

SS 582773: EFX Shock Mount /Frame Rail Crack Repair

Applicable Vehicles

Thomas Bus EFX

Symptoms

A minor crack in the frame rail could appear around the shock mount on some buses.

Issue

There is a potential for a small crack to form on the frame rail around the shock mounting bracket on the front suspension of the EFX Transit buses.

Solution

A retrofit has been designed to replace the current shock mount bracket with a new design. This fix requires frame welding, as called out in the workshop manuals, as well as additional holes to be added for the new brackets. step by step instructions for the process are attached to this solution. Please follow instructions and safe practices when performing this repair.

Labels :

Transit-Liner

Add tags

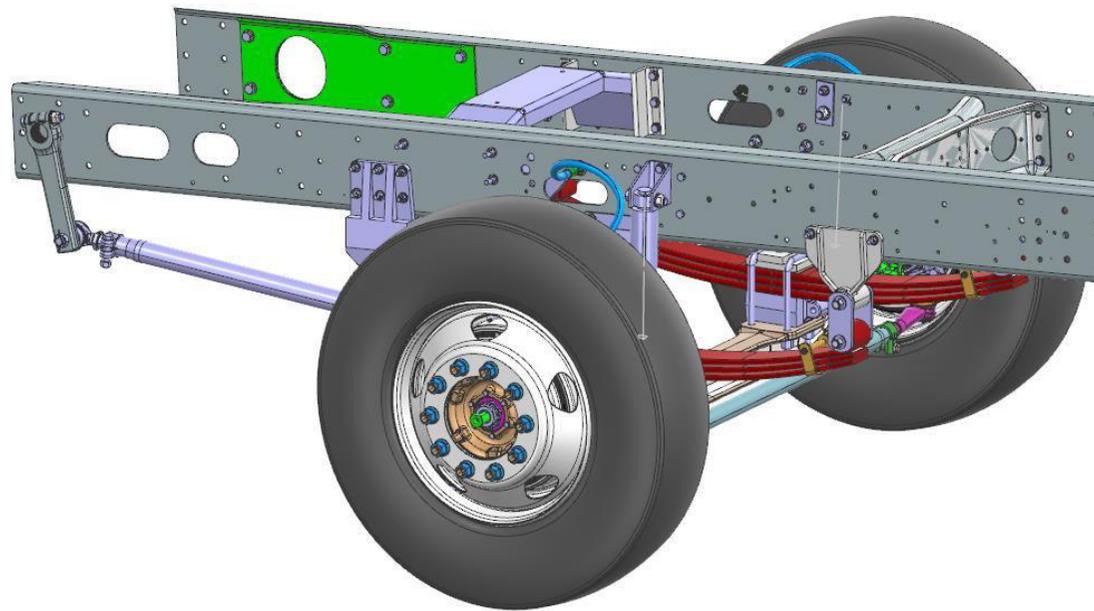
Attachments



 0 Kudos

Comment

Thomas Bus EFX Shock Mount Retrofit



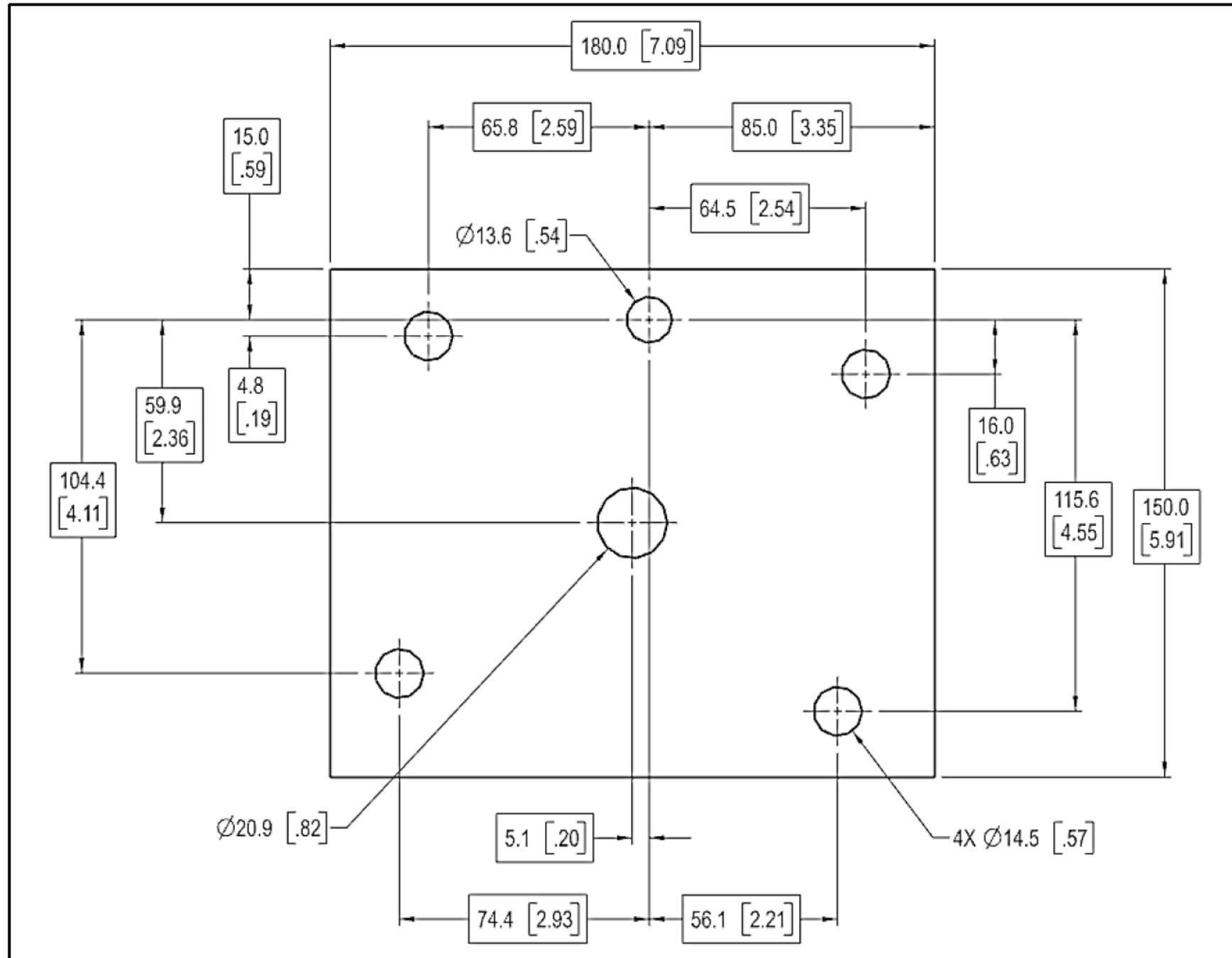
BOM

ITEM #	DESCRIPTION	TBB PART #	DTNA PART #	QTY
1	BRKT-MOUNT,SHOCK,UPPER FRT,EFX	252338	TBBN252338	4
2	SCREW,CAP,HEX,1/2-13,GR8,ZNDI	61370644	23-11751-150	8
3	WASHER-HRDN,0.53X1.06X.177,ZN	61370352	23-09114-003	16
4	NUT-HEX,LKG,XL SIL,1/2-13	61370043	23-13833-108	8
5	FIXTURE-HOLE DRILLING,EFX	252430	TBBN252430	1

