

Frame Members-Front Frame Section

Special Tool(s) / General Equipment

Grinder
MIG/MAG Welding Equipment
Locking Pliers

Removal

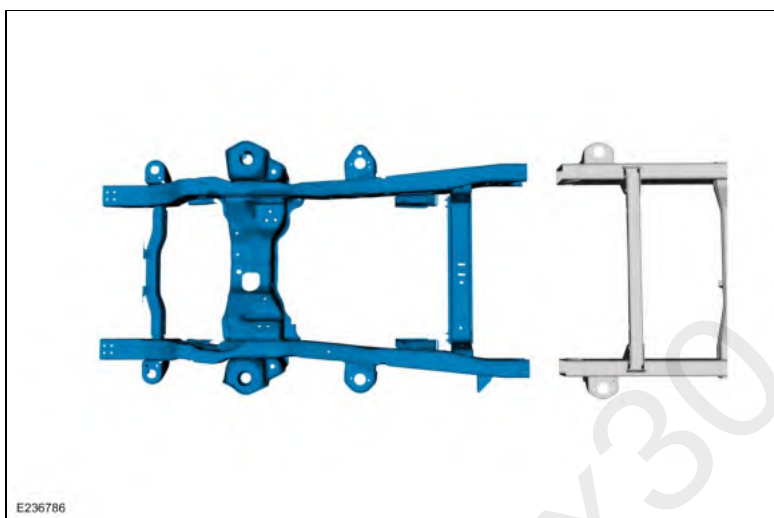
NOTE: The following procedure provides steps to replace the frame section at the center rail joint.

1. **NOTE:** All body alignment measurements are carried out with the vehicle de-trimmed. Measurements are made metal to metal, on center, unless otherwise specified.

Restore the vehicle to manufacturer's dimensions.

Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

2. Front frame section overview.



3. Remove the following items:
 1. Remove the front bumper.
Refer to: Front Bumper (501-19 Bumpers, Removal and Installation).
 2. Remove the fenders.
Refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
 3. Remove the radiator grille.
Refer to: Radiator Grille (501-08 Exterior Trim and Ornamentation, Removal and Installation).
 4. Remove the headlamps.
Refer to: Headlamp Assembly (417-01 Exterior Lighting, Removal and Installation).
 5. Remove the engine mount retaining bolts and loosen the exhaust manifold to head pipe connections. Disconnect the exhaust system from the engine as equipped.
Refer to: Dual Catalytic Converter Y-Pipe (309-00A Exhaust System - 6.2L V8, Removal and Installation).
Refer to: Exhaust Downpipe - Chassis Cab (309-00B Exhaust System - 6.7L Power Stroke Diesel, Removal and Installation).
 6. Loosen the radiator shroud retainer bolts.
Refer to: Cooling Fan Shroud (303-03A Engine Cooling - 6.2L V8, Removal and Installation).
Refer to: Cooling Fan Upper Shroud (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Removal and Installation).
4. Anchor the vehicle to a frame rack following the equipment manufacturer's instructions.
5. Remove the front wheels.
Refer to: Wheel and Tire - Vehicles With: Single Rear Wheels (204-04A Wheels and Tires, Removal and Installation).
Refer to: Wheel and Tire - Vehicles With: Dual Rear Wheels (204-04A Wheels and Tires, Removal and Installation).
6. **NOTE:** All body alignment measurements are carried out with the vehicle de-trimmed. Measurements are made metal to metal, on center, unless otherwise specified.

Perform detailed measurement of the frame and perform any required pulling operations.
Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).
7. Remove the following items:
 1. Remove the transmission support crossmember.
Refer to: Transmission Support Crossmember (502-02 Full Frame and Body Mounting, Removal and Installation).
 2. If equipped, remove the front driveshaft.
Refer to: Front Driveshaft (205-01 Driveshaft, Removal and Installation).
 3. If equipped, remove the axle shafts.

Refer to: Axle Shaft (205-02C Wheel Hubs and Bearings - Full Floating Axle - Vehicles With: Dana M275/Dana M300, Removal and Installation).
Refer to: Axle Shaft (205-02E Wheel Hubs and Bearings - Full Floating Axle - Vehicles With: Ford 10.5 Inch Ring Gear, Removal and Installation).

