CITROËN

AC/DTAV/MMCB/MMEC
Méthodes Mécaniques

PRIVATE CARS

CITROËN C6

«The technical information contained in this document is intended for the exclusive use of the trained personnel of the motor vehicle repair trade. In some instances, this information could concern the security and safety of the vehicle. The information is to be used by the professional vehicle repairers for whom it is intended and they alone would assume full responsibility to the exclusion of that of the manufacturer».
«The technical information appearing in this brochure is subject to updating as the characteristics of each model in the range evolve. Motor vehicle repairers are invited to contact the CITROËN network periodically for further information and to obtain any possible updates».

2005

2005

CAR 000 023

PRESENTATION

THIS HANDBOOK summarises the specifications, adjustments, checks and special features of **CITROËN** private vehicles, not including UTILITY vehicles for which there exists a separate handbook.

The handbook is divided into groups representing the main functions:

GENERAL - ENGINE - INJECTION - IGNITION - CLUTCH, GEARBOX, DRIVESHAFTS - AXLES, SUSPENSION, STEERING - BRAKES - HYDRAULICS - AIR CONDITIONING.

IMPORTANT

If you find that this handbook does not always meet your requirements, **we invite you to send us your suggestions** which we will take into account when preparing future publications. For example:

- INSUFFICIENT INFORMATION.
- SUPERFLUOUS INFORMATION.
- NEED FOR MORE DETAILS.

Please send your comments and suggestions to:

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SL1 4BA.
U.K.

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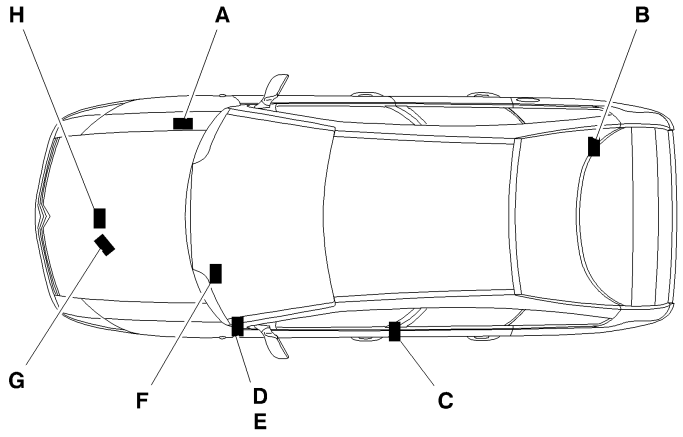
IDENTIFICATION OF VEHICLES



E1AP13LD

A - Chassis stamp
(cold stamp on suspension leg).

B - Chassis stamp
(cold stamp on bodywork below rear screen).

C - Manufacturer's data plate
(on the LH centre pillar).

D - AS/RP No. and RP paint code
(label on front pillar close to driver's door).

E - Inflation pressures and tyre references
(label on front pillar close to driver's door).

F - Serial no. on bodywork.

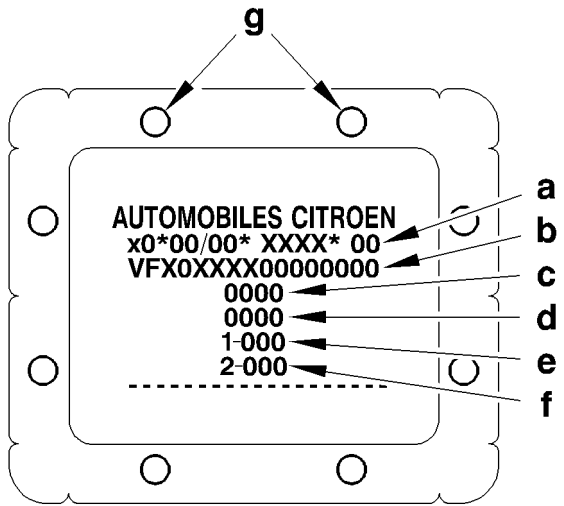
G - Gearbox reference - Factory serial no.

