

Frame Rail Cracks

M-711-002

(October 2008)

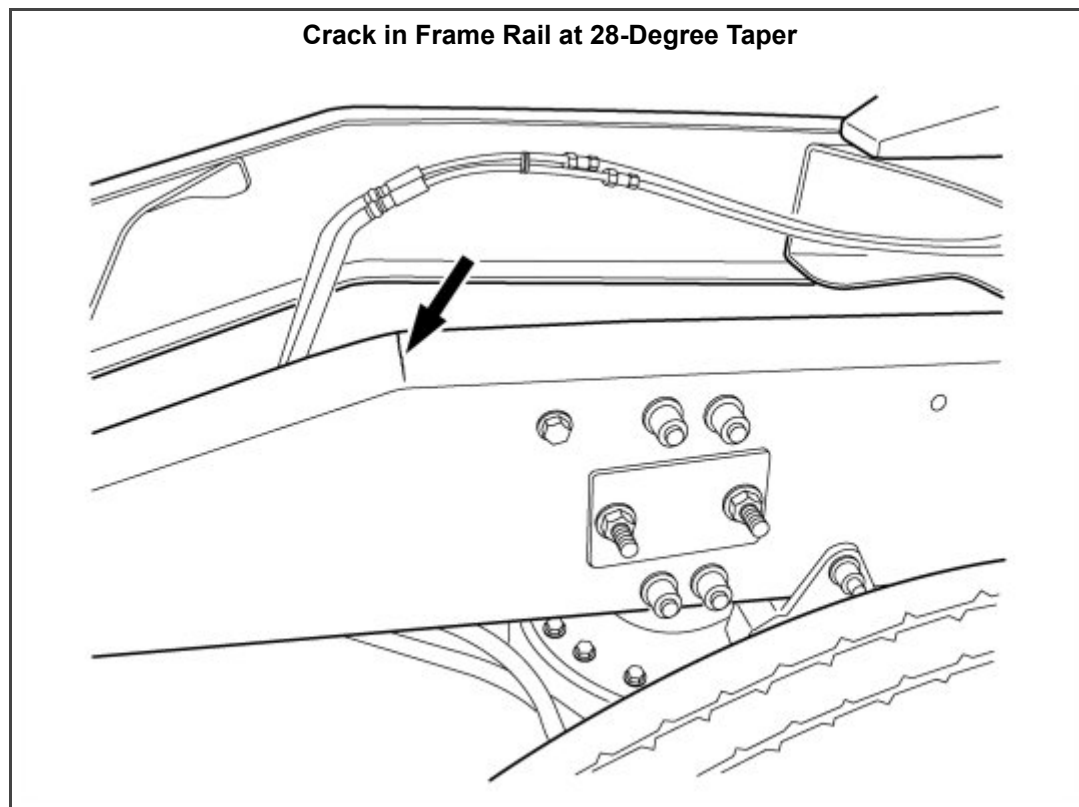
Valid for

All CXU,CXP,CXN,CHU,and CHN built with Mack double reduction rear axle.

Case description

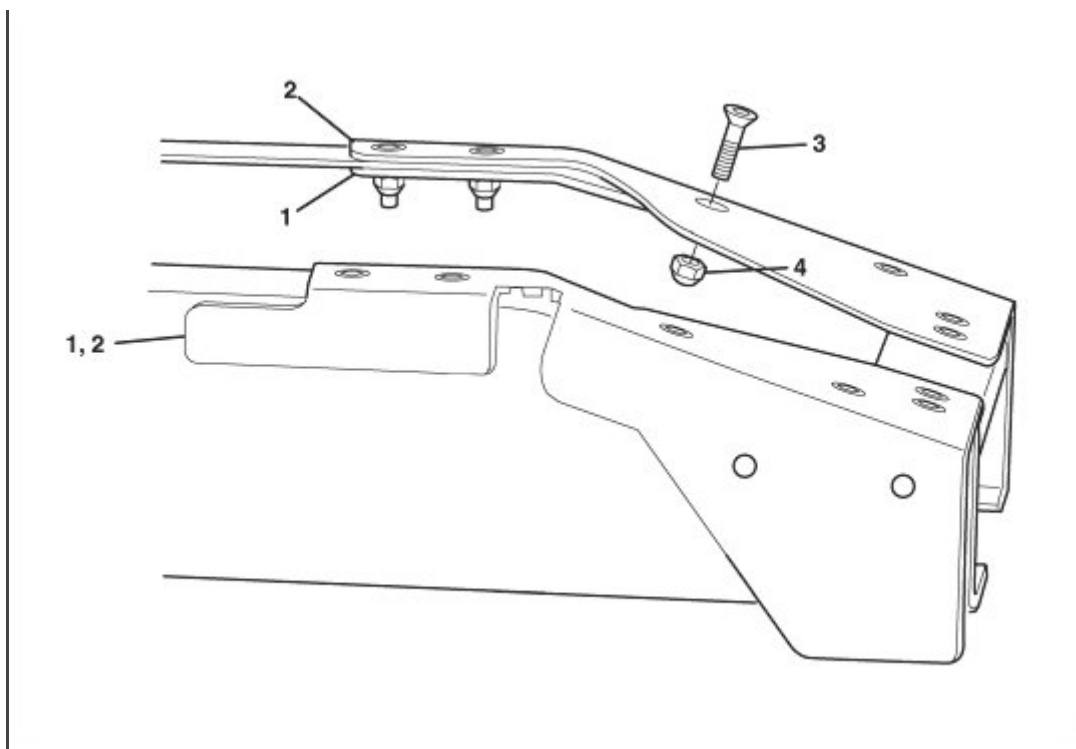
On certain CXU, CXP, CXN, CHU and CHN model chassis equipped with MACK rear axles, cracks may develop in the upper frame flange at the rear of the chassis where the upper flange is formed into the 28-degree tapered section of the frame rail. Should a crack in this area of the frame rail be encountered, reinforcement plates are available through the MACK Parts System. These plates should be installed to prevent cracks from recurring after the frame has been repaired.