TOOL AND MISCELLANEOUS

QUANTITY	DESCRIPTION
1	0.562" (9/16") drill bit
1	Corded drill
1	1/2" Pin
1	Duct tape
1	Paint Brush
1	Caulk
1	3/4" Pin

TBBN252430 – FIXTURE-HOLE DRILLING, EFX



1. PREPARING FOR INSTALLATION (COMMON FOR LH AND RH RAIL)

1.1. PARK VEHICLE ON LEVEL GROUND AND ENGAGE PARKING BRAKE TO LOCK REAR WHEELS.

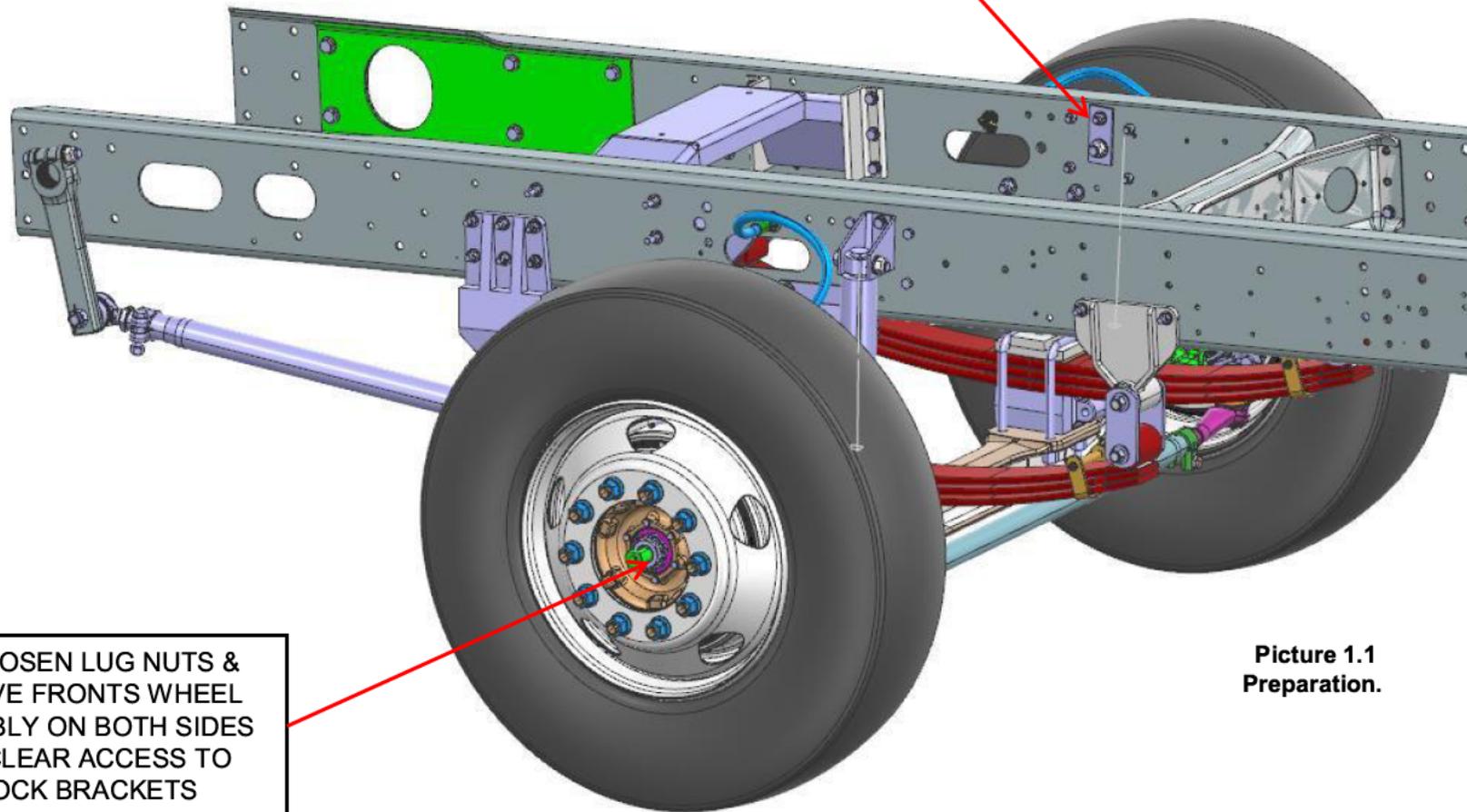
1.2. LIFT FRONT AXLE WITH A JACK AND SECURE IT WITH HEAVY-DUTY AXLE STANDS TO TAKE LOAD OFF THE SHOCK ABSORBER.

1.3. ENSURE STEERING IS CENTERED AND LOCK THE STEERING TO PREVENT MOVEMENT.

1.5. REMOVE & DISCARD SHOCK ABSORBER MOUNTING HARDWARE ALONG WITH BACKING PLATE AND SHOCK MOUNTING BRACKET ON BOTH SIDES. INSPECT FRAME AT SHOCK BRKT LOCATION FOR ANY DAMAGE, IF DAMAGED REPAIR PER Saf-T-Liner C2 SCHOOL BUS WORKSHOP MANUAL.