H - Engine legislation type - Factory serial no.

IDENTIFICATION OF VEHICLES		
	Petrol	**Diesel**
	ES	**DT**
	9	**17**
	A	**BTED4**
	3.0i 24 S	**2.7 24V HDi**
Emission standard	**E4**	
Type code	**TD XFVJ**	**TD UHZJ**
Engine type	XFV	UHZ
Cubic capacity (cc)	2946	2720
Fiscal rating (hp)	15	13
Gearbox type	AM6	AM6
Gearbox ident. plate	20 GH 07	20 GG 07

IDENTIFICATION OF VEHICLES

Manufacturer's plate



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The manufacturer's plate carries the following information:

(a) Type approval number **(*)**

(b) Type serial number **(VIN)**

(c) Gross vehicle weight **(*)**

(d) Gross vehicle weight **(*)**

(e) Maximum weight on front axle **(*)**

(f) Maximum weight on rear axle **(*)**

(g) Manufacturer identification

(*) = according to marketing country.

IDENTIFICATION OF VEHICLES

Type approval

Structure

TD XFVJ	T	Family **(1)**
	D	Bodywork **(2)**
	XFV	Engine **(3)**
	J	Version **(4)**

Family (1)

T	C6

Bodywork (2)

D	Saloon 4-door 3-box

Engine (3)

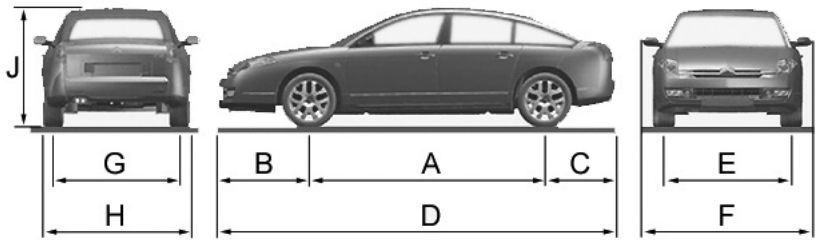
XFV	3.0i 24 S	ES9A
UHZ	2.7 24V HDi	DT17BTED4

Version (4)

	Depollution levels							
	L3	L4	Euro IV	US	Other	K	Alcohol	
	W3			83/87		K'	L3/L4	Euro IV
	A	B	C	P	V	5	8	1
		E	F	R	W	6	9	2
		G	H	S	X			3
		D	J	N				U
		K	L	T	Y	7	0	4
		M						
	Z							

GENERAL SPECIFICATION: DIMENSIONS

Exterior dimensions



E1AP13KD

GENERAL SPECIFICATION: DIMENSIONS

Exterior dimensions (mm)

Vehicles		All types
Wheelbase	**A**	**2900**
Front overhang	**B**	**1124**
Rear overhang	**C**	**884**
Length overall	**D**	**4908**
Front track at ground level	**E**	**1586**
Width overall	**F**	**2081**
Rear track at ground level	**G**	**1558**
Track width	**H**	**1860**
Height overall ODM	**J**	**1464**

ODM = Vehicle in running order *(vehicle empty, levels topped up)*.

Interior dimensions and volumes (mm)

Elbow width, front	**1503**
Elbow width, rear	**1510**
Height under boot	**490**
Minimum floor width	**1115**
Volume of boot below parcel shelf	**407 dm^3**

(*) = Boot floor can be moved and configured.

GENERAL SPECIFICATION: WEIGHTS

	ES9A	DT17BTED4
Versions	**3.0i 24S**	**2.7HDi 24V**
Engine type	**XFV**	**UHZ**
Gearbox type	**AM6**	
Payload	**455**	**464**
Weight empty in running order	**1816**	**1871**
Gross Vehicle weight	**2271**	**2335**
Gross Train weight	**3671**	
Max. trailer weight with brakes		
Incline 12 %	**1400**	**1400**
Incline 10 %	**1500**	
Incline 8 %	**1700**	
Max. trailer weight without brakes	**750**	
Maximum nose weight	**70**	
Maximum weight on roof bars	**80**	

NOTE: Maximum nose weight = Vertical load at the tow hook (CVA).

