Service Instructions

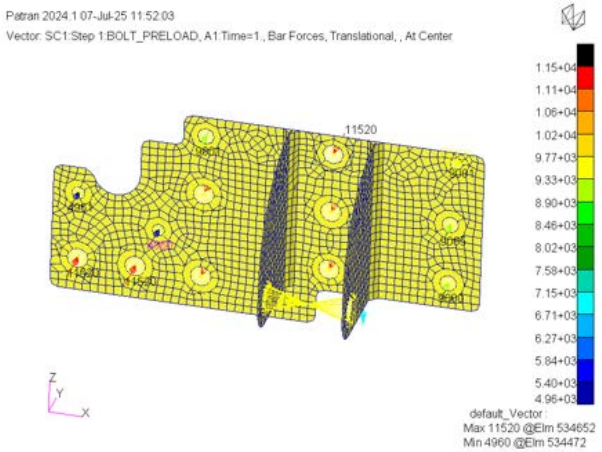
SI10-800-160 – Frame Web Cracks, 217” WB Flat Floor

Suspect Population: Certain 2021 through 2026 Blue Bird BBCV buses, equipped with a 217” WB flat floor & Ford 7.3L powered engine.

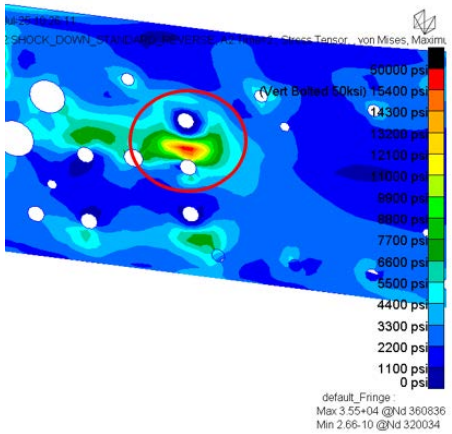
Condition: Chassis web fractures in or around the vicinity of the LF shock mount

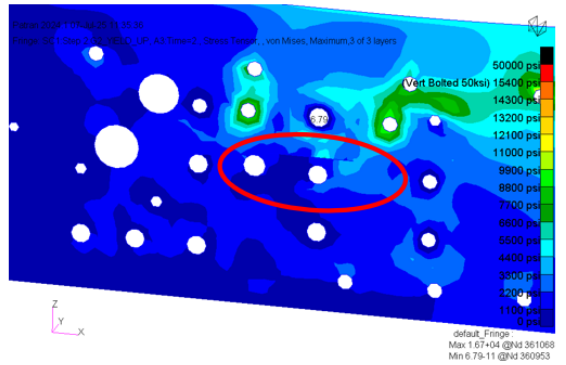
Root Cause Identification and Justification:

- FEA modeling shows elevated regions of stress in proximity of the upper fastener hole for the LH shock mount resulting from several external influences. The highest stress stemming from shock extension forces in curb hop scenarios.
- Bearing in mind the absence of this failure mode on standard floor chassis designs with substantially higher usage, the projected stress in this region of 4582 PSI is used as an objective bench mark of the acceptable upper limit.
- Two corrective solutions are being executed as pragmatic countermeasures to correct this failure mode, based on the severity and frequency of the crack, if present. Repair plate 1 being the latest evolution. FEA analysis & ref chart below
- Installation of this repair plate decreases the stress in this region to less than the standard floor chassis baseline allowing us to predict this solution to last the expected life of the chassis.



Modeled Stress in Failure Region			
Conditions	Baseline Standard Floor (psi)	Baseline Flat Floor (psi)	Repair Plate 1 Model (psi)
Vertical 1G, Shock Up	4,582	7,151	1,186
Vertical 1G, Shock Down	2,438	15,247	2,012
Curb Hop, Shock Up	4,129	4,615	1,586
Curb Hop, Shock Down	3,226	20,009	3,037





