PROTECTIVE PRODUCTS

SUPPLIER	NAME	USE
AREXONS	1090	Electrically-weldable protective products
BOSTON	- -	
GELSON	2inc coat 2014	
TEROSON	2inc spray 11719N	
3 M	Wed thrdugh seller 8625	
AREXONS	- -	High thickness electrically-weldable products
BOSTON	- -	
GELSON	G 600	
TEROSON	Teromix 6700	
3 M	8625	
AREXONS	Ferox 4144/5/6/7	Oxide converters for boxed sections
BOSTON	- -	
GELSON	- -	
TEROSON	- -	
3 M	888 1E Protectiv	
AREXONS	Oto-boxed 1032 - 1033	Protective waxes for inside boxed sections
BOSTON	Scudo car 700 CR	
GELSON	from 20351 to 20364	
TEROSON	Terotex HV200 - HV400	
3 M	Protectiv 888 1 E	

SEALANTS

SUPPLIER	NAME	USE
AREXONS	- -	Preformed sealant to be applied for cracks of above 2 mm
BOSTON	SOPL	
GELSON	G 600 - Gummigel	
TEROSON	Terostat II - 18123	
3 M	Preformed sealant from 8572 to 8574	
AREXONS	Polyurethan 006 (1070)	Sealant for seams on bonnets and doors
BOSTON	Nex VS - B880 - 770	
GELSON	Gelflex 336 - 339	
TEROSON	Terostat 9120 (1K PUR)	
3 M	Polyurethan Sealant from 8680	

(Continued)

(Continued)

SUPPLIER	NAME	USE
AREXONS	- -	Preformed sealant to be applied for cracks of over 2 mm
BOSTON	SOPL	
GELSON	G 600 - Gummigel	
TEROSON	Terostat II - 18123	
3 M	Preformed sealant from 8572 to 8574	
AREXONS	Polyurethan 006 (1070)	Sealant for seams on doors and bonnets
BOSTON	Nex VS - B880 - 770	
GELSON	Gelflex 336 - 339	
TEROSON	Terostat 9120 (1K PUR)	
3 M	Polyurethan Sealant from 8680	

PRODUCTS FOR UNDERBODY PROTECTION

SUPPLIER	NAME	USE
AREXONS	Oto body 1037 - 1075 1080 - 1085	P.V.C. sound and gravel proofing spray-on product (hidden areas)
BOSTON	Scudo car A1000 A3000	
GELSON	Side scudex underbody da 20729 a 20764	
TEROSON	Terotrend - 9320	
3 M	Polyurethan with two components 8660	
AREXONS	Oto body 1031 - 1037 - 1075	P.V.C. sound and gravel proofing spray-on product (visible areas)
BOSTON	Scudo car CR 700	
GELSON	Side scudex 20721 a 20764	
TEROSON	Terotex super 9320 - 3000	
3 M	Body seal 8860	
AREXONS	Sound deadener 1033	Bituminous protective wax for underbody
BOSTON	- -	
GELSON	Gel protex da 20300 a 20352	
TEROSON	Terotex wax	
3 M	Body seal 8860	

SOUNDPROOFING PRODUCTS

SUPPLIER	NAME	USE
AREXONS	–	Heat bonded soundproofing materials for car interior
BOSTON	–	
GELSON	Vibragel 20650	
TEROSON	Terodem SP 100 - 300	
3 M	–	
AREXONS	–	Glued soundproofing materials for car interior
BOSTON	8821	
GELSON	Vibragel 20635	
TEROSON	Terodem SP 200	
3 M	–	
AREXONS	–	Preformed soundproofing carpeting materials for car interior
BOSTON	–	
GELSON	Vibrafelt 20640	
TEROSON	–	
3 M	–	
AREXONS	–	Soundproofing product for foam treatment of boxed sections
BOSTON	Schiuma fix	
GELSON	Gel - foam 30750	
TEROSON	Terostat schiuma pu spray	
3 M	Polyschiuma 300	

ONE-LEVEL PRESSURE SWITCH SETTING

Contact opening pressure	1.8 ± 0.07 bar
Contact closing pressure	3 ÷ 3.5 bar

3-LEVEL PRESSURE SWITCH SETTING (TRINARY)