OPERATIONS TO BE CARRIED OUT BEFORE AND AFTER A DISCONNECTION OF THE BATTERY

Before reconnecting the battery.

Doors and tailgate.
WARNING: Before disconnecting the battery, partially open the door windows.

Automatic gearbox.
If the vehicle has to remain stationary: Pplace the gear lever in the parking position **"P"**.
If the vehicle has to be moved: Place the gear lever in the neutral position **"N"**.

Electric parking brake.
If the vehicle has to remain stationary: Activate the electric parking brake.
If the vehicle has to be moved: Deactivate the electric parking brake.

Features of the vehicle's electrical supply.
When the boot is closed and the battery is disconnected, it is possible to supply the vehicle by connecting another battery or a **12V** exterior supply.
Operations to be performed:
- Link the earth of the exterior supply to the vehicle earth.
- Link the **12V** of the exterior supply to the positive terminal of the battery + unit, in the front left hand side of the engine compartment.

After reconnecting the battery.

Antiscanning function.
It is necessary to wait **1 minute** after reconnecting the battery in order to be able to restart the vehicle.

Electric windows.
It may be necessary to re-initialise the sequential and anti-pinch functions.
NOTE: If the window is open at the time the battery is reconnected, action the window switch several times to close it, then re-initialise.
Open the window fully.
Action and release the window switch until the window is completely closed.
NOTE: This operation has to be carried out on each electric window.

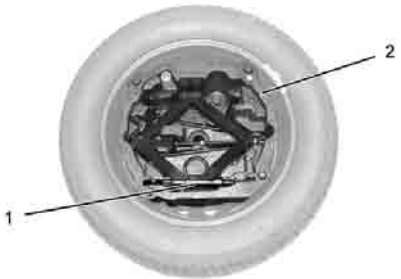
Sun roof.
The anti-pinch function has to be re-initialised.
Place the sun roof switch in the maximum tilt position.
Keep the sun roof switch pressed until the sun roof ceases its movement.
Release the sun roof switch.
Press the sun roof switch within **5 seconds**.
Keep the sun roof switch pressed until the end of the sun roof opening sequence.

Multifunction screen.
It is necessary to adjust the date, time and outside temperature.
Adjust the display language of the multifunction screen if necessary.
NOTE: The default display language of the multifunction screen is French.
Reconfigure the personalisation menu of the multifunction screen.

Radio.
Reprogramme the radio stations.
Telematic control unit *(RT3 radiotelephone).*
Reprogramme the radio stations.

Navigation.
Warning: the vehicle has to be out in the open *(when you switch on the ignition, the navigation ECU searches for satellites)*.
Reprogramme the customer parameters.

GENERAL SPECIFICATION: TOWING THE VEHICLE



E2AP02RD

WARNING: When the engine is not running, steering and braking are no longer power-assisted.

Open the boot.
Lift the boot floor plate.

Towing eye.
The towing eye **(1)** is to be found in the vehicle toolkit **(2)** stowed in the spare wheel.

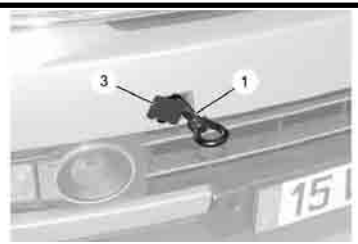
Front of the vehicle.

Open the flap **(3)**.
Screw in the towing eye **(1)**.

Rear of the vehicle.

Open the flap **(4)**.
Screw in the towing eye **(1)**.

Front towing



E2AP02SD

Rear towing

E2AP02TD

GENERAL SPECIFICATION: TOWING THE VEHICLE

Vehicle with automatic gearbox.

