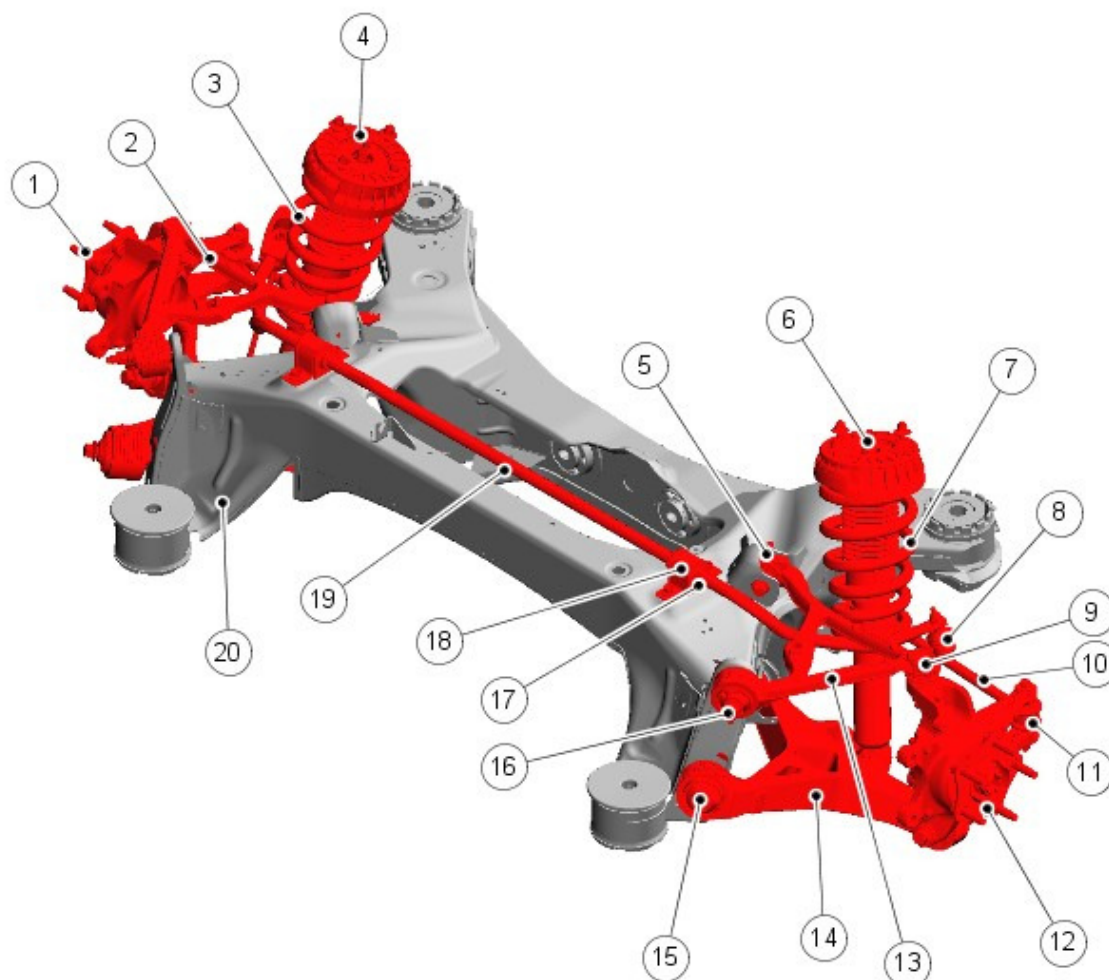


Published: 08-Mar-2013

**Rear Suspension - Rear Suspension**

Description and Operation

**COMPONENT LOCATION**

E153580

Item	Description
1	Rear right wheel hub and bearing assembly
2	Rear right upper control arm
3	Rear right spring and shock absorber assembly
4	Right top plate
5	Bush - upper control arm
6	Left top plate
7	Rear left spring and shock absorber assembly
8	Stabilizer bar link
9	Ball joint
10	Rear tie-rod (2 off)
11	Rear left wheel knuckle