Note: Reinforcement plates must be installed on both the left- and right-hand sides of the vehicle, even if only one frame rail is cracked.



Note: The reinforcement plates are frame height, suspension type and axle spacing specific. Refer to the following chart to determine which plates are required for the chassis being serviced.

Reinforcement Plates



Parts

Item	Frame Rail Height	Qty.	Part No.	Description
1	266 mm	2	21276503	Plate, lower reinforcement
2		1	21271385	Plate, upper reinforcement, left-hand, with MACK AL suspension, 52" axle spacing, or MACK spring suspension, 55" axle spacing
1		1	21271386	Plate, upper reinforcement, right-hand, with MACK AL suspension, 52" axle spacing, or MACK spring suspension, 55" axle spacing
2	266 mm	2	21095764	Plate, lower reinforcement
1		1	21271927	Plate, upper reinforcement, left-hand, MACK spring suspension, 50" axle spacing
2		1	21271928	Plate, upper reinforcement, right-hand, MACK spring suspension, 50" axle spacing
1	300 mm	2	21276513	Plate, lower reinforcement
2		1	21274328	Plate, upper reinforcement, left-hand, with MACK spring suspension, 50" or 55" axle spacing
1		1	21274329	Plate, upper reinforcement, right-hand, with MACK spring suspension, 50" or 55" axle spacing
2	300 mm	2	21276513	Plate, lower reinforcement
1		1	21274331	Plate, upper reinforcement, left-hand, with MACK AL suspension, 52" axle spacing
2		1	21274332	Plate, upper reinforcement, right-hand, with MACK AL suspension, 52" axle spacing
3		12	3AX1584	Screw, machine, 5/8-18 UNF, 1-3/4" long
4		12	21AX834	Nut, 5/8-18 UNF

Note: The outside vertical sections of these reinforcement plates are not pre-drilled. This allows installation on chassis having various configurations at the rear of the chassis. The plates must be drilled as required to accommodate

installation of mud flaps, shock absorbers or other components which may be mounted in this area.

Procedures for repairing the frame rail and installing the reinforcement plate are as follows:

1. Secure the chassis for service, apply the parking brakes and block the wheels to prevent the vehicle from moving.
2. Disconnect the batteries by disconnecting the negative battery cable(s) first, and then the positive cable(s). If equipped with dual battery boxes, be sure to disconnect the batteries in both boxes.
3. Disconnect the harness connectors from all electronic control units (i.e., engine ECU, vehicle ECU, ABS module, etc.).



