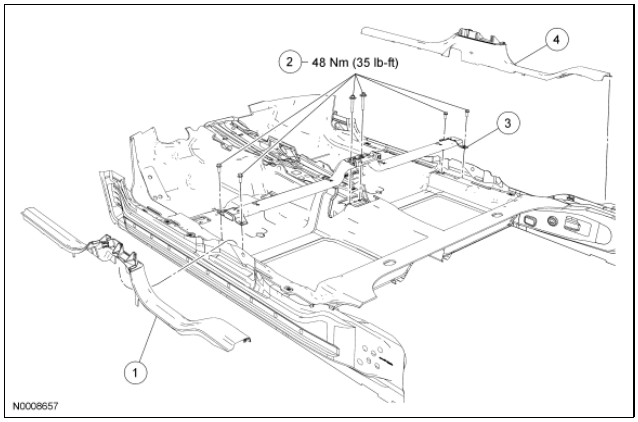
Side Impact Reinforcement

Side Protection and Cabin Enhancement (SPACE®) Tube



Item	Part Number	Description
1	13229	LH front and rear door scuff plate
2	W505275-S424	Side Protection and Cabin Enhancement (SPACE®) tube-to-floor bolts
3	10672	SPACE® tube
4	13228	RH front and rear door scuff plate

⚠ WARNING: Never install used or reconditioned parts (as specified below) from pre-owned, salvaged or damaged vehicles. The use of such parts could lead to serious injury.

Never use non-Ford parts or accessories for completing repairs.

Ford Motor Company does not approve or recognize body and structural repair procedures, tools, parts or anything but new genuine Ford equipment. Ford cannot attest to the safety, quality, durability or legality of non-Ford parts or accessories. Use of such parts could lead to serious personal injury as they may contain damage which is not visible.

Ford does not approve use of the following:

- Salvaged or used parts
- Major body clips or assemblies from salvage vehicles
- Aftermarket structural or body components
- Salvaged or reconditioned wheels
- Used supplemental restraint system (SRS) components
    - ♦ air bags
    - ♦ restraint system modules
    - ♦ safety belts, buckles or retractors
    - ♦ crash sensors

Returning a vehicle to pre-accident condition can only be assured if repair procedures are carried out by skilled technicians using new genuine Ford parts and Ford-approved methods. Structural component repair procedures approved by Ford, using genuine Ford parts, have been validated by Ford Motor Company engineers.

Ford Motor Company does not endorse, cannot attest to, and makes no representations regarding structural repairs (frames, rails, aprons and body panels) carried out using non-genuine Ford Motor Company parts or non-Ford-approved methods. In particular, Ford makes no representations that the vehicle will meet any crash safety or anti-corrosion performance requirement. Such parts and methods have not been tested by Ford, and may not meet Ford's requirements for safety, performance, strength, quality, durability and corrosion protection.

Ford Motor Company bears no responsibility or liability of any kind if repairs are performed using alternative structural component repair procedures and/or parts.

1. Remove the front seats. For additional information, refer to Section 501-10 .

2. Remove the center console. For additional information, refer to Section 501-12 .

3. Remove the driver side front and rear scuff plate assembly.

4. Remove the passenger side front and rear scuff plate assembly.

5. Remove the SPACE® tube in the following sequence.
    1. Remove the 6 SPACE® tube-to-floor bolts.
    2. Remove the SPACE® tube.

Installation

1. Install the SPACE® tube in the following sequence.
    1. Position the SPACE® tube in the passenger compartment.
    2. Install the SPACE® tube-to-floor bolts.
        - Tighten to 48 Nm (35 lb-ft).

