PART 3. COIL SPRING REAR SUSPENSION

SPECIFICATIONS

Type	Independent, trailing arm with coil spring and gas pressurised suspension unit
Four wheel drive hub end float	0.06–0.10 mm
Two wheel drive hub starting force	14 N

TORQUE WRENCH SETTINGS

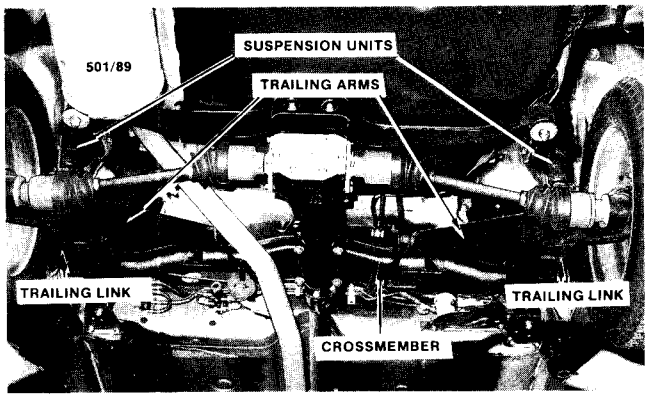
Four wheel drive hub nut	196 Nm
Four wheel drive hub ring nut	221 Nm
Two wheel drive hub nut	49 Nm then back $\frac{1}{8} - \frac{1}{10}$ turn.
Piston rod nut	20 Nm
Piston rod locknut	25 Nm
Suspension unit upper mounting bolts	127 Nm
Suspension unit lower mounting bolt	118 Nm
Trailing link to trailing arm bolts	177 Nm
Trailing arm pivot bolt	137 Nm
Trailing link pivot bolt	177 Nm

1. DESCRIPTION

The rear suspension fitted to 1985–1987 Sedan and Station Wagon models consists of a hollow, tubular suspension crossmember which is attached to the vehicle underbody by brackets fixed to the outer ends of the suspension crossmember.

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 pivot in brackets welded to the rear 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. The rear hubs on two wheel drive models rotate on bearings located on stub axles on the end of the trailing arm.



Underbody view of the four wheel drive coil spring type rear suspension.

Double acting, telescopic suspension units with integral coil springs are installed between the rear of the trailing arms and the vehicle body.

On four wheel drive models, prior to 1987, the lower coil spring seat is adjustable to alter the vehicle ground clearance. The two wheel drive models are not adjustable.

2. TRAILING LINK

Special Equipment Required:
To Renew Trailing Link Bush — Press and press plates

TO REMOVE AND INSTAL

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

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

(3) Remove the trailing link pivot bolt and withdraw the trailing link from the vehicle.

(4) Inspect the trailing link for cracks, bend and damage and the pivot bush for deterioration. If necessary, renew the pivot bush as follows:

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

(b) Press the new bush into the trailing link 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) Tighten the trailing link pivot bolt to the specified torque with the weight of the vehicle on the rear wheels.

(2) Tighten the trailing link retaining bolts to the specified torque.

3. TRAILING ARM

Special Equipment Required:
To Renew Trailing Arm Bush — Press and press plates

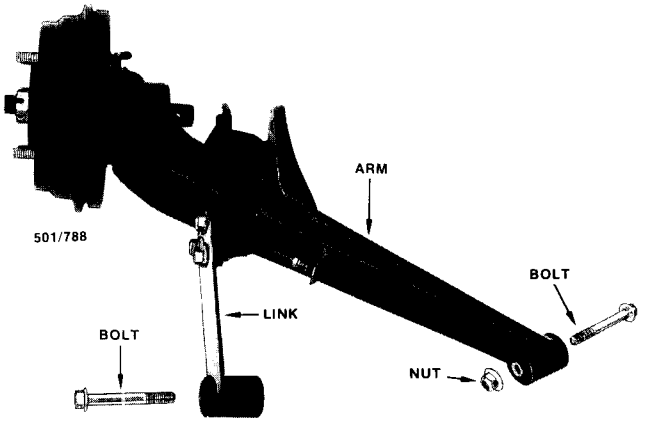
TO REMOVE AND INSTAL

(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 suspension unit lower mounting bolt.

(4) Disconnect the brake hose from the brake pipe at the bracket on the front of the trailing arm.



View of the trailing arm and trailing link removed from the vehicle.

Plug the ends of the hose and the pipe to prevent the entry of dirt and the loss of fluid.

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

(6) Remove the trailing arm pivot bolt and withdraw the trailing arm from the vehicle.

