



GROUP 21

FRONT SUSPENSION

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For all parts not given here, refer to the corresponding Group in publication No. PA4655C1000000.





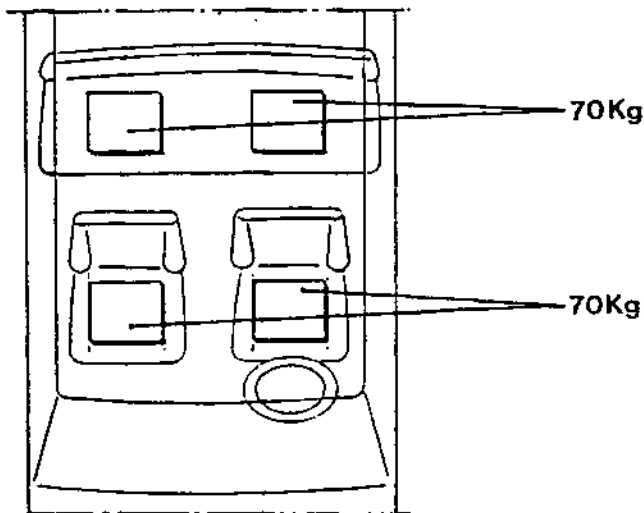
CHECKING TRIM AND CHARACTERISTIC ANGLES

CHECKING TRIM OF FRONT WHEELS

PRELIMINARY OPERATIONS

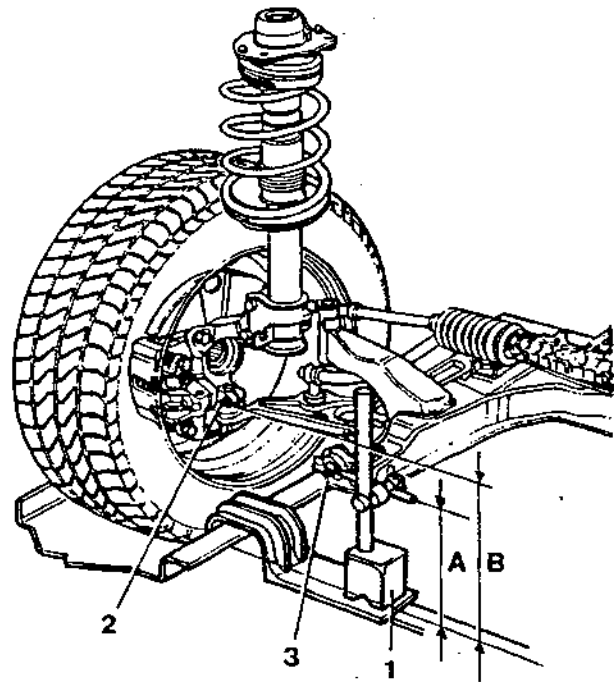
Wheel trim should be checked after the following operation and checks have been completed:

- tyres inflated to the specified pressure (See: REPAIR INSTRUCTIONS - BODYWORK - GR. 28 - WHEELS AND TYRES).
- Vehicle placed on a lift.
- Vehicle set in accordance with one of the following loading conditions:
 - empty (with specified refill quantities)
 - static load (specified refill quantities and weight distribution as shown).
- Rock the vehicle a few times to settle the suspension.



CHECKS AND INSPECTIONS

1. Position the reference tool on the resting plane of the vehicle.
2. Using a surface gauge measure distance "B" from the resting plane of the vehicle to the centre of the screw securing the spherical pin.
 - Using a millimeter rule measure the distance.
3. Using the surface gauge measure the distance "A" between the resting plane of the vehicle and the centre of the pin of the swinging arm.
 - Using a millimeter rule measure the distance.
 - Calculate the difference between distance "B" and distance "A" and compare (See: TECHNICAL CHARACTERISTICS AND SPECIFICATIONS - CHECKS AND ADJUSTMENTS - FRONT TRIM) the resulting value with the specified values.



NOTE: If the values are incorrect, replace both the suspension springs.

