

PART 2. TORSION BAR REAR SUSPENSION

SPECIFICATIONS

Type	Independent, trailing arm with torsion bar and shock absorber
Shock absorber type:	
1979-1980 models	Double acting, telescopic, hydraulic
1981-1984 and Utility models ..	Double acting, telescopic, gas pressurised
Four wheel drive hub end float	0.06-0.10 mm
Two wheel drive hub starting force, except 1984 models	14 N
Two wheel drive hub starting force, 1984 models	18 N

TORQUE WRENCH SETTINGS

Four wheel drive hub nut	196 Nm
Four wheel drive hub ring nut	221 Nm
Two wheel drive hub nut, except 1984 models	49 Nm then back $\frac{1}{8}$ - $\frac{1}{10}$ turn
Two wheel drive hub nut, 1984 models	39 Nm then back $\frac{1}{8}$ - $\frac{1}{10}$ turn
Trailing link to trailing arm bolts	147 Nm
Trailing arm pivot bolt	93 Nm
Trailing link pivot bush retaining bolt	39 Nm
Shock absorber upper mounting bolt	127 Nm
Shock absorber lower mounting bolt	118 Nm
Suspension crossmember mounting bolt ...	147 Nm

1. DESCRIPTION

The rear suspension fitted to 1979-1984 and Utility models consists of a hollow, tubular suspension crossmember which is attached to the vehicle underbody by brackets welded to the outer ends of the suspension crossmember.

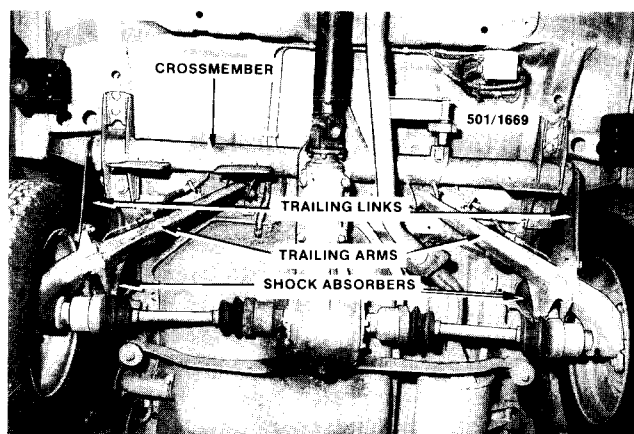
The rear hubs on four wheel drive models are splined onto the drive shafts which rotate on bearings located in the end of the trailing arm.

Trailing arms which pivot in brackets welded to the rear of the suspension crossmember are held in alignment in service by trailing links which are bolted to the trailing arms and located in the ends of the suspension crossmember by Metalastic bushes.

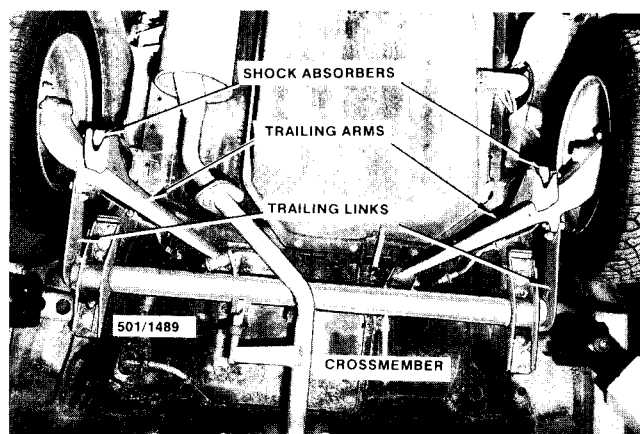
Torsion bars are splined into the trailing links at one end and the centre of the suspension crossmember at the other end.

On four wheel drive models, the torsion bar inner ends are splined into the height adjustment arm and by turning the bolt in the end of the height adjustment arm, the torque on the torsion bars is increased or decreased with a subsequent change in the vehicle ground clearance.

Double acting, telescopic shock absorbers are



Underbody view of the four wheel drive torsion bar type rear suspension.



Underbody view of the two wheel drive torsion bar type rear suspension.

installed between the rear of the trailing arms and the vehicle body to aid stability and enhance the riding qualities of the suspension.