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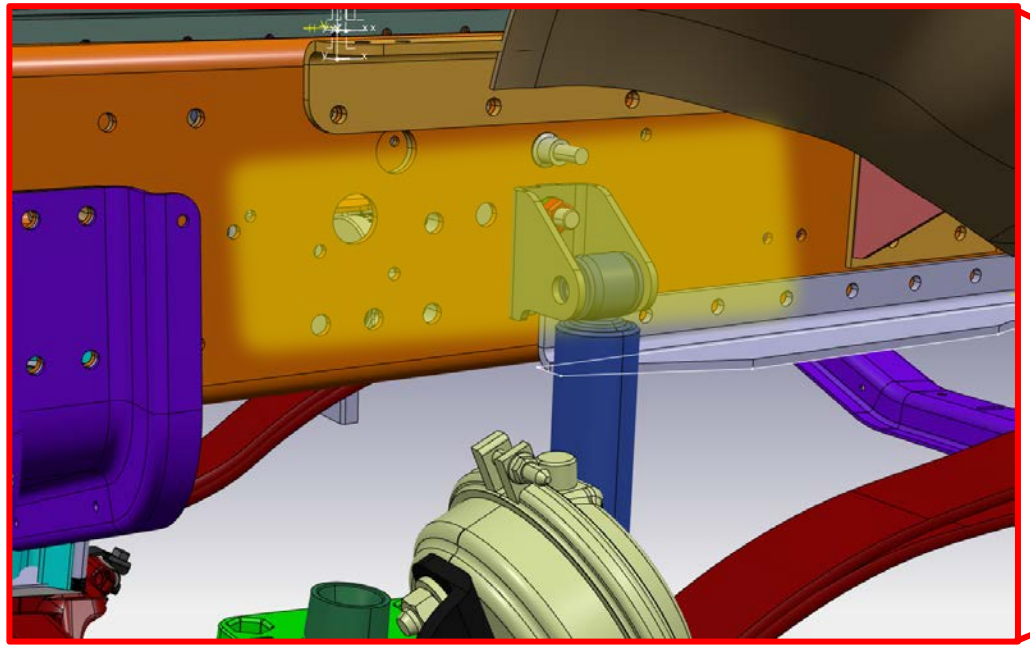
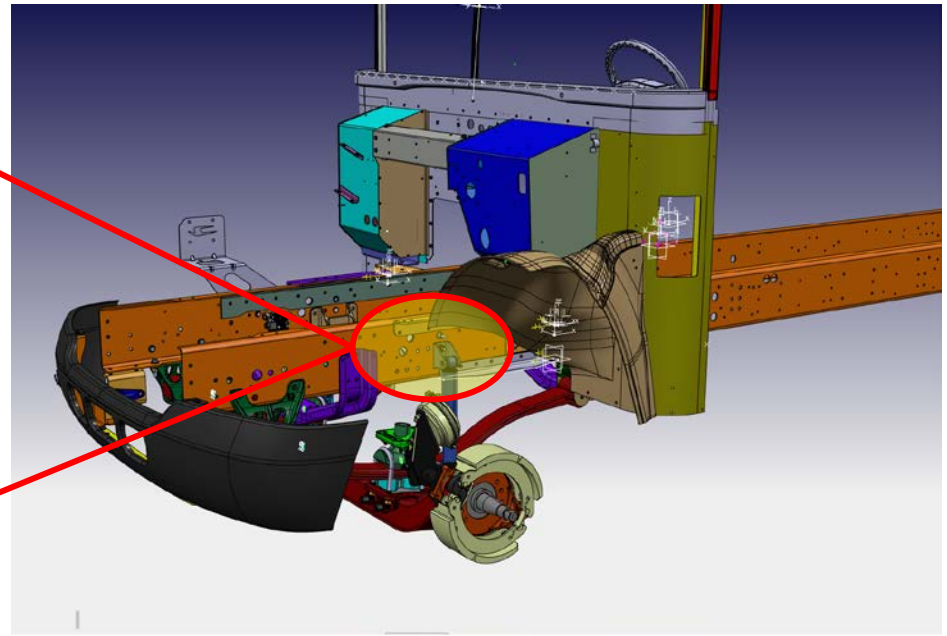
Corrective Action: Perform an inspection of the area defined below. Reference page 3 for defining criteria on which repair option, if any, to affect.
Component Code: 10-800-160
SRTs:

- Inspection- .2
- Small Plate/Solution1- 3.12 HRS
- Large Plate/Solution2- 4.90 HRS

Note:
Ensure that all federal & local safety protocol is followed. Park bus on appropriate flat/level surface, LOTO the vehicle, and chock the wheels.