	All models except T. Spark 16V and 1910 JTD		T. Spark 16V (with M2.10.3 injection - ignition system)	
1. Level	Contact opening	2.2 ÷ 2.7 bar	Contact opening	2.45 ± 0.25 bar
	Contact closing	2.26 ÷ 2.94 bar	Contact closing	2.85 ± 0.50 bar
2. Level	Contact closing	14.2 ÷ 16.18 bar	Contact closing	15.2 ± 0.98 bar
	Differential	3.92 ± 0.98 bar	Contact opening	11.28 ± 1.99 bar
3. Level	Contact opening	25 ÷ 30 bar	Contact opening	25 ÷ 30 bar
	Differential	6 ± 2 bar	Contact closing	17 ÷ 26 bar

4-LEVEL PRESSURE SWITCH SETTING

	T. Spark 16V (with M2.10.4 and M1.5.5 injection - ignition system) 1910 JTD	
1. Level	Contact opening	2.45 ± 0.35 bar
	Contact closing	max 3.5 bar
2. Level	Contact opening	15 ± 1 bar
	Contact closing	11 ± 2 bar
3. Level	Contact opening	20 ± 1.2 bar
	Contact closing	16 ± 2.2 bar
4. Level	Contact opening	28 ± 2 bar
	Contact closing	22 ± 4 bar

COMPRESSOR

	1929 TD	1910 JTD	1598 1747 1970 T. SPARK 16V	1370 T. SPARK 16V
Make and type	HARRISON V5	SANDEN SD7V16	NIPPONDENSO TV 14SC	NIPPONDENSO TV 12SC
Cylinders number	5	(*)	-	-
Cylinders diameter	36.8 mm	(*)	-	-
Stroke	28.4 mm	(*)	-	-
Theoretic capacity	151 cm^3 at rev (max)	(*)	-	-
Max revolutions number	7000 rpm	(*)	-	-
Deflector vanes number	-	(*)	2	2
Deflector vanes lenght/depth	-	(*)	72.5 mm / 38.5 mm	72.5 mm / 38.5 mm
Theoretic capacity	-	(*)	127 cm^3/rev	127 cm^3/rev
Working voltage electromagnetic coupling	12 V	(*)	12 V	12 V
Absorbed power from electromagnetic coupling	-	(*)	40 W (min)	40 W
Working current electromagnetic coupling	4.2 A	(*)	2.2 A (min)	2.2 A (max)

(*): Not available when this publication was sent to print.