12	Rear left wheel hub and bearing assembly
13	Rear left upper control arm
14	Rear left lower control arm
15	Bush - lower control arm
16	Bush - upper control arm
17	Bush (2 off)
18	Mounting bracket (2 off)
19	Rear stabilizer bar
20	Rear crossbeam

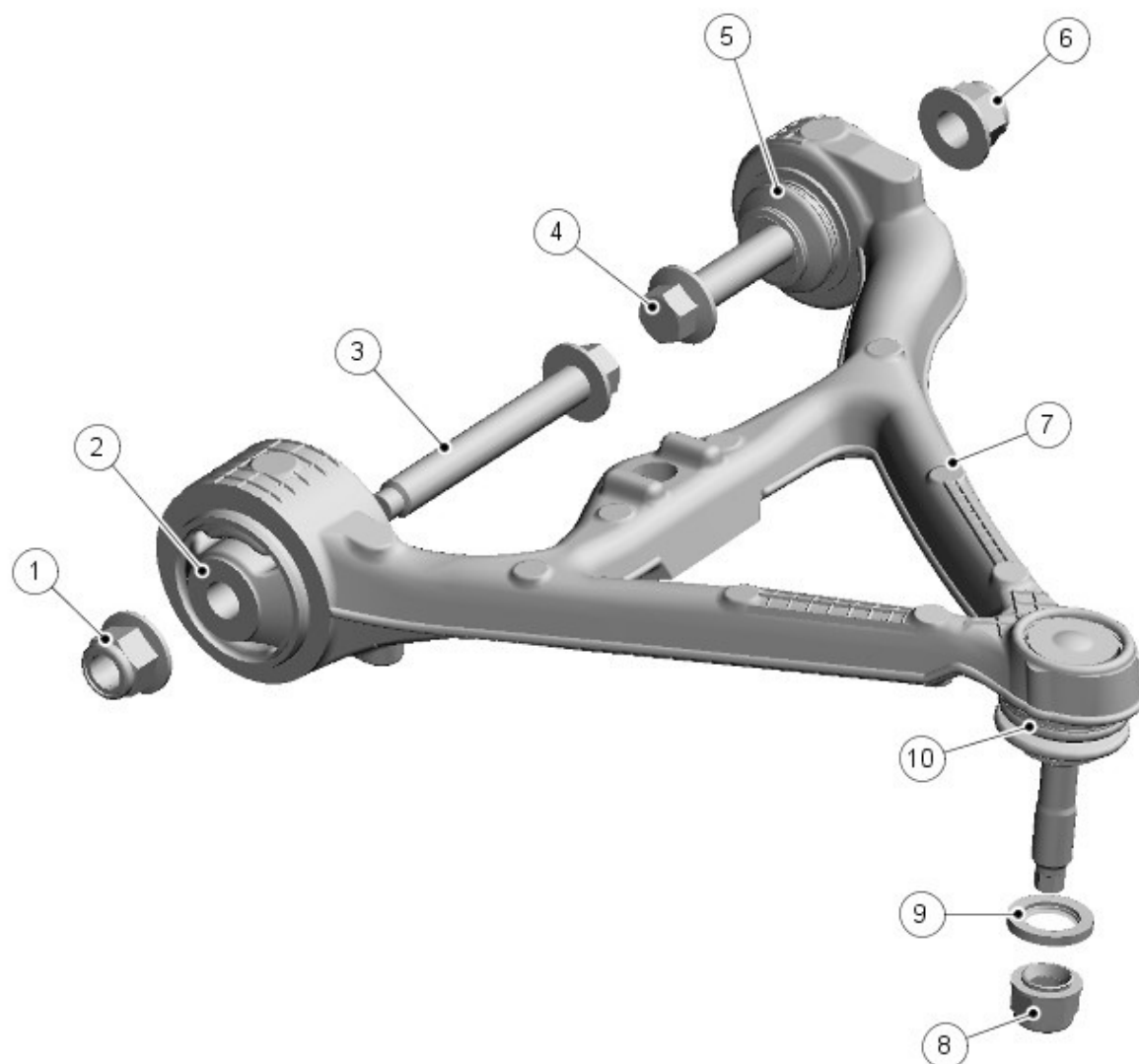
## INTRODUCTION

The rear suspension is a double wishbone design which is attached to a rear crossbeam. The crossbeam is attached to the vehicle body with 4 long bolts which pass through bushes located in the crossbeam.