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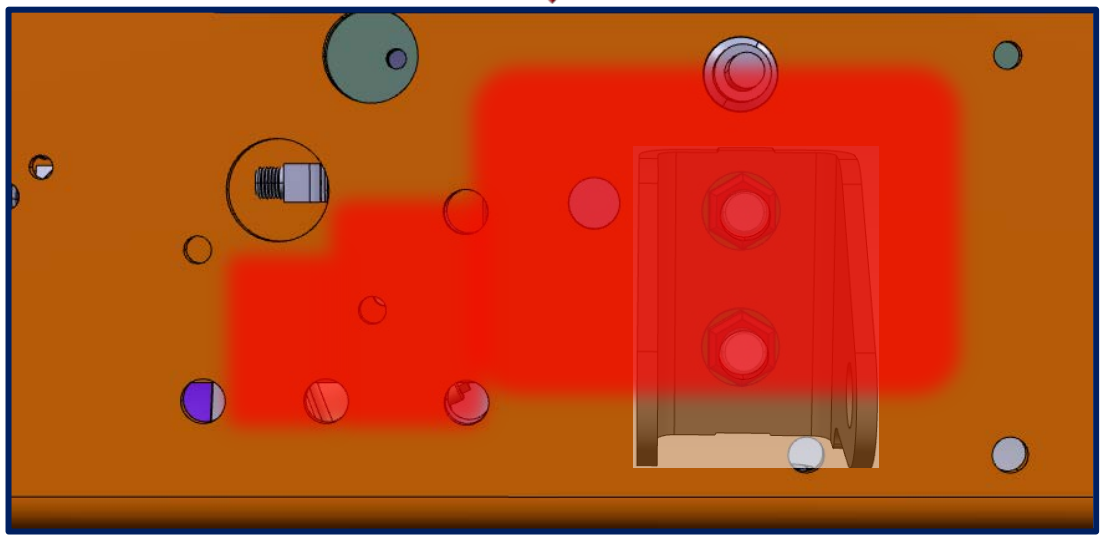
Repair Criteria:

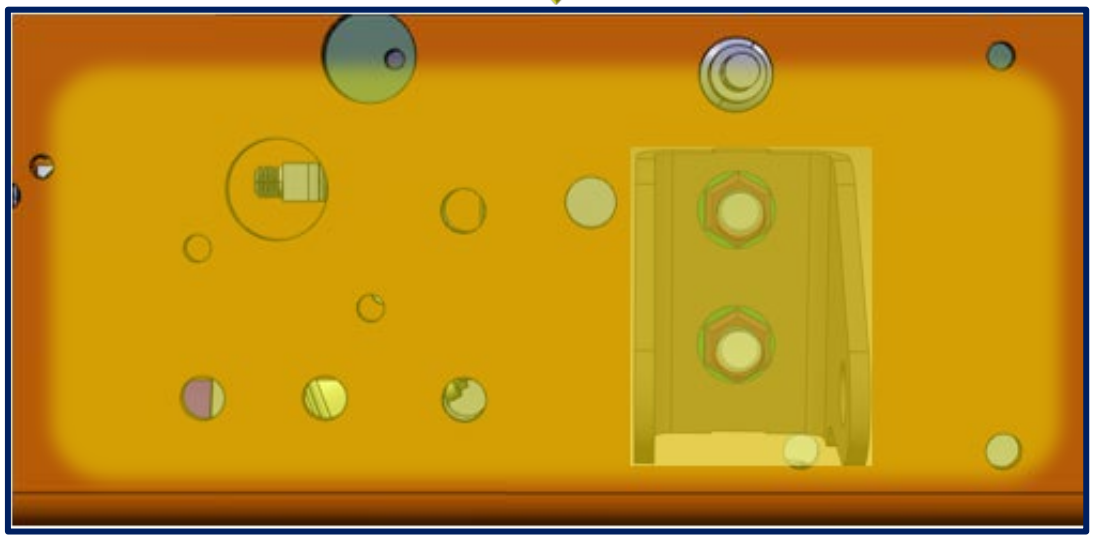
Repair Criteria		
	Repair Plate 1	Repair Plate 2
Crack Length	<100mm(4 inches)	>101mm(4 inches)
Number of Cracks	1	1 or More
Region of Crack	A	B

Examples				
	Crack Length	Crack Region	Number of Cracks	Repair Solution
Example 1	60mm	A	1	A
Example 2	45mm	A	2	B
Example 3	105mm	B	1	B