1.4. LOOSEN LUG NUTS & REMOVE FRONTS WHEEL ASSEMBLY ON BOTH SIDES FOR CLEAR ACCESS TO SHOCK BRACKETS

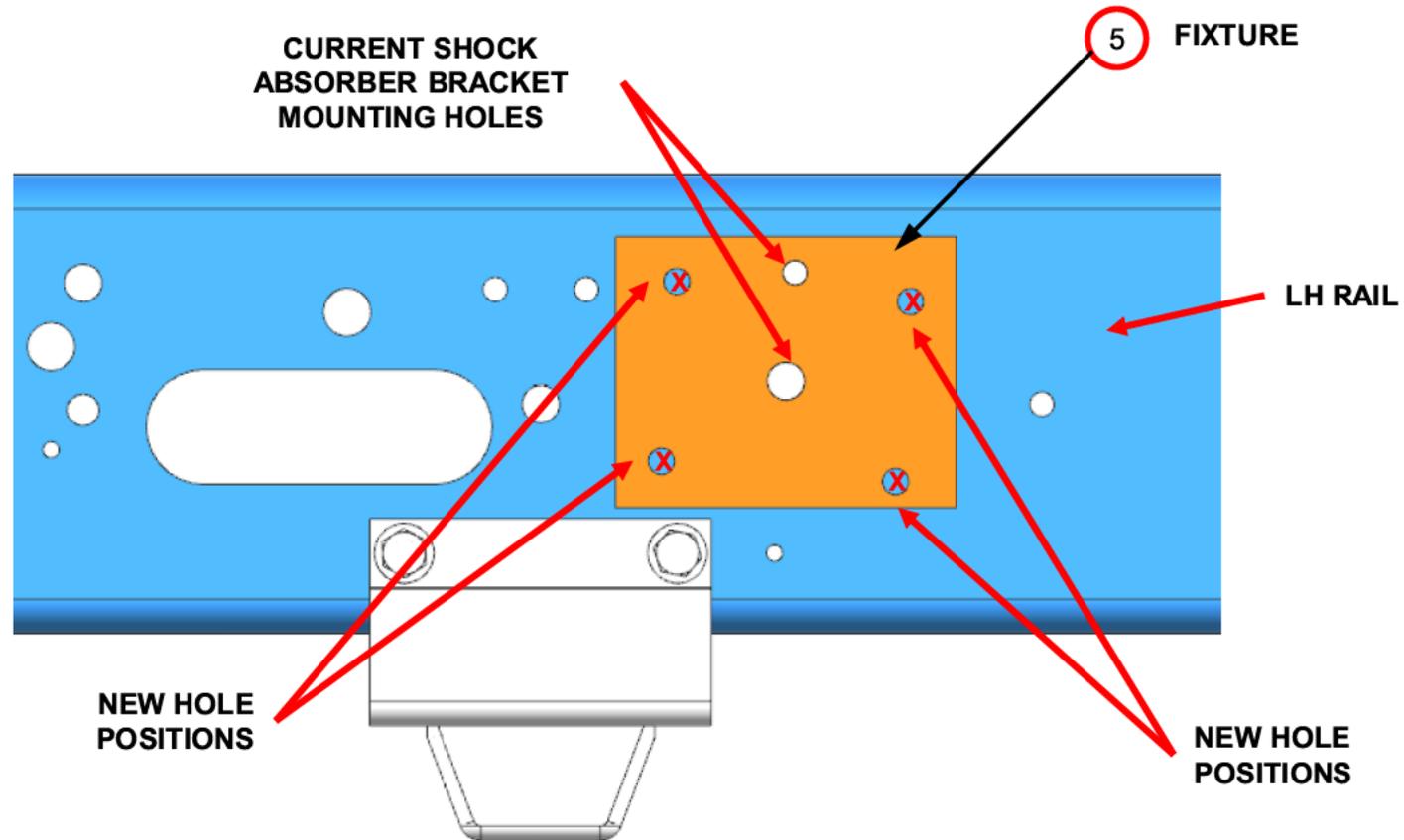
1.6. REMOVE SHOCK ABSORBERS FROM BOTH SIDES AND KEEP ASIDE FOR LATER INSTALLATION.



Picture 1.1
Preparation.

2. FIXTURE INSTALLATION (LH RAIL)

- 1. TO POSITION FIXTURE:**
 1. POSITION THE FIXTURE ON LH FRAME BY INSERTING PINS IN CURRENT SHOCK ABSORBER BRACKET MOUNTING HOLES.
- 2. TO SECURE FIXTURE:**
 1. USE DUCT TAPE TO SECURE THE FIXTURE ON THE RAIL, DO NOT COVER ANY HOLE.



Picture 1.2
Fixture positioned on LH Rail.

2. FIXTURE INSTALLATION (LH RAIL)

 **TORQUE TO TARGET 55 FT-LBS, RANGE: 44-66 FT-LBS .**

3. MARK THE PILOT (TO BE DRILLED) HOLES:

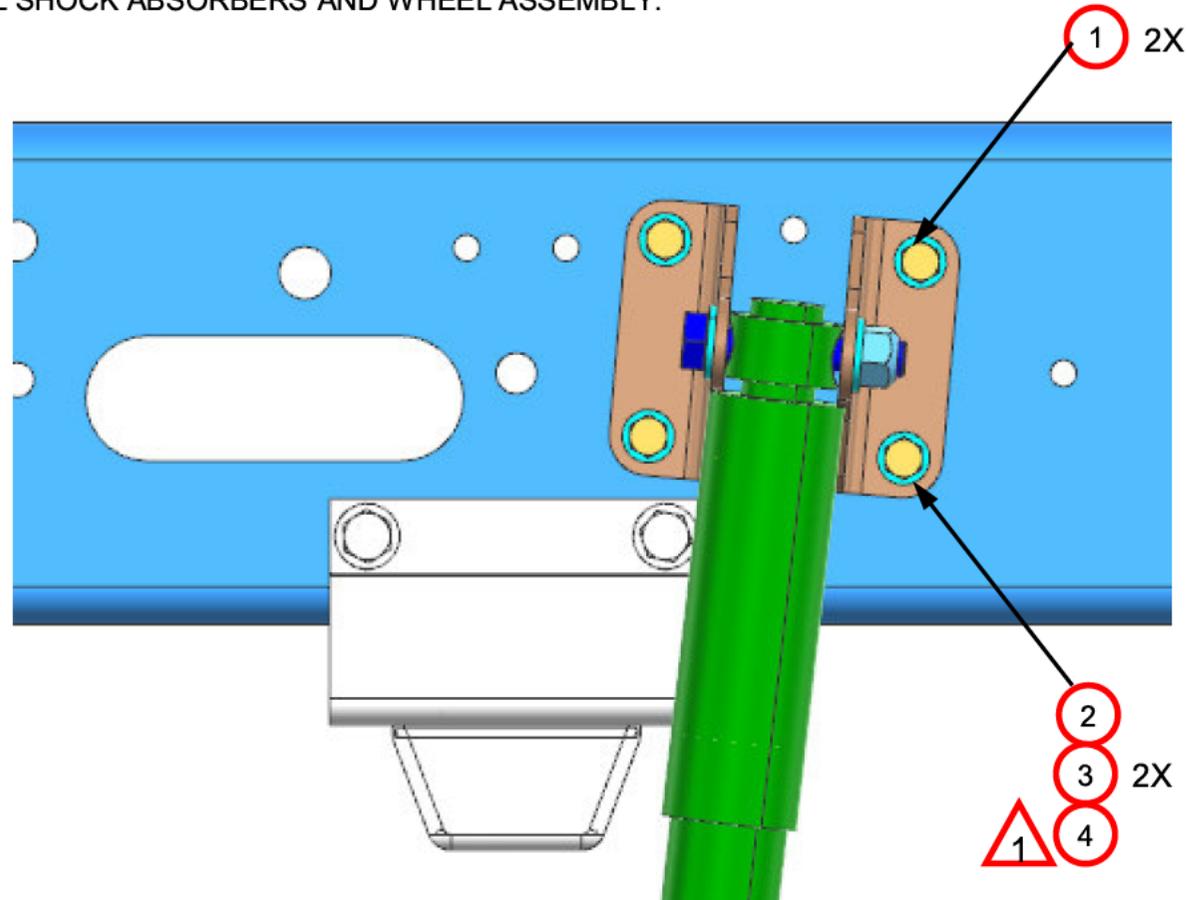
1. ONCE THE FIXTURE IS IN PLACE, MARK HOLES WITH A PAINT MARKER AND PUNCH CENTER FOR DRILL LOCATION.