IMPERATIVE: Never tow the vehicle with the wheels hanging *(towing by the wheels)*.

Towing:

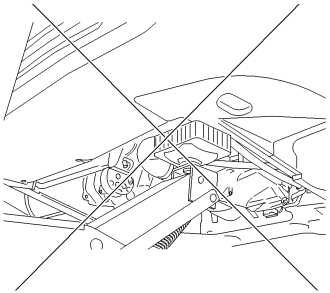
- It is necessary to raise the front of the vehicle, in order to tow it.
- If it is not possible to raise the front of the vehicle.
- It is essential to place the selection lever in position **"N"**.
- Do not add any oil.
- Do not exceed a speed of **70 km/h** ***(45 mph)*** on a journey of **100 Km** ***(60 miles)***.
- Never tow the vehicle backwards.
- Check that the parking brake is released.

Driving:
- Never drive with the ignition switched off.

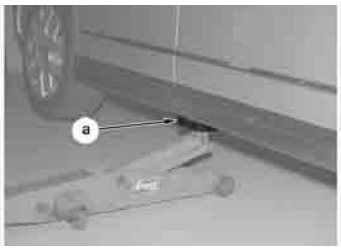
NOTE: The automatic gearbox is only lubricated when the engine is running.

Never push the vehicle to attempt to start it *(impossible with an automatic gearbox)*.

LIFTING AND SUPPORTING THE VEHICLE



E2AP016C



E2AP02LD

IMPERATIVE: Respect the safety and cleanliness requirements.

Lifting.

Front of the vehicle.

ATTENTION: Lifting the vehicle by the front can only be done one side at a time.

IMPERATIVE: Do not lift the vehicle by taking weight under the front subframe. Do not place blocks under the front subframe.

IMPERATIVE: Never take weight on the front panel support and the front part of the engine subframe.

IMPERATIVE: Place the jack under the centre pillar, inserting an elastomer shim at «a».

LIFTING AND SUPPORTING THE VEHICLE

E2AP02MD

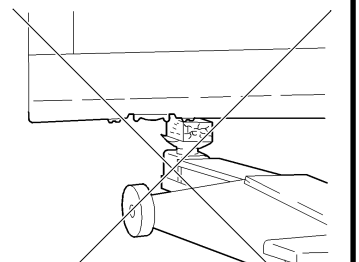
Rear of the vehicle.

IMPERATIVE: Do not lift under the spare wheel *(risk of deformation of the floor).* Do not lift under the rear axle crossmember.

Use lateral lifting as for the front of the vehicle, or rear lifting (see diagrams).

IMPERATIVE: Do not place a block between the jack and the strengthener «b».

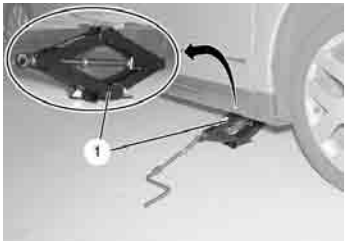
Place the jack under the strengthener **«b».**



E2AP017C

Lateral lifting.

IMPERATIVE: Do not place the jack outside the lifting points.



E2AP02ND

E2AP02QD

Lifting by vehicle jack.

NOTE: the vehicle jack, with the extension and handle, is to be found in the toolkit stowed in the spare wheel.

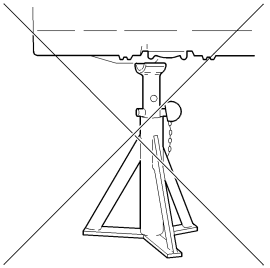
Front of the vehicle.

Correct position for the vehicle jack **(1).**

Rear of the vehicle.

Correct position for the vehicle jack **(1).**

LIFTING AND SUPPORTING THE VEHICLE



E2AP018C

Supporting the vehicle.

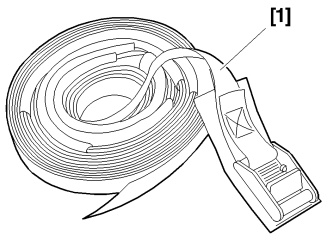
Incorrect positioning of the axle stand.