Region A



Region B



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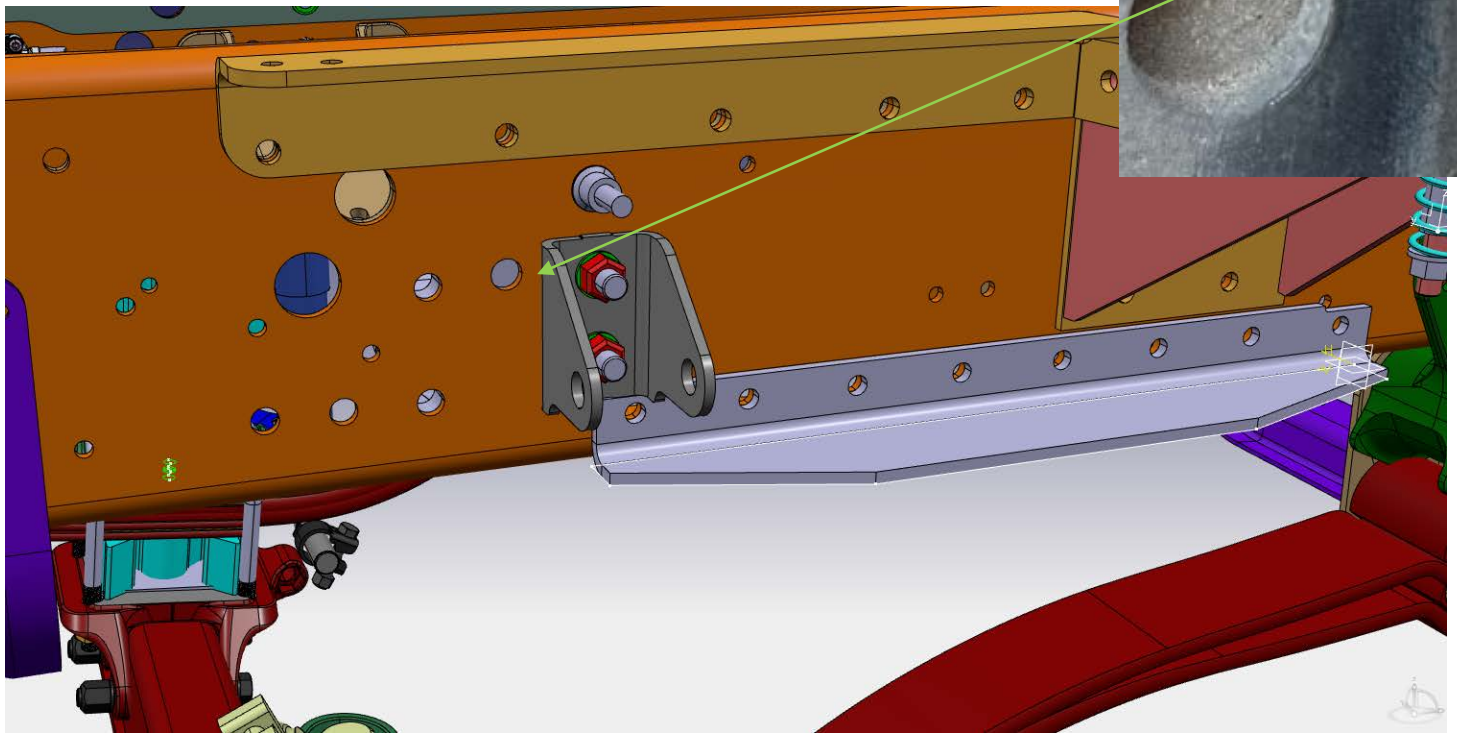
Severity Detection Example