The rear suspension on each side comprises:

- Rear upper control arm
- Rear lower control arm
- Tie-rod
- Wheel knuckle and hub assembly
- Rear stabilizer bar
- Spring and shock absorber assembly.

## REAR UPPER CONTROL ARM

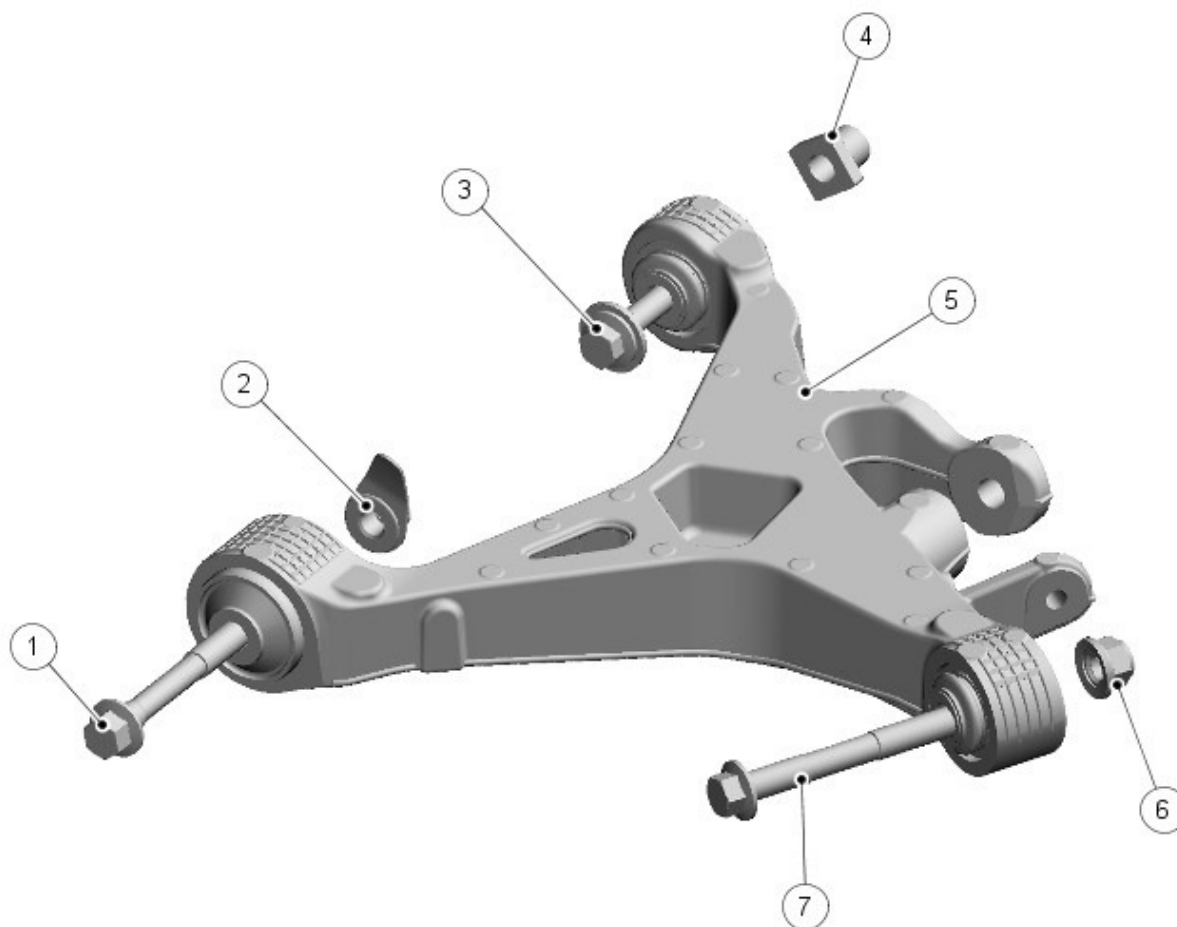


E153581

Item	Description
1	Locknut
2	Bush
3	Bolt
4	Bolt
5	Bush
6	Locknut
7	Rear upper control arm
8	Locknut
9	Washer
10	Ball joint

The cast aluminum rear upper control arm is a wishbone design with 3 mounting points. Two