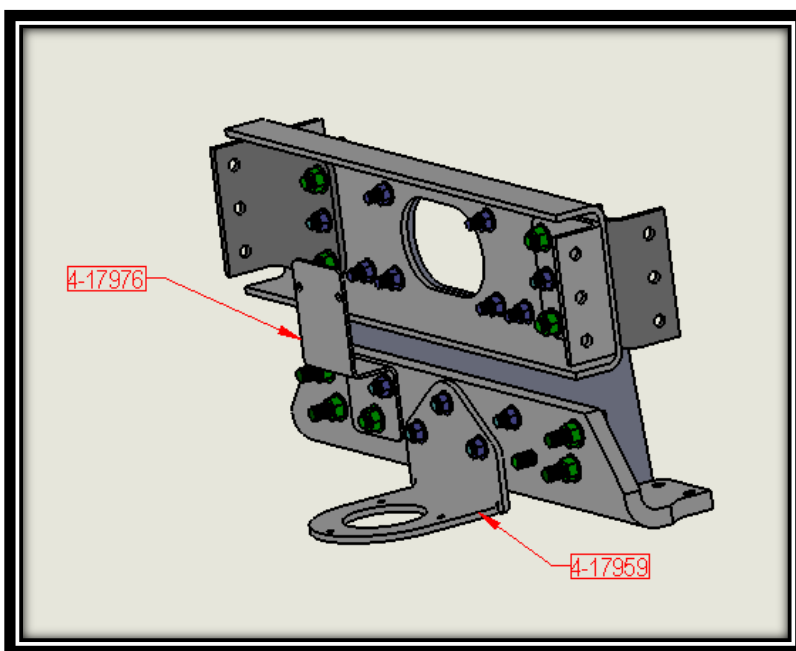


FIG. 11-2

22. Torque lower hardware in order shown below. 5/8 hardware to be torqued to 216 lbf-ft.lb.
3/4 hardware to be torqued to 375 lbf-ft. Refer to FIG. 12-1.

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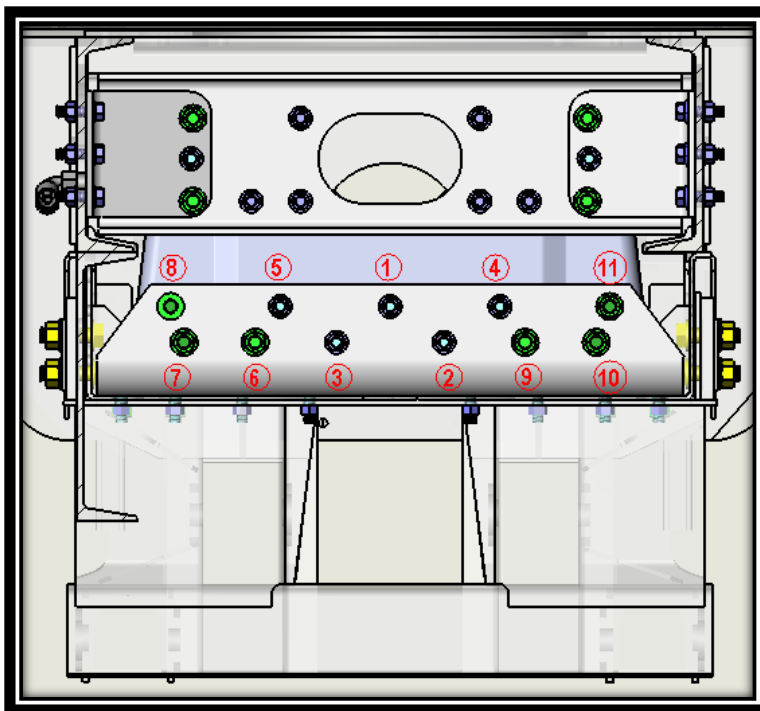


FIG. 12-1

23. Torque upper hardware in order shown below. 5/8 hardware to be torqued to 216 lbf-ft.lb.
3/4 hardware to be torqued to 375 lbf-ft. Refer to FIG. 12-2.