(7) Inspect the trailing arm for cracks, bend and damage and the pivot bush for deterioration. If necessary, renew the pivot bush as follows:

(a) Support the trailing arm in a press and using a mandrel with a diameter 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 with attention to the following points:

(1) Tighten the trailing arm pivot bolt and the suspension unit lower mounting bolt with the weight of the vehicle on the rear wheels.

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

4. SUSPENSION UNIT

Special Equipment Required:
To Dismantle and Assemble — Suitable coil spring compressor

TO REMOVE

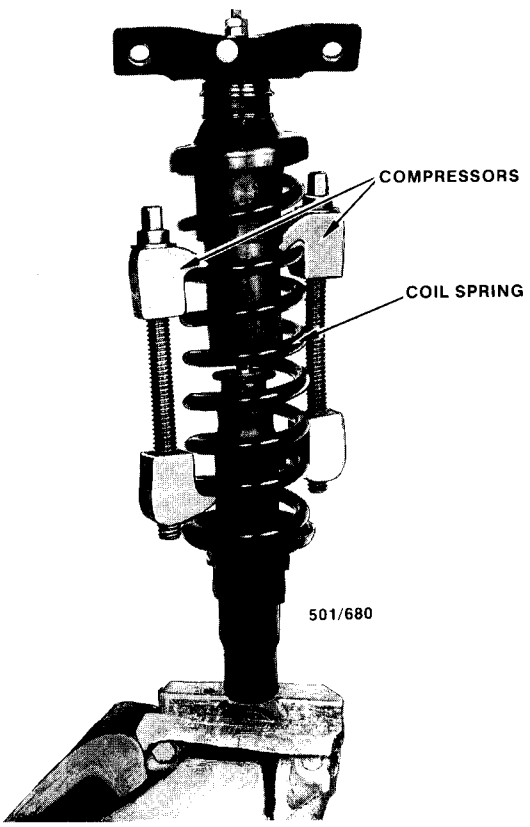
(1) Raise the rear of the vehicle and support it on chassis stands. For ease of access remove the rear wheel.

(2) Support the trailing arm and remove the suspension unit lower mounting bolt from the trailing arm.

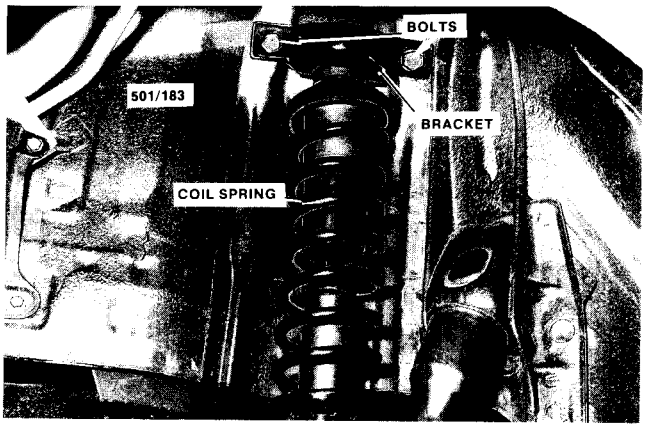
(3) Remove the suspension unit upper mounting bolts and withdraw the suspension unit from the vehicle.

TO DISMANTLE, INSPECT AND ASSEMBLE

(1) Instal the spring compressor and compress the coil spring.



Using spring compressors to compress the coil spring.



Installed view of the suspension unit upper mounting.