bushed mountings locate in brackets on the crossbeam. The outer end has a ball joint which mates with the wheel knuckle.

### REAR LOWER CONTROL ARM



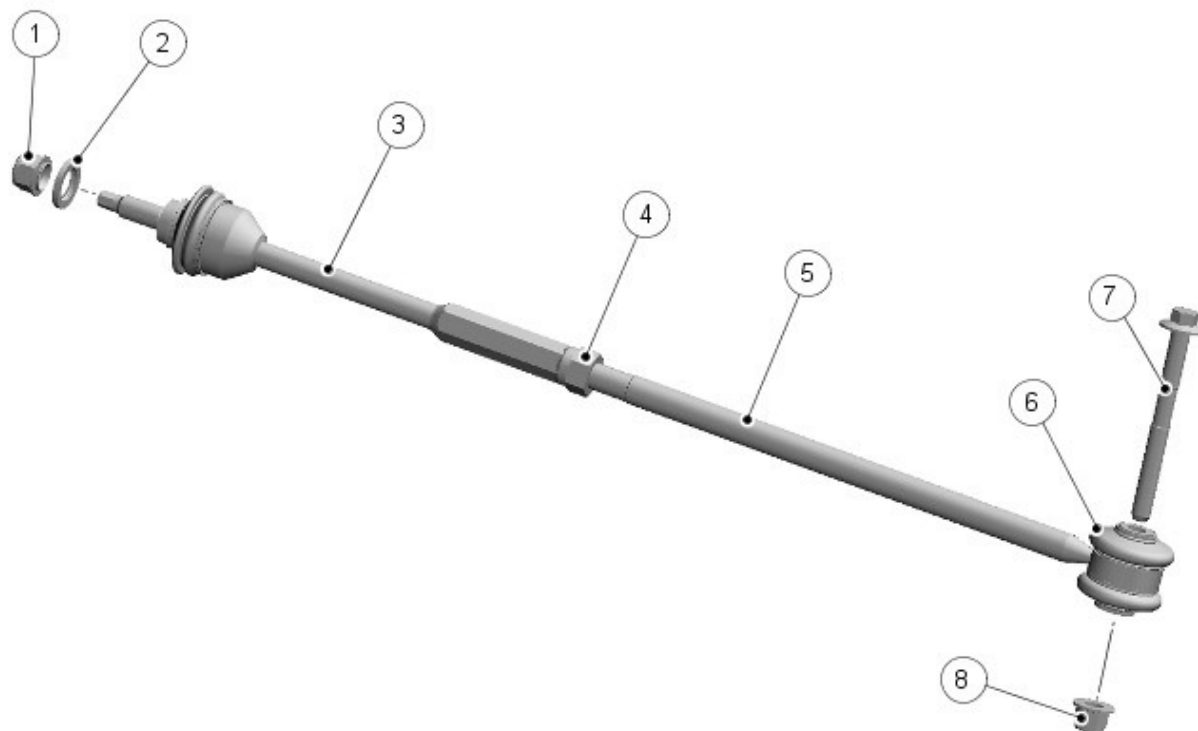
E153582

Item	Description
1	Bolt
2	Caged nut
3	Bolt
4	Locknut
5	Rear lower control arm
6	Locknut
7	Bolt

The cast aluminum rear lower control arm is a wishbone design with 3 bushed mounting points. Two bushes locate between brackets on the crossbeam and the outer bush locates in the wheel knuckle.