E2AP02PD

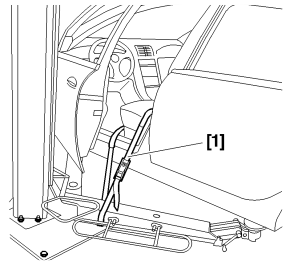
IMPERATIVE: Do not place the axle stands under the lugs of the jacking points.

Correct positioning of the axle stand.

LIFTING AND SUPPORTING THE VEHICLE



E5AP2DNC



E2AP02FC

Raising the vehicle on a lift, supported from the jacking points.

Equipment involved:
- Two-column lift.
- Auxiliary lift with blocks.

IMPERATIVE: Position the safety straps, if placing the vehicle on a lift supported from the jacking points *(risk of the vehicle overbalancing when a heavy component is removed)*.

Tooling required.

[1] Safety straps

Using the safety straps.
WARNING: Check the condition of the safety straps before using them, do not use worn safety straps.

WARNING: Do not use straps that show any signs of oil or grease *(risk of soiling the carpets and/or seats)*.

Place protections on the front seats and on the fragile parts of the vehicle.

Example:
- Two-column lift.
- Place the safety straps **[1]** under the arm of the lift and criss-crossing the vehicle.

CAPACITIES (in litres)

Draining methods

Oil capacities are defined according to the following methods

Draining of the engine lubrication system by **GRAVITY**	Draining of the engine lubrication system by **SUCTION**
Place the vehicle on horizontal ground *(in the high position if hydropneumatic suspension)*.	Place the vehicle on horizontal ground *(in the high position if hydropneumatic suspension)*.
The engine should be hot *(oil temperature **80°C**)*.	The engine should be hot *(oil temperature **80°C**)*.
Drain the sump by gravity.	Remove the oil by suction through the dipstick tube.
Remove the oil filter cartridge *(time for draining and drip-drip = **15 minutes** approx.)*.	Remove the oil filter cartridge.
Refit the cap with a new seal.	Maintain the suction of oil in the sump *(**15 minutes** approx.)*.
Refit a new oil filter cartridge.	Refit a new oil filter cartridge.
Refill the engine with oil *(see table for oil capacity)*.	Refill the engine with oil *(see table for oil capacity)*.
Start the engine to fill the oil filter cartridge.	Start the engine to fill the oil filter cartridge.
Stop the engine *(allow to stabilise for **5 minutes**)*.	Stop the engine *(allow to stabilise for **5 minutes**)*.
	WARNING: Remove the suction container before starting the engine.

ESSENTIAL: Systematically check the oil level using the oil dipstick.

CAPACITIES (in litres)

	Petrol	Diesel
	3.0i 24S	2.7 24V
	BVA	BVA
Engine type	XFV	UHZ
Engine with filter cartridge	5,25	
Max. after draining and change of filter (by suction)	5,75	
Max. after draining and change of filter (by gravity)	5,55	
Dry sump	5,95	
Between min. and max.	2	
Dry automatic gearbox	7	
Volume of oil remaining after draining	4	
Quantity of oil to be put back in after draining	3	
Hydraulic circuit	6,3	
Cooling circuit	11,3	13,2
Fuel tank	65	

LUBRICANTS - TOTAL recommended oils

Engine oil specifications

Commercial description	TOTAL ACTIVA or TOTAL ACTIVA QUARTZ				
	Synthetic 9000			Semi-synthetic 7000	
S.A.E. norms	0W40	5W30	5W40	10W40	15W40
Climate	Climate	Cold		Temperate	Hot
		Temperate		Hot	
Petrol engines	ACE: A3	ACE: A5	ACE : A3		
	API: SJ	API: SL			
Diesel engines (*) (**)	Prohibited	ACEA: B5	ACEA: B3 or B4	ACEA: B3	
		API: CF			
		Prohibited FAP			

(*) In the winter season, on HDi engines, it is recommended to use **5W40** oil instead of **10W40** oil, this to enhance starting from cold.
(**) Do not use **5W30** oil on HDi engines with particle filter **(FAP)**.