4. DRILLING PROCESS:

1. ENSURE ALL HARNESS AND HOSES ARE MOVED FROM DRILL LOCATION PRIOR DRILLING HOLES.
2. DRILL ALL MARKED HOLES USING A 0.562" (9/16") DRILL BIT.
3. REMOVE ALL SHAVINGS AFTER DRILLING WITH A BRUSH.

5. NEW BRACKET:

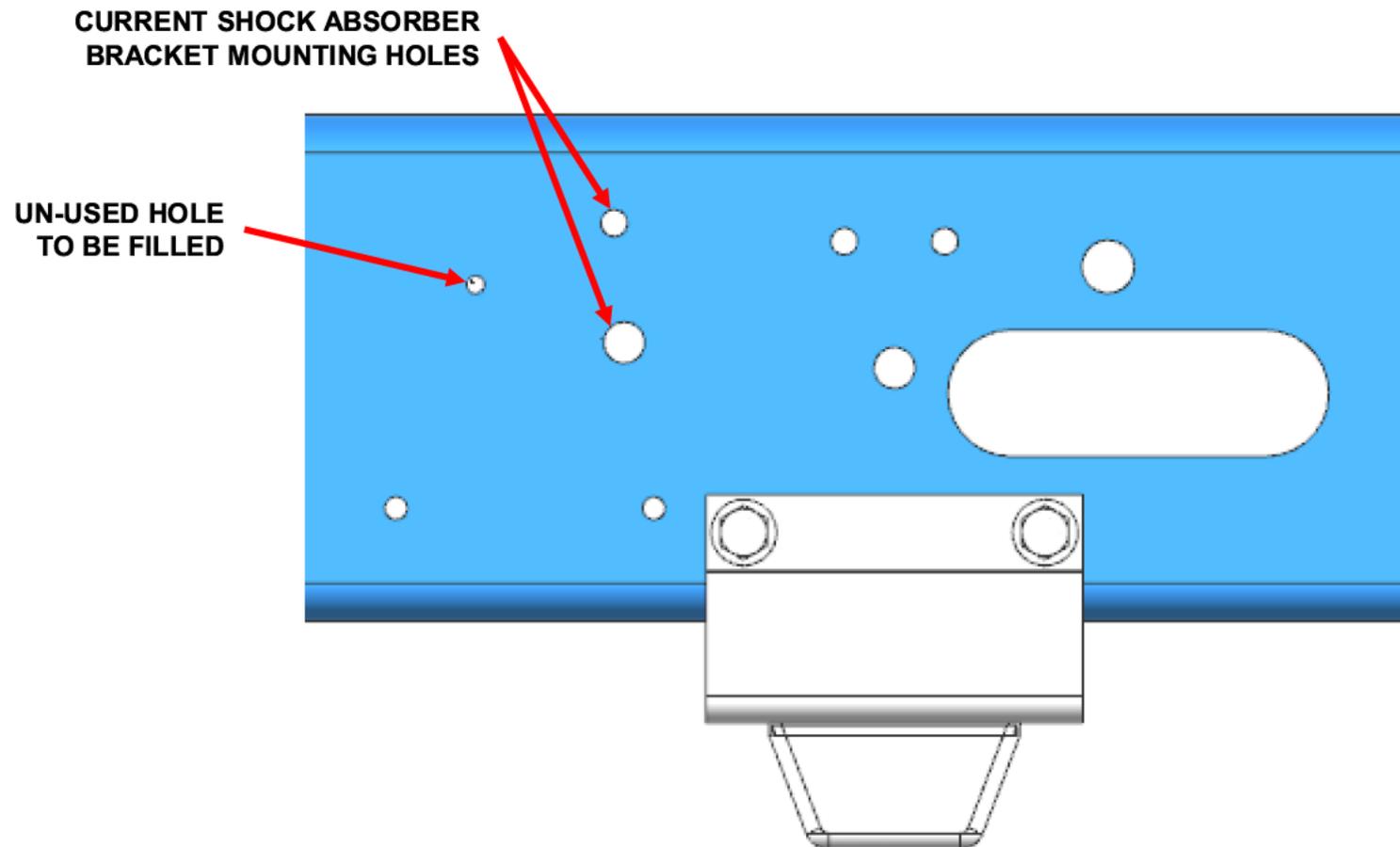
1. INSTALL NEW BRACKET AND THE SCREWS ON EACH HOLE PER BOM MENTIONED IN SHEET 1.
2. INSTALL SHOCK ABSORBERS AND WHEEL ASSEMBLY.



2. FIXTURE INSTALLATION (RH RAIL)

1. TO FILL UN-USED HOLE:

1. FILL THE MARKED HOLE WITH WELD MATERIAL BEFORE POSITIONING FIXTURE.



Picture 1.3
Filling un-used hole on RH Rail.