Crank Length- 45mm
Crack Quantity- 1
Solution- Repair Plate 1



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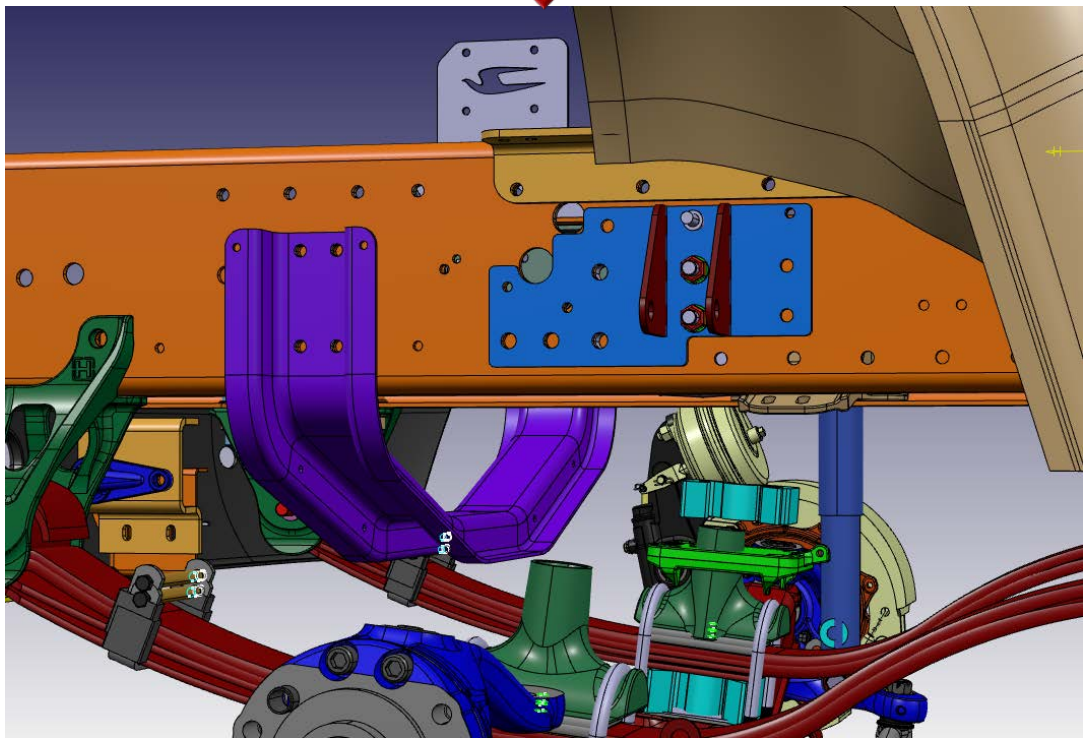
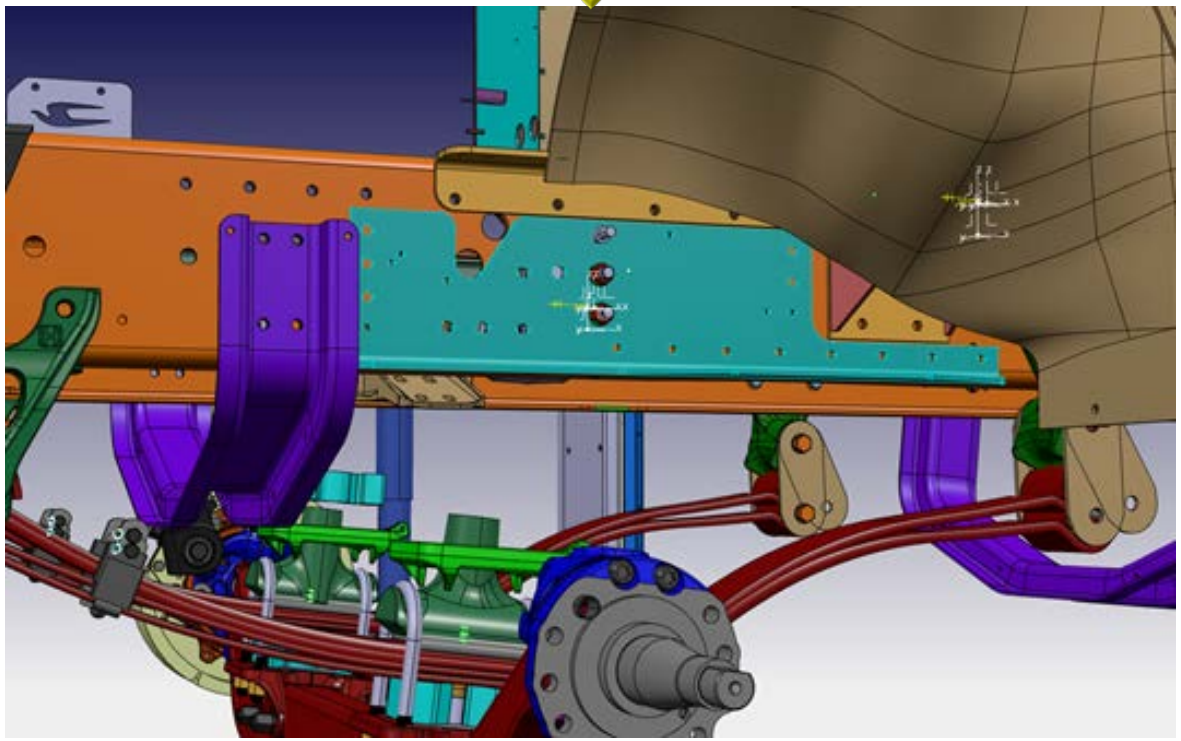
Repair Options:

Repair Plate 1
Part Number 10086463



Repair Plate 2
Part Number 10083663



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Relevant Repair Parts

REPAIR PLATE 1

BRACKET ASSY,SHOCK,SPRG SUSP,FRT,LH,SP BBCV	10086463	1
WASHER,FLAT,21/32 X 1 1/8 X 3/32,HDN,YEL ZN	00929018	14
NUT,HEX HD,5/8-11,GR 8,LOCK,CADMIUM WAX, (25)	00939827	7
CAPSCREW,HEXHD,3/8-16NCX1-1/2,GR8,YELZNDICH	00803171	1
WASHER,FLAT,3/8 SAE,HDN,BLK ZN	01107085	2
NUT,HEX HD,3/8-16 LOCK,YEL ZN DICH	00826297	1
CAPSCREW,HEX HD,1/2-13 X1 1/2,GR8,YELZNDICH	00803239	3
WASHER,FLAT,17/32 X 1 1/16 X 7/64,HDN,BLKZN	01003045	6
NUT,HEX HD,1/2-13,LOCKING,GR 8,CAD WAX	00850800	3
CAPSCREW,HEX HD,5/8-11 X 2 1/4,GR8	02604916	3
CAPSCREW,HEX HD,5/8-11 X1 3/4,GR8,YELZNDICH	01107879	4
NUT,HEX,3/4-10,PRVLG TORQ,GR8,CAD WAX	00933879	1

