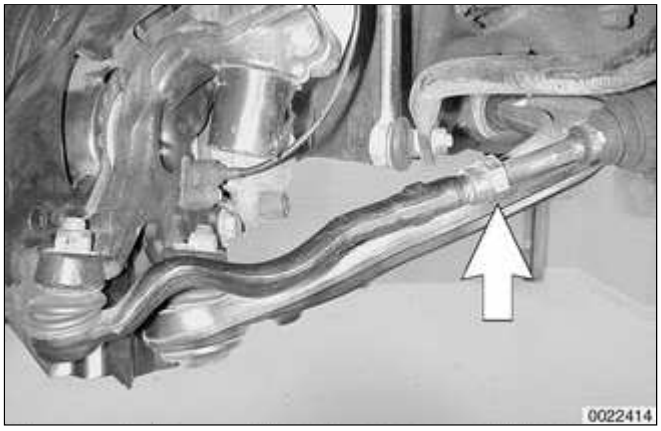
- *Note correct placement of inner taper on locking ring*



➢ Loosen outer tie rod end lock nut (**arrow**).

- Unscrew tie rod end from tie rod shaft.

- Installation is reverse of removal.

- Make sure all threaded parts are clean. Use antiseize paste on inner tie rod threads.

- Use new self-locking nuts, where applicable.

- Use tie rod measurement (**A**) to set toe.

- Have car professionally aligned.

Tightening torques	
Outer tie rod end to steering arm replace self locking nut	65 Nm (48 ft-lb)
Outer tie rod end lock nut	45 Nm (33 ft-lb)

Tie rod or rack boot, replacing

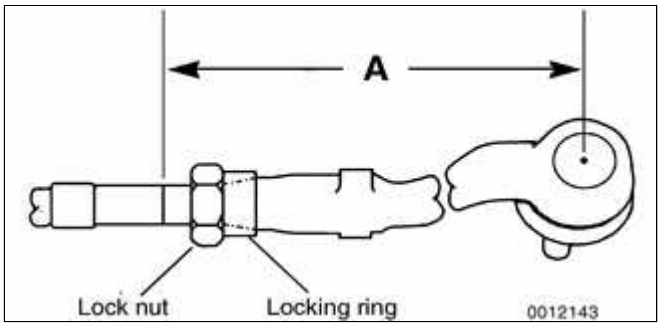
- Raise front of car. Remove splash shield from under engine.

WARNING!

Make sure the car is firmly supported on jack stands designed for the

purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.

- Remove outer tie rod end self-locking nut, and separate outer tie rod end ball joint as described above.



- Make a reference measurement of outer tie rod end to tie rod. Record measurement.

Note:

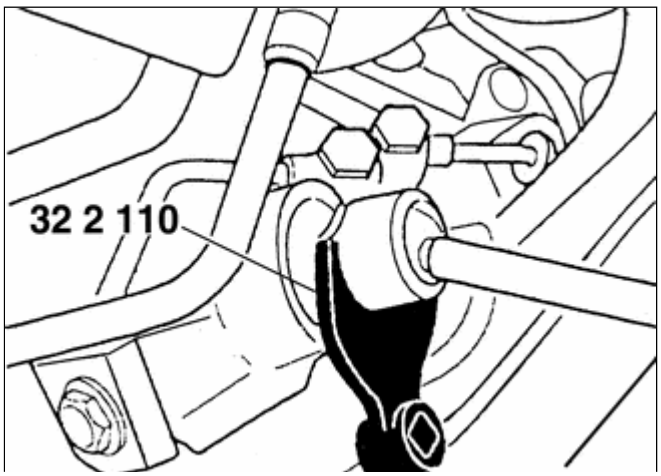
- *Accurate measurement of the tie rod end with reference to the tie rod will help approximate correct wheel alignment when new parts are installed.*

- *Note correct placement of inner taper on locking ring*

- Cut rack boot band clamp and slide bellows back. Inspect boot for any sign of damage. Replace if necessary.

Note:

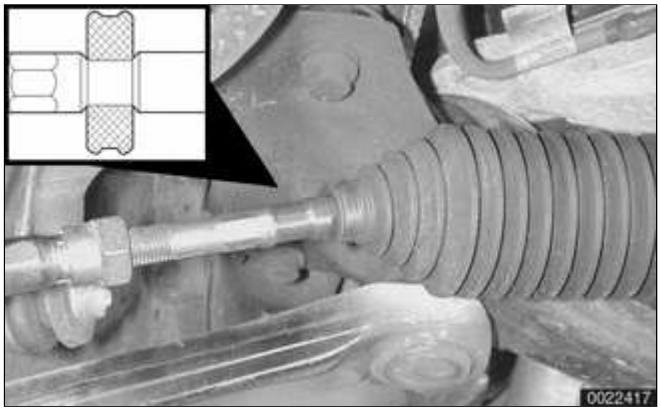
New rack boot kit comes with new band clamp.



- Using BMW special tool 32 2 110 remove inner tie rod shaft from steering rack.

CAUTION!

To avoid damage to steering rack while removing tie rod, turn steering until end of rack is as far as possible in housing



- When reassembling, grease tie rod taper so that rack boot support buffer or small end of rack boot (**inset**) slides on tie rod when tie rod is tightened, preventing rack boot from twisting.

- Installation is reverse of removal, noting the following:

- Make sure all threaded parts are clean. Replace self-locking nuts.

- Install outer tie rod end to new tie rod using reference measurement (**A**) recorded earlier.

- Have car professionally aligned.

Tightening torques	
Outer tie rod end to steering arm	65 Nm (48 ft-lb)
Outer tie rod end lock nut	45 Nm (33 ft-lb)
Inner tie rod to steering rack	100 + 10 Nm (74 + 7 ft-lb)

Wheel Alignment

Proper handling, stability, tire wear and driving ease depend upon the correct alignment of all four wheels. The front axle is aligned in relation to the rear axle, then the front wheels are aligned in relation to one another. This is known as a four-wheel or thrust-axis alignment.

The BMW E46 uses a sophisticated multi-link suspension at the front and rear of the car. Proper alignment requires computerized alignment equipment.

Alignment specifications only apply under the following conditions:

- Correct wheels and tires are installed, in good condition, and are at the correct inflation pressures.
- All steering and suspension parts and bushings are undamaged and show no signs of abnormal wear.
- Wheel bearings are in good condition.
- Ride height is in accordance with specifications. See ⇒ 300 Suspension, Steering and Brakes-General
- Car is in normal loaded position.

See ⇒ Table a. Front wheel alignment specifications for front wheel alignment specifications, ⇒ Table b. Rear wheel alignment specifications for rear wheel alignment specifications.

WARNING!

While performing alignment procedures, make sure the car is stable and well supported at all times. Use a professional automotive lift or jack stands designed for the purpose. A floor jack is not adequate support.

Normal loaded position	
Each front seat	68 Kg (150 lb)
Rear seat (center)	68 Kg (150 lb)
Trunk	21 Kg (46 lb)
Fuel tank	full

Table a. Front wheel alignment specifications

Parameter	**Standard suspension**	**All wheel drive suspension**	**Sport suspension**	**Rough road suspension**
Toe angle (total)	0° 14' ± 8'			
Camber (difference between left/right max. 30') track differential angle with 20° lock on inside wheel	-20' ± 20' -1° 34' ± 30'	20' ± 20' -53' ± 30'	43' ± 20' -1° 34' ± 30'	+8' ± 20' -1° 34' ± 30'
Caster (difference between left/right max. 30') with 10 wheel lock with 20 wheel lock	5° 26' ± 30' 5° 37' ± 30'	5° 27' ± 30' 5° 37' ± 30'	5° 36' ± 30' 5° 47' ± 30'	5° 17' ± 30' 5° 27' ± 30'
Front wheel displacement	0° ± 15'			