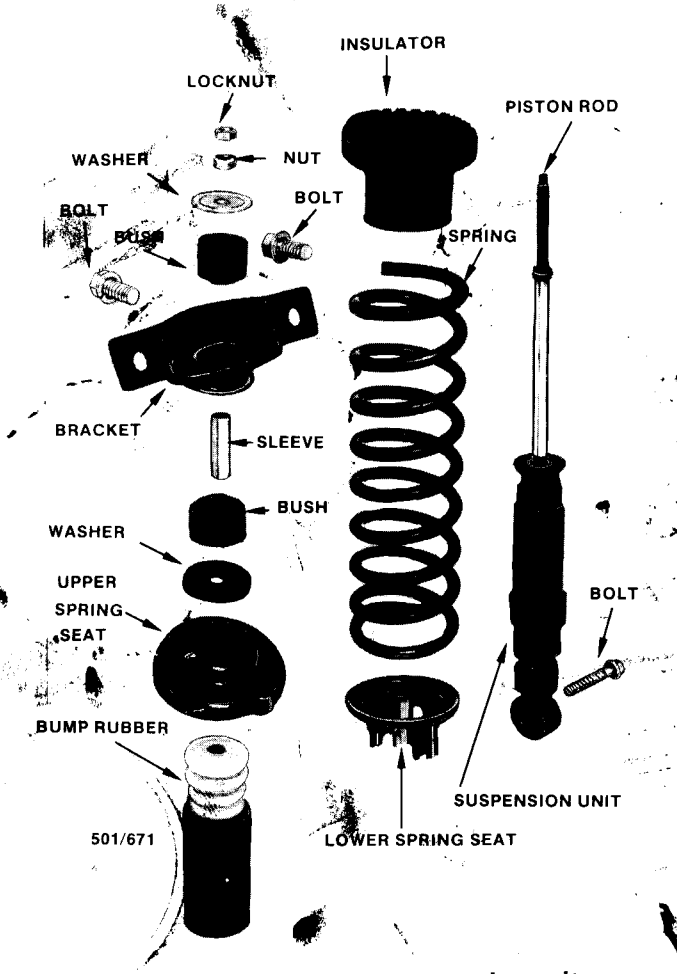
(2) Remove the piston rod locknut, nut, washer and rubber bush and remove the mounting bracket.

(3) Remove the sleeve, rubber bush, washer, upper spring seat and insulator.

(4) Remove the coil spring, bump rubber and on four wheel drive models. the lower spring seat. Note that the coil spring is installed with the flat end down.

(5) Inspect all the components for cracks, wear, damage and deterioration. Compare the coil spring free length with the free length of a new spring. Renew all unserviceable components.

(6) Check the suspension unit for dents, damage and fluid leaks. Push the piston rod into the body of



Dismantled view of the suspension unit.

the suspension unit and check for steady and uniform resistance over the entire travel. Release the piston rod and check that it returns to the fully extended position in a smooth manner.

(7) Check the lower mounting bush for deterioration and if necessary, renew the bush as follows:

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

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

Assembly is a reversal of the dismantling procedure with attention to the following points:

(1) Instal the coil spring in the position noted during dismantling.

(2) Tighten the piston rod nuts to the specified torque.

TO INSTAL

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

5. REAR HUB

Special Equipment Required:
To Remove and Instal — Hub ring nut tool, suitable press and press plates, dial gauge, suitable puller

FOUR WHEEL DRIVE MODELS

To Remove and Dismantle

(1) Ensure that the handbrake is fully applied.

(2) Remove the rear wheel hub caps and brake drum hub retaining nut split pin and loosen the retaining nut and wheel nuts.

(3) Raise the rear of the vehicle and support it on chassis stands, remove the road wheels and the hub retaining nut from the axle.

(4) Remove the axle shafts as described in the Rear Axle section.

(5) Remove the spacer, shaped washer and brake drum hub from the drive shaft noting the installed position of the spacer.

(6) Disconnect the brake pipe from the brake hose on the crossmember, remove the retaining clip and separate the hose from the crossmember. Plug the brake hose and pipe apertures to prevent the entry of dirt.

(7) Remove the retaining bolts and remove the brake backing plate from the trailing arm.

(8) Support the trailing arm and remove the suspension unit lower mounting bolt from the trailing arm.

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

(10) Remove the trailing arm pivot bolt and remove the trailing arm from the vehicle.

(11) Secure the trailing arm in a suitable vice or holding fixture, remove the staking and using the special rear hub ring nut tool remove the ring nut from the trailing arm.

(12) Using a soft headed hammer drive the hub drive shaft, inner bearing cone and spacer, where fitted, from the trailing arm.

(13) Using a suitable screwdriver, prise the oil seal from the outer side of the trailing arm and remove the outer bearing cone. Discard the oil seal.

NOTE: If the hub drive shaft bearings are being removed for repacking only it will not be necessary to remove the inner and outer bearing cups.

(14) Using a suitable press and press plates, support the trailing arm and position a suitable drift or tube on the outer bearing cup and press the cups and spacer from the trailing arm. Note the installed position of the cups and their mating cones.

(15) Using a suitable press and press plates support the inner bearing cone and drive shaft and press the bearing cone and spacer, where fitted, from the drive shaft. Discard the bearing.

(16) Using a suitable screwdriver prise the oil seal from the interior of the rear hub ring nut. Discard the oil seal.

To Check and Inspect

(1) Thoroughly clean all parts in a suitable solvent.

(2) Check the bearing cones and cups for wear and damage, renew as necessary.