LUBRICANTS - TOTAL recommended oils

Gearbox oil

AM6 automatic gearbox	All countries	**JWS 3309 (ESSO)**

Power steering oil

Power-assisted steering	All countries	**LDS TOTAL H50126**

Engine coolant

		Packs	CITROËN references	
			GLYSANTIN G33	REVKOGEL 2000
All countries	CITROËN fluid Protection: -35C°	**2** Litres	**9979 70**	**9979 72**
		5 Litres	**9979 71**	**9979 73**
		20 Litres	**9979 76**	**9979 74**
		210 Litres	**9979 77**	**9979 75**

Synthetic brake fluid

		Packs	CITROËN references
All countries	CITROËN fluid	**1/2** Litre	**DOT 4**

Hydraulic circuit

	Norm		Packs	CITROËN references
All countries	Colour	**Orange**	**1** Litre	**TOTAL FLUIDE LDS**

LUBRICANTS - TOTAL recommended oils

Screen wash fluid

	Packs		CITROËN references		
All countries	Concentrate: **250** ml		**9980 33**	**ZC 9875 953U**	**9980 56**
	Fluid ready to use	**1** Litre	**9980 06**	**ZC 9875 784U**	
		5 Litres	**9980 05**	**ZC 9885 077U**	**ZC 9875 279U**

Greasing
General use

		NLGI norms
All countries	**TOTAL MULTIS 2**	**2**
	TOTAL PETITES MECANISMES	

Nota : NLGI = National Lubrificating Grease Institude.

ENGINE OIL CONSUMPTION

I - Oil consumption depends on:
- The engine type.
- How run-in or worn it is.
- The type of oil used.
- The driving conditions.

II - An engine can be considered **RUN-IN** after:
- 3 000 miles *(5 000 km)* for a **PETROL** engine.
- 6 000 miles *(10 000 km)* for a **DIESEL** engine.

III - MAXIMUM PERMISSIBLE oil consumption for a **RUN-IN** engine.
- 0.5 litres per **600 miles *(1 000 km)*** for a **PETROL** engine.
- 1 litre per **600 miles *(1 000 km)*** for a **DIESEL** engine.
DO NOT INTERVENE BELOW THESE VALUES.

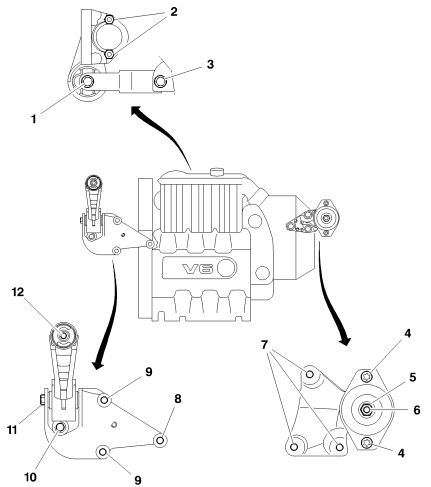
IV - OIL LEVEL: The level should **NEVER** be above the **MAX.** mark on the dipstick after changing or topping up the oil.
- This excess oil will be used up rapidly.
- It will reduce the engine output and adversely affect the operation of the air circuits and gas recycling.