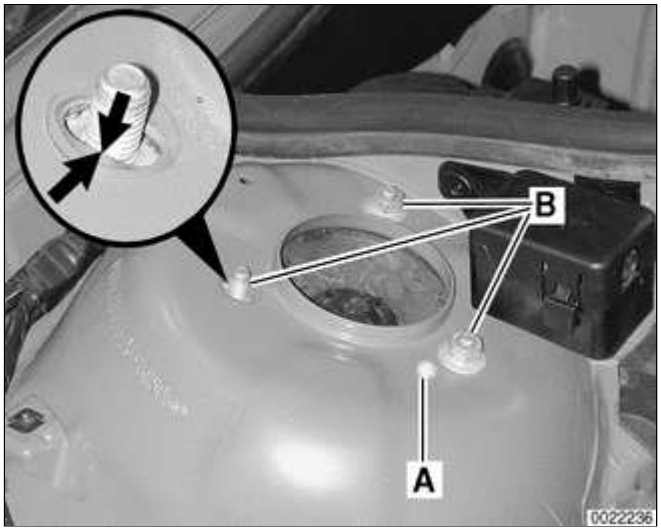
Table b. Rear wheel alignment specifications

Parameter	**Standard suspension**	**All wheel drive suspension**	**Sport suspension**	**Rough road suspension**
Toe angle (total)	0° 16' ± 6'			

Parameter	Standard suspension	All wheel drive suspension	Sport suspension	Rough road suspension
Camber (difference between left/right max. 15') maximum allowable deviation between sides	-1° 30' ± 15'	-1° 15' ± 15'	-2° 04' ± 15'	-46' ± 15'
Geometrical axis deviation	0° ± 6'			

Front wheel camber

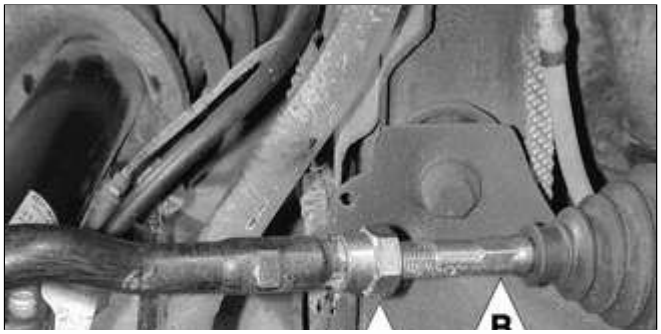
Any change to the camber will also change the toe setting. Always adjust camber prior to adjusting toe.



- Front wheel camber adjustment can be made by driving out factory strut alignment pin (**A**) in upper strut housing.
  - Loosen upper strut mount nuts (**B**).
  - Use BMW special tool 32 3 140 to adjust position of upper strut mount studs in slotted holes (**arrows**).

Tightening torque	
Upper strut mount to body	24 Nm (17 ft-lb)

Front wheel toe



- Front wheel toe is adjusted at tie rod ends:
  - Loosen tie rod lock nut (**A**).
  - Adjust tie rod by turning inner tie rod (**B**) to change length.

Note:

- *Steering rack can be centered by aligning centering mark on steering shaft with lug on steering rack.*
- *To keep steering wheel centered, adjust both tie rods equal amounts.*
- *Make sure the rubber boot on the rack moves freely on the tie rod and does not become twisted.*

Tightening torque	
Tie rod lock nut	45 Nm (33 ft-lb)

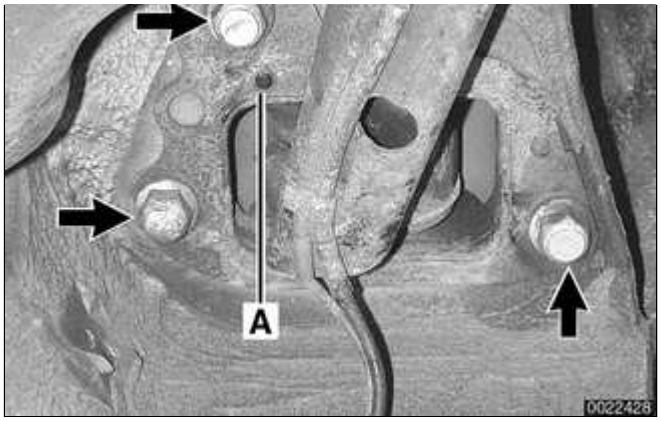
Rear wheel camber

- Rear wheel camber is adjusted at outer end of rear lower control arm using camber adjusting bolt.
  - Make sure bolt remains between two alignment lugs (**arrows**) on end of control arm.
  - Check toe setting as described below.

Tightening torque	
Rear lower control arm to rear trailing arm	77 Nm (57 ft-lb)

Rear wheel toe

- Loosen trailing arm bracket mounting bolts (**arrows**).



- Install BMW special tool 32 3 030 over alignment lug (**A**) and adjacent bolt.

- Use tool to adjust position of bracket.

- Remove tool and tighten trailing arm bracket mounting bolts.

Tightening torque	
Rear trailing arm bracket to body	77 Nm (57 ft-lb)

General

This repair group covers removal and replacement of E46 rear suspension components.

A general description of the rear suspension, ride height specifications and a troubleshooting guide can be found in ⇒ 300 Suspension, Steering and Brakes-General.

Additional component replacement information specific to all wheel drive models can be found in the following repair groups:

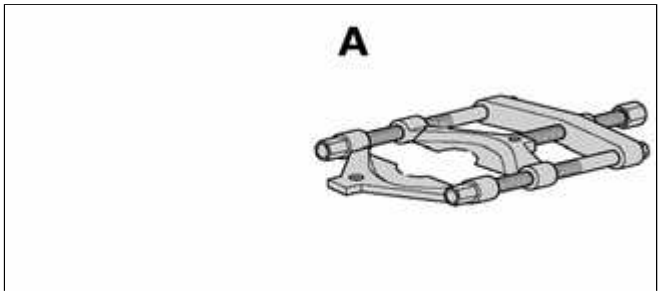
- ⇒ 310 Front Suspension
- ⇒ 311 Front Axle Final Drive
- ⇒ 331 Rear Axle Final Drive

Alignment information can be found in ⇒ 320 Steering and Wheel Alignment.

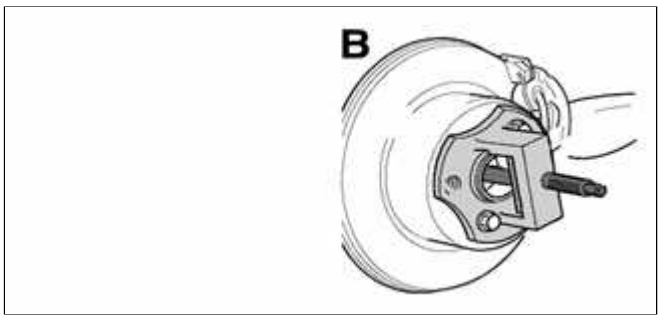
Special tools

Special service tools are required for some of the work described in this repair group. Most of these tools are specialized presses and pullers that might be replaced by standard pullers of various sizes.

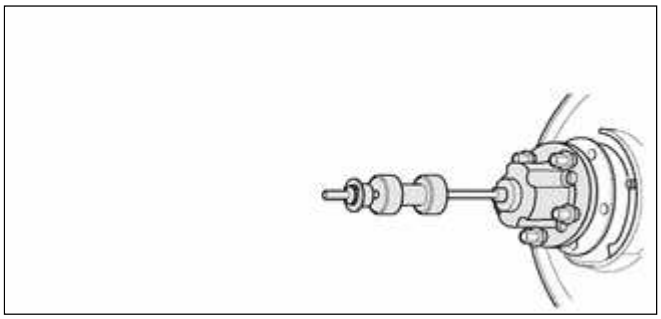
Read the procedures through before beginning any job.