Caution

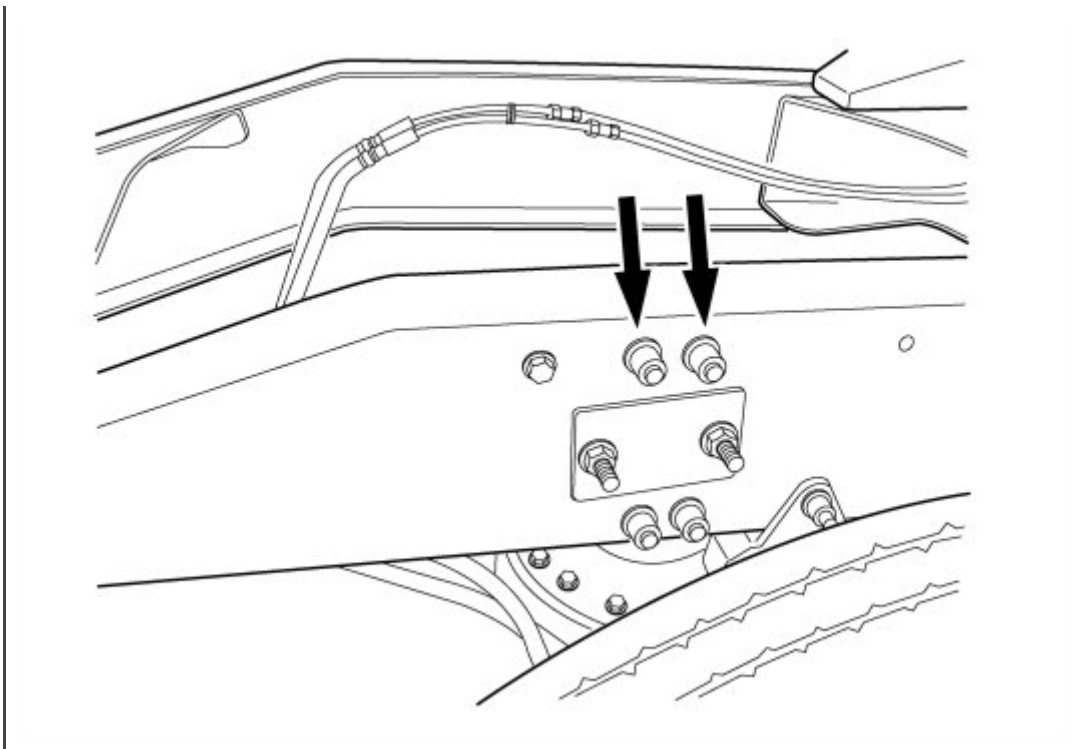
Failure to disconnect the electronic control units or the battery cables may result in damage to sensitive electronic components due to welding the frame rail.

4. Grind the paint from the frame rail in the area of the crack in the frame flange.
5. Drill a 3.3 mm (1/8") diameter hole at the end of the crack to prevent the crack from progressing.
6. Grind the crack into a V-shape. The sides of the "V" should be at a 45 degree angle, and only grind through approximately 80% of the frame rail, leaving approximately 1.5 mm (1/16") of material below the V-groove.
7. Fill the V-groove with weld. All welding must be performed per AWS D1-1 specifications (or equivalent). A welding rod diameter of 1/8" maximum should be used.
8. Grind the weld flat with the surface of the frame flange, and then paint the repaired area with a suitable chassis paint, the same color as the frame.
9. Remove the mud flaps and mud flap mounting brackets (if equipped) on both sides of the vehicle.
10. On both sides of the chassis, remove the Huck® fasteners that secure the rear crossmember to the frame rail.

Note: For information on removing Huck® fasteners, refer to the Frame, Axle and Suspension Service and Total Vehicle Alignment Service Manual, 14-103.

11. On both sides of the chassis, remove the rear shock absorber from the upper mounting bolt (if equipped), and then remove the mounting bolt from the frame rail.
12. If the vehicle is equipped with a transverse torque rod, and the location of the torque rod mounting bracket on the right-hand side of the vehicle is within the area of the reinforcement plate forward vertical section, remove the two upper Huck® fasteners that secure the torque rod mounting bracket to the frame rail.

Torque Rod Upper Mounting Bracket Fasteners



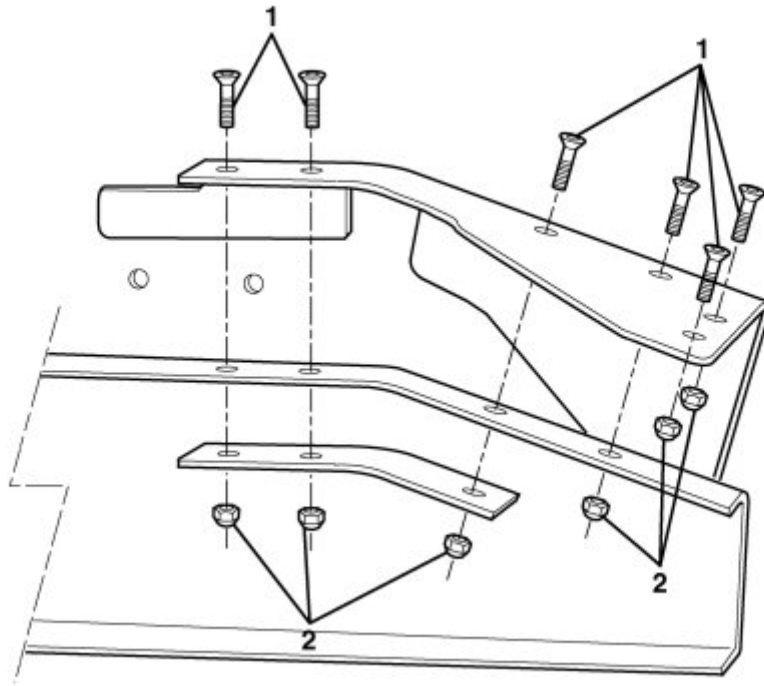
13. Position the upper reinforcement plates on the frame rails.

