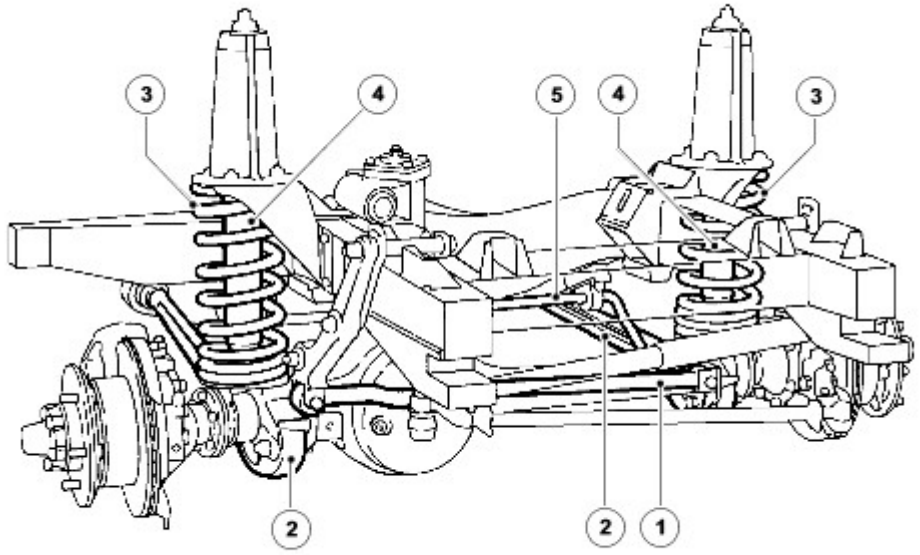
Published: Feb 14, 2006

Front Suspension

Front suspension



J6268

Item	Part Number	Description
1		Panhard rod
2		Radius arms
3		Coil springs
4		Shock absorbers
5		Stabilizer bar

Description

The front suspension design allows maximum wheel travel and axle articulation providing good ground clearance without loss of traction or directional stability.

Long radius arms are fitted to the front axle and provide maximum axle articulation which is vital for off road performance. The radius arms are secured to fabricated mounting brackets welded to the front axle. Flexible rubber bushes are used on a stem end joint to secure the rear of the radius arms to mountings on the chassis cross member.

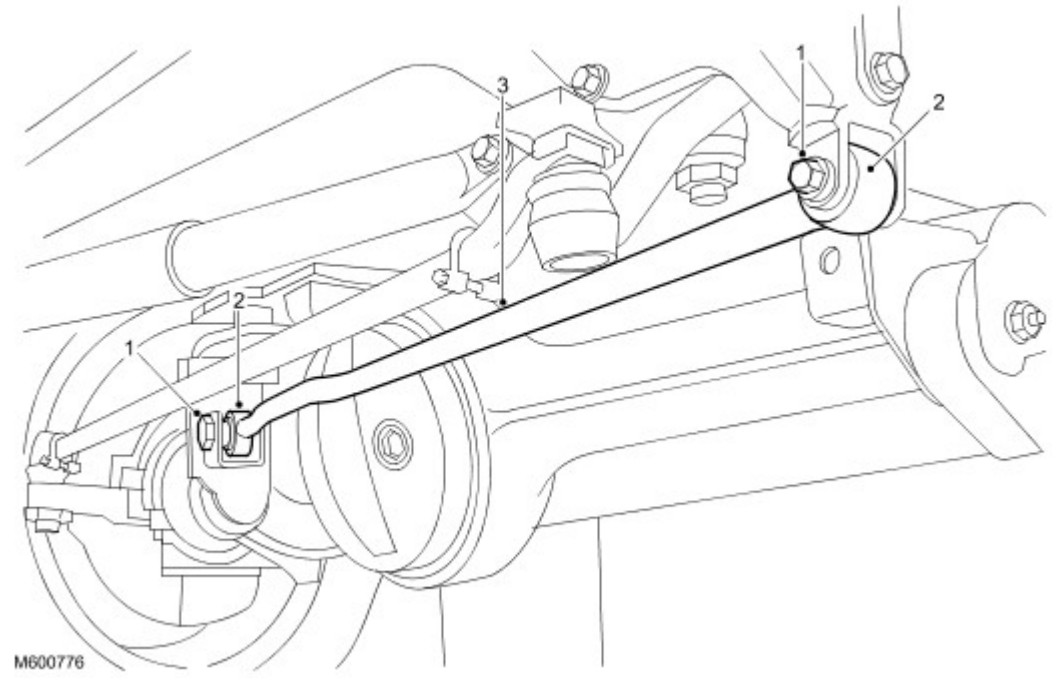
A Panhard rod, which ensures that the front axle remains centrally located, is fitted transversely and also uses ferrule rubber bush mountings at both axle and chassis locations.