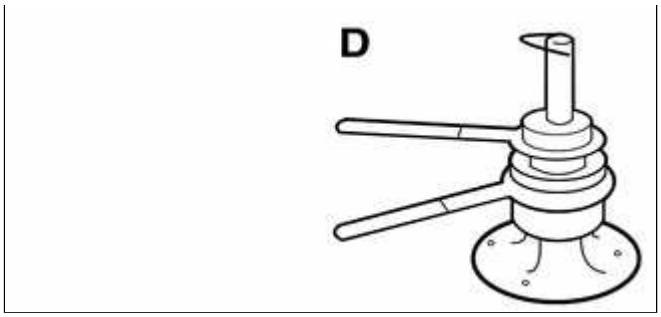
Bearing splitter BMW I 00 7 500



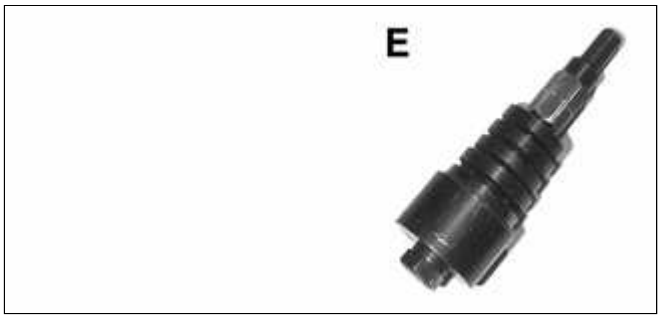
- Drive axle press BMW set 33 2 115/116/119



- Flange puller BMW set 33 2 116/4 201/4 202/4 203



- Inner bearing race puller BMW set 33 4 400



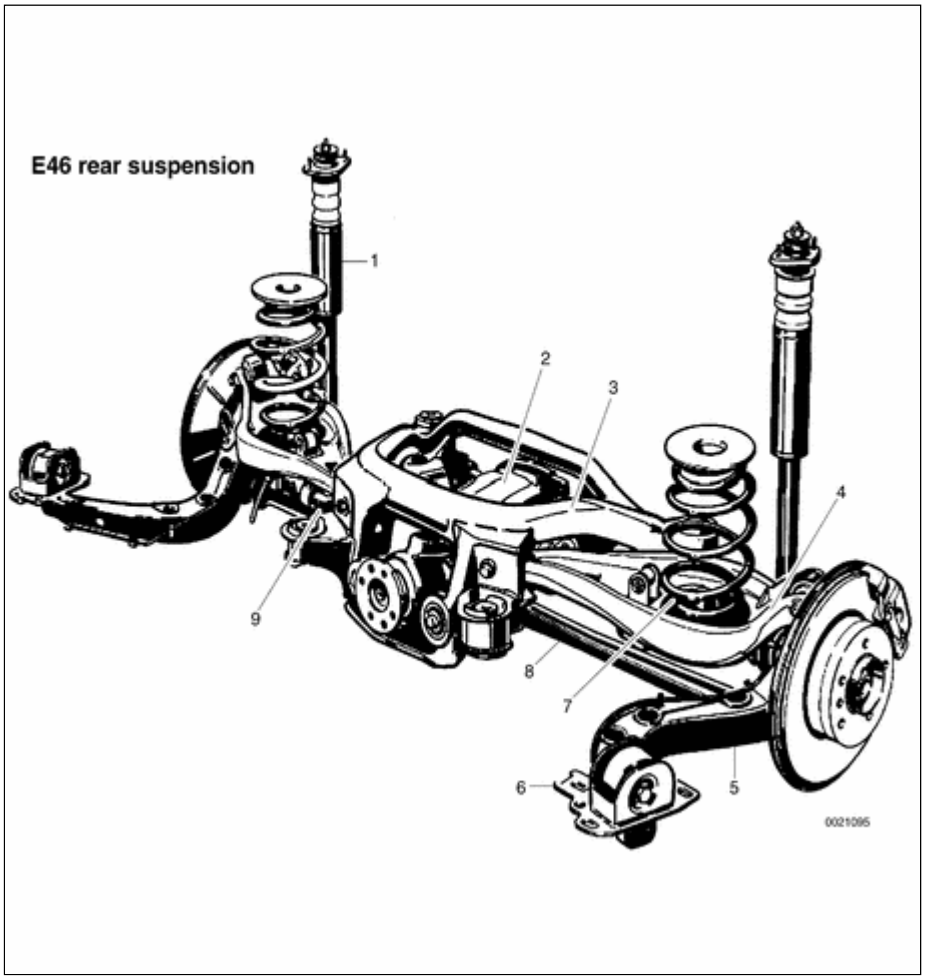
- Wheel bearing extractor B90 (Source: Baum Tools Unlimited)

Rear suspension description

BMW uses an independent rear suspension consisting of an upper and a lower control arm and a trailing arm on each side. The weight of the car is supported by coil springs. There is a rear stabilizer bar attached to the upper control arms. Gas-pressure shock absorbers round out the rear

suspension.

The rear subframe (final drive carrier) supports the rear differential and provides mounting points for the upper and lower control arms. The upper control arm on each side provide the lower spring perch for the coil spring. The upper and lower control arm on each side are attached to the trailing arm. The trailing arms contain the wheel bearings for the rear drive hubs. The rear brake calipers are bolted to the trailing arms.



E46 Rear suspension

1 - Shock absorber

2 - Differential housing

3 - Rear subframe (final drive carrier)

4 - Upper control arm

5 - Trailing arm

6 - Trailing arm bracket

7 - Coil spring

8 - Lower control arm

9 - Stabilizer bar

Rear Shock Absorbers and Springs

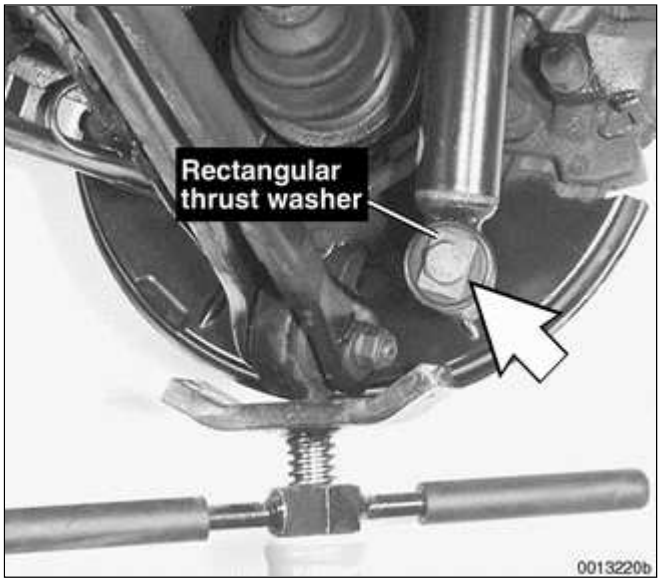
Replace shock absorbers and springs in pairs only.

Rear shock absorber, removing and installing

- Raise car and remove rear wheels.

WARNING!

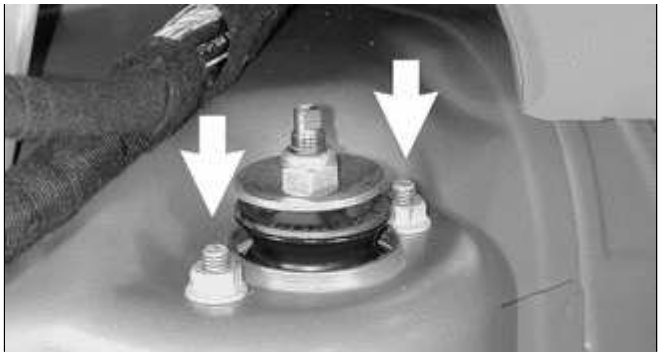
Make sure that the car is firmly supported on jack stands designed for the purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.



➢ Support trailing arm from below using an adjustable jackstand. Remove shock absorber lower mounting bolt (**arrow**).

CAUTION!

The shock absorber prevents the drive axle from dropping too far. Support the trailing arm before removing the lower shock absorber bolt to avoid damage to drive axle CV joints.



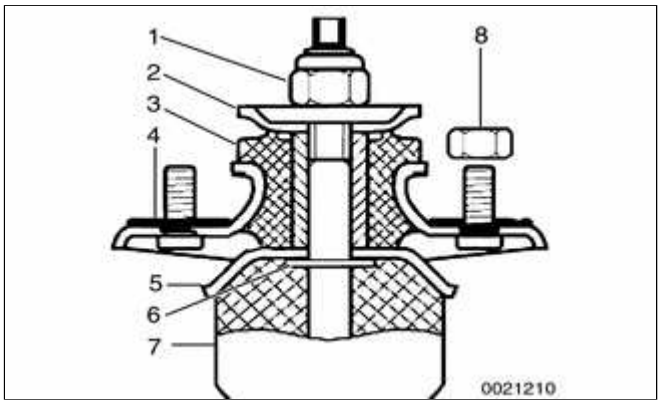
➢ On Sedan or Coupe models: Working in trunk, pry out luggage compartment liner retaining clips. Peel back liner to gain access to upper shock absorber mounting nuts (**arrows**).

- On Convertible models: Open convertible top storage

compartment to access upper shock absorber mount.

- On Sport Wagon models: Working in cargo compartment, remove side trim next to rear seat backrests.

- Support shock absorber from below while removing upper mounting nuts. Lower shock absorber out of wheel housing.



➢ Transfer shock top mounting plate, dust cover (if applicable) and related components to new shock absorber.