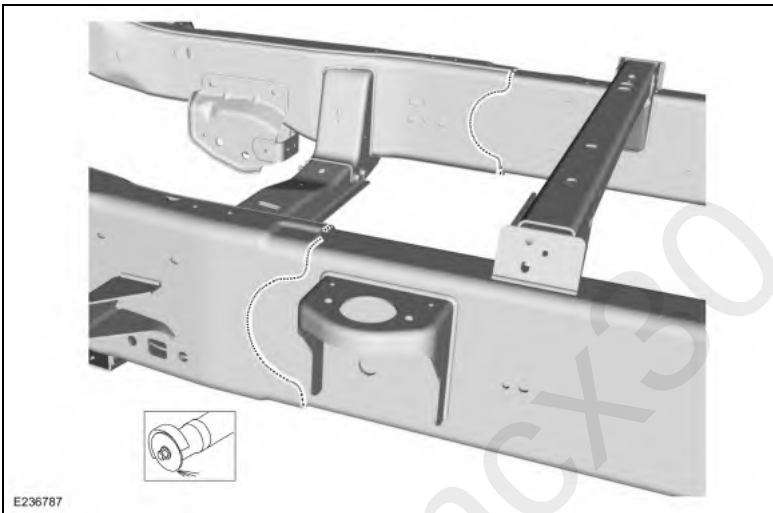
4. Remove the spring and shock assembly.
Refer to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation).
Refer to: Spring (204-01B Front Suspension - 4WD, Removal and Installation).
5. Remove the radius arm, if equipped with 2WD.
Refer to: Radius Arm - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation).
Refer to: Radius Arm - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation).
6. Remove the radius arm, if equipped with 4WD.
Refer to: Radius Arm (204-01B Front Suspension - 4WD, Removal and Installation).
7. Remove the steering gear.
Refer to: Steering Gear (211-02 Power Steering, Removal and Installation).
8. Raise and support the engine and transmission assembly.
Refer to: Engine Mount LH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
Refer to: Engine Mount LH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
9. Unbolt the Front End Sheet Metal (FESM) body mount bolts.
Refer to: Frame and Body Mounting (502-02 Full Frame and Body Mounting, Description and Operation).

8. Using the frame rack towers and light tension, support the front radiator support of the vehicle by raising it slightly above the frame rail mounts.

9. Disconnect and remove any remaining wiring, lines, and related fittings from the frame section.

NOTE: The front frame section on this vehicle is retained by welded lap joints. The frame section will be removed and installed by grinding of the original welded joints, followed by welding of the new section into position.

10. Grind through the original welded joints retaining the forward frame section to the center section. Be careful not to cut into the center side rail since it will be reused.
 - Using a chisel gun with a sharp 25.4 mm (1 inch) wide wedge chisel, separate the ground area of the joints.
Use the General Equipment: Grinder



11. With the help of an assistant, remove the complete front frame section.

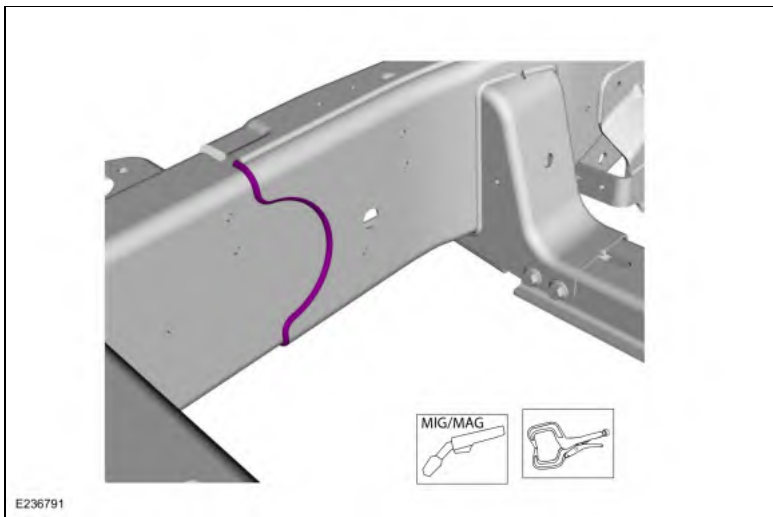


1. Using a wire brush or sandpaper, remove the e-coat paint from the existing frame near the edges to be welded on the inner and outer surfaces within approximately 15 mm (0.5 in.) of the repair joint.