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BRAKES

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Summary

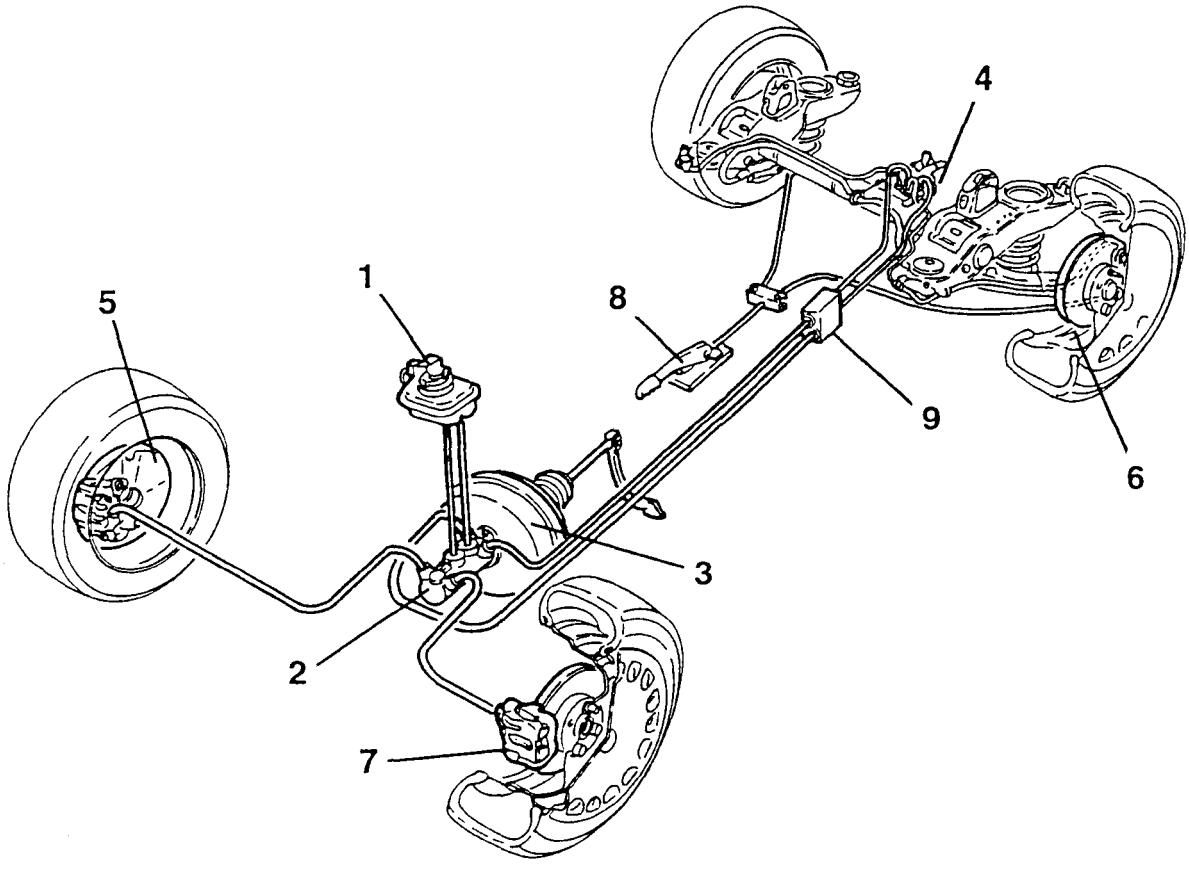
(*): See ABS BOSCH 5.3

DESCRIPTION

The braking system is hydraulically-operated with dual diagonally connected circuit with servobrake and braking load proportioning valve for the rear wheels; front disk brakes and rear drum brakes for the "lower" range without A.B.S. and disk brakes for the "higher" range fitted with A.B.S.
The system is of the conventional type and mainly comprises the following components:

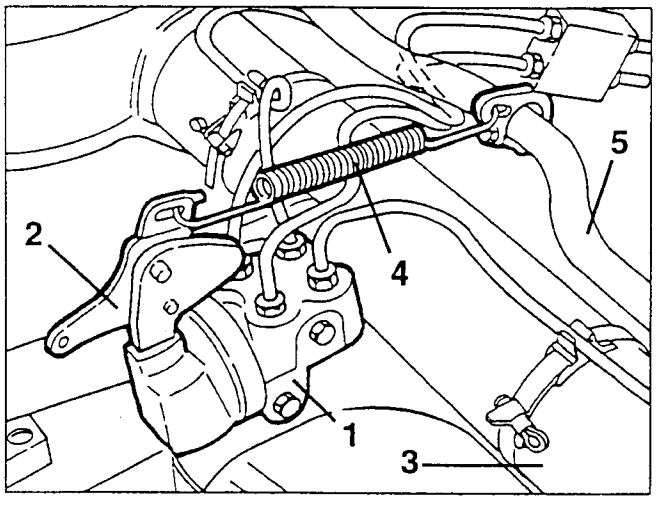
1. Brake fluid reservoir
(shared with the hydraulic clutch system)
2. Two-stage pump
3. Vacuum servo brake
4. Braking load proportioning valve
5. Front disk brakes
6. Rear drum brakes or disk
brakes depending on the versions
7. Floating type brake calipers
8. Mechanical handbrake
9. Four-way distributor

This solution is of the traditional type and obtained employing a series of devices aimed at:
a. meeting the current laws regarding the problems of environmental pollution.
The problem of environmental pollution has been faced by adopting brake linings of an ecological material (asbestos- free) in the same way as for the friction lining of the clutch.
b. reducing the temperature of the brake fluid to keep its chemical/physical characteristics unchanged.
The GIRLING floating type brake calipers with runner pins protected by boots only act on one side of the disk, thereby improving the dispersion of the heat produced during braking. Consequently the temperature of the brake fluid is also considerably reduced in comparison with traditional systems.
c. warranting a braking force suited to the characteristics of the vehicle under all circumstances.
The use of the two-stage pump and diagonal braking circuits makes it possible to still conserve 50% of the braking force in the event of a failure or seizing of a piston.