Note: It may be necessary to grind the weld on the frame rail, where the upper flange is welded to the frame web to form the 28- degree taper in order for the plate to fit flush against the frame rail.

Mark the locations for drilling the 12 (six holes per side) 17 mm (11/16") diameter mounting holes in the upper frame flange and the top of the closing crossmember on both sides of the chassis.

14. If equipped with transverse torque rods, mark the location in the vertical section of the reinforcement plate for drilling the two holes required for the torque rod mounting bracket upper fasteners.
15. Remove the reinforcement plates, and then drill the holes in the frame flange and the top of the closing crossmember at the marked locations.
16. Drill the two holes in the reinforcement plates at the marked locations for the torque rod mounting bracket upper fasteners. Drill pilot holes first, and then enlarge the holes to the same size as the mating holes in the frame rail.
17. Using 12 machine screws (part No. 3AX1584) and nuts (part No. 21AX834), install the left- and right-hand upper and lower reinforcement plates. Tighten the fasteners to 190 N•m (140 lb-ft).

Reinforcement Plate Installation



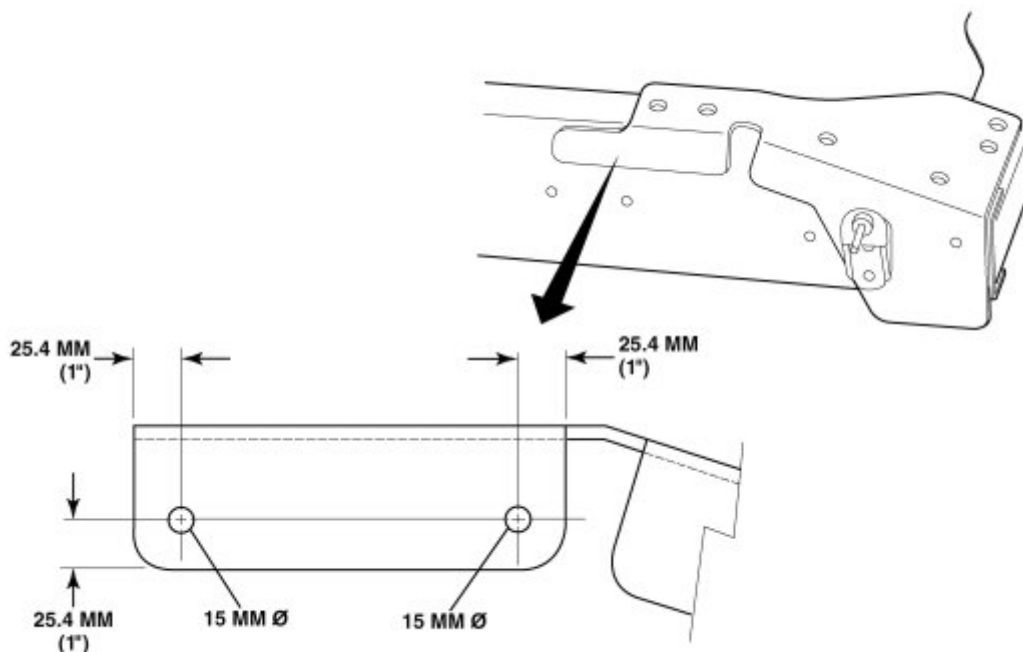
Item	Qty.	Part No.	Description
1	12*	3AX1584	Machine screw, 5/8-18 UNF, 1-3/4" long, flat-head, internal hex
2	12*	21AX834	Nut, 5/8-18 UNF

* Total quantity for reinforcement plates on both sides of vehicle.

Install two Huck-Spin® pins (part No. 4AM43) and collars (part No. 159AM5) in the torque rod bracket upper mounting holes (if so equipped).