2. TORSION BAR AND TRAILING LINK

Special Equipment Required:

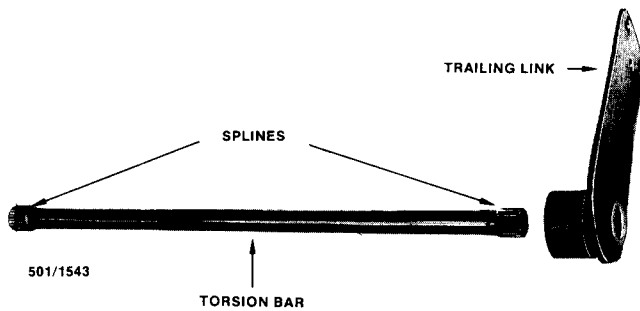
To Renew Trailing Link Pivot Bush: Press and press plates

TO REMOVE AND INSTAL

(1) Working between the rear wheel arch and the wheel, remove the rear shock absorber upper mounting bolts.

(2) Raise the rear of the vehicle, support it on chassis stands placed clear of the rear suspension and remove the rear wheel.

(3) Disconnect the brake hose from the brake pipe at the bracket on the front of the trailing arm. Plug the ends of the hose and pipe to prevent the entry of dirt and the loss of fluid.



View of the trailing link and torsion bar removed from the vehicle.

(4) Remove the suspension crossmember mounting bolts on the side being repaired and loosen the suspension crossmember mounting bolts on the opposite side of the vehicle.

(5) Suitably support the suspension crossmember in a position low enough for the torsion bar to clear the body panel on removal.

(6) Suitably mark the splines of the torsion bar and the trailing link to aid assembly.

(7) Remove the bolts retaining the trailing link to the trailing arm.

(8) Remove the trailing link pivot bush retaining bolt from the end of the suspension crossmember and withdraw the trailing link and torsion bar from the vehicle.

(9) Separate the trailing link from the torsion bar and inspect the trailing link, torsion bar and mounting hardware for cracks, wear and damage. Renew all the unserviceable components. Inspect the Metalastic bush in the trailing link for deterioration and, if necessary, renew the bush as follows:

(a) Support the trailing link in a press using suitable press plates behind the Metalastic bush.

(b) Using a suitable mandrel to slide inside the bush and engage the mounting tube, push on the mounting tube and remove the Metalastic bush from the trailing link.

(c) Place the trailing link flat on the press bed plates and press the new bush onto the mounting tube using a suitable tube to contact the steel outer bush.

Installation is a reversal of the removal procedure with attention to the following points:

(1) Align the torsion bar and trailing link marks made prior to removal.

(2) Tighten all the bolts to the specified torque.

(3) Tighten the trailing link pivot bush retaining bolt with the weight of the vehicle on the rear wheels.

(4) Check the rear ground clearance as described in the Front Suspension section.

On four wheel drive models the ground clearance adjustment procedure is fully outlined in the Front Suspension section.

On two wheel drive models no adjustment is provided, except for the repositioning of the torsion bar. If it is necessary to alter the rear ground clearance proceed as follows:

(a) Raise the rear of the vehicle, support it on chassis stands placed clear of the rear suspension and remove the rear wheel.

(b) Using the criteria that a change of one spline on the inner end of the torsion bar, which has 37 splines, will alter the ground clearance by 68 mm and a change of one spline on the outer end of the torsion bar, which has 34 splines, will alter the ground clearance by 74 mm, determine the number of splines change required at each end of the torsion bar.

(c) Mark the original position of the trailing link on the torsion bar and measure the vertical distance between the end of the trailing link and the vehicle underbody. Remove the trailing link and torsion bar as previously described.

(d) Rotate the torsion bar and trailing link assembly the required number of splines. Separate the trailing link from the torsion bar and rotate the trailing link in the opposite direction the required number of splines to obtain the specified ground clearance.

(e) Connect the trailing link to the trailing arm and repeat the measurement taken in operation (c). The change in ground clearance will be twice the change in this measurement.

3. SHOCK ABSORBER

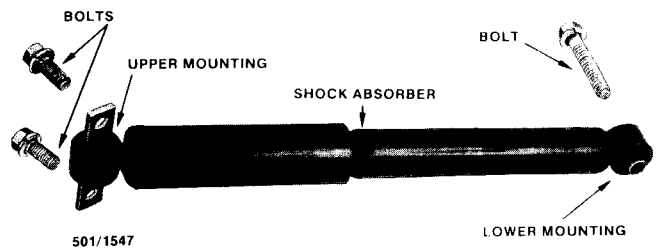
TO REMOVE

(1) Raise the rear of the vehicle and support it on chassis stands

(2) For ease of access remove the rear wheel.

(3) Support the trailing arm and remove the shock absorber lower mounting bolt from the trailing arm.

(4) Remove the shock absorber upper mounting bolts and withdraw the shock absorber from the vehicle.