Two rubber bearing bushes, with retaining straps, secure the rear of the stabilizer bar to the chassis mountings, while bushed links support the front of the bar to the front axle.

Conventional long travel coil springs and hydraulic shock absorbers are used to control body movement in all conditions. The shock absorbers are secured to fabricated towers which are bolted to the chassis. The upper and lower fixings use a single location stud with flexible rubber bushes, support washers and securing nuts. Retaining plates are used to secure the coil springs to the fabricated towers and axle mountings.

Rubber bump stops are fitted underneath the chassis, adjacent to the front road springs, and prevent possible damage that could occur should there be excessive axle to chassis movement.

Front suspension 02MY



Item	Part Number	Description
1		Bolts
2		Bushes
3		Panhard rod

Changes have been incorporated to improve the durability of the suspension. The current Panhard rods are forged. New Panhard rods are introduced which are fabricated from tubular steel and are handed.

The rods are fitted with larger bushes which use M16 bolts in place of the M14 bolts. The torque for the new bolts is raised to 230 Nm (170 lbf.ft).

The Panhard rod support brackets are now fabricated from upgraded steel which allows the higher torque figure to be applied to the fixing bolts.

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Front Stabilizer Bar (60.10.01)

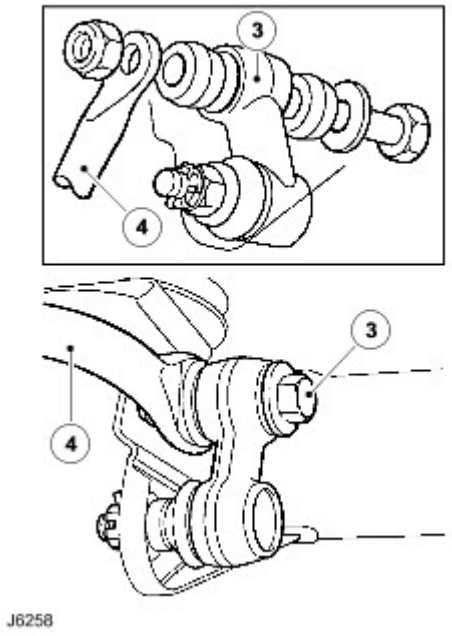
Removal

1 . Mark for reassembly position of rubber bushes on stabilizer bar.

2 . Remove 4 nuts, bolts and washers securing both stabilizer bar bush straps to chassis mounting brackets.

3 . Remove nuts, bolts, washers and rubber bushes securing stabilizer bar to both links

4 . Remove stabilizer bar.



Installation

1 . Position bushes on stabilizer bar. Ensure split points towards axle on RH bush and away from axle on LH bush.

2 . Instal stabilizer bar with two straps. To ensure correct fit angled sides of bar should point down. Loosely instal the bolts, washers and nyloc nuts.

3 . Instal bolt, washers and rubber bushes. Using new nuts fit stabilizer bar to links and tighten to 68Nm (50 lbf.ft).

4 . Tighten nuts securing straps to 30Nm (22lbf.ft).