The rear of the control arm has mounting points for the spring and shock absorber assembly and the stabilizer link.

### REAR TIE-ROD



E153583

Item	Description
1	Locknut
2	Washer
3	Inner rod and ball joint
4	Locknut
5	Outer rod
6	Outer ball joint
7	Bolt
8	Locknut

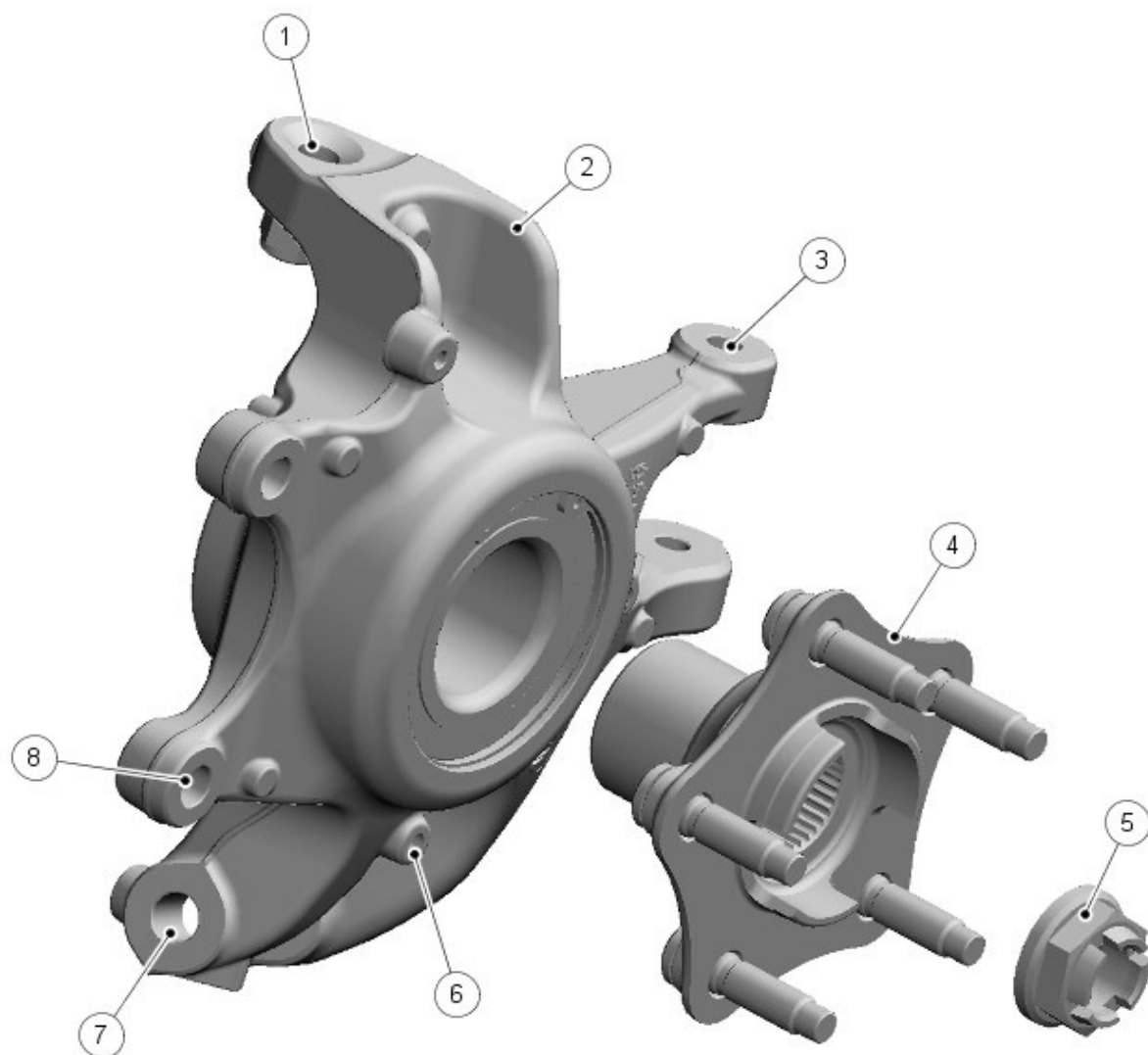
The rear tie-rod is located between the wheel knuckle and brackets on the rear crossbeam.