2. Install the passenger side front and rear door scuff plate assembly.

3. Install the driver side front and rear door scuff plate assembly.

4. Install the center console. For additional information, refer to Section 501-12 .

5. Install the front seats. For additional information, refer to Section 501-10 .

Torque Specifications

Description	Nm	lb-ft	lb-in
Front engine mount nut	70	52	—
Rear engine mount nut	70	52	—
Upper cross brace bolts	55	41	—
Upper roll restrictor bolt	48	35	—
Lower roll restrictor nut	40	30	—
Transfer case bracket bolts — all wheel drive (AWD)	55	41	—
Transmission mount bolts	90	66	—
Power steering gear-to-front subframe nuts	117	86	—
Stabilizer bar upper nuts	55	41	—
Lower ball joint nuts	115	85	—
Power steering line routing bolts	5	—	44
Catalytic converter nuts	40	30	—
Power steering line routing bolt	12	9	—
Front subframe bracket bolts	55	41	—
Front subframe — front bolts	200	148	—
Front subframe — rear bolts	150	111	—
Rear brake caliper pins	35	26	—
Driveshaft bolts	25	18	—
Rear shock-to-lower control arm bolts — AWD	142	105	—
Rear shock-to-lower control arm bolts — front wheel drive (FWD)	110	81	—
Trailing link-to-subframe bolts	105	77	—
Trailing link-to-knuckle bolts	105	77	—
Park brake cable-to-body bolt	12	9	—
Rear subframe bracket bolts — AWD	55	41	—
Rear subframe bolts	115	85	—
Intermediate shaft-to-steering gear bolt	25	18	—

Frame Assembly

The front subframe is bolted to the body and:

- aids in structural support.
- provides the mounting surface for the steering gear, the front suspension lower arms, the front engine support brackets, the transmission support insulator and the stabilizer bar.
- front subframe bushings are serviceable.

The rear subframe is bolted to the body and:

- aids in structural support.
- provides the mounting surface for the rear suspension upper control arms, rear suspension lower control arms and (if equipped) a mounting location for the rear differential.

Body Misalignment Check

⚠ CAUTION: Never apply heat to the bumper energy absorbers. Heat could cause the material in the absorbers to expand and flow out of the absorbers or crack the metal housing. Always remove the absorbers before carrying out body frame service near them. Never use a bumper energy absorber for pulling.

⚠ CAUTION: Do not attempt to correct any serious misalignment with a pulling/pushing operation. Damage to the structure could occur.

⚠ CAUTION: In case of severe or sharp bends, it may be necessary to use heat. Any attempt to cold-straighten a severely bent bracket may cause ruptures of the welds. It may also cause cracks in the bent part. Never heat the area to more than 650°C (1,200°F). Always use temperature-indicating crayons when applying heat to any part.

NOTE: All measurements should be made from the bare metal; remove the trim and bumper covers as necessary.

NOTE: The subframe is not meant to be straightened. If structural damage occurs to the subframe, a new subframe should be installed.

1. Repair the badly damaged areas before taking measurements for underbody alignment.

2. To check the underbody alignment, take the measurements between opposite reference points, such as crease lines or weld joints.

3. Monitor the upper body structure for excessive stress or movement while making any corrections to the underbody structure. Remove all the necessary glass to prevent breakage. For additional information, refer to Section 501-11 .

Underbody Misalignment Check

⚠ CAUTION: Do not attempt to correct any serious misalignment with a pulling/pushing operation. Damage to the structure could occur.

NOTE: To make sure of accurate measurements, remove all trim from the reference points to expose bare metal.

NOTE: The subframe is not meant to be straightened. If structural damage occurs to the subframe, a new subframe should be installed.

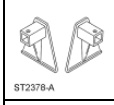
1. To align or square a body, take 2 opposite diagonal measurements between pillars. Take measurements between reference points such as crease lines or weld joints, which are diagonally opposite each other on the 2 pillars being measured.