Published: Jul 12, 2006

Front Stabilizer Bar Link (60.10.02/60.10.04)

Removal

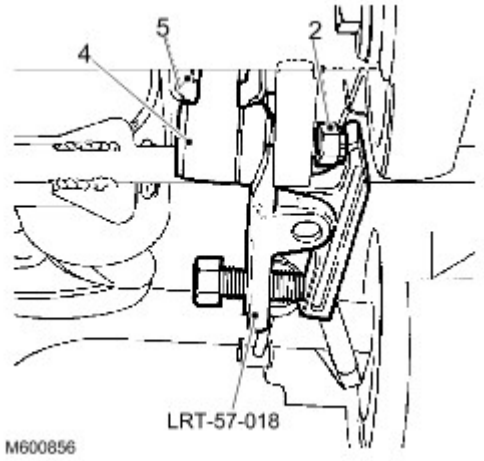
1 . Raise vehicle on ramp.

2 . Remove 2 nuts, bolts, washers and rubber bushes from ball joint links.

3 . Remove cotter pin and loosen castellated nut a few turns.

4 . Release link joint using tool LRT-57-018 as shown.

5 . Remove castellated nut and link.



Installation

1 . Fit link and castellated nut. Ensure ball joint link arm points up. Tighten nut to 40 Nm (30 lbf/ft) and fit new cotter pin.

2 . Align stabilizer bar to links.

3 . Fit bolts, washers and rubber bushes using new self locking nuts and secure stabilizer bar to links. Tighten fixings to 68 Nm (50 lbf/ft).

4 . Lower vehicle.

Published: Apr 7, 2008

Panhard Rod (60.10.10)

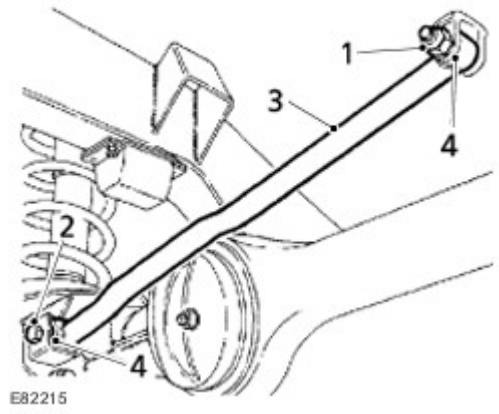
Removal

1 . Remove fixings at mounting arm.

2 . Remove fixings at axle bracket.

3 . Remove panhard rod.

4 . Using a suitable length of steel tubing, press out flexible bushes. Ensure tubing locates on outer edge of bush and not on rubber inner.



Installation

1 .

CAUTION: Apply pressure to outer edge of bush, and not rubber inner.

Install replacement bushes.

2 . Install panhard rod to axle bracket and mounting arm. Tighten chassis fixing (1) to 200 Nm (148 lbf.ft). Tighten axle fixing (2) to 250 Nm (184 lbf.ft).

Note: If you are re-using fixings on a vehicle built prior to VIN 735937, then tighten the axle fitting to 250 Nm (184 lbf.ft) and the chassis fixing to 230 Nm (170 lbf.ft). If a new fixing is used on any vehicle, then use the torque settings of 200 Nm and 250 Nm, respectively.

Published: May 25, 2006

Spring (60.20.11)

Removal

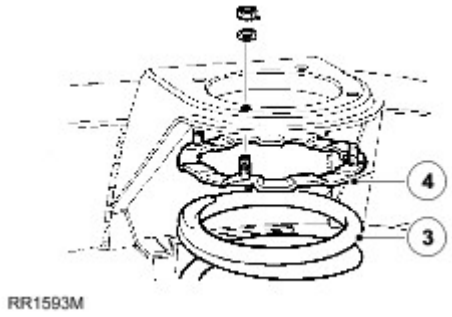
1 . Remove front shock absorber.
For additional information, refer to Front Shock Absorber (60.30.02)

CAUTION: Avoid over stretching brake hoses. If necessary, loosen hose connector locknuts to allow hoses to follow axle.

2 . Lower axle sufficient to free road spring.

3 . Withdraw road spring.