The rear tie-rod comprises an inner rod with integral ball joint. The inner ball joint has a threaded spigot which locates in a bracket on the crossbeam and is secured with a washer and locknut. The rod has an internal thread which accepts the outer rod.

The outer rod has a ball joint at its outer end which is located between 2 brackets on the wheel knuckle, and is secured with a bolt and locknut.

The length of the rear tie-rod can be adjusted by rotating the inner and outer rods. This allows for adjustment of the toe angle for the rear wheel. Once set the inner and outer rods can be locked in position by tightening a locknut against the inner rod.

## REAR WHEEL KNUCKLE



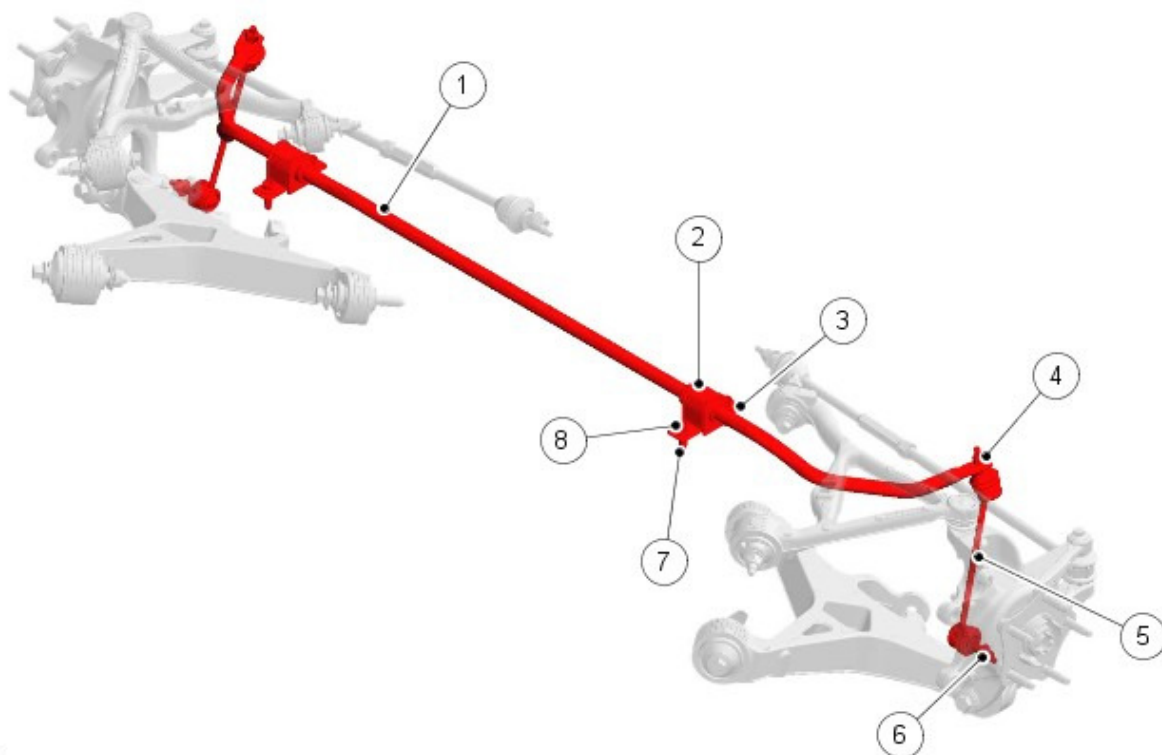
E153584

Item	Description
1	Rear upper control arm attachment
2	Rear wheel knuckle
3	Tie-rod attachment
4	Rear wheel hub and bearing assembly
5	Halfshaft nut
6	Brake disc shield attachment
7	Rear ower control arm attachment
8	Brake caliper attachment