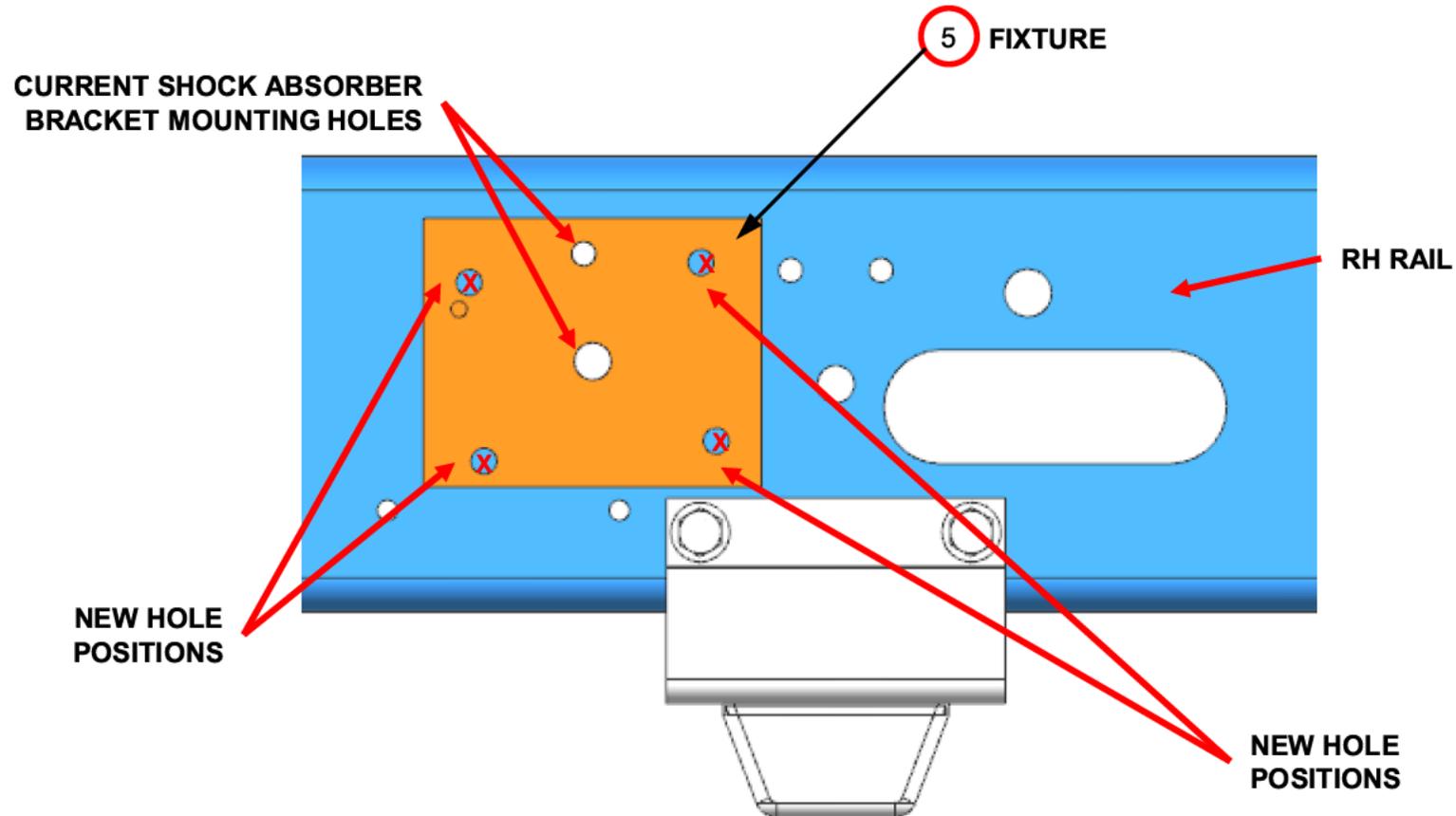
2. FIXTURE INSTALLATION (RH RAIL)

2. TO POSITION FIXTURE:

1. POSITION THE FIXTURE ON RH FRAME BY INSERTING PINS IN CURRENT SHOCK ABSORBER BRACKET MOUNTING HOLES.

3. TO SECURE FIXTURE:

1. USE DUCT TAPE TO SECURE THE FIXTURE ON THE RAIL, DO NOT COVER ANY HOLE.



Picture 1.4
Fixture positioned on RH Rail.

2. FIXTURE INSTALLATION (RH RAIL)

1 TORQUE TO TARGET 55 FT-LBS, RANGE: 44-66 FT-LBS .

4. MARK THE PILOT (TO BE DRILLED) HOLES:

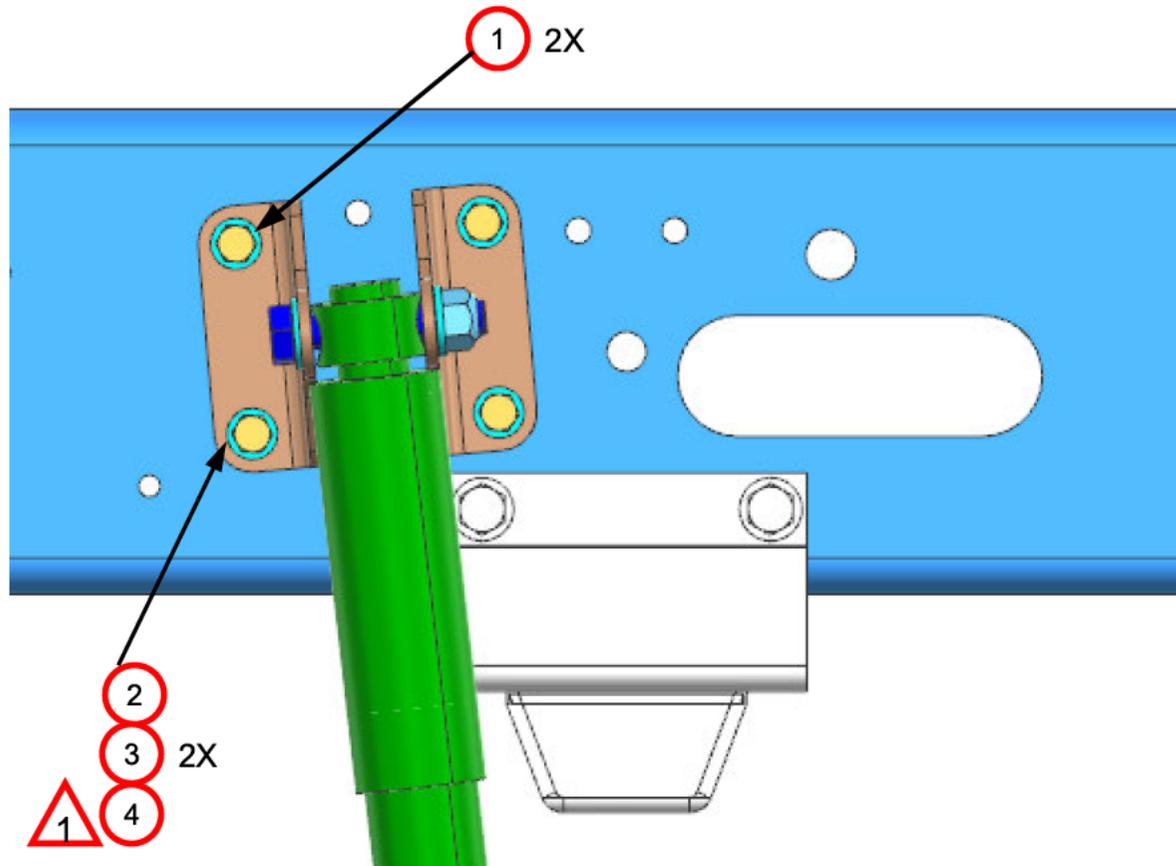
1. ONCE THE FIXTURE IS IN PLACE, MARK HOLES WITH A PAINT MARKER AND PUNCH CENTER FOR DRILL LOCATION.