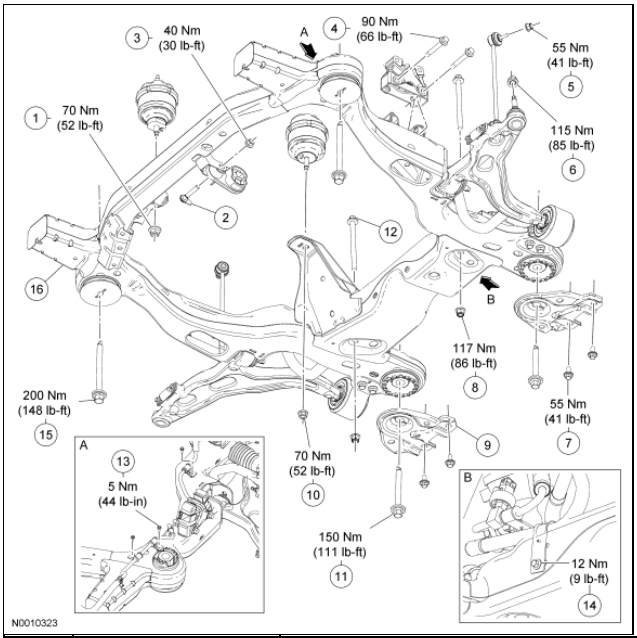
2. When repairing a vehicle with damage on both sides, take horizontal and vertical measurements from an intact vehicle and transfer the dimensions to the damaged vehicle. Alignment can be made by diagonal measurements taken from points on the 2 pillars.

3. The dimensions of the underbody must be restored, in repairing major body damage, to provide correct front and rear wheel geometry. Once the frame and suspension members are aligned other repair operations can be carried out.

Subframe — Front

Special Tool(s)

 ST2463-A	Lifting Bracket Set, Engine (3.0L 4V-V6) 134-00243 or equivalent
 ST2873-A	Engine Lifting Bracket Set 303-1140
 ST2363-A	Support Bar, Engine 303-290A
 ST2378-A	Adapters for 303-290A 303-290-01
 ST2379-A	Adapter for 303-290A (Support Leg) 303-290A-03A
 ST2879-A	Adapter for 303-290A (Lifting Hook) 303-290A-12



Item	Part Number	Description
1	N802978-S	Front engine mount nut
2	W710736-S	Lower roll restrictor bolt
3	N802068-S	Lower roll restrictor nut

4	W506544-S	Transmission mount bolts (2 required)
5	W520213-S	Stabilizer bar upper nuts (2 required)
6	W710015S	Lower ball joint nuts (2 required)
7	W709583-S	Front subframe bracket bolts (4 required)
8	W520214-S	Power steering gear-to-front subframe nuts (2 required)
9	5G221AA/ 5G221AB	Front subframe bracket (LH/RH)
10	W710922-S	Rear engine mount nut
11	W710715-S	Front subframe — rear bolts (2 required)
12	W709127-S	Power steering gear-to-front subframe bolts (2 required) — Freestyle (All models)
12	W709123-S	Power steering gear-to-front subframe bolts (2 required) — Five Hundred front wheel drive (FWD)
12	W709124-S	Power steering gear-to-front subframe bolts (2 required) — Five Hundred all wheel drive (AWD)
13	W709474-S	Power steering line routing bolts (3 required)
14	W505255-S	Power steering line routing bolt
15	W710714-S	Front subframe — front bolts (2 required)
16	5C145	Front subframe assembly

Removal and Installation

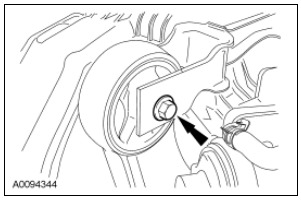
All vehicles

1. Disconnect the battery. For additional information, refer to Section 414-01 .

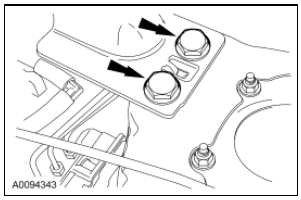
2. Remove the air cleaner outlet pipe and air cleaner. For additional information, refer to Section 303-12 .

3. Remove the cowl vent screen. For additional information, refer to Section 501-02 .

4. Remove the upper roll restrictor bolt.
   - To install, tighten to 48 Nm (35 lb-ft).



5. Remove the 4 upper cross brace bolts and remove the brace.
   - To install, tighten to 55 Nm (41 lb-ft).



6. Remove the 3 power steering high pressure line routing bolts.