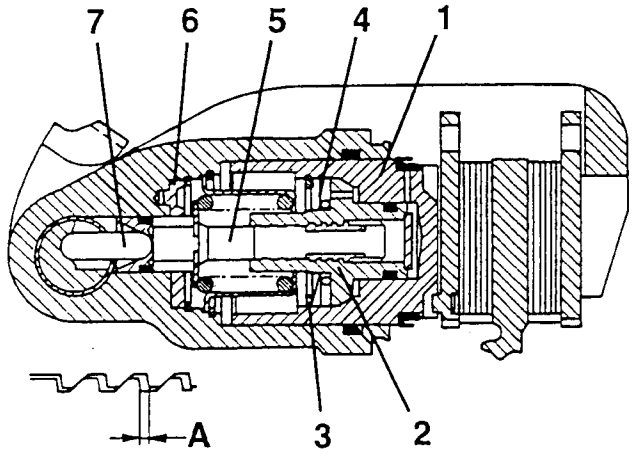


BRAKING LOAD PROPORTIONING VALVE (for versions without A.B.S.)

The braking system is fitted with a braking load proportioning valve (1), fastened to a bracket (2) integral with the rear axle (3) and connected by a spring (4) to the stabilizer bar (3), which regulates the pressure of the fluid acting on the rear wheels according to the load on the rear axle of the car.
This adjustment is carried out instant after instant by measuring the distance between the rear wheel axle and the body and its purpose is to prevent the rear wheels from locking if the load on the rear axle is lower causing the wheels to reduce their grip on the road surface.



The lead screw (2) backs off momentarily from its point of contact with the cylinder (1) but the action of the cup spring (4) turns the lead screw (2) on the shaft (5) until it returns into contact with the control cylinder (1). When the handbrake is operated, the mechanical force is transmitted from the control lever to the rod (7), then through the shaft-lead screw coupling it reaches the control cylinder (1) and from here to the brake linings without turning either the lead screw or the cylinder, because the cylinder has an obligatory engagement system which engages it on the brake lining plate during braking.



1. *Control cylinder*
2. *Lead screw*
3. *Safety ring*
4. *Cup spring*
5. *Shaft*
6. *Safety lock*
7. *Rod*

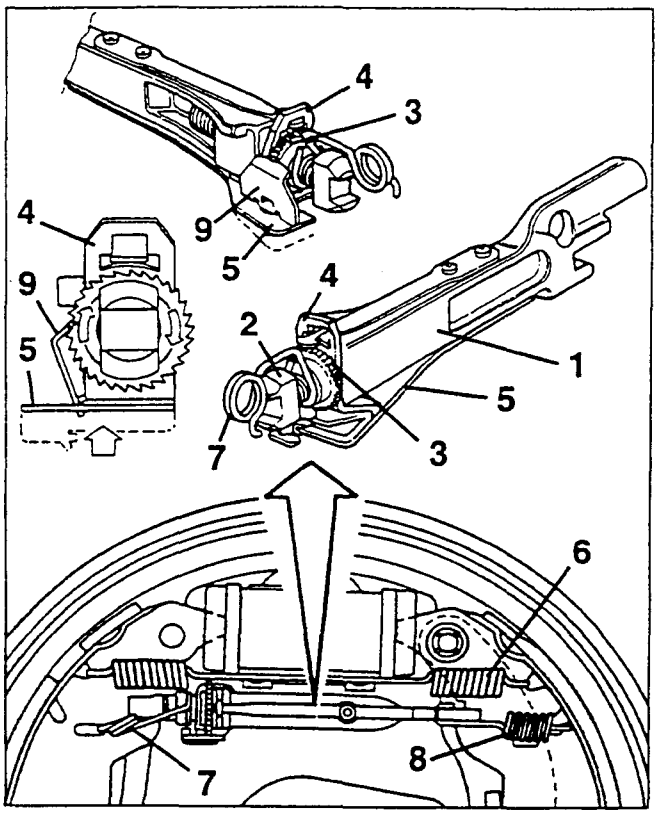
AUTOMATIC REAR BRAKE CALIPER ADJUSTMENT DEVICE (for versions with rear disk brakes)