REPAIR PLATE 2

BRACKET ASSY,SHOCK,SPRG SUSP,FRT,LH,SP BBCV	10083663	1
WASHER,FLAT,21/32 X 1 1/8 X 3/32,HDN,YEL ZN	00929018	14
NUT,HEX HD,5/8-11,GR 8,LOCK,CADMIUM WAX, (25)	00939827	7
CAPSCREW,HEXHD,3/8-16NCX1-1/2,GR8,YELZNDICH	00803171	1
WASHER,FLAT,3/8 SAE,HDN,BLK ZN	01107085	2
NUT,HEX HD,3/8-16 LOCK,YEL ZN DICH	00826297	1
CAPSCREW,HEX HD,1/2-13 X1 1/2,GR8,YELZNDICH	00803239	13
WASHER,FLAT,17/32 X 1 1/16 X 7/64,HDN,BLKZN	01003045	26
NUT,HEX HD,1/2-13,LOCKING,GR 8,CAD WAX	00850800	13
CAPSCREW,HEX HD,5/8-11 X 2 1/4,GR8	02604916	3
CAPSCREW,HEX HD,5/8-11 X1 3/4,GR8,YELZNDICH	01107879	4
NUT,HEX,3/4-10,PRVLG TORQ,GR8,CAD WAX	00933879	1

BLUE BIRD

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Tools/Materials Needed:

Item description	Grainger P/N	Quanity	Link To Purchase
2x4 shoring lumber, 12 3/4" long		1	
Mag Drill	811EE2	1	
Hammer			
Annular Cutter, 9/16, Cobalt	4WNL8	1	
Cutting Oil	5HD99	1	
4" Grinder w/ .065 abrasive cutoff wheel		1	
17/32" Transfer Punch	22N816	1	
#30(1/8) drill bit, cobalt/carbide	4GB71	1	
15/16" Open end wrench			
1/2" Open end wrench			
1/2" Torque wrench			
Cold Chisel, 12"			

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Recommended Preparatory Steps:

1. Power Wash LF fender well area
2. Apply penetrant oil to all 6 fender extension studs, WD-40 or equivalent

Instructions:

1. Start engine and turn steering wheel to full right lock. Shut down engine and install shoring lumber between LH engine mount and leaf spring.
2. LOTO(Lock Out Tag Out) the vehicle. Recommend disconnecting the J13 connector from the chassis PCB
3. Remove LH mudflap assy(if equipped) and fender extension from the cowl and place to the side. Save fasteners for re-use.
4. Remove LH shock assy from the upper bracket and fully compress for accessibility

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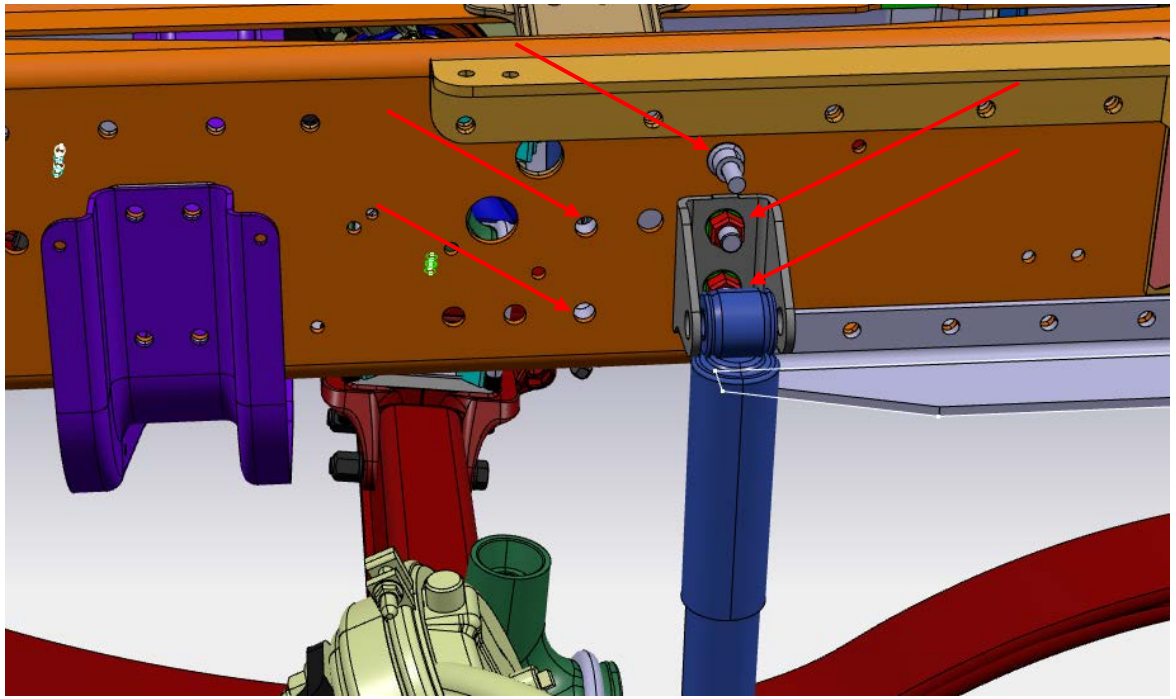
5. Remove all fasteners as described in FIG1
6. Identify and center punch the end(s) of existing crack(s). Stop drill with #30 drill bit.
7. Temp up the relevant repair plate, and using the proper transfer punch, mark the holes required for drilling