CHECKING REAR WHEEL TRIM

PRELIMINARY OPERATIONS

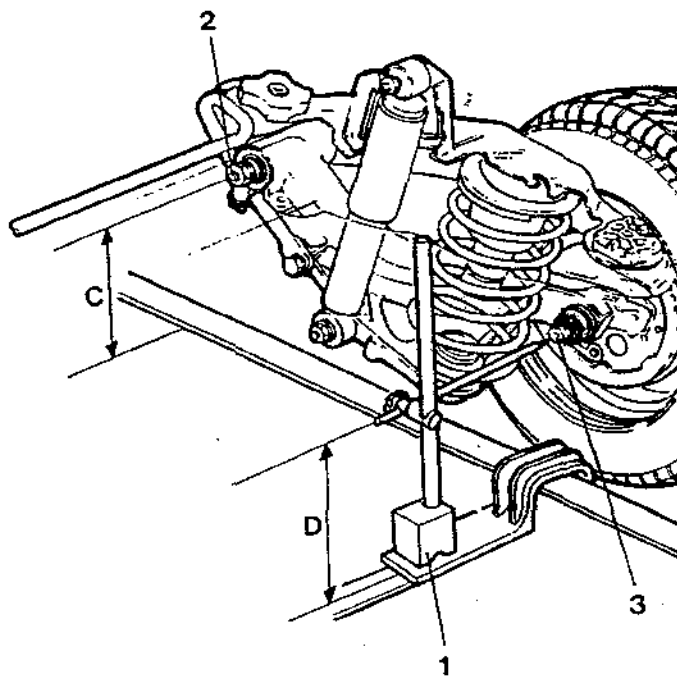
Wheel trim should be checked after the following operations and checks have been completed:

- tyres inflated to the specified pressure (See: REPAIR INSTRUCTIONS - BODYWORK - GR. 28 - WHEELS AND TYRES).
- Vehicle placed on a lift.
- Vehicle set in accordance with one of the following loading conditions:
 - running condition
 - static load (specified refill quantities and weight distribution as shown).
- Rock the vehicle a few times to settle the suspension.

CHECKS AND INSPECTIONS

1. Position the abutting tool on the resting plane of the vehicle.
2. Using a surface gauge measure distance "C" between the resting plane of the vehicle and the fulcrum of the rear swinging arm.
 - Using a millimeter rule measure the distance.
3. Using the surface gauge measure distance "D" between the resting surface of the vehicle and the rear wheel centre line.
 - Using a millimeter rule measure the distance.
 - Calculate the distance between the distance "C" and distance "D" and compare (See: TECHNICAL CHARACTERISTICS AND SPECIFICATIONS - CHECKS AND ADJUSTMENTS - REAR TRIM) the resulting value with the specified values.

NOTE: If the values are incorrect, replace both the suspension springs.





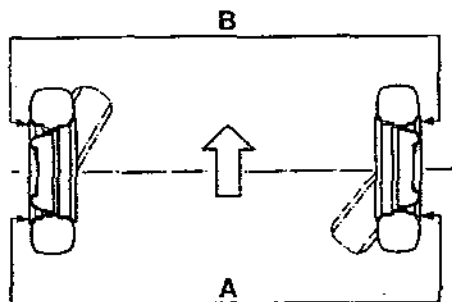
CHECKING CHARACTERISTIC ANGLES

The characteristic angles should be checked after the following operations and checks have been completed:

- tyres inflated to the specified pressure (See: REPAIR INSTRUCTIONS - BODYWORK - GR. 28 - WHEELS AND TYRES).
- check that eccentricity and orthogonality of the wheels does not exceed:
 - 0.3 mm for alloy rims.
- check that there is no clearance between wheel support and articulated pin of swinging arm.
- check that there is no axial play on the wheel bearings.
- check that there is no play on the articulated pin of the steering tie-rod.
- Set the vehicle on a lift.

CHECKING FRONT WHEEL TOE-IN AND TOE-OUT

1. Using the appropriate tools, check that the toe in/out values are as specified (See: TECHNICAL CHARACTERISTICS AND SPECIFICATIONS - Checks and adjustments).



If the toe-in values are different from the specified values operate as follows:

1. Loosen the side nuts of the side steering tie-rods.



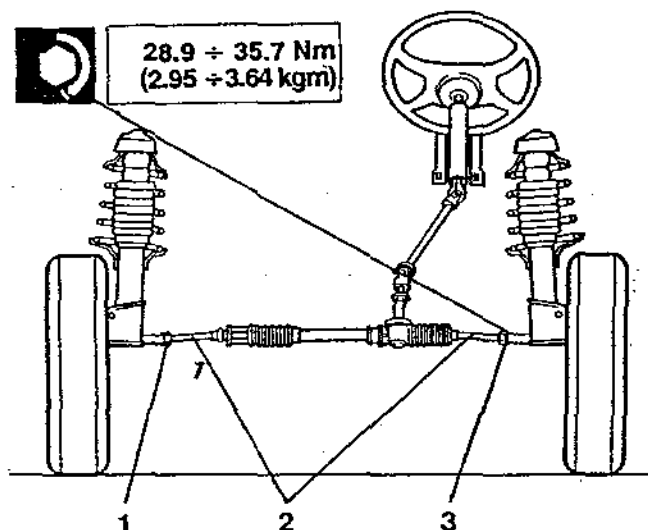
WARNING:

Each time the front wheels are put in toe, it is necessary to check that the boots rotate freely on the tie-rod. If necessary pull them off and lubricate with the specified grease.

2. Rotate the tie-rods until the specified value is reached without though altering the position of the steering wheel.

NOTE: The adjustments must be carried out for the tie-rods of both wheels.

3. Tighten the tie-rod retaining nuts to the correct torque.



CHECKING CAMBER AND CASTER ANGLE

- Check that the camber and caster values (which cannot be adjusted) correspond to those specified (See: TECHNICAL CHARACTERISTICS AND SPECIFICATIONS - Checks and adjustments).

NOTE: If the measured values are not within the specified limits, check body squaring (See: REPAIR INSTRUCTIONS - BODYWORK - GR. 49 - BODY SQUARING).

TECHNICAL CHARACTERISTICS AND SPECIFICATIONS

TECHNICAL CHARACTERISTICS

Independent wheel suspension of the MacPherson type with negative off-set and anti-roll bar with pressurized telescopic hydraulic shock absorbers of the blade type, transversal swinging arms and off- set springs.

HELICAL SPRINGS

CHARACTERISTICS	2.0 T.B. 4x4
Inner diameter (mm)	150
Outer diameter (mm)	178.2
Outer diameter (mm)	14.1
Number of coils	5.56
Direction of coil	Right
Free length (mm)	398

SHOCK ABSORBERS

	Normal	C.D.S
Type: telescopic hydraulic pressurized blade type	BOGE	
Stroke (mm)	167	
Diameter of strut (mm)	22	
Controlled damping suspension solenoid valve power supply	(See: ELECTRICAL-ELECTRONIC DIAGNOSIS SECTION 31)	

ANTI-ROLL BAR

Diameter of bar (mm)	23
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GENERAL SPECIFICATIONS


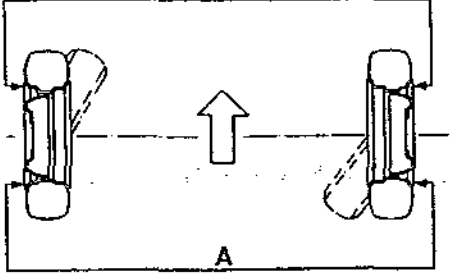
FLUIDS AND LUBRICANTS

APPLICATION	TYPE	NAME
Swinging arm flexible supports	GREASE	GREASE MOLYKOTE 7544 PG 54 TUTELA MR3
Lateral steering tie-rods	GREASE	MOLYGUARD SYL113



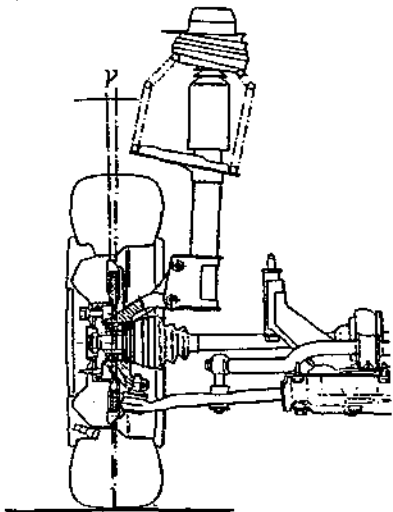
CHECKS AND ADJUSTMENTS

FRONT WHEEL TOE-IN

<p>A-B </p>	<p>2.0 T.B. 4x4</p>
<p>B</p>  <p>A</p>	<p>$-0.26 \pm 1^*$</p>
	<p>$0 \pm 1^\bullet$</p>

- * Values measured when empty in running condition (with specified refill quantities).
- Values measured with vehicle in static load condition.

WHEEL CAMBER ANGLES

	<p>$\gamma = -3 \pm 20' ^*$</p>
	<p>$\gamma = -21' \pm 20' ^\bullet$</p>
	<p>(characteristics cannot be adjusted)</p>

- * Values measured when empty in running condition (with specified refill quantities).
- Values measured with vehicle in static load condition.