This device, contained in the rear brake caliper cylinder automatically adjusts the distance between the brake disk and the friction lining.
It comprises a lead screw (2) which can rotate on the shaft (5) only in the direction of travel owing to the action of the cup spring (4).
The shaft (5) is unable to turn as it is constrained to the brake caliper body by the safety lock (6).
Between the shaft and the lead screw there is a threaded coupling (with four starts) with a preset clearance (A). During braking the control cylinder (1) pushed by the hydraulic pressure moves towards the braking lining with the lead screw (2), as the latter is constrained to the cylinder itself by the safety ring (3) and by the cup spring (4).
If the brake linings are excessively worn, even if the axial clearance (A) is taken up, it is not sufficient to absorb the whole stroke of the control cylinder (1) alone.

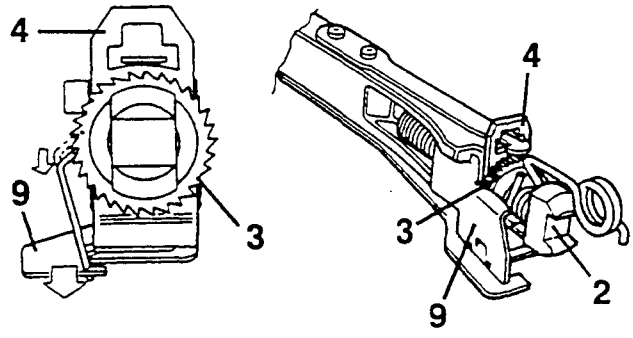
SELF-ADJUSTING DEVICE FOR PLAY TAKEUP BETWEEN SHOES AND DRUM (for versions with rear drum brakes)

This device automatically and continuously takes up the play between the shoes and drum each time the brakes are operated, if, in that moment, adjustment is necessary. The device comprises the tie-rod (1) inside which the adjustment screw (2) runs freely on which the toothed ring nut (3) is screwed.
In the rest position, the front shoe return spring (6) keeps the device compressed. Therefore, the ring nut (3) pushes the plate (4) into contact with the end of the tie-rod (1).
The plate (4) is also subjected to a thrust through the flexible blade (5). During the braking action, the two shoes move away from one another and come into contact with the drum; the two ends of the device are kept in contact with the shoes by springs (7) and (8).

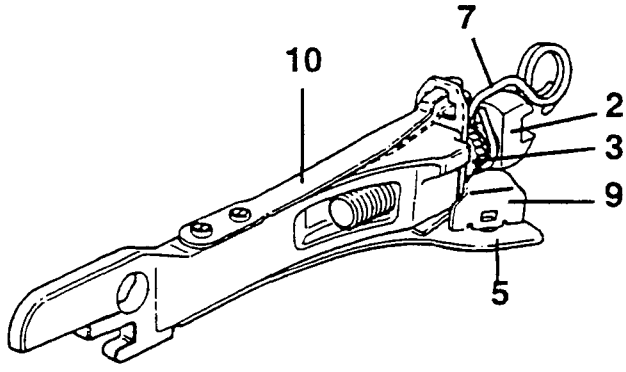
The plate (4) pushed by the flexible blade (5) reacts on the toothed ring nut (3) and the catch (9) permanently in contact with the ring nut, prevents it from turning.



When the brake is released, the self-adjusting device is again compressed by the action of the upper shoe return spring (6): the toothed ring nut (3) stops in the angular position taken during braking.
This stop during rotation is due to the friction between the plate (4) and the toothed ring nut (3). With the toothed ring nut (3) locked during rotation, if the condition of wear of the lining due to previous braking actions is sufficient, the catch (9) engages the next tooth.