5. DRILLING PROCESS:

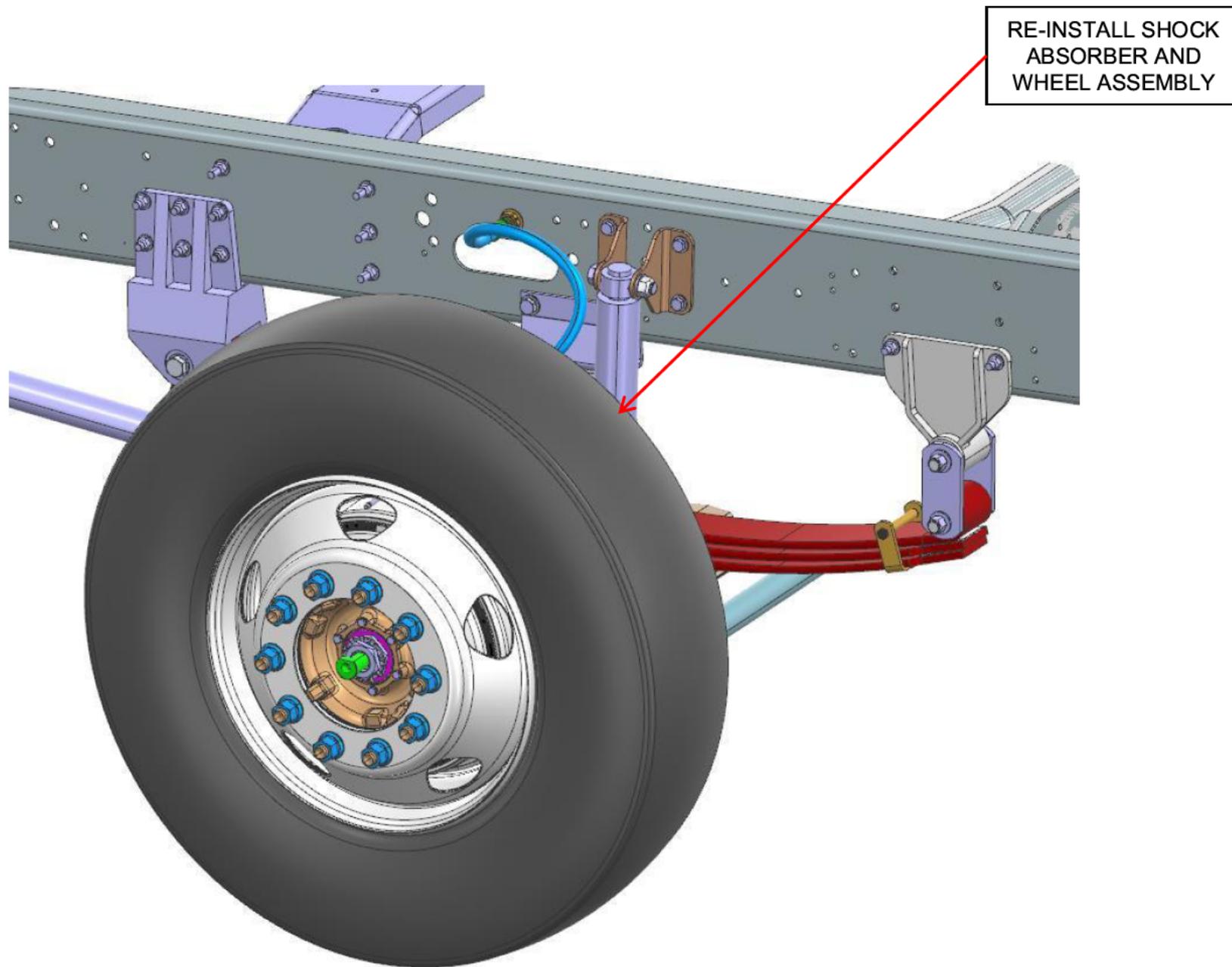
1. ENSURE ALL HARNESS AND HOSES ARE MOVED FROM DRILL LOCATION PRIOR DRILLING HOLES.
2. DRILL ALL MARKED HOLES USING A 0.562" (9/16") DRILL BIT.
3. REMOVE ALL SHAVINGS AFTER DRILLING WITH A BRUSH.

6. NEW BRACKET:

1. INSTALL NEW BRACKET AND THE SCREWS ON EACH HOLE PER BOM MENTIONED IN SHEET 1. 2X
2. INSTALL SHOCK ABSORBERS AND WHEEL ASSEMBLY.



2. INSTALLATION



REPAIRING THE CRACKS IN FRAME RAIL

*Information on the next three pages is copied directly from C2 Workshop Manual.
Please use as a reference*

CAUTION

- Before performing any electric welding on a vehicle, read and understand the welding precautions in Subject 110.
- Disconnect the battery power and ground cables and any electronic control units (ECUs) installed on the vehicle.
- Electric currents produced during electric welding can damage various electrical components on the vehicle, such as alternator diodes and ECUs.
- Freightliner vehicle components that typically use ECUs include electronic engine, electronic automatic transmission, and ABS (antilock braking system).
- For any ECU with a battery power harness, disconnect its ground terminal from the chassis ground, and disconnect its power terminal from the battery positive post, or disconnect the main connection at the ECU.

1. Drill a 1/8-inch (3-mm) diameter hole at each end of the crack to prevent further spreading of the crack. See Fig. 1.
2. Vee out the crack to a depth of two thirds of the stock thickness. See Fig. 2.

NOTE: If it will not be possible to grind both sides of the frame rail, then grind the vee groove on one side to the full depth of the stock thickness. See Fig. 3.