4 . Withdraw shock absorber bracket securing ring.



Installation

1 . Install shock absorber bracket retaining ring. Retain in position with a nut.

2 . Position road spring and raise axle.

3 . Remove nut retaining securing ring.

4 . Install front shock absorber.
For additional information, refer to Front Shock Absorber (60.30.02)

Published: Apr 24, 2006

Front Wheel Bearing and Wheel Hub (60.25.14)

Removal

1 . Raise front of vehicle.

2 . **WARNING: Support on safety stands.**

Remove front road wheel.

3 . Pull back front brake caliper jump hose shield and clamp brake hose.

4 . Position container collect brake fluid.

5 . Loosen brake pipe to jump hose union and disconnect.

CAUTION: Use 2 spanners when loosening or tightening unions.

6 . Remove 2 bolts securing brake caliper to hub.

7 . Remove brake caliper.

8 . Remove dust cap.

9 . Remove circlip and shim(s) from drive shaft.

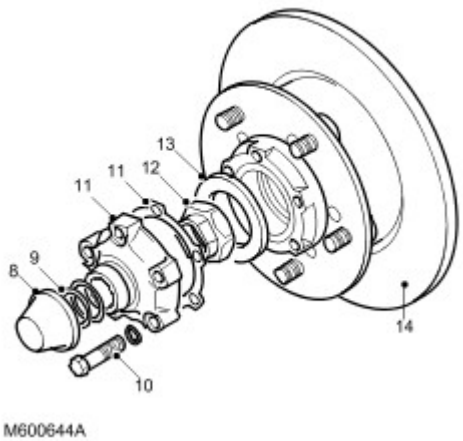
10 . Remove and discard 5 bolts securing driving member to hub.

11 . Remove driving member and discard gasket.

12 . Knock back staking and using a suitable socket, remove and discard hub nut.

13 . Remove washer from hub.

14 . Remove hub and brake disc assembly complete with bearings.



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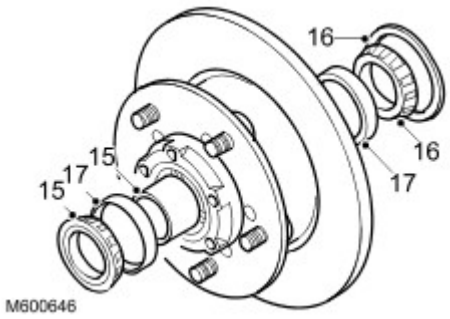
15 . Remove outer bearing and spacer from hub.

16 . Remove grease seal and inner bearing from hub.

17 . Remove inner and outer bearing tracks from hub.



Installation

1 . Clean hub and bearing locations.

2 . Instal inner and outer bearing tracks to hub.

3 . Pack inner bearing with grease and fit to hub.

4 . Instal new seal flush with rear face of hub using LRT-54-003 and LRT-99-003.

5 . Clean stub axle.

6 . Pack outer bearing with grease, fit spacer and bearing to hub.

7 . Position LRT-54-019 over hub nut threads on axle casing.

8 . Instal hub assembly to stub axle, remove LRT-54-019.

9 . Instal washer and new hub nut and tighten to 30 Nm (22 lbf.ft).

10 . Rotate and push/pull hub to settle bearings. Tighten hub nut to 210 Nm (150 lbf.ft).

11 . To check hub assembly end float, mount a dial gauge using bracket LRT-99-503 to driving member bolt hole.

12 . Ensure dial gauge is contacting hub nut face.

13 . Move hub assembly in and out noting dial gauge reading.

14 . If end float is present refer to table for correct spacer and change spacer as necessary.