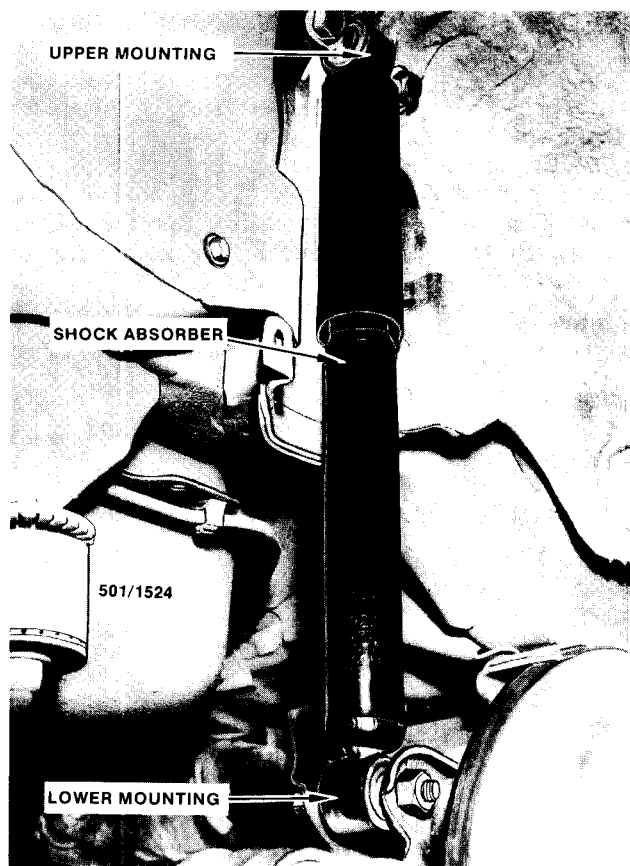


Shock absorber assembly removed from the vehicle.

TO TEST AND BLEED

(1) Hold the shock absorber upright and fully extend it.

(2) Push the top of the shock absorber downward and note the movement travelled before resistance is felt. The movement should be 10 mm or less. Continue to fully compress and extend the shock absorber and check for steady and uniform resistance



Installed view of the shock absorber.

which should be felt over the entire travel of the shock absorber.

(3) If the initial free movement is more than 10 mm proceed as follows:

(a) Invert the shock absorber and fully compress it.

(b) With the shock absorber fully compressed, turn it upright and fully extend it.

Repeat the above operation several times until the initial free movement is 10 mm or less. Renew the shock absorber if the above operation is not successful or if the shock absorber has dents, damage or fluid leaks.

TO INSTAL

Installation is a reversal of the removal procedure ensuring that the lower shock absorber mounting bolt is tightened to the specified torque with the weight of vehicle on the rear wheels.

GAS PRESSURISED SHOCK ABSORBERS

The removal, installation and test procedures for vehicles fitted with gas pressurised shock absorbers are identical to those for conventional shock absorbers. However bleeding is not required nor possible.

4. TRAILING ARM

Special Equipment Required:

To Renew Trailing Arm Pivot Bush: Press and press plates

TO REMOVE AND INSTAL

(1) Raise the rear of the vehicle, support it on chassis stands and remove the rear wheel.

(2) On four wheel drive models, disconnect the axle shaft from the hub drive shaft as described in the Rear Axle section.

(3) Remove the shock absorber lower mounting bolt from the trailing arm bracket.

(4) Disconnect the brake hose from the brake pipe at the bracket on the front of the trailing arm. Plug the ends of the hose and the pipe to prevent the entry of dirt and loss of fluid.

(5) Remove the bolts retaining the trailing link to the trailing arm.

(6) Remove the trailing arm pivot bolt from the bracket on the suspension crossmember and withdraw the trailing arm from the vehicle.

(7) Inspect the trailing arm for cracks, bend and damage, the trailing arm pivot bush for deterioration and the mounting hardware for wear and damage.

If necessary, renew the trailing arm pivot bush as follows:

(a) Support the trailing arm in a press and using a mandrel slightly smaller than the outer diameter of the bush, press the bush out of the trailing arm.

(b) Press the new bush into the trailing arm using a suitable tube to contact the steel outer bush.

Installation is a reversal of the removal procedure ensuring that the trailing arm pivot bolts and the shock absorber lower mounting bolt are tightened to the specified torque.

5. REAR HUB

The removal, installation and overhaul procedures for four wheel drive and two wheel drive rear hubs are fully explained in Part 3. Coil Spring Suspension.