The maximum stroke of the toothed ring nut (3) on the adjustment screw (2) is one tooth (0.020 ÷ 0.025 mm): an exception to this is settling of the brakes after dis-assembly, in which case the stroke is two teeth.
If after prolonged braking, the brakes overheat and the temperature reaches 100° ÷ 110°C, the flexible blade (10) comes into action, which flexes and blocks the plate (4) in the neutral position.

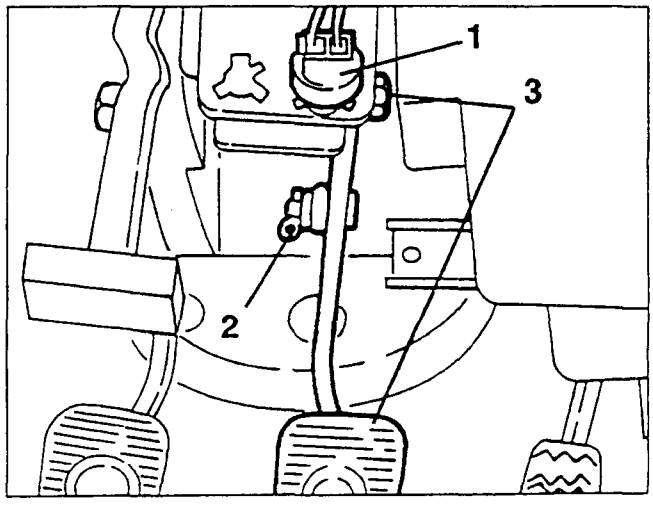


During braking the toothed ring nut (3) will no longer be subjected to the thrust of the flexible blade (5), therefore the catch (9) will take the same angle as the ring nut tooth, which will be free to run with the adjustment screw (2) on the catch (9) without taking up the play caused by the expansion of the drum.
When overhauling, before assembly of the brake linings, the toothed ring nut (3) must be moved to contact the spring (7) and slackened one half of a turn.

BRAKE PEDAL

REMOVAL/REFITTING

- Remove the fuse box and its support bracket (see GROUP 55).
1. Turn and remove the stop light from its housing.
2. Remove the pin fastening the brake pedal to the servobrake.
3. Slacken the fastening nut and remove the brake pedal.