ENGINE SPECIFICATIONS

	Engines: ES9A - DT17TED4	
	Petrol	Diesel
	3.0i 24S	2,7 24V
Engine type	**XFV**	**UHZ**
Cubic capacity (cc)	2946	2720
Bore/stroke	87/82,6	81x88
Compression ratio	10,9/1	17,3/1
Power ISO or EEC (KW - rpm)	155-6000	150-4000
Torque ISO or EEC (m.daN - rpm)	29-3750	44-1900

TIGHTENING TORQUES: POWER UNIT SUSPENSION

Engine: ES9A

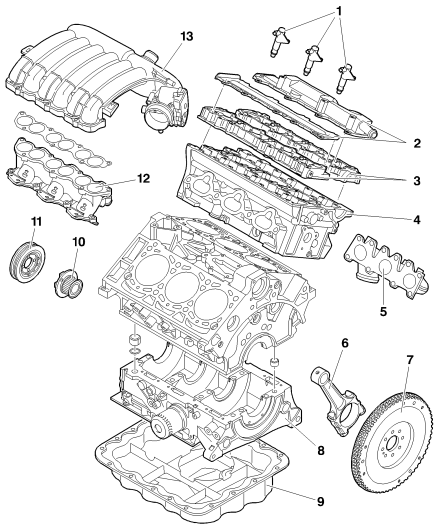


B1BP32YP

Torque reaction rod - lower RH engine support		
1		**6 ± 0,5**
2		**1 ± 0,1**
3		**6,5 ± 0,5**
LH engine support		
4		**3 ± 0,3**
5		**6,5 ± 0,6**
6		**5 ± 0,5**
7		**5,5 ± 0,5**
Upper RH engine support		
8-9		**6 ± 0,6**
10		**4,5 ± 0,5**
11		**6 ± 0,5**
12		**6 ± 0,5**

ENGINE TIGHTENING TORQUES

Engine: ES9A

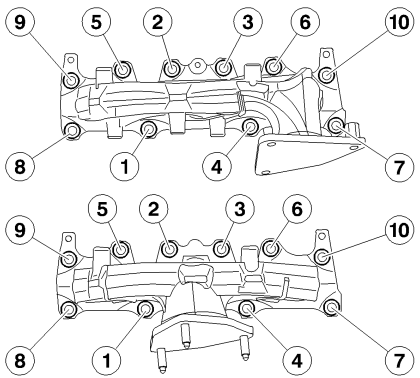


B1BP27DP

1	**Pencil-type ignition coil**	**0,8 ± 0,3**
	Sparking plugs	
	Pre-tightening	**1 ± 0,1**
	Angular tightening	**90° ± 5°**
2	**Valve cover**	
	Pre-tightening	**0,5 ± 0,1**
	Tightening	**1 ± 0,1**
3	**Camshaft bearing cap cover**	
	Pre-tightening	**0,2 ± 0,1**
	Tightening	**1 ± 0,1**
4	**Cylinder head**	
	Pre-tightening	**2 ± 0,2**
	Slackening	**yes**
	Tightening	**1,5 ± 0,1**
	Angular tightening	**225° ± 5°**

ENGINE TIGHTENING TORQUES

Engine: ES9A

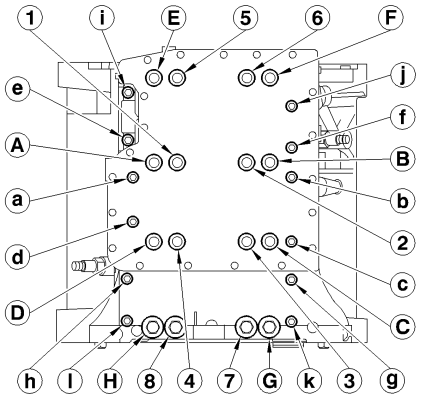


B1JP02LD

5	**Exhaust manifold** ***(equipped with a new gasket)***		
	Pre-tightening	*(order from 1 to 10)*	**1 ± 0,1**
	Tightening	*(order from 1 to 10)*	**3 ± 0,3**
6	**Con rod caps**		
	Pre-tightening		**2 ± 0,2**
	Angular tightening		**74° ± 5°**
7	**Engine flywheel**		
	Pre-tightening		**2 ± 0,2**
	Angular tightening		**60° ± 5°**

