

34 Fit a new O-ring seal to the damper yoke and place the spring in position. Add shims equal to the gap measured between the cover plate and housing plus 0.05 to 0.13 mm. Refit the cover plate and tighten down the bolts. Turn the pinion through 180° in each direction from the centre and make sure there is no tightness or binding.

35 Screw one of the tie-rod ball housing locking collars onto the rack as far as it will go. If the original components are being re-used, make sure that the collar is being refitted to the end of the rack from which it was removed.

36 Lubricate the thrust spring and ball seat and then locate them in the end of the rack. Lubricate the tie-rod balljoint and the ball housing and refit these components.

37 Tighten the ball housing until the tie-rod ball is clamped and will not move without binding.

38 Now slacken the ball housing slightly (approximately one eighth of a turn) until the tie-rod is just free to move. **Note:** *The tie-rod will still feel stiff to move because of the tension of the thrust spring, but there should be no trace of binding or endfloat.*

39 Hold the ball housing in this position and screw the locking collar into contact with it. Tighten the locking collar using the same procedure used for removal, making sure that the position of the ball housing does not alter.

40 If working on early type racks,peen the edge of the locking collar into the groove of the ball housing using a small punch.

41 On later type racks, protect the rack housing from swarf and drill a 3.97 mm diameter hole, 8.0 mm deep, between the locking collar and ball housing. The hole must be drilled on the side facing away from the rack teeth and at least 90° away from any previous hole. **Note:** *The rack may be drilled a maximum of three times only. With the hole drilled, drive in a new grooved pin and retain it by peening over the edge of the hole.*

42 Repeat the above procedure for the other tie-rod and ball housing.

43 Refit the rubber gaiter and retaining clips or wire to the plain end of the rack assembly.

44 Stand the assembly upright and fill it through the pinion end of the housing with the correct quantity and type of lubricant as shown in the *Specifications*.

45 Refit the remaining rubber gaiter and its retaining clips or wire.

46 If the original tie-rods have been refitted, screw on the tie-rod outer balljoint locknuts to the positions marked during dismantling. Now screw on the balljoints and tighten the locknuts.

47 If new tie-rods have been fitted, screw on the locknuts and then screw on the balljoints, by an equal amount each side, until the dimension between their centres is as shown in the *Specifications*. Tighten the locknuts.

48 The steering gear can now be refitted to the car as described in Section 27. It will be necessary to have the front toe setting checked and reset as described in Section 30 after refitting.

29 Rack-and-pinion steering gear - lubrication



1 The steering gear is filled with lubricant during manufacture and then sealed. Additional lubricant will only be required in service if a leak develops, either from the rubber gaiters or from any of the joints, or if the steering gear has been dismantled.

2 The steering gear fitted to early models, identified by black rubber gaiters, is filled with oil. The steering gear fitted to later models, identified by transparent rubber gaiters, is filled with grease. The grade and quantity of lubricant for both types is given in the *Specifications*.

3 Should it be necessary to refill the rack, proceed as follows.

4 Jack up the driver's side of the car and suitably support it on stands (see "*Jacking and Vehicle Support*"). Remove the front roadwheel.

5 Centralise the steering gear so that the wheels are in the straight-ahead position.

6 Slacken the retaining clips or remove the wire securing the rubber gaiter to the rack housing and tie-rod. Slide the rubber gaiter down the tie-rod sufficiently to provide access.

7 Using an oil can or grease gun filled with the specified grade and quantity of lubricant, fill the rack housing.

8 Refit the rubber gaiter and secure it with the retaining clips or soft iron wire.

9 Turn the steering from lock to lock to distribute the lubricant, refit the roadwheel and lower the car to the ground.

30 Wheel alignment and steering angles - general information

General

1 A car's steering and suspension geometry is defined in four basic settings - all angles are expressed in degrees (toe settings are also expressed as a measurement); the relevant settings are camber, castor, swivel hub inclination, and toe-setting. Front wheel toe-setting is readily adjustable but all other settings are established during manufacture and will not normally require attention. It is possible to alter the front castor angle by fitting a longer or shorter tie-bar to the relevant side, and to alter the rear wheel toe setting by fitting spacers between the rear radius arm outer brackets and the subframe. Should there be any reason to suspect that the front castor angle is incorrect (insensitive steering, pulling to one side etc) or the rear wheel toe setting is incorrect (excessive rear tyre wear) then the settings should be checked and if necessary altered by a Rover dealer.

Front wheel toe setting - checking and adjustment

2 Due to the special measuring equipment necessary to accurately check the wheel alignment, and the skill required to use it properly, checking and adjustment is best left to a Rover dealer or similar expert. Note that most tyre-fitting shops now possess sophisticated checking equipment. The following is provided as a guide, should the owner decide to carry out a DIY check.

3 The front wheel toe setting is checked by measuring the distance between the front and rear inside edges of the roadwheel rims. Proprietary toe measurement gauges are available from motor accessory shops. Adjustment is made by screwing the tie-rod outer balljoints in or out of their tie-rods, to alter the effective length of the tie-rod assemblies.

4 For **accurate** checking, the vehicle **must** be at kerb weight, ie unladen and with a full tank of fuel, and on models with Hydrolastic suspension, the trim height must be correct (see Section 2).

5 Before starting work, check the tyre pressures and tread wear, the condition of the hub bearings, the steering wheel free play, and the condition of the front suspension components (see Chapter 1). Correct any faults found.

6 Park the vehicle on level ground, check that the front roadwheels are in the straight-ahead position, then rock the rear and front ends to settle the suspension. Release the handbrake, and roll the vehicle backwards 1 metre, then forwards again, to relieve any stresses in the steering and suspension components.

7 Measure the distance between the front edges of the wheel rims and the rear edges of the rims. Subtract the rear measurement from the front measurement, and check that the result is within the specified range.

8 If adjustment is necessary, apply the handbrake, then jack up the front of the vehicle and support it securely on axle stands (see "*Jacking and vehicle support*"). Turn the steering wheel onto full-left lock, and record the number of exposed threads on the right-hand tie-rod. Now turn the steering onto full-right lock, and record the number of threads on the left-hand side. If there are the same number of threads visible on both sides, then subsequent adjustment should be made equally on both sides. If there are more threads visible on one side than the other, it will be necessary to compensate for this during adjustment. **Note:** *It is most important that after adjustment, the same number of threads are visible on each tie-rod.*

9 First clean the tie-rod threads; if they are corroded, apply penetrating fluid before starting adjustment. Release the rubber gaiters outboard clips (where necessary), and slide back the gaiters; apply a smear of grease to the gaiter seat on the tie-rod, so that the gaiters will not be twisted or strained as their respective tie-rods are rotated.