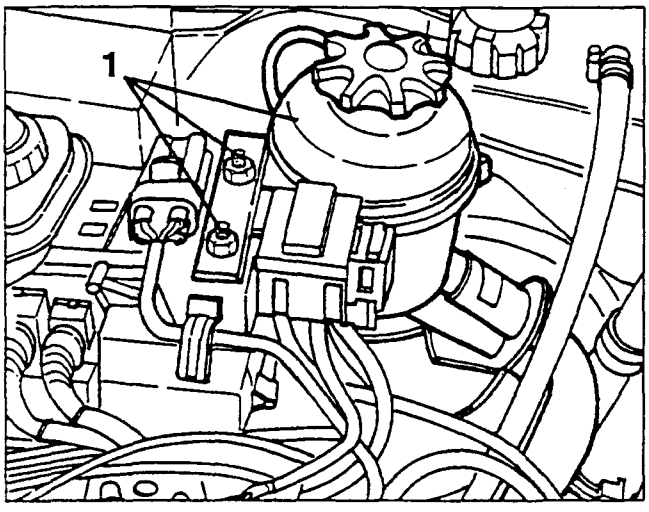


BRAKE/SERVOBRAKE PUMP

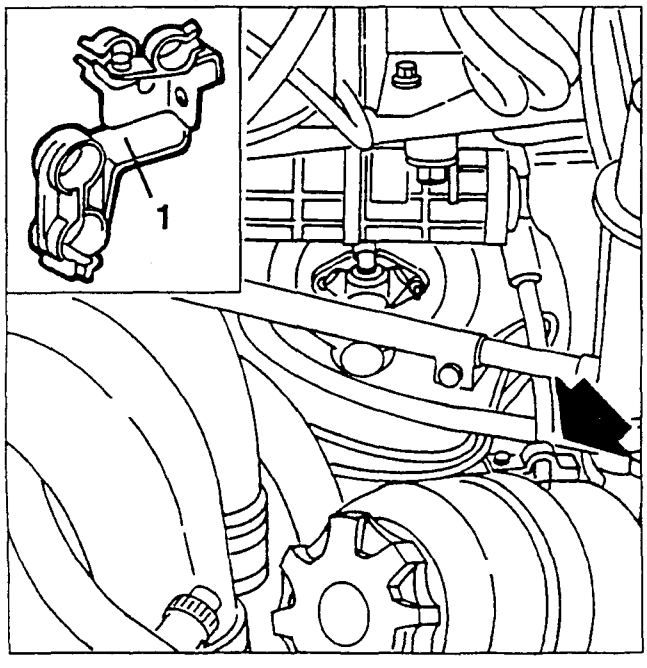
REMOVING/REFITTING
Specific for Boxer engines

- Set the car on a lift.
- Disconnect the battery (-) terminal.
- Using a suitable syringe, empty the brake-clutch fluid reservoir.
- Remove the front left wheel.
- Using a suitable syringe, empty the power steering tank.

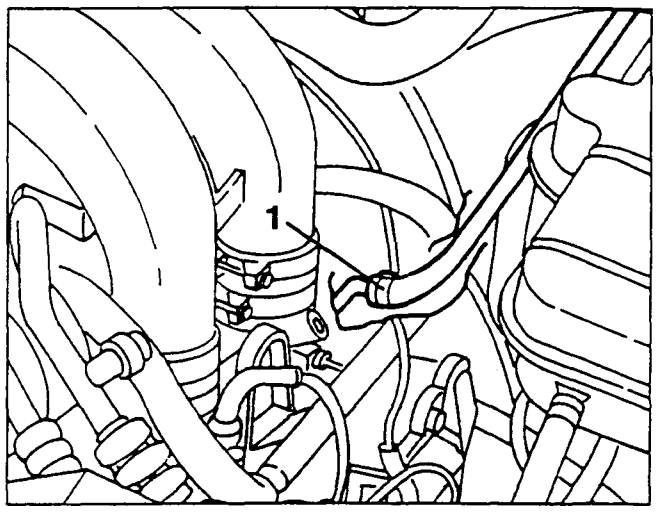
1. Slacken the two fastening nuts and move aside the power steering tank without disconnecting the pipes.



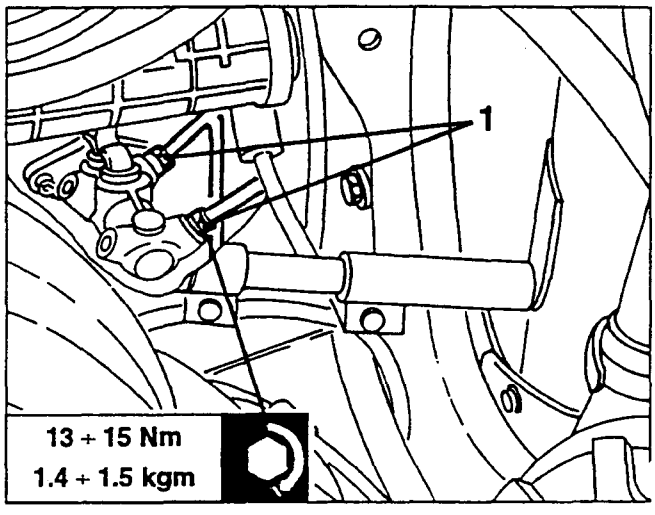
1.Release the power steering pipe, the clutch pipe and the air conditioner pipes from the fastening clamps, then slacken the two fastening screws and remove the bracket supporting the clamps.



1. Disconnect the servobrake vacuum takeoff pipe.



1. Disconnect the two fittings of the stiff delivery pipes from the brake pump.



1. Working from the passenger compartment, remove the pin fastening the servobrake prod to the pedal, then disconnect them.
2. Slacken the four servobrake fastening screws.