End float (mm)	Spacer size (mm)	Colour code
0.00	15.5	Purple
0.025	15.4	Yellow
0.050	15.4	Yellow
0.075	15.4	Yellow
0.10	15.3	Red
0.125	15.3	Red
0.150	15.3	Red
0.175	15.2	Blue
0.200	15.2	Blue

0.225	15.2	Blue
0.250	15.2	Blue
0.275	15.1	Green
0.300	15.1	Green
0.325	15.1	Green
0.350	15.1	Green
0.375	15.0	Black
0.400	15.0	Black
0.425	15.0	Black
0.450	15.0	Black
0.475	14.9	White
0.500	14.9	White
0.525	14.9	White
0.550	14.9	White

15 . When no end float is evident, remove the dial gauge and mounting bracket.

16 . Stake the hub nut.

17 . Clean hub and axle shaft faces.

18 . Instal new driving member gasket.

19 . Position driving member to hub and tighten new bolts to 65 Nm (48 lbf.ft).

20 . Instal original shim(s) to drive shaft and secure with circlip.

21 . Position brake caliper to hub, align fixings, instal bolts and tighten to 82 Nm (60 lbf.ft).

22 . Remove plugs from brake pipe connections.

23 . Connect brake pipe union to jump hose and tighten union.

CAUTION: Use 2 spanners when tightening or loosening unions.

24 . Remove brake hose clamp from jump hose.

25 . Bleed brake system.
For additional information, refer to Brake System Bleeding (70.25.02)

26 . Instal road wheel, remove axle stand and tighten wheel nuts to 130 Nm (95 lbf.ft).

27 . Operate foot brake to locate brake pads before taking vehicle on road.

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Wheel Studs (60.25.22)

Removal

1 . Remove wheel.
For additional information, refer to Wheel and Tire (60.25.06)

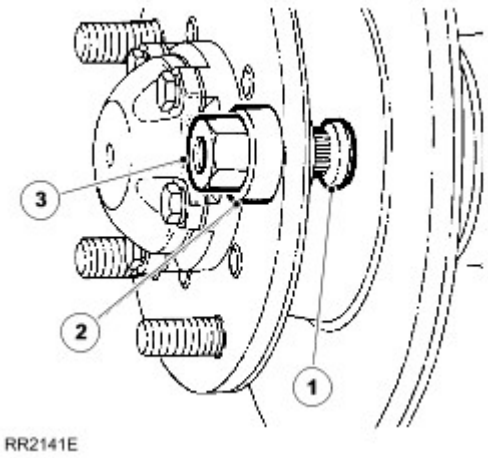
2 . Drive stud out of driveshaft flange.

Installation

1 . Position stud in flange.

2 . Install a suitable spacer over stud.

3 . Using a M16 x 1.5 nut, a slave wheel nut is suitable, pull stud into flange until shoulder of stud abuts flange.



4 . Refit wheel.
For additional information, refer to Wheel and Tire (60.25.06)

Published: Apr 7, 2008

Front Shock Absorber (60.30.02)

Removal

1 . Loosen road wheel retaining nuts.

2 . Support chassis on stands and remove road wheel.

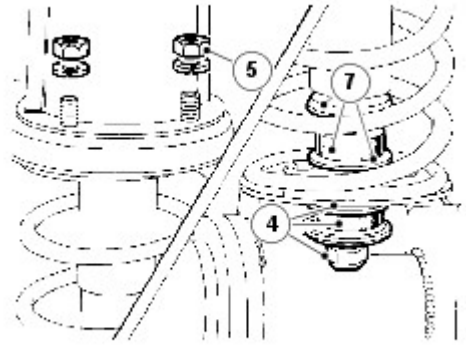
3 . Support axle weight with jack.

4 . Remove shock absorber lower fixing and withdraw cupwasher, rubber bush and seating washer.

5 . Remove four shock absorber bracket fixings.

6 . Withdraw shock absorber and bracket assembly.

7 . Withdraw lower seating washer, rubber bush and cupwasher.



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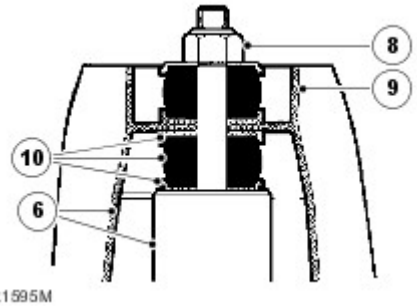
8 . Remove fixings, shock absorber to mounting bracket.