The rear wheel knuckle is an aluminum casting which provides for the attachment of the rear upper and lower control arms and the tie-rod. The rear wheel knuckle also provides the mounting locations for the wheel hub and bearing assembly, the Rear wheel speed sensor, the brake caliper and the brake dust shield, which is secured with 3 rivets.

The rear wheel hub and bearing assembly is a non-serviceable component that requires replacement as a complete assembly. It is secured to the wheel knuckle with 4 bolts. A magnetic encoder ring for the Rear wheel speed sensor is incorporated into the wheel bearing.

### REAR STABILIZER BAR



E153585

Item	Description
1	Rear stabilizer bar
2	Bracket (2 off)
3	Bush (2 off)
4	Locknut (2 off)
5	Stabilizer bar link (2 off)
6	Locknut (2 off)
7	Caged nut (2 off)
8	Bolt (2 off)

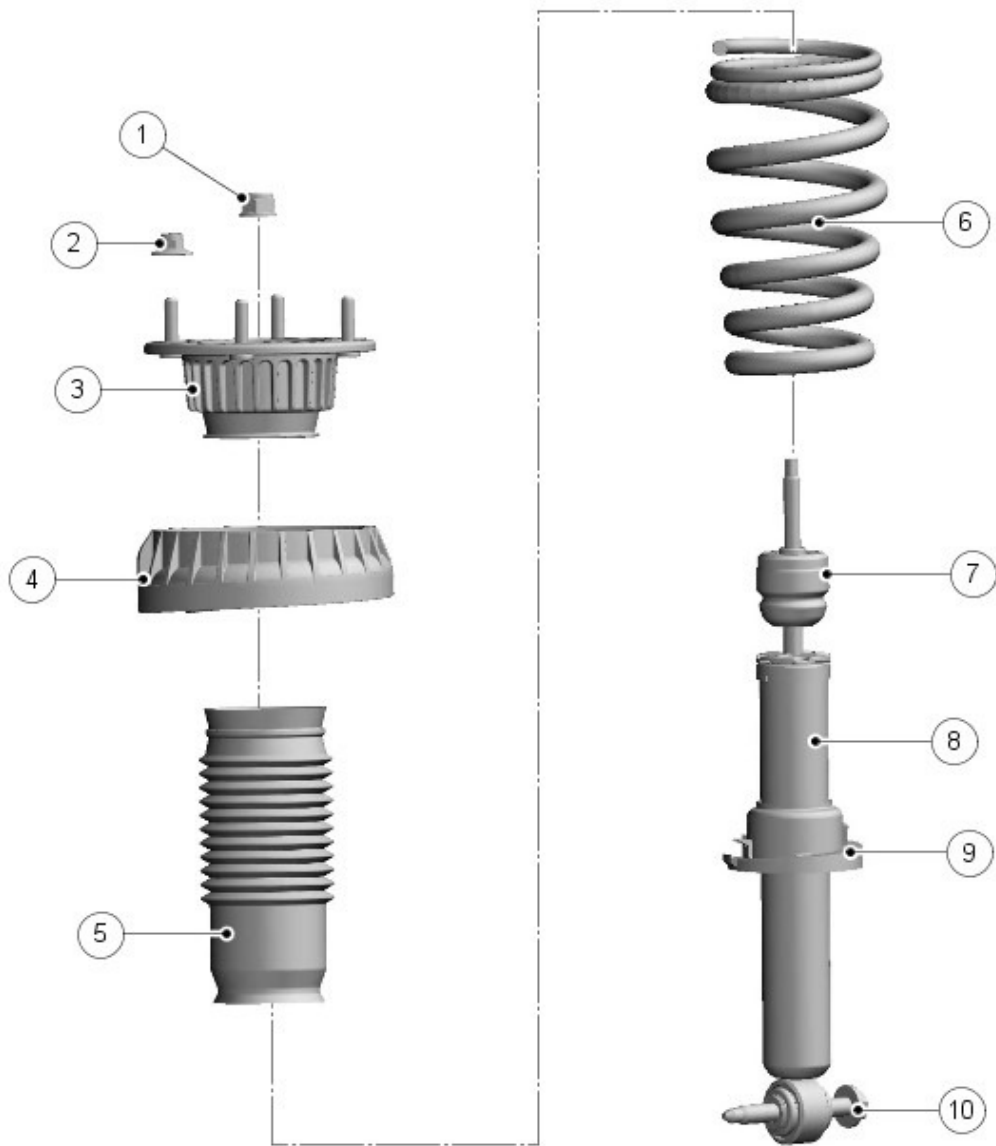
The rear stabilizer bar is attached to the top of the crossbeam with 2 bushes and mounting brackets. The brackets are secured to the crossbeam with bolts and caged nuts. The rear stabilizer bar has crimped, 'anti-shuffle' collars pressed in position on the inside edges of the bushes. The collars prevent sideways movement of the rear stabilizer bar.