1 - Self-locking nut M10 -tighten to 14 Nm (10 ft-lb)

2 - Upper support plate

3 - Top mount

4 - Body seal

5 - Lower support plate

6 - Spacer ring

7 - Rubber bump stop

8 - Self-locking nut M8 -tighten to 24 Nm (17 ft-lb)

- Installation on car is reverse of removal, noting the following:

♦ Make sure all threaded bolts, nuts and mating surfaces are clean.

♦ Install shock absorber into shock tower using a new upper mounting seal and new self-locking nuts.

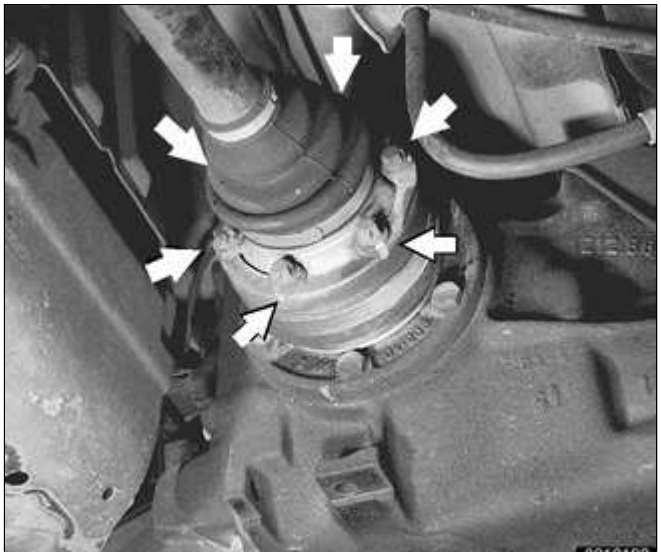
- Make sure rectangular thrust washer on lower mounting bolt is between bolt head and shock absorber rubber.

- Tighten lower shock absorber bolt to its final torque once car is on ground.

Tightening torques	
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm (car in normal loaded position)	100 Nm (74 ft-lb)
Shock absorber to upper mount	14 Nm (10 ft-lb)
Shock absorber upper mount to body M8 self-locking nuts	28 Nm (21 ft-lb)

Coil spring, removing and installing

- Raise car and remove rear wheel.



➢ Remove drive axle to final drive mounting bolts (**arrows**).

- Detach drive axle from final drive.

- Suspend drive axle from chassis using stiff wire.

- Remove fuel tank protective panel.

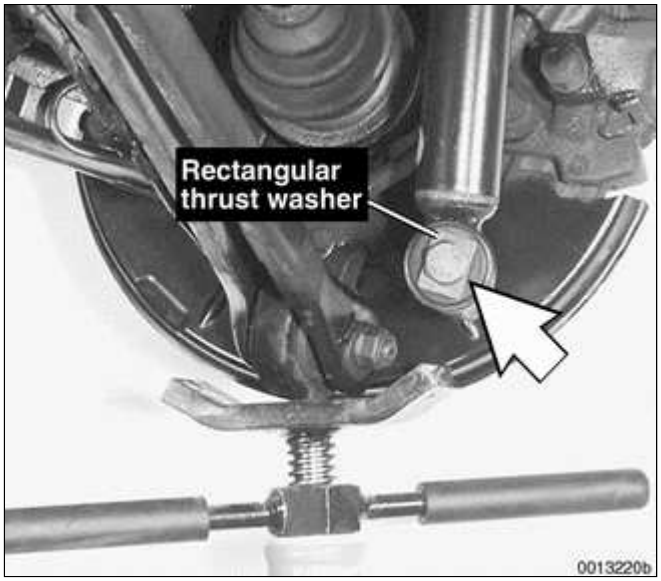
- Detach stabilizer bar from rear

subframe.

- Remove rear brake line bracket mounting bolt (**arrow**). Detach bracket from trailing arm.

CAUTION!

Avoid damaging the brake hose by stretching when the trailing arm is lowered.



- Support trailing arm from below using an adjustable jackstand. Remove shock absorber lower mounting bolt (**arrow**).

  - Lower trailing arm slowly and carefully until the compressed coil spring is fully unloaded. Remove spring.

  - If spring is to be reused:

    - Inspect spring for any surface damage or corrosion.

    - Inspect top and bottom spring seat rubber pads for signs of damage.

    - Replace any parts showing evidence of wear or damage.

Note:

In the "rough road package", the top spring seat pad is 14.5 mm (0.57 in.) thick.

- To install spring:

- Coat top spring pad with anti-friction paste (e.g., tire mounting paste).

- Slowly lift suspension back into position, making sure coil spring is correctly seated in upper and lower spring seats.

- When suspension has been lifted sufficiently, reattach shock absorber to trailing arm. Make sure rectangular thrust washer on lower shock absorber mounting bolt is between bolt head and shock absorber rubber.

- Tighten lower shock absorber bolt to its final torque once car is on ground.

- Remainder of installation is reverse of removal.

Tightening torques	
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm (car in normal loaded	100 Nm (74 ft-lb)

Tightening torques
position)

Rear Suspension Arms, Subframe and Bushings

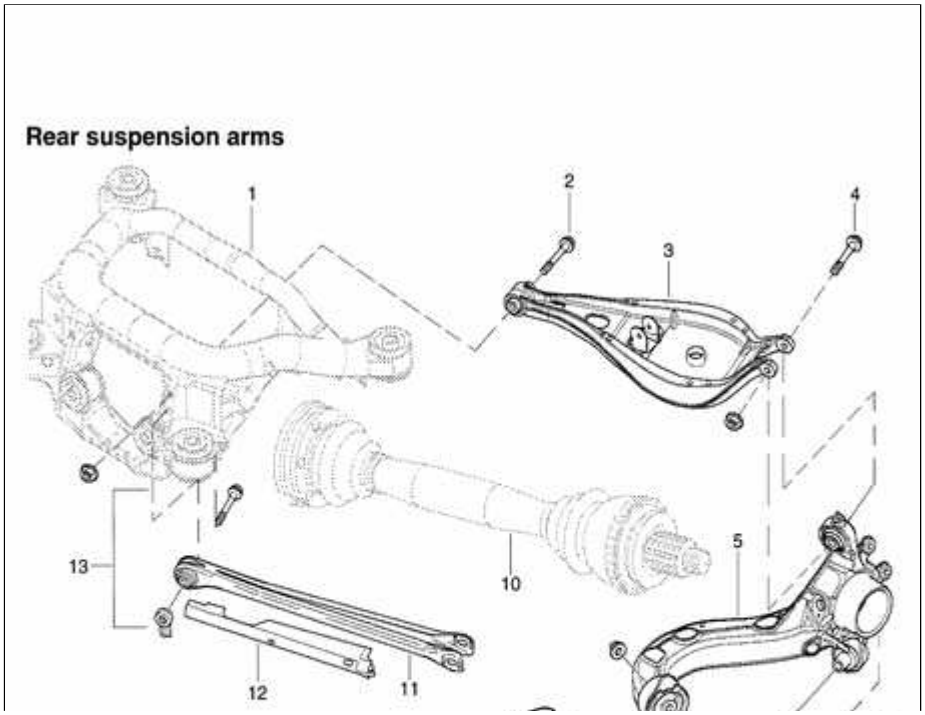
The trailing arms, control arms and their mounting bushings control the position of the rear wheels. A damaged suspension arm or worn bushings will change the rear wheel alignment and may adversely affect handling and stability.

WARNING!

Do not attempt to straighten a damaged suspension arm. Bending or heating may weaken the original part. If the suspension arm shows any signs of damage or excessive corrosion, it must be replaced.

Note:

If a rear brake line is disconnected to remove a trailing arm, the complete braking system must be bled as part of the reinstallation procedure.