NOTE: Do not spin the bearings with compressed air as damage to the bearings and or injury to the operator may result. Individual components of bearings should not be renewed separately. If any component of the bearing is faulty the complete bearing must be renewed.

(3) Check the hub drive shaft for spline damage, bend and wear, renew as necessary.

(4) Check the ring nut for wear and damage, renew as necessary.

(5) Check the trailing arm pivot bushes for wear and damage, renew as necessary. Refer to the Trailing Arm heading for the renewal procedure.

Check the trailing arm for wear and damage. Pay particular attention to the bearing aperture surface.

To Assemble and Instal

(1) Lubricate the bearings by holding a liberal amount of suitable grease in the palm of one hand and kneading the side of the bearing down through the grease. During the kneading process turn the bearing approximately 20 deg at a time until the roller and cage section is full of grease.

(2) Using a suitable press and press plates, support the inner bearing cone, position the hub drive shaft and press the drive shaft into the bearing until it is positioned as noted on removal. Where applicable instal the inner spacer.

NOTE: Ensure that pressure is only applied to the inner race of the bearing cone to avoid damage to the bearing.

(3) Using a suitable press and press plates, support the trailing arm and position the outer bearing cup and a suitable drift or tube on the cup. Press the cup into the trailing arm until it is positioned as noted on removal.

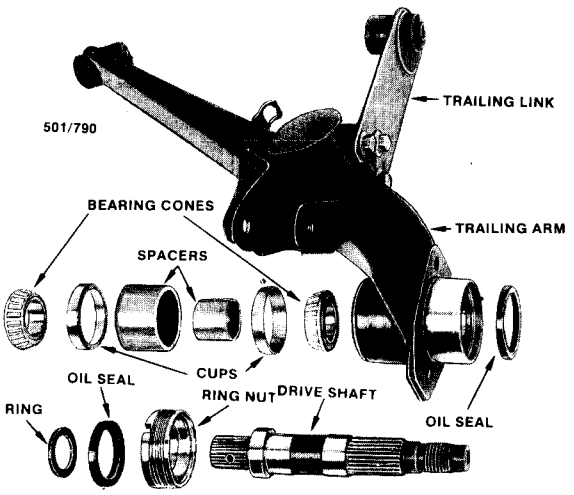
(4) Using a similar procedure, instal the spacer, the inner bearing cup into the trailing arm as noted on removal.

(5) Apply the recommended grease to the cups in the trailing arm. Refer to the Lubrication and Maintenance section.

(6) Instal the hub drive shaft and inner bearing cone to the trailing arm.

(7) Using a suitable drift or tube instal the outer bearing cone to the drive shaft and trailing arm while supporting the drive shaft.

(8) Using a suitable drift, instal a new oil seal into the ring nut.



Dismantled view of four wheel drive rear hub components, 1986 model shown.

Instal the ring nut to the trailing arm and using the hub ring nut tool tighten the nut to Specifications and secure the nut by staking the trailing arm housing.

(9) Using a suitable drift, instal the new oil seal to the outer side of the trailing arm.

(10) Instal the trailing arm to the crossmember and the trailing link and instal the retaining bolts and nuts loosely.

(11) Instal the brake backing plate assembly to the trailing arm and instal the retaining bolts and nuts and tighten to Specifications.

(12) Remove the plugs from the brake pipe and hose and instal the hose to the crossmember and secure with the retaining clip.

(13) Instal the brake pipe to the hose and tighten securely. Instal the brake drum hub, shaped washer, spacer and retaining nut to the axle.

NOTE: Ensure that when the spacer is installed, the painted front face is towards the retaining nut.

(14) Bleed the brake system. Refer to the Brakes section.

(15) Have an assistant apply the footbrake and tighten the hub retaining nut to Specifications. Tighten the retaining nut a further 30 degrees maximum and instal the retaining split pin.

(16) Instal the axle shafts as described in the Rear Axle section.

(17) Tighten the trailing arm to trailing link retaining bolts and nuts to Specifications.

(18) Using a dial gauge, secure it to the trailing arm with its plunger at zero and against the end face of the hub drive shaft. Ensuring the brake shoes are not dragging on the drum, measure the hub end float of the drive shaft. If the hub end float is not within Specifications, the hub retaining nut, bearings and bearing spacers will require checking.

(19) When complete instal the road wheels and lower the vehicle to the ground.

(20) Connect the suspension unit to the trailing arm and instal the lower mounting bolt. Tighten the trailing arm pivot bolt and the suspension unit lower mounting bolt to the specified torque.