Note: The forward vertical section of the reinforcement must be secured to the frame rail on both sides of the chassis. On the left-hand side of the chassis, drill two 15 mm diameter holes in the vertical section at the location shown in the following illustration and then secure using two Huck®-Spin pins (part No. 4AM34) and collars (part No. 159AM5). If the vehicle is NOT equipped with transverse torque rods, the forward vertical section of the reinforcement on the right-hand side of the chassis must be secured in the same manner as the left-hand side.

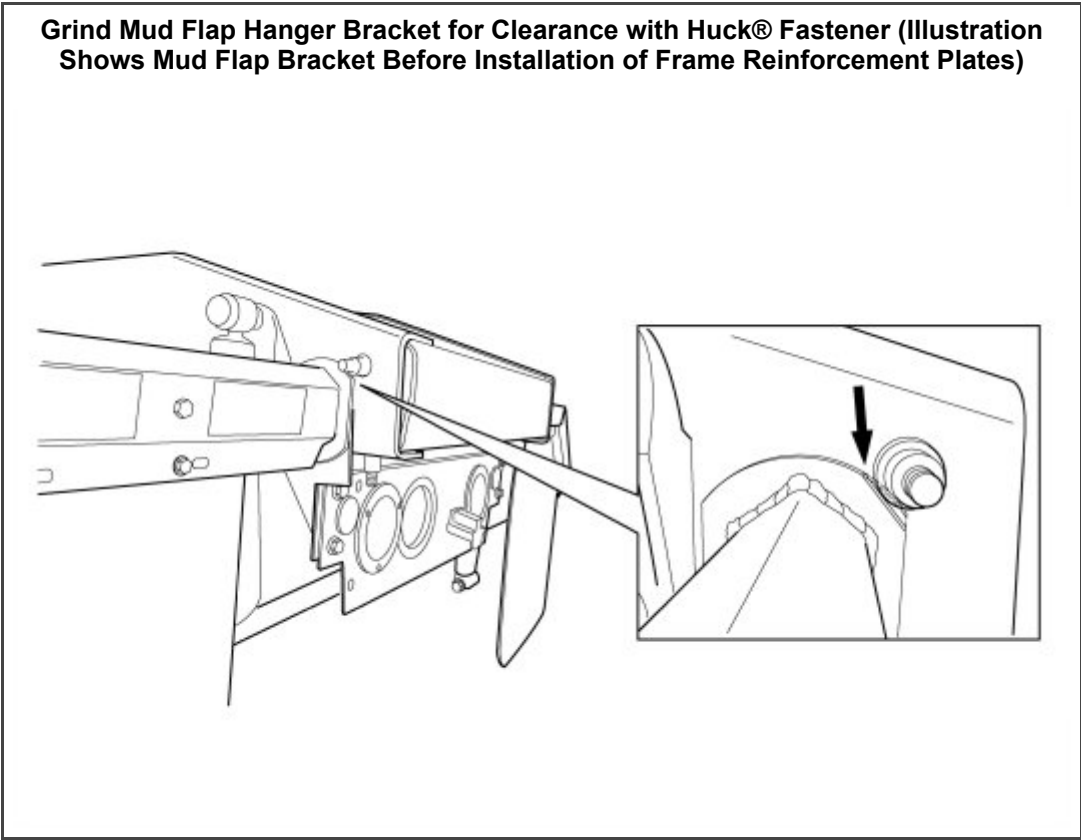
Secure Forward Vertical Section of Reinforcement to Frame Rail



18. Install any remaining hardware and brackets, such as those brackets for the mud flaps, shock absorbers, etc.

Note: For chassis equipped with heavy-duty spring-loaded mud flap hanger brackets, it will be necessary to grind the edge of the mud flap hanger-to-frame mounting bracket to provide clearance for the Huck® fastener at the back of the frame rail (refer to the illustration below).

Discard the existing spacer located between the mud flap hanger bracket and the frame rail.



19. Reconnect the electronic controllers that were disconnected in step 3.

20. Reconnect the batteries by connecting the positive battery cable(s) first, and then the negative cable(s).

Warranty information

Reimbursement

This Repair may be eligible for reimbursement if a product failure was experienced within the time and mileage limits of the applicable warranty coverage. Reimbursement is obtained via normal claim handling process.	
Claim Type (used only when uploading from the Dealer Bus. Sys.)	01
Labor Code	
Primary Labor Code	121 1A 00 80 — 3.6 hrs., time allowed to repair crack in frame rail at 28-degree taper and install reinforcement plates on both sides of chassis.
Causal Part	NA

Issued by

Technical Service

Mack Trucks, Inc. engages in a continuous program of testing and evaluating to provide the best possible product. Mack Trucks, Inc., however, is not committed to, or liable for updating existing chassis.