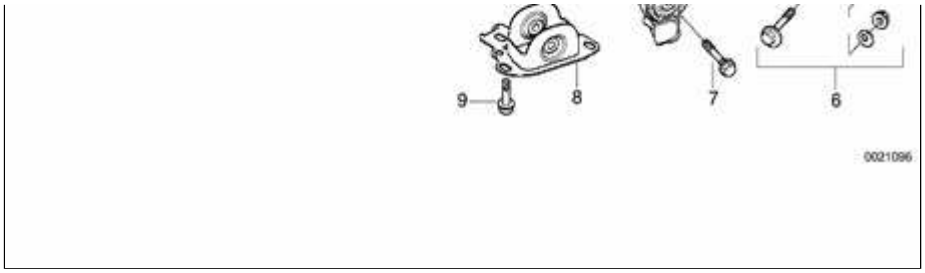
Rear suspension arms, assembly

1 - Rear subframe

2 - Upper control arm inner bolt self-locking M12 nut

♦ tighten to 77 Nm (57 ft-lb)

3 - Upper control arm



4 - **Upper control arm outer bolt self-locking M12 nut**

- tighten to 110 Nm (81 ft-lb)

5 - **Trailing arm**

6 - **Lower control arm eccentric bolt eccentric flat M12 washer self locking M12 nut**

- tighten to 110 Nm (81 ft-lb)

7 - **Trailing arm front bolt self-locking M12 nut**

- tighten to 110 Nm (81 ft-lb)

8 - **Trailing arm front bracket**

9 - **Bracket mounting bolt**

- tighten to 77 Nm (57 ft-lb)

10 - **Drive axle**

11 - **Lower control arm**

12 - **Lower control arm plastic shield**

13 - **Lower control arm inner M12 bolt lock plate**

♦ tighten to 110 Nm (81 ft lb)

Trailing arm, removing and installing

- Raise rear end of car and remove wheel.

WARNING!

Make sure that the car is firmly supported on jack stands designed for the purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.

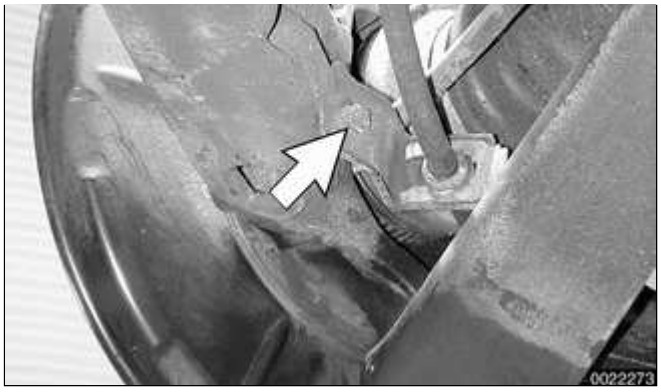
- Remove drive axle as described in ⇒ 331 Rear Axle Final Drive.

- Right side: Detach brake pad sensor connector at brake caliper.

- Remove brake rotor and caliper as described in ⇒ 340 Brakes. Do not remove brake line from caliper. Suspend caliper from body using stiff wire.

- Remove parking brake cable from brake shoe expander. See ⇒ 340 Brakes.

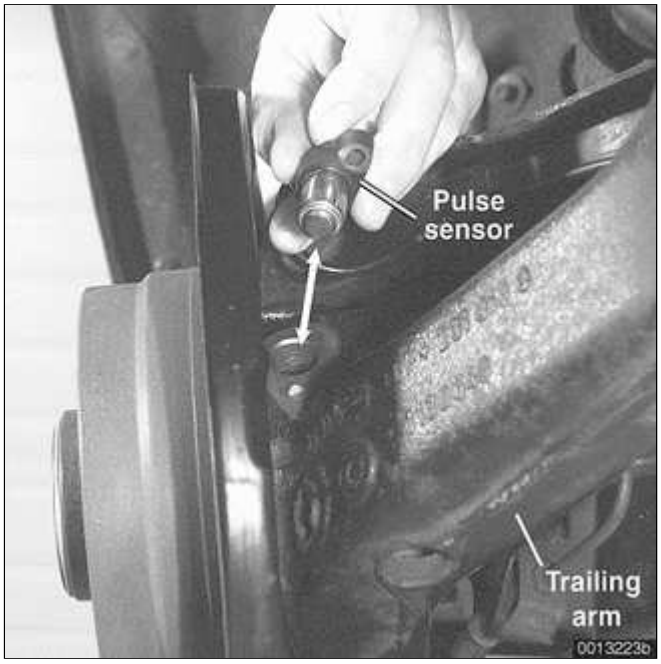
➢ Remove rear brake line bracket mounting bolt (**arrow**). Detach bracket from trailing arm.



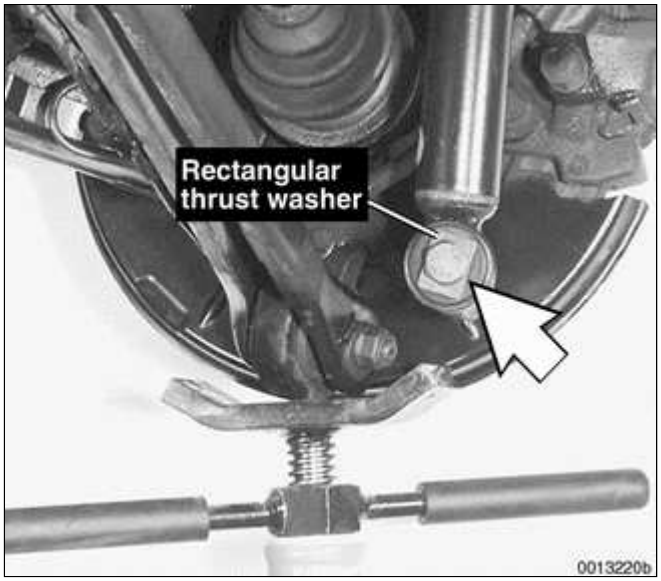
CAUTION!

Avoid damaging the brake hose by stretching when the trailing arm is lowered.

- Remove fuel tank protective panel, if equipped.

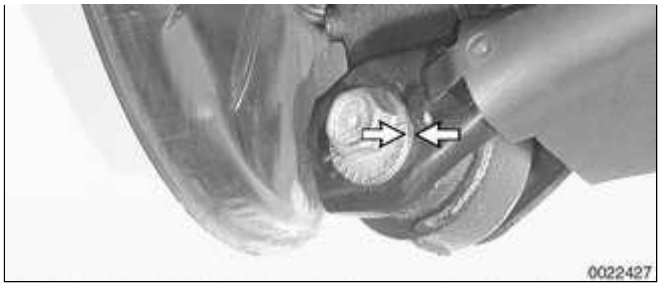


- Remove ABS pulse sensor from trailing arm.
  - Unclip pulse sensor and pad sensor (if applicable) harnesses from control arm and lay aside.

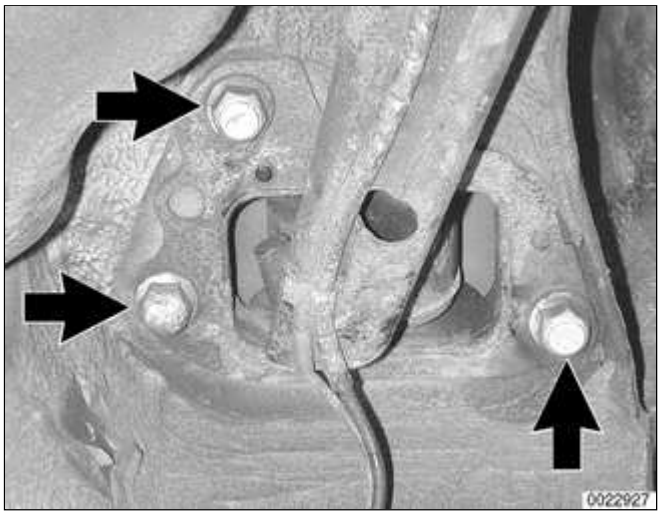


- Support trailing arm from below using an adjustable jackstand. Remove shock absorber lower mounting bolt (**arrow**).
  - Slowly lower suspension until coil spring can be safely removed.

- Mark position (**arrows**) of lower control arm eccentric mounting bolt.

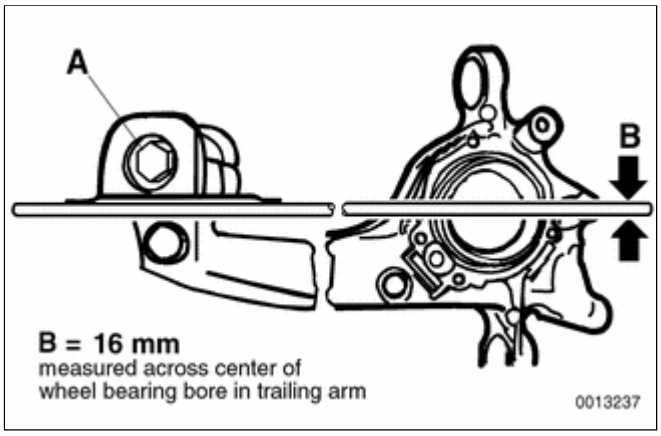


- Unbolt upper and lower control arms from trailing arm. Note direction of bolt insertion in both arms.