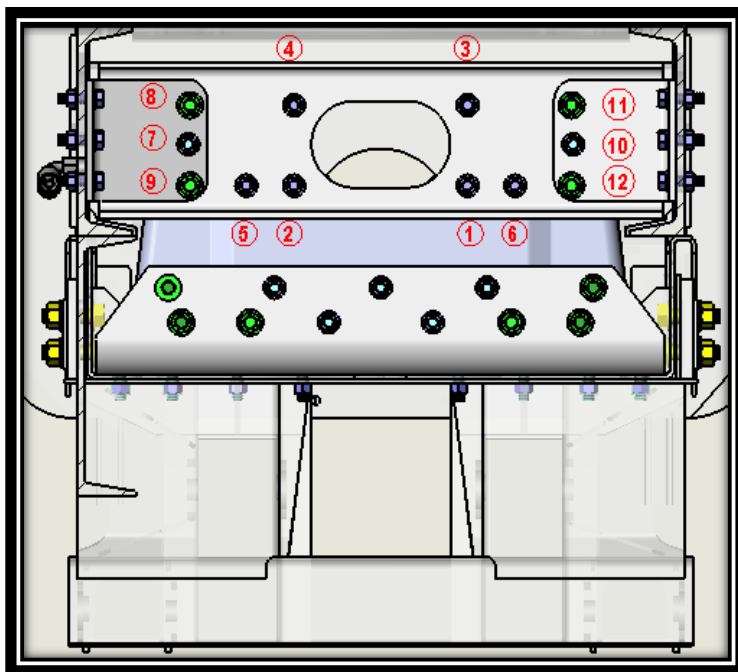


FIG. 12-2

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24. Torque side hardware in order shown below. 5/8 hardware to be torqued to 216 lbf-ft.
Refer to FIG. 13-1.

Left hand side same sequence as shown

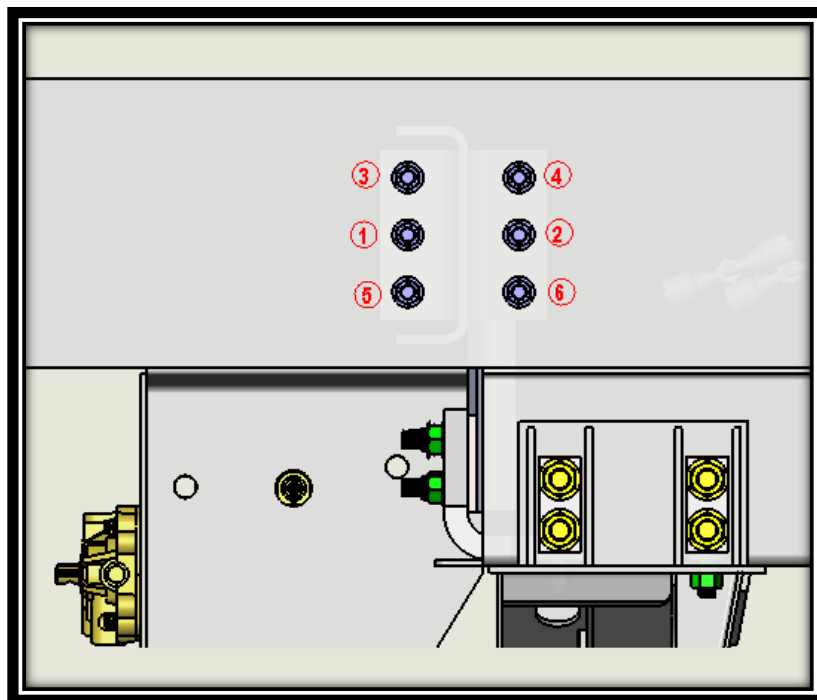


FIG. 13-1

25. If equipped remount AC filter and condenser as shown below. Refer to FIG. 13-2.

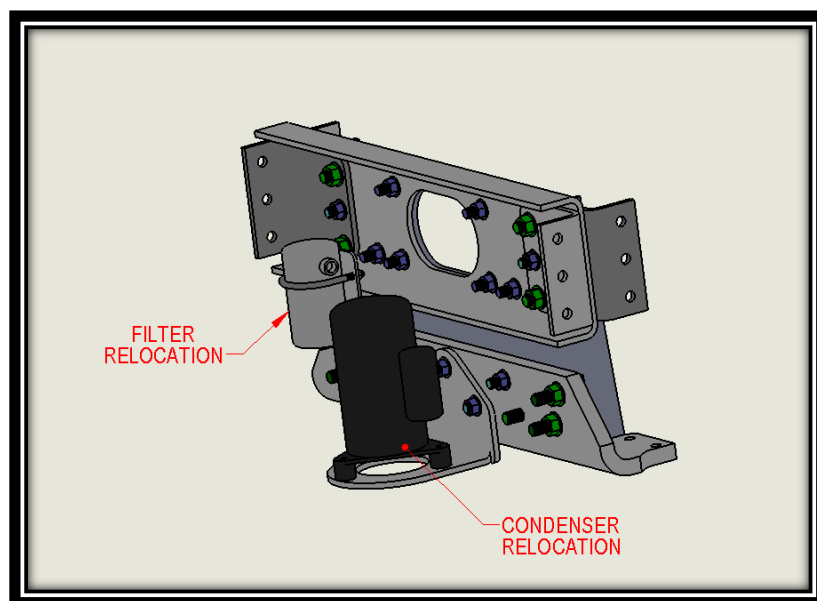


FIG. 13-2

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26. For units with a 346" wheel base and power steering lines located forward of the steering gear centerline.
27. Install new steering hoses in kit 8-00148.
28. For units with a 313" wheel base and power steering lines rearward of steering gear centerline.
29. Install extension hoses to power steering and route across the cross member, back the right side frame and over to the connection points on the left side frame & connect to bulkhead fittings. Secure hoses and wiring adding protective covering as applicable.
30. Start unit & bleed the steering system & refill reservoir as necessary.

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