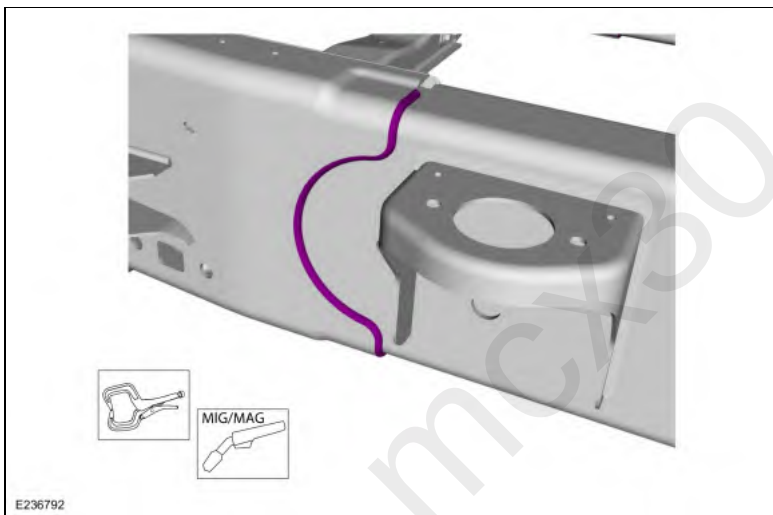
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3. Verify dimensional accuracy **before** performing any welding operations.
Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).
4. Support the new section, and loosely clamp the replacement section in a preliminary position.
 - Verify correct dimensions, then solid weld the new section to the original inboard overlap joints.
Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).
Refer to: Joining Techniques (501-25 Body Repairs - General Information, General Procedures).
Use the General Equipment: MIG/MAG Welding Equipment
Use the General Equipment: Locking Pliers





5. Finish welding the outboard joint.





6. Use a dye penetrant to determine if any cracks or large voids exist in the weld joint. If cracks or other defects exist, grind out the defect and repair until the weld is free of defects.

7. Metal finish the repair area using typical metal finishing techniques.

8. Refinish using a Ford approved paint system.

9. Restore corrosion protection.

Refer to: Corrosion Prevention (501-25 Body Repairs - General Information, General Procedures).

10. Install the following items:

1. Lower the engine and transmission assembly.

Refer to: Engine Mount LH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).

Refer to: Engine Mount LH (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).

2. Install the transmission crossmember.

Refer to: Transmission Support Crossmember (502-02 Full Frame and Body Mounting, Removal and Installation).

3. Connect the exhaust system to the engine, as equipped.

Refer to: Dual Catalytic Converter Y-Pipe (309-00A Exhaust System - 6.2L V8, Removal and Installation).

Refer to: Exhaust Downpipe - Chassis Cab (309-00B Exhaust System - 6.7L Power Stroke Diesel, Removal and Installation).

4. If equipped.

Refer to: Front Driveshaft (205-01 Driveshaft, Removal and Installation).

5. If equipped.

Refer to: Axle Shaft (205-02C Wheel Hubs and Bearings - Full Floating Axle - Vehicles With: Dana M275/Dana M300, Removal and Installation).

Refer to: Axle Shaft (205-02E Wheel Hubs and Bearings - Full Floating Axle - Vehicles With: Ford 10.5 Inch Ring Gear, Removal and Installation).

6. Install the spring and shock assembly.

Refer to: Spring - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation).

- Refer to: Spring (204-01B Front Suspension - 4WD, Removal and Installation).
7. Install the radius arm, if equipped with 2WD.
Refer to: Radius Arm - F-250/F-350 (204-01A Front Suspension - RWD, Removal and Installation).
Refer to: Radius Arm - F-450/F-550 (204-01A Front Suspension - RWD, Removal and Installation).
 8. Install the radius arm, if equipped with 4WD.
Refer to: Radius Arm (204-01B Front Suspension - 4WD, Removal and Installation).
 9. Install the steering gear.
Refer to: Steering Gear (211-02 Power Steering, Removal and Installation).
 10. Install the front bumper.
Refer to: Front Bumper (501-19 Bumpers, Removal and Installation).
 11. Install the fenders.
Refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
 12. Install the radiator grille.
Refer to: Radiator Grille (501-08 Exterior Trim and Ornamentation, Removal and Installation).
 13. Install the headlamps.
Refer to: Headlamp Assembly (417-01 Exterior Lighting, Removal and Installation).
 14. Install the Front End Sheet Metal (FESM) body mount bolts and lower the body as required.
Refer to: Frame and Body Mounting (502-02 Full Frame and Body Mounting, Description and Operation).
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