➢ To remove trailing arm:

- Make reference marks to locate trailing arm bracket to body in order to maintain alignment specifications.
- Remove trailing arm front bracket mounting bolts (**arrows**).
- Working with trailing arm on workbench, detach front bracket from arm.



➢ When reinstalling, preload trailing arm front bracket bushing:

- Install bolt (**A**) through bracket and arm and install nut finger tight.
- Using 16 mm bar stock as shown in illustration, align base of bracket so that it is parallel with center of wheel bearing bore on trailing arm.
- Torque bracket bolt (**A**).

Tightening torque	
Trailing arm to front bracket	110 Nm (81 ft-lb)

- Remainder of installation is reverse of removal, noting the following:

- Install new rear wheel bearings.
- Insert control arm mounting bolts in direction previously marked.
- Always use new self-locking nuts.
- Transfer brake system components to new arm as described in ⇒ 340 Brakes.
- Have car professionally aligned when job is complete.

Note:

BMW-supplied replacement trailing arms come with control arm bushings installed. A new wheel bearing will have to be installed.

Tightening torques	
Drive axle collar nut to drive flange	
M24	250 Nm (184 ft-lb)
M27	300 Nm (221 ft-lb)
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm (car in	100 Nm (74 ft-lb)

Tightening torques	
normal loaded position)	
Trailing arm bracket to body (M12 bolt)	77 Nm (57 ft-lb)
Trailing arm to upper or lower control arm (M12 bolt)	110 Nm (81 ft-lb)

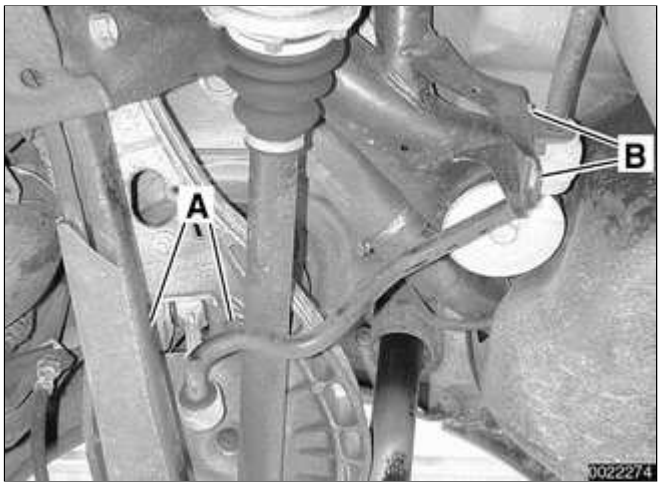
Upper control arm, removing and installing

- Remove drive axle as described in ⇒ 331 Rear Axle Final Drive.

WARNING!

Make sure that the car is firmly supported on jack stands designed for the purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.

- Remove coil spring as described earlier.



Remove stabilizer bar link bolts (**A**) at upper control arm.

- Remove stabilizer bar anchor bolts (**B**).
- Carefully push stabilizer bar aside.

Note:

Do not twist stabilizer bar link bushing on end of bar. See ⇒ Rear Stabilizer Bar later in this repair group.

- If necessary, remove ride level sensor from upper control arm.

- Unbolt upper control arm from both trailing arm and rear subframe. Note direction of bolt insertion.

Note:

For clearance reasons, it may be necessary to unbolt the differential from the subframe and push it toward the rear of the car in order to remove the control arm mounting bolt from the subframe.

- Installation is reverse of removal, noting the following;

- Insert mounting bolts in direction previously marked
- Always use new self-locking nuts.
- Have car professionally aligned when job is complete.

Tightening torques	
Drive axle collar nut to drive flange	
M24	250 Nm (184 ft-lb)
M27	300 Nm (221 ft-lb)
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)

Tightening torques	
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm car in normal loaded position	100 Nm (74 ft-lb)
Upper control arm to rear subframe M12 bolt	77 Nm (57 ft-lb)
Upper control arm to trailing arm M12 bolt	110 Nm (81 ft-lb)

Lower control arm, removing and installing

- Raise rear end of car and support it securely on jackstands. Remove rear wheel.

- Support trailing arm from below using an adjustable jackstand.

Mark position (**arrows**) of lower control arm eccentric mounting bolt.

- Remove lower control arm plastic shield.

- Remove both lower control arm mounting bolts. Note direction of bolt insertion.

Note:

For clearance reasons, it may be necessary to unbolt the differential from the subframe and push it toward the rear of the car in order to remove the control arm mounting bolt from the subframe.

- Use a soft hammer to tap control arm out of its mounting points.

- Installation is reverse of removal.

- Welded seam of control arm faces upward.

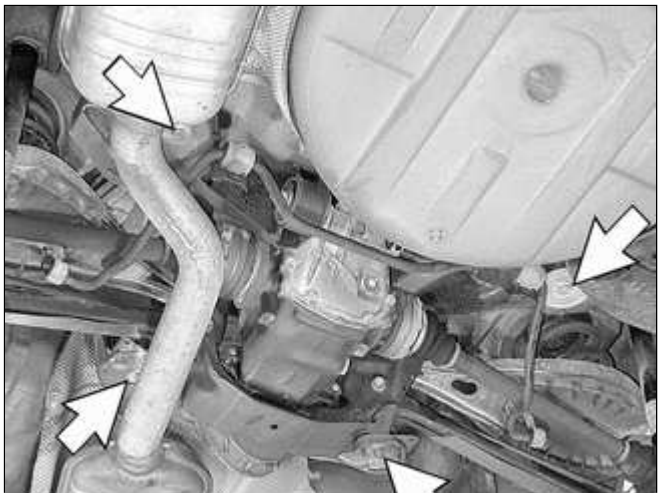
- To install mounting hardware at subframe, insert lock plate into opening in subframe from below.

- Line up eccentric bolt head with marks made previously.

- Have car professionally aligned when job is complete.

Tightening torque	
Lower control arm to rear subframe M12 bolt	110 Nm (81 ft-lb)
Lower control arm to trailing arm M12 eccentric bolt	110 Nm (81 ft-lb)

Rear subframe



In case of damage to the subframe, or if a pressed-in bushing is worn, remove subframe.

- Convertible models: Remove rear body reinforcing brace.

- Remove exhaust system. See ⇒ 180 Exhaust System.

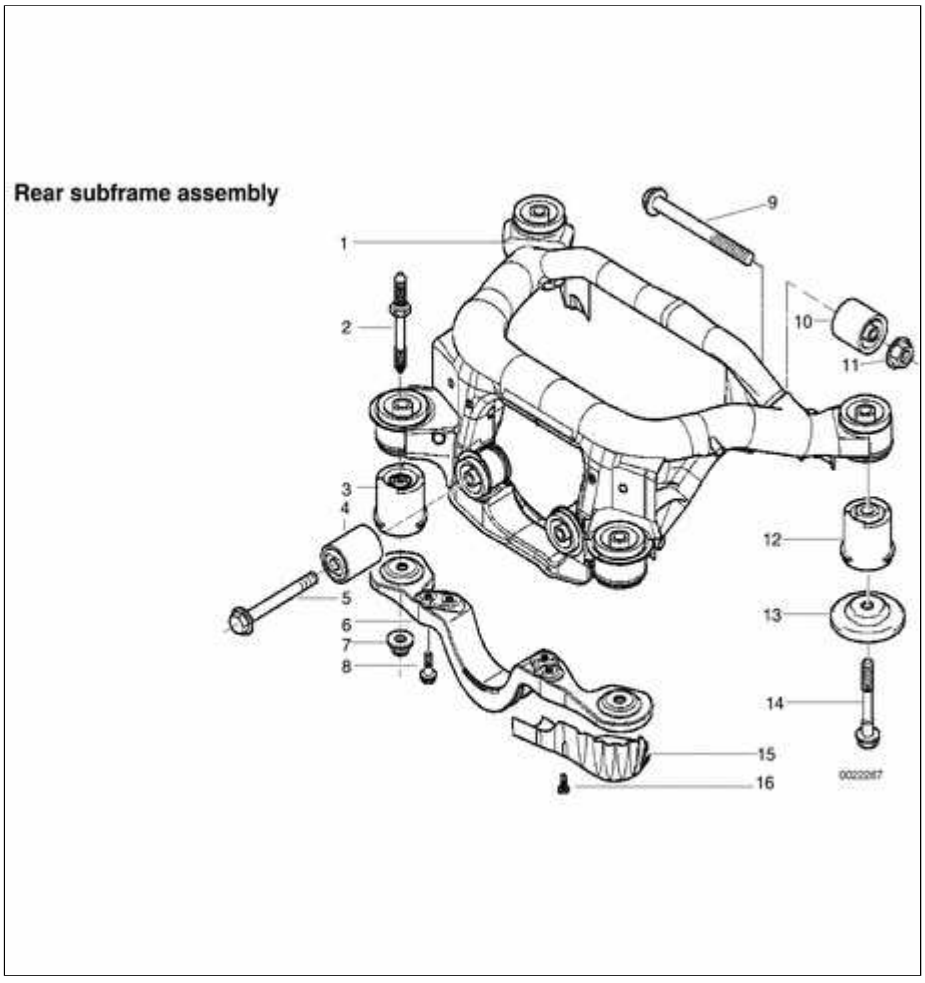
- Detach rear driveshaft from rear differential. See ⇒ 260 Driveshaft.
- Detach rear drive axles from rear differential. Remove rear differential. See ⇒ 331 Rear Axle Final Drive.
- Detach rear control arms as described earlier
- Remove rear subframe mounting fasteners (**arrows**) while supporting subframe securely.