Photo of crack stop drill

Photo of Transfer Punch



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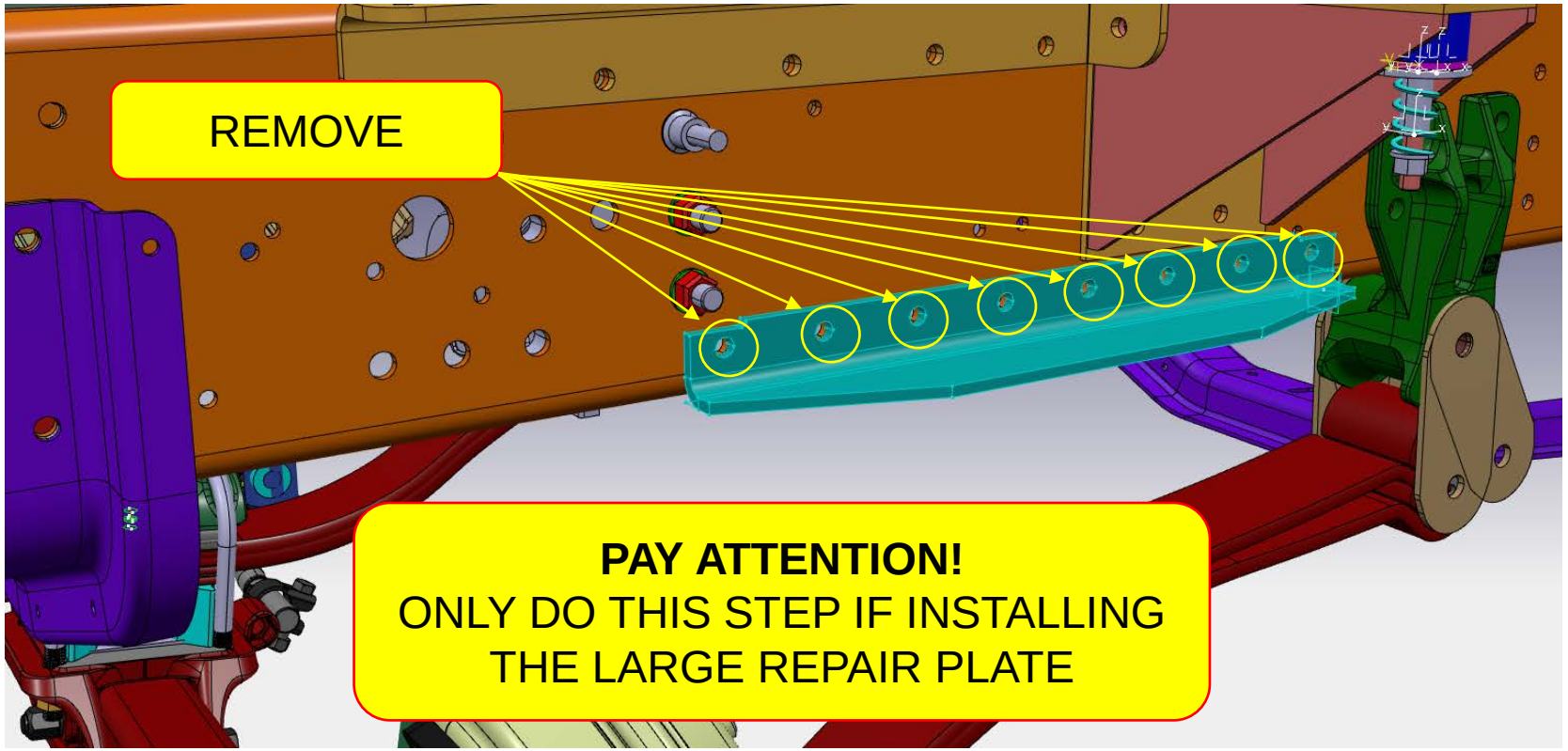
8. Setup Mag Drill with 9/16” annular Cutter, engage pilot into marks made from transfer punch
9. Bore 3 holes, going slow with proper oil.
10. Cut & remove Huckspin™ collar and remove bolt.