TWO WHEEL DRIVE MODELS

To Remove and Dismantle

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

(2) Using a suitable screwdriver, remove the cap from the centre of the hub. Discard the 'O' ring.

(3) Straighten the lockwasher and remove the nut, lockwasher and plate from the end of the stub axle.

(4) Slide the hub assembly off the stub axle, using care not to drop the outer bearing cone.

(5) Where necessary, use a suitable puller, to withdraw the spacer and the inner bearing cone from the stub axle. Discard the spacer 'O' ring.

NOTE: It may be necessary to move the spacer and the inner bearing cone slightly with a screwdriver to gain space for the puller.

(6) If the bearings are to be renewed, suitably support the hub assembly and tap out the inner and outer bearing cups using a soft drift and a hammer. The removal of the inner bearing cup will force the seal out of the hub. Discard the seal.

NOTE: If the hubs are dismantled only to renew the grease in the bearing it is not necessary to remove the bearing cups. The seal can be removed with a suitable screwdriver.

(7) Remove all the old grease and thoroughly wash all the components in a suitable cleaning solvent.

NOTE: Do not spin the bearing cones with compressed air as damage to the bearings and/or injury to the operator may result. If any part of a bearing is faulty the complete bearing must be renewed.

To Check and Inspect

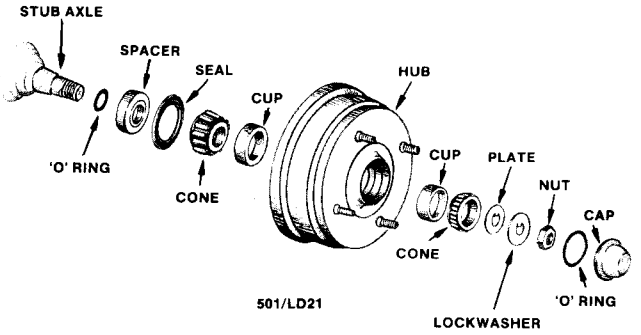
(1) Inspect the stub axle for cracks, overheating, wear on the bearing surfaces and thread damage.

(2) Inspect the bearing cups, cone rollers, cone inner race and roller cage for pitting, cracks, discolouration due to heat, and wear, and discard any bearing that is damaged.

To Assemble and Instal

(1) If removed, instal the outer bearing cups into the hub using a soft drift and a hammer. Instal the cups with the tapers facing the outside.

(2) Instal a new seal into the inner end of the hub. Correctly seated, the outer side of the seal should be level with the end of the hub. Apply a small amount of suitable grease to the seal lip.



Schematic diagram of the two wheel drive rear hub components.

(3) Lubricate the bearing cones by holding a liberal amount of suitable grease in the palm of one hand and kneading the side of the bearing cone down through the grease. During the kneading process turn the bearing cone approximately 20 deg at a time until the roller and cage section is full of grease.

(4) Instal the spacer 'O' ring, the spacer and the inner bearing cone on the stub axle with the stepped face of the spacer towards the bearing cone.

(5) Smear approximately 30 g of suitable grease inside the hub aperature and slide the hub onto the stub axle.

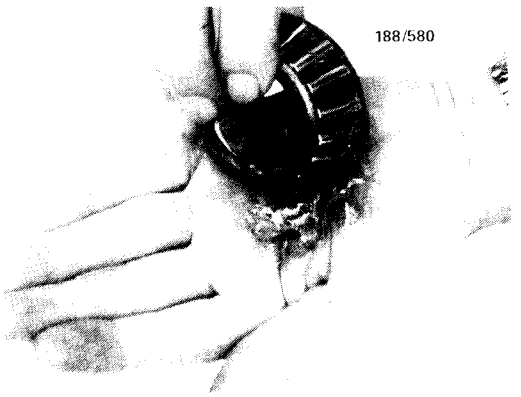
(6) Instal the outer bearing cone, plate, lockwasher and nut onto the end of the stub axle.

(7) Tighten the nut to the specified torque. Loosen the nut slightly and rotate the hub to seat the bearings. Loosen the nut $\frac{1}{8} - \frac{1}{10}$ turn and using a spring balance attached to a wheel stud measure the force required to start the hub turning. The force must be to Specifications.

NOTE: The spring balance must be pulled at 90 deg to the line between the centre of the stub axle and the centre of the stud.

(8) Adjust the stub axle nut until the correct starting force is obtained and bend the lockwasher over the flat on the nut.

(9) Instal the cap to the centre of the hub using a new 'O' ring.



Pack the hub bearings by thoroughly working grease between the rollers and the inner race and roller cage.