Spartan Fire, LLC

Technical Service Bulletin
TSB23-210-004

DATE: 6/9/2023

APPLIES TO: This service bulletin applies to certain 2018 through 2023 model year, Gladiator, Metro Star, Metro Star X, Metro Star–RT, FC-94, and KME Panther model Emergency Response chassis cabs built between October 23, 2017 and June 7, 2023.

CONDITION: Potential for crack at the engine cutout areas of the frame rail flanges.

CORRECTION: Weld repair and frame rail reinforcement.

LABOR ALLOCATION: 15 Hours

CLASSIFICATION: T3

PARTS NEEDED: If a frame rail crack is discovered, take pictures, and contact Spartan Fire, LLC. for instructions on how to proceed.

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 Fire, LLC. Customer & Product Support Group.

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

STEP-BY-STEP INSTRUCTIONS:

1. Tilt cab to inspect frame rail flanges for cracks. Refer to figure 2.1 which illustrates typical engine-cutout inspection location.

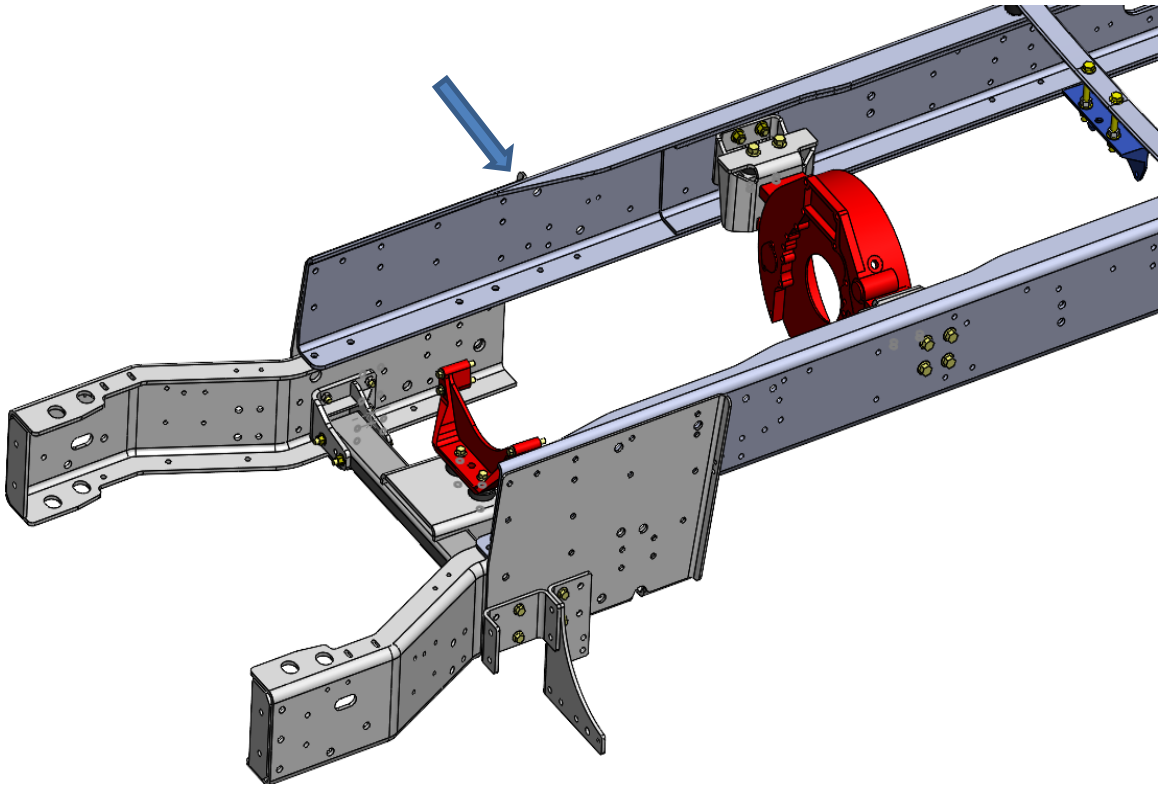

FIG 2.1

2. See Figure 3.1 below for an example of a frame rail crack.

FIG 3.1

3. If a frame rail crack is discovered, take pictures, and contact Spartan Motors Customer Product & Support at 800-867-6478 for instructions on how to proceed.

Step 4 onward detail a typical repair and reinforcing frame wrap installation. The combination of parts needed will differ based on crack location and vehicle's sales options.

4. Clean all parts of oil and debris.

5. Grind out the entire frame crack 0.25" past end of crack.

6. Use a welding backup strip. It may need to be bent/contoured to the inside frame radius (.5"). Grind off after welding.

7. Support engine when replacing engine bracket bolts.

8. Remove all battery connections prior to welding. Move all wires and air lines away from weld and protect w/ weld blanket.

9. Weld per spartan specification (*see page 5, figure 5.1)* with e70 or equivalent wire.

10. All weld grinding to be 90° to crack direction and ground flush.

11. After welding, modify frame cutout using wrap as template and smooth out flange edge.

12. Paint exposed metal.

13. Attach frame reinforcement with aligning holes. Match drill only those holes specified; certain configurations will have unused reinforcement holes.