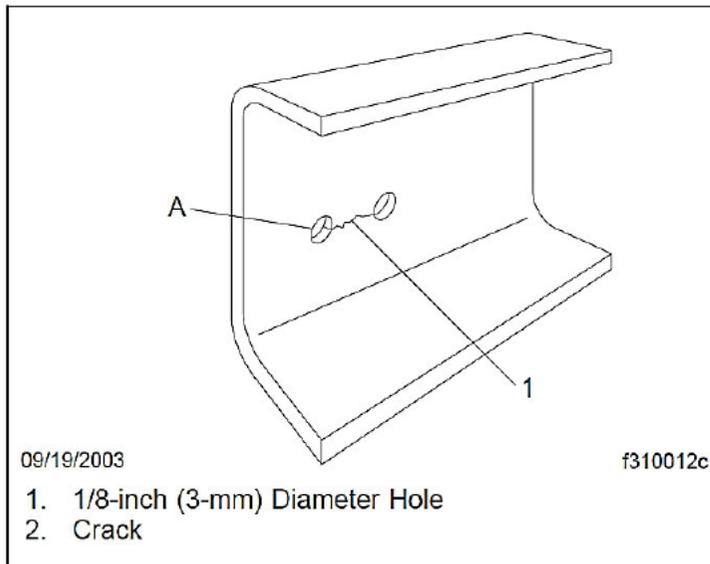


Fig. 1, Preventing Cracks from Spreading

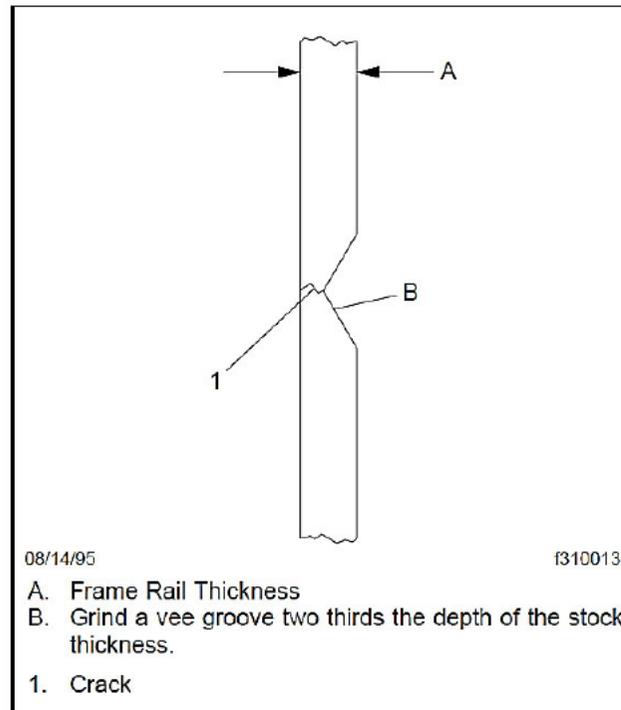


Fig. 2, Cross-Section View

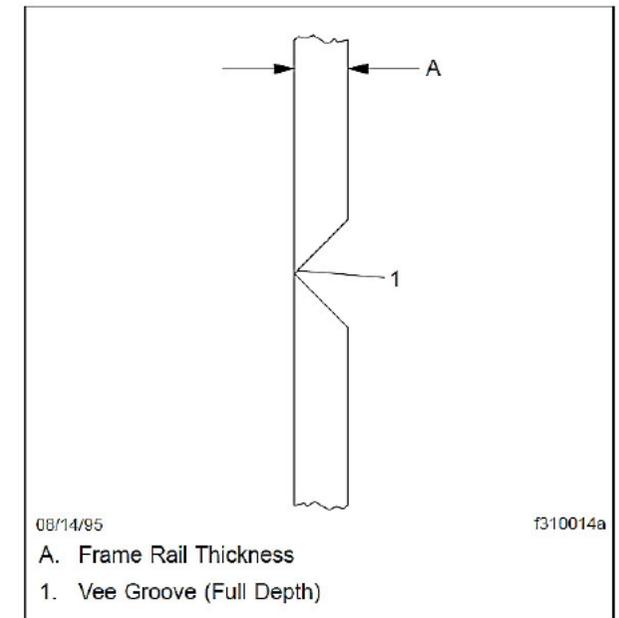


Fig. 3, Full Depth Groove

REPAIRING THE CRACKS IN FRAME RAIL

3. Clamp a copper or aluminum bar on the opposite side of the groove. The bar will act as a "chill" strip, keeping the heat from spreading to the surrounding area of the frame rail. See Fig. 4. Deposit the weld material using the applicable welding method described in this section.
4. Grind the weld flush with the frame rail. See Fig. 5.
5. Cut a deep enough vee groove on the opposite side of the frame rail to reach the weld metal. See Fig. 6.

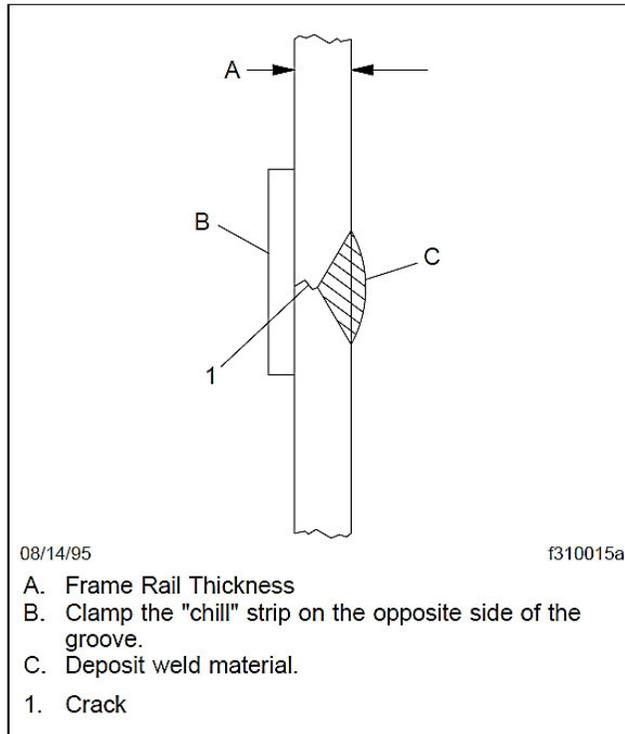


Fig. 4, Using a Chill Strip

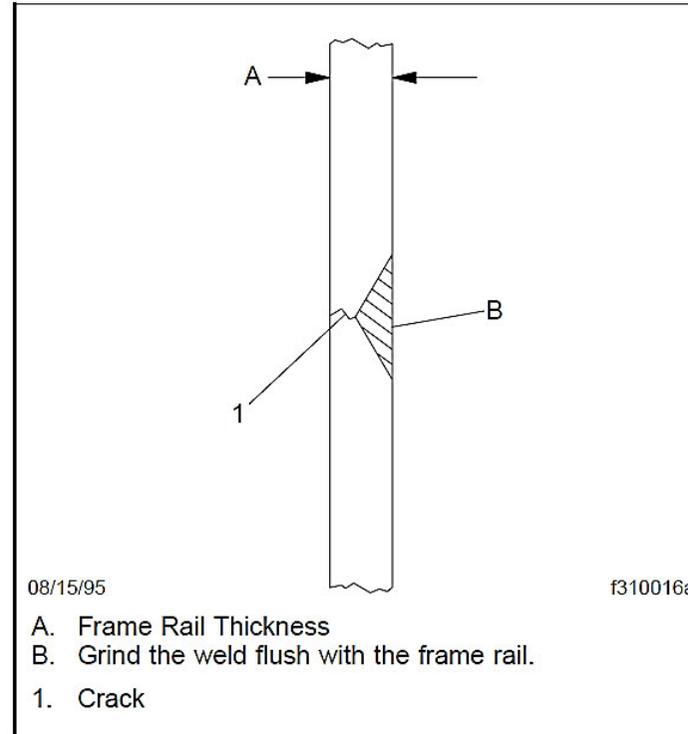


Fig. 5, Weld Ground Flush

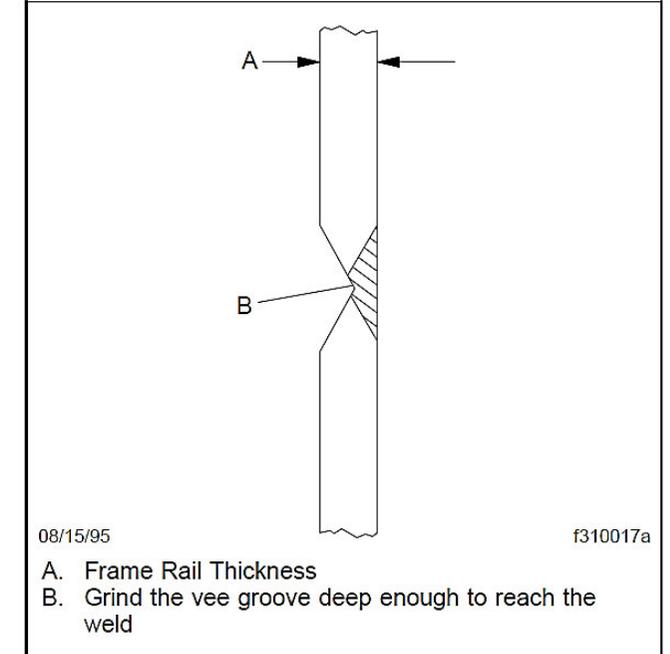


Fig. 6, Cross-Section View

REPAIRING THE CRACKS IN FRAME RAIL

- Clamp the "chill" strip on the opposite side of the groove. See Fig. 7. Weld the vee groove, as instructed above. Make full penetration of the weld.
- Grind the weld flush with the frame rail. See Fig. 8.