9 . Withdraw mounting bracket.

10 . Lift off top seating washer, rubber bush and cupwasher.



RR1595M

Installation

1 . Assemble shock absorber components.

2 . Position shock absorber, complete with bracket and secure with 4 fixings.

 **CAUTION: When tightening the nuts on both the upper and lower fixings, ensure that at least two threads are visible on the section of the bolt that extends beyond the nut.**

3 . Secure shock absorber lower fixing.

4 . Install road wheel, remove chassis stands and jack. Tighten wheel nuts to correct torque:

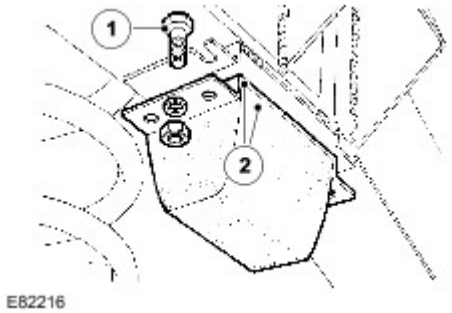
1) Alloy wheels - 130 Nm (96 lbf.ft)
2) Steel wheels - 100 Nm (80 lbf.ft)
3) Heavy duty wheels - 170 Nm (125 lbf.ft)

Published: Feb 6, 2007

Bump Stop

Removal

1 . Remove the bump stop.



Installation

1 . Position bolts in slots in chassis brackets.

2 . Install the bump stop, secure with washers and nuts.

Published: Apr 14, 2006

Radius Arm (60.35.15)

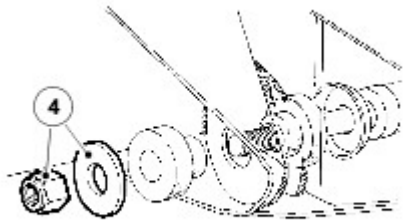
Removal

1 . Loosen road wheel retaining nuts.

2 . Raise front of vehicle. Support chassis on stands and remove wheel.

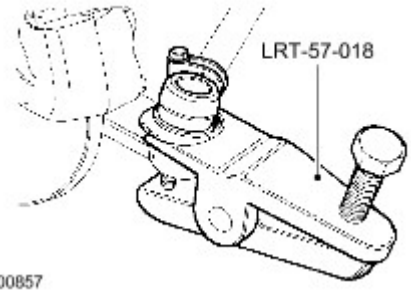
3 . Support front axle weight with jack.

4 . Remove radius arm to chassis side member fixings.



RR983

5 . Disconnect track rod at ball joint using tool LRT-57-018.



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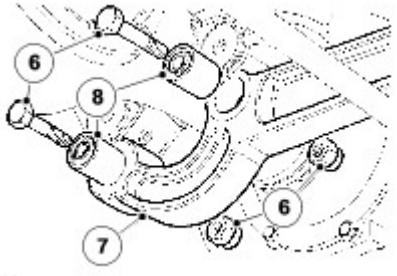
6 . Remove fixings, radius arm to axle.

7 . Lower radius arm front end to clear axle and remove from vehicle.

8 . Using suitable length of steel tubing, press out flexible bushes.



RR1592

Installation

1 . Press in replacement bushes.

 **CAUTION: When pressing in new bushes press on outer edge of bush and not rubber inner.**

2 . Instal radius arm to axle mounting.

3 . Instal track rod at ball joint.

4 . Instal radius arm to chassis. Tighten bolts to 176 Nm (130 lbf.ft).

5 . Fully tighten radius arm to axle fixings to 197 Nm (145 lbf.ft).

6 . Instal road wheel, remove chassis stands and jack. Tighten wheel nuts to correct torque:

1) Alloy wheels - 130 Nm (96 lbf.ft)
2) Steel wheels - 100 Nm (80 lbf.ft)
3) Heavy duty wheels - 170 Nm (125 lbf.ft)