The rear stabilizer bar is manufactured from manganese steel and has a diameter of 17 mm (0.669 in.). The torsional rate of the rear stabilizer bar differs between models, and is color coded for identification.

Each end of the rear stabilizer bar curves rearward to attach to a ball joint on each stabilizer bar link. Each link is attached via a second ball joint to a cast bracket on the rear lower control arm which is secured with a locknut. The links allow the rear stabilizer bar to move with the wheel travel providing maximum effectiveness.

The rear stabilizer bar is attached to the forward face of the chassis front subframe. The rear stabilizer bar is attached to the subframe with 2 rubber bushes. Pressed steel brackets locate over the bushes and are attached to the cross member with bolts screwed into threaded locations in the subframe.

## SPRING AND SHOCK ABSORBER ASSEMBLY



E153586

Item	Description
1	Shock absorber rod self locking nut
2	Top mount self locking nut
3	Top mount
4	Spring packer
5	Gaiter
6	Spring
7	Spring aid
8	Shock absorber
9	Spring packer
10	Bolt

The spring and shock absorber assemblies are attached to cast brackets on the rear lower control arms and to the rear floor side member assemblies via the 4 studs in the top plate. As on the front suspension, there are three variants of spring and shock absorber assembly:

- A conventional oil shock absorber damper.
- On vehicles with the adaptive dynamics system, a continuously variable adaptive shock absorber.  
For additional information, refer to: [Vehicle Dynamic Suspension](#) (204-05 Vehicle Dynamic Suspension, Description and Operation).



Different combinations of springs and shock absorbers are available depending on the vehicle model. The conventional and adaptive shock absorbers are of a similar construction.

The shock absorbers are a monotube design with a spring seat welded onto the shock absorber tube. The lower end of the shock absorber has a bushed mounting which locates in the rear lower control arm and is secured with a bolt.

The shock absorber functions by restricting the flow of hydraulic fluid through internal galleries in a piston, providing damping of undulations in the road surface.

The shock absorber piston is connected to a shock absorber rod which is sealed at its exit point from the shock absorber body. The threaded outer end of the damper rod locates through a hole in the top mount. A self locking nut secures the top mount to the shock absorber rod. On adaptive shock absorbers an electrical connector is incorporated into the outer end of the shock absorber rod.

The shock absorber rod is fitted with a spring aid which prevents the top mount making contact with the top of the shock absorber body during full suspension compression and also assists with the suspension tune.

The spring rate of the coil springs can differ between models and are color coded for identification. The coil spring locates on a spring packer and a lower spring seat which is integral with the shock absorber body. The spring locates in an upper spring seat which is located on the underside of the top mount.

The top mount has 4 studs which locate through mating holes in the vehicle rear floor side member and are secured with self locking nuts.