Photo of marking holes

Photo of Mag Drill

11. ONLY If installing the large repair plate per page 3, remove the huck collars off the lower frame stiffener.
12. Remove Huck bolts then remove the stiffener



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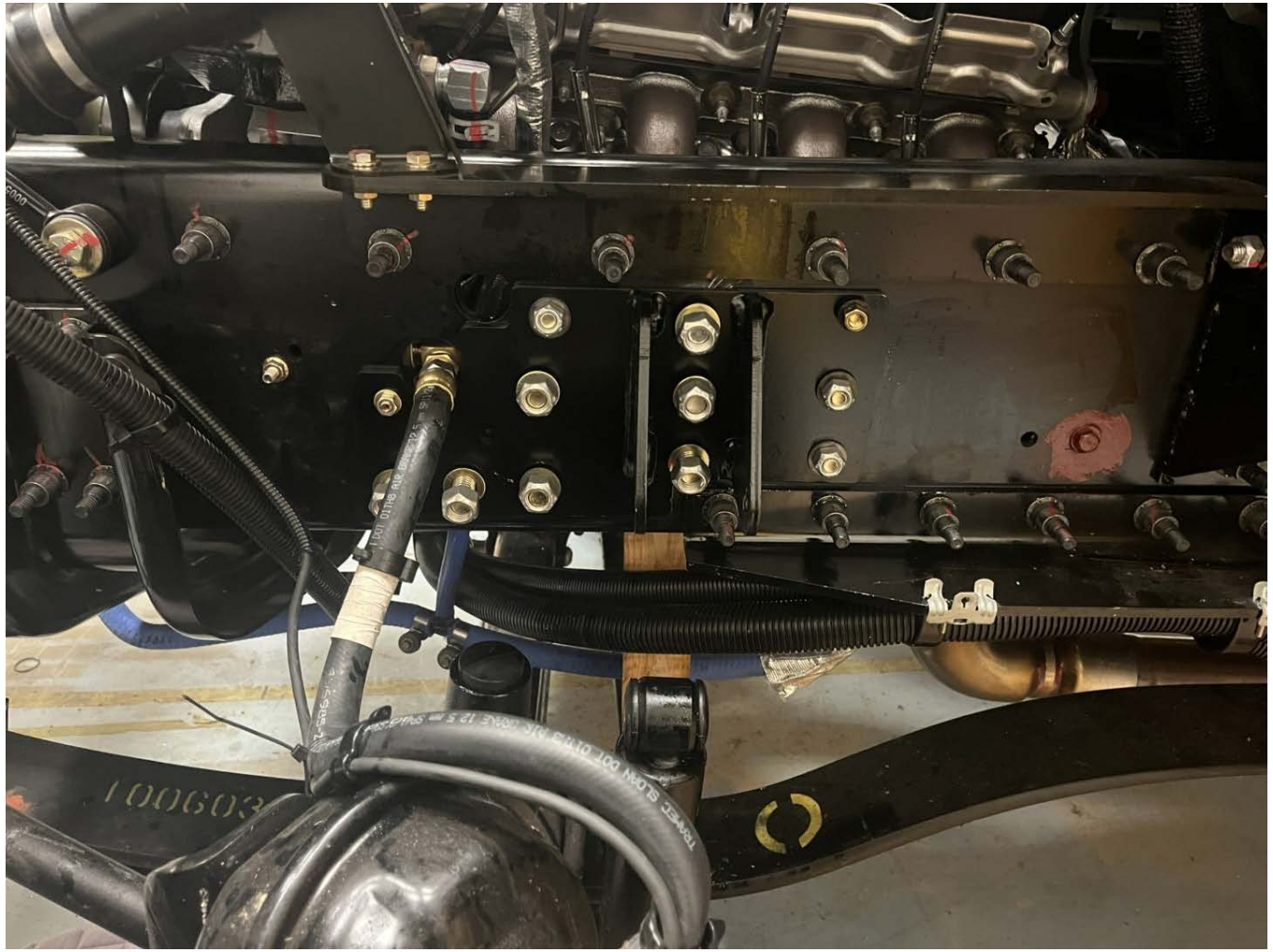
Instructions cont’d

13. Install relevant repair plate, selecting and torquing the fasteners defined on page 13.
14. Replace previously removed components.
15. Remove shoring lumber, LOTO, and return to service

Note:
Chassis repair plate is installed with threaded fasteners. These fasteners require inspection and re-torque every 12 months or 12k miles, whichever occurs first.



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Fastener Selection & Torque Chart:

Bolt Description	Bolt p/n	Fastener Location	Fastener Torque(FT-lbs)
5/8x11x1 ¾	01107879	A	138-159
5/8x11x2 ¼	02604916	B	138-159
1/2x13x1 ½	00803239	C	70-80
3/8x16x1 ½	00803171	D	24-27
3/4x10x4”	00870873	E	210-220