- In case of damage to subframe mounting stud threads, replace stud.

- In case of damage to subframe mounting stud threads in body, repair using Helicoil thread insert M12 x 1.5 x 18.

Tightening torques	
Differential to subframe front bolt (M12)	110 Nm (81 ft-lb)
Differential to subframe rear bolt (M14)	174 Nm (128 ft-lb)
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Driveshaft to differential flange	

Tightening torques	
M10 compression nut	64 Nm (47 ft-lb)
M10 Torx bolt	85 Nm (63 ft-lb)
Lower control arm to subframe (M12)	110 Nm (81 ft-lb)
Subframe to body (M12)	77 Nm (57 ft-lb)
Upper control arm to subframe (M12)	77 Nm (57 ft-lb)



Rear subframe assembly

1 - Rear subframe (final drive carrier)

2 - M12 mounting stud

- tighten to 90 Nm (66 ft-lb)

3 - Bushing

4 - Bushing

5 - M12 bolt with washer

- tighten to 110 Nm (81 ft-lb)

6 - Rear suspension reinforcement

7 - M12 self-locking collar nut

- tighten to 77 Nm (57 ft-lb)

8 - **M8 bolt**

- 8.8 grade tighten to 21 Nm (15 ft-lb)
- 10.9 grade tighten to 30 Nm (22 ft-lb)

9 - **M14 bolt**

- tighten to 174 Nm (128 ft-lb)

10 - **Bushing**

11 - **M14 self-locking collar nut**

12 - **Bushing**

13 - **Stop washer**

14 - **M12 reduced shaft bolt**

- tighten to 77 Nm (57 ft-lb)

15 - **Heat shield**

16 - **M6 self-tapping screw**

Rear suspension bushings

When replacing any bushing in a rear suspension component, be sure to measure and record orientation and protrusion of old bushing from its boss.

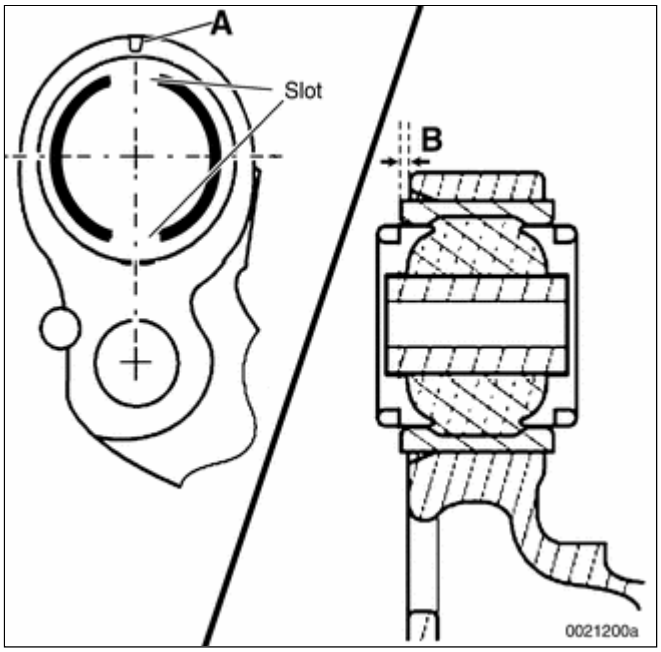
Support car securely before starting work underneath rear suspension.

WARNING!

Make sure that the car is firmly supported on jack stands designed for the purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.

Trailing arm front bushing

- Before removing trailing arm, be sure to mark position of trailing arm front bracket on body to facilitate resetting of rear toe.



Using appropriate press tools:

- Press bushing out of trailing arm.
- Clean all grease from eye of trailing arm.
- Draw new bushing into trailing arm:
- Line up slot in bushing with mark (**A**) on eye of trailing arm.
- Fully pressed in, cylindrical bushing must protrude from trailing arm eye by measurement **B** = 2.5 mm (0.1 in.)

- Have car professionally aligned when job is complete.

Tightening torques	
Trailing arm to front	110 Nm (81 ft-lb)

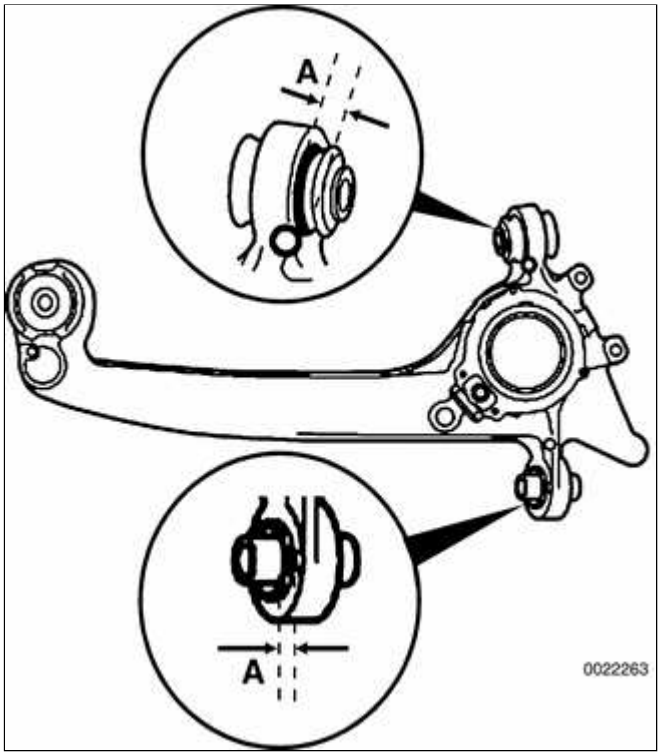
Tightening torques	
bracket	
Trailing arm bracket to body	77 Nm (57 ft-lb)

Upper or lower control arm outer bushing (in trailing arm)

- Upper control arm bushing: Remove trailing arm from car as described earlier. Note direction of bolt insertion.

- Lower control arm bushing: Detach lower control arm from trailing arm. There is no need to remove trailing arm.

- Before detaching lower control arm from trailing arm, be sure to mark position of eccentric mounting bolt to facilitate resetting of rear camber. Note direction of bolt insertion.



➢ To replace bushing:

- Measure and record protrusion (**A**) of old bushing from trailing arm boss.

- Press old bushing out and install new bushing, using protrusion **A** as a reference.

- Have car professionally aligned when job is complete.