14. Typical grade 8 yellow flange head torque 5/8-11 = 148 LBF-FT torqued on nut side.
½-13 = 74 LBF-FT torqued on nut side.
Reference figure 4.1

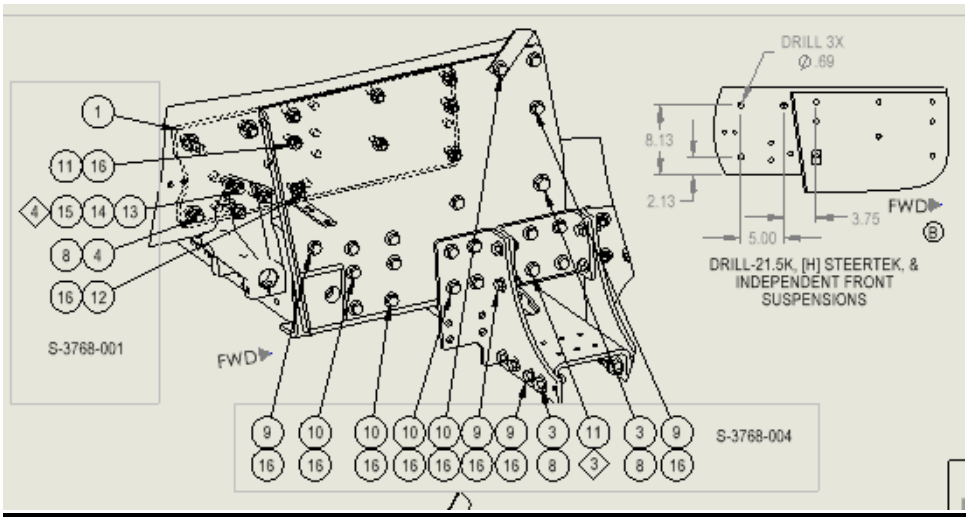

Fig 4.1

Service Bulletins are intended for use by Professional Technicians only. They are written to guide Professional Technicians in performing service to vehicles of specific nature in conjunction with industry standards. Professional Technicians should be appropriately trained on industry standards and have the tools and equipment to perform procedures safely and properly.

Weld Requirements

1.) ALL WELDS TO BE QUALIFIED TO ANSI/AWS D1.1 STRUCTURAL WELDING CODE-STEEL OR ANSI D1.3-XXXX STRUCTURAL WELDING CODE - SHEET STEEL APPROPRIATELY. PART NUMBER ACCEPTANCE CRITERIA PER STANDARD REVISION BASED ON DATE OF MANUFACTURE OF WELDED ASSEMBLY (WELDMENT).

3.) SHEET METAL WELDING NOT COVERED UNDER ANSI/AWS D1.3-XXXX TO CONFORM TO ANSI/AWS D9.1:XXXX. PART NUMBER ACCEPTANCE CRITERIA PER STANDARD REVISION BASED ON DATE OF MANUFACTURE OF WELDMENT.

4.) ALL ALUMINUM WELDING TO CONFORM TO ANSI/AWS D1.2-XXXX. PART NUMBER ACCEPTANCE CRITERIA PER STANDARD REVISION BASED ON DATE OF MANUFACTURE OF WELDMENT.

(C2) 5A.) ALL PRESSURE PIPE WELDING SHALL FOLLOW AMERICAN SOCIETY OF MECHANICAL ENGINEERS ASME 1X/ ASME B31:XXXX REQUIREMENTS TO THE QUALIFICATION OF PROCEDURES IN WELDING AND BRAZING, IN ACCORDANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE AND THE ASME B31.

(C1) 5B.) ALL STAINLESS STEEL WELDING TO CONFORM TO ANSI/AWS D1.6:XXXX. PART NUMBER ACCEPTANCE CRITERIA PER STANDARD REVISION BASED ON DATE OF MANUFACTURE OF WELDMENT.

6.) **ALL** WELDED ASSEMBLIES TO BE FREE OF SPATTER.

7.) SUPPLIER MUST USE WELD WIRE WHICH MEETS AWS ELECTRODE SPECIFICATIONS FOR ALL SPARTAN CHASSIS WELDED ASSEMBLIES (WELDMENTS).
7.1.) STEEL FILLER METAL TO MEET LATEST EDITION OF AWS A5.X(X). FILLER METAL PREFIXES PREFERRED TO BEGIN WITH E70, ER70S-X, OR E7 REFERENCING AWS D1.1 TABLE 3.1 FOR TABLE GROUP 1 PER PROCESS AND AWS ELECTRODE SPECIFICATION. FILLER METALS FOR OTHER GROUPS UNDER TABLE 3.1 SHOULD CONFORM TO LISTED ELECTRODE CLASSIFICATIONS.
7.2.) SHEET STEEL FILLER METAL TO MEET AWS D1.3-XXXX TABLE 1.1 (OR NEWER AS APPLICABLE).
7.3.) ALUMINUM FILLER METAL TO MEET LATEST EDITION OF AWS A5.10, *SPECIFICATION FOR BARE ALUMINUM AND ALUMINUM ALLOY WELDING ELECTRODES AND RODS*

Fig 5.1