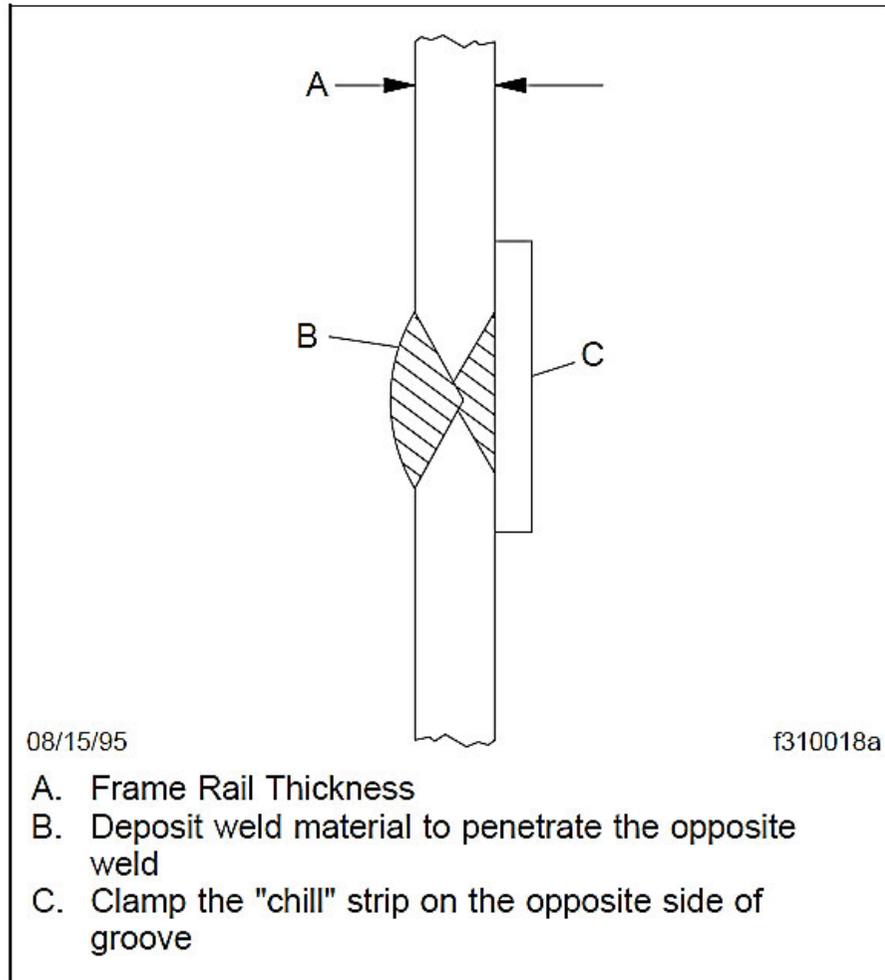


Fig. 7, Second Weld

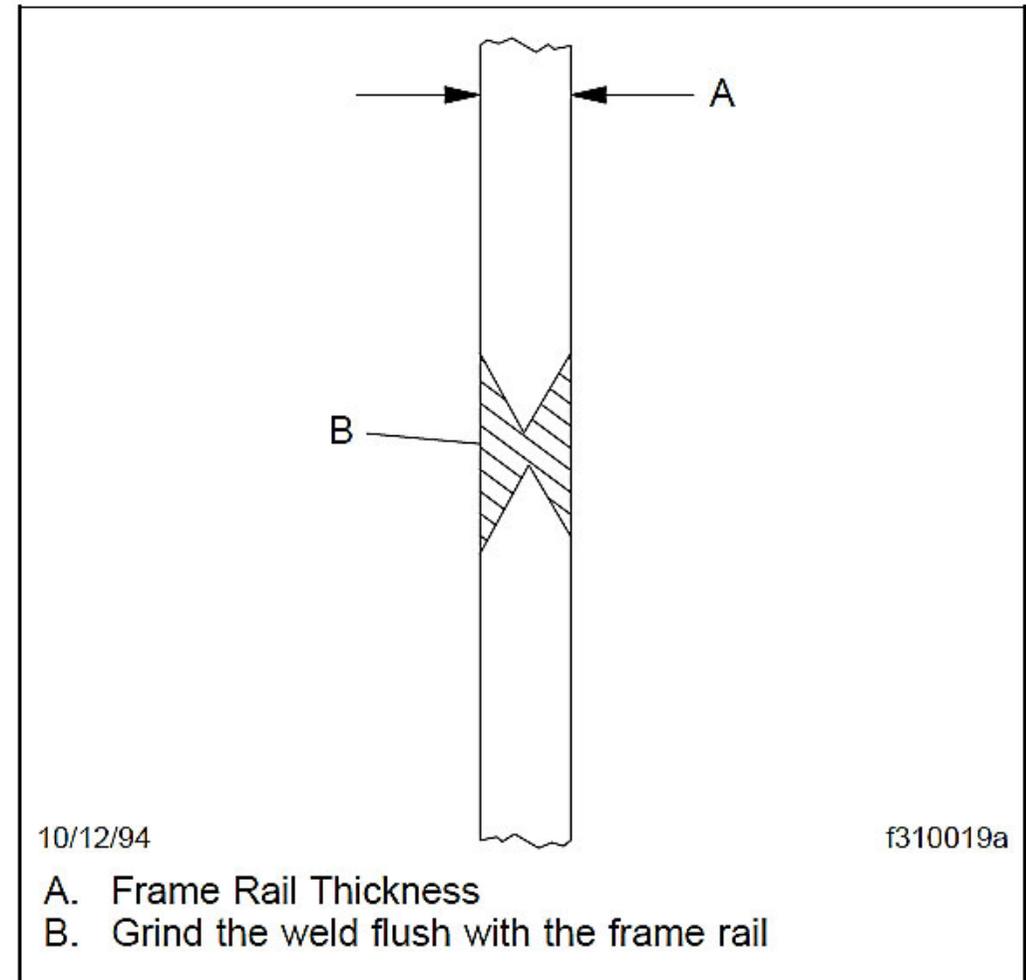


Fig. 8, Second Weld Ground Flush