Tightening torques
Drive axle collar nut to drive flange

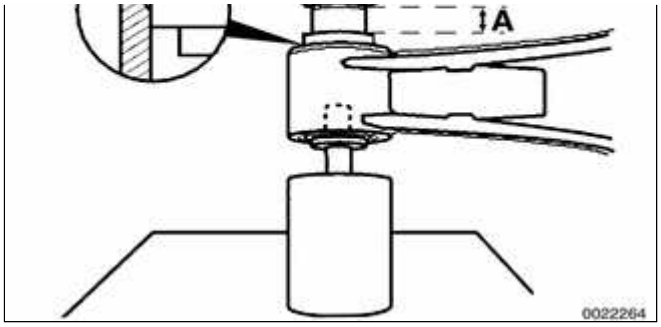
Tightening torques	
M24	250 Nm (184 ft-lb)
M27	300 Nm (221 ft-lb)
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Lower control arm to trailing arm M12 eccentric bolt	110 Nm (81 ft-lb)
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm car in normal loaded position	100 Nm (74 ft-lb)
Upper control arm to rear subframe M12 bolt	77 Nm (57 ft-lb)
Upper control arm to trailing arm M12 bolt	110 Nm (81 ft-lb)

Upper control arm inner bushing

- Remove upper control arm as described earlier.

- Press old bushing out using appropriate press tools.

Press new bushing starting at inner bevelled end (**arrow**) of control arm bore.

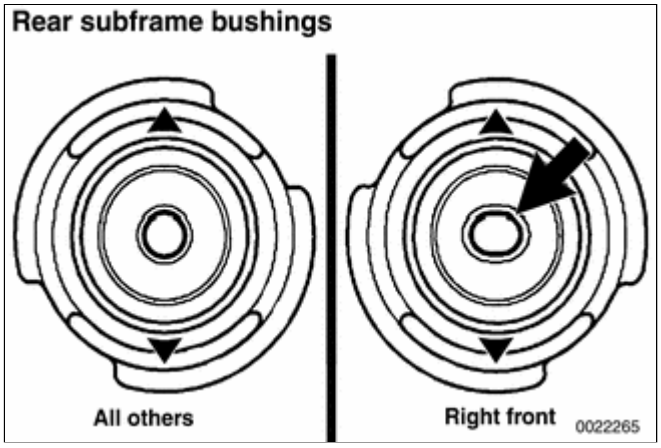


- Be sure that longer collar of bushing (**A**) is on same side as bevel in control arm.
- Outer bushing housing must be flush with control arm bore when fully pressed in.
- Have car professionally aligned when job is complete.

Tightening torque	
Drive axle collar nut to drive flange	
M24	250 Nm (184 ft-lb)
M27	300 Nm (221 ft-lb)
Drive axle to final drive flange	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm (car in normal loaded position)	100 Nm (74 ft-lb)
Upper control arm to rear subframe M12 bolt	77 Nm (57 ft-lb)
Upper control arm to trailing arm M12 bolt	110 Nm (81 ft-lb)

Rear subframe bushing

- Remove subframe as described earlier.
- In case of damage to subframe mounting stud threads, replace stud.
- In case of damage to subframe mounting stud threads in body, repair using Helicoil thread insert M12 x 1.5 x18.
- Press old bushing out and install new bushing using appropriate press tools. Coat new bushing with Circolight® or equivalent rubber bonding agent.



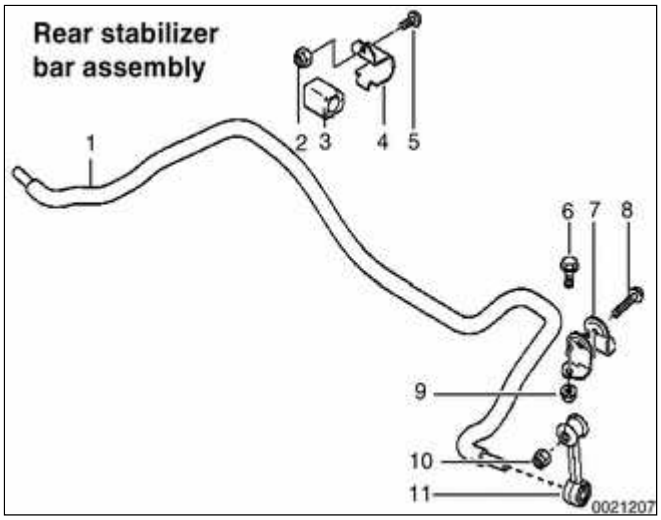
Bushing position and orientation:

- Right front bushing has elongated hole (**arrow**).
- Orient all bushings with triangular arrow heads pointing front/aft on car.
- Have car professionally aligned when job is complete.

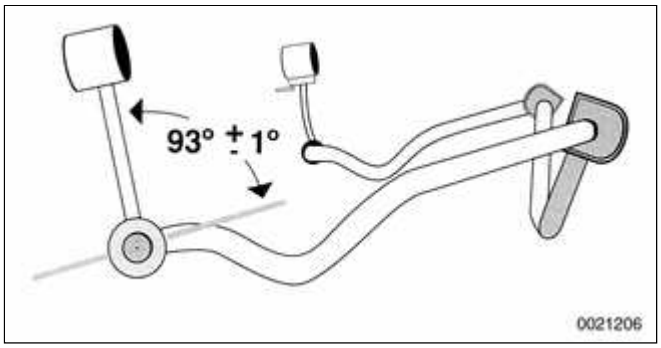
Tightening torque	
Drive axle collar nut to drive flange	
M24	250 Nm (184 ft-lb)
M27	300 Nm (221 ft-lb)
Drive axle to final drive flange	

Tightening torque	
M10x20 mm Torx bolt	83 Nm (61 ft-lb)
M10x46 mm bolt (black)	100 Nm (74 ft-lb)
M10x46 mm bolt (silver) (always replace)	80 Nm (59 ft-lb)
Road wheel to hub	100 ± 10 Nm (74 ± 7 ft-lb)
Shock absorber to trailing arm (car in normal loaded position)	100 Nm (74 ft-lb)
Subframe to body (M12)	77 Nm (57 ft-lb)
Upper control arm to rear subframe M12 bolt	77 Nm (57 ft-lb)
Upper control arm to trailing arm M12 bolt	110 Nm (81 ft-lb)

Rear Stabilizer Bar

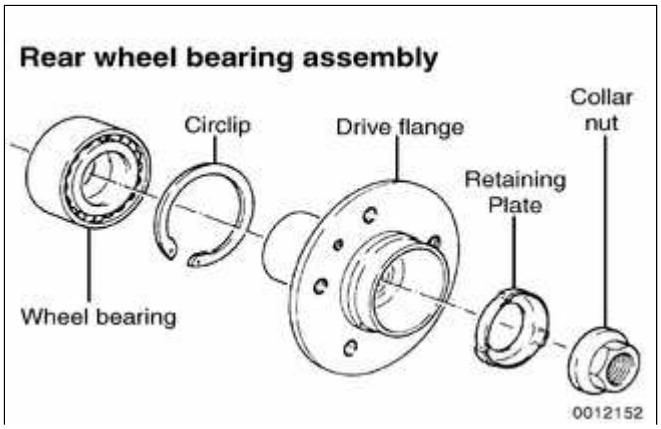


- The rear stabilizer bar is mounted to the rear subframe and attached via stabilizer bar links to the rear upper control arms.
  - 1 - Stabilizer bar
  - 2 - Self-locking nut M8
  - 3 - Rubber mounting
  - 4 - Clamping support
  - 5 - Bolt M8
  - 6 - Bolt M
  - 7 - Stabilizer link support bracket
  - 8 - Bolt M8
  - 9 - Self-locking nut
  - 10 - M8 Self-locking nut
  - 11 - M8 Stabilizer link



- When installing new stabilizer link:
  - Clean rubber seating surface at end of stabilizer bar.
  - Moisten end of bar and inside rubber mount (in link end). with Circolight® or equivalent rubber bonding agent.
  - Push bar into rubber mount and position as shown in illustration. Once rubber bond has set stabilizer link can no longer be rotated

Rear Wheel Bearings



- The rear wheel bearing is a unitized assembly and is not repairable separately.

Special press tools, to be used with the trailing arm attached to the car, are required to replace a wheel bearing. Read the procedure through before beginning the job.

Rear wheel bearing, replacing

- Remove drive axle as described in ⇒ 331 Rear Axle Final Drive.

WARNING!

Make sure that the car is firmly supported on jack stands designed for the purpose. Place the jack stands beneath a structural chassis point. Do not place jack stands under suspension parts.

- Right side: Detach brake pad sensor connector at brake caliper.

- Remove brake caliper assembly and rotor as described in ⇒ 340 Brakes. Leave brake hose connected to caliper. Suspend caliper assembly from chassis using stiff wire.

- Remove ABS pulse sensor at trailing arm.