FRONT WHEEL CASTER ANGLE

	2.0 T.B. 4x4
	$3^{\circ} 10' \pm 30' *$
	$3^{\circ} 30' \pm 30' *$
(characteristics cannot be adjusted)	

- * Values measured when empty in running condition (with specified refill quantities).
- Values measured with vehicle in static load condition.


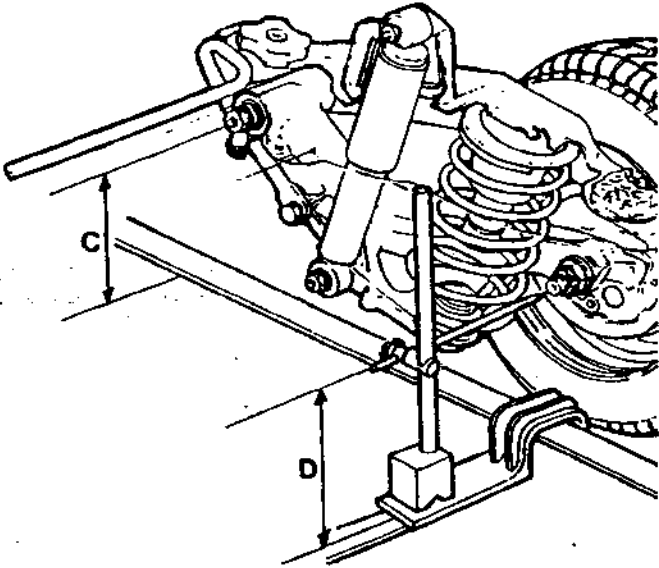
FRONT TRIM

<p>B-A </p>	2.0 T.B. 4x4 (mm)
	$-5 \pm 7 *$
	$-33 \pm 7 *$

- * Values measured when empty in running condition (with specified refill quantities).
- Values measured with vehicle in static load condition.



REAR TRIM

C-D 	2.0 T.B. 4x4 (mm)
	1.6 ± 7 *
	-36 ± 7 *

- * Values measured when empty in running condition (with specified refill quantities).
- * Values measured with vehicle in static load condition.

TIGHTENING TORQUES

Description	N·m	kg·m
Hexagonal head screw for front attachment of front crossmember to body	91.8 + 113.4	9.36 + 11.56
Hexagonal head screw for rear attachment of front crossmember to body	76.5 ÷ 94.5	7.8 ÷ 9.63
Hexagonal head screw for securing front and rear external attachments of swinging arm clevis to crossmember	65.55 ÷ 72.45	6.68 + 7.38
Hexagonal head screw for fixing front inner swinging arm clevis to crossmember	65.55 ÷ 72.45	6.68 + 7.38
Hexagonal head screw for fixing rear inner swinging arm clevis to crossmember	65.55 ÷ 72.45	6.68 + 7.38
Hexagonal nut with flange for fixing upper shock absorber to block	95 ÷ 105	9.68 ÷ 10.76
Hexagonal head screw for fixing upper shock absorber block to body	34 + 42	3.46 ÷ 4.28
Self-braking hexagonal nut for fixing shock absorber to support	66.5 ÷ 73.5	6.78 ÷ 7.49
Self-braking hexagonal nut for fixing swinging arm spherical pin to support	66.5 + 73.5	6.78 ÷ 7.49
Hexagonal head screw for fixing stabilizer bar support stand clevis to crossmember	28.9 ÷ 35.7	2.95 ÷ 3.64
Hexagonal nut for fixing end of stabilizer bar to rod	59.5 ÷ 73.5	6.06 + 7.49
Hexagonal nut for fixing rod to front suspension arm	26.35 ÷ 32.5	2.69 ÷ 3.31
Hexagonal nut for fixing front wheel hub to stub axle	266 ÷ 294	27.12 ÷ 29.97
Front/rear wheel pillar	83 ÷ 102.9	8.49 ÷ 10.49
Self-braking hexagonal nut for fixing spherical lateral steering tie-rod pin to support	28.9 ÷ 35.7	2.95 ÷ 3.64
Hexagonal head screw for fixing steering box to crossmember	66.5 + 73.5	6.78 ÷ 7.49
Hexagonal nut for fixing lateral steering tie-rod	28.9 + 35.7	2.95 + 3.64