ENGINE TIGHTENING TORQUES

Engine: ES9A

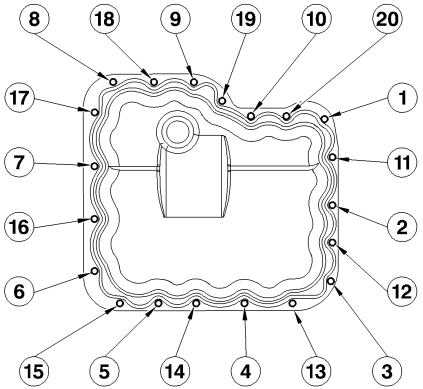


B1BP2D3D

8	Crankshaft bearing	
NOTE: Maximum length under heads for **M11 = 131,5 mm.**		
NOTE: Maximum length under heads for **M8 = 119 mm.**		
Perform the following operations: - Brush the screw threads. - Refit the screws having first pre-coated them with «**MOLYKOTE G RAPID PLUS**» grease on the threads and under heads.		
Check the presence of the eight centring pins		
Pre-tighten the screws **M11** *(sequence from **1** to **8**)*		**3 ± 0,3**
Pre-tighten the screws **M8** *(sequence from **A** to **H**)*		**1 ± 0,1**
Tighten the screws **M6** *(sequence from **a** to **1**)*		**1 ± 0,1**
Slacken the screws screws **M11** and **M8**		**Yes**
Proceeding screw by screw		
Tighten the screws **M11** *(sequence from **1** to **8**)*		**3 ± 0,3**
Angular tightening		**180°**
Tighten the screws **M8** *(sequence from **A** to **H**)*		**1 ± 0,1**
Angular tightening		**180°**

ENGINE TIGHTENING TORQUES

Engine: ES9A

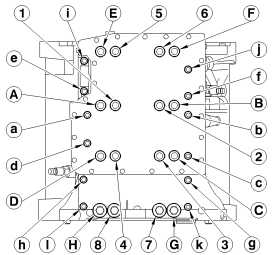


B1BP1GZD

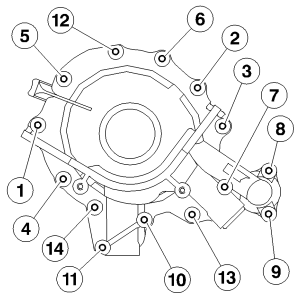
9	**Sump** Pre-tightening *(sequence from 1 to 20)* Tightening *(sequence from 1 to 20)*	**0,5 ± 0,1** **0,8 ± 0,1**
10	**Crankshaft pinion** Pre-tightening Angular tightening	**4 ± 0,4** **80°**
11	**Crankshaft pulley**	**2,5 ± 0,2**
12	**Inlet distributor *(with new seals)*** Pre-tightening Tightening	**0,4 ± 0,1** **0,8 ± 0,1**
	Air inlet manifold Pre-tightening Tightening	**13** **0,4 ± 0,1** **0,8 ± 0,1**

ENGINE TIGHTENING TORQUES

Engine: ES9A



B1BP2D3D

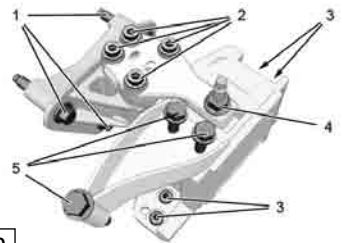


B1FP04KC

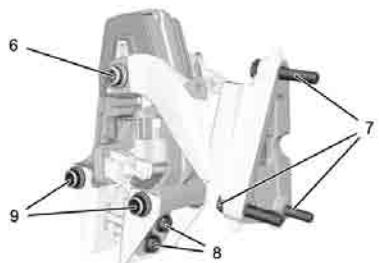
14	**Camshaft hubs** Pre-tightening Angular tightening	**2 ± 0,2** **57°**
15	**Cap**	**1,5 ± 0,1**
16	**Guide roller**	**8 ± 0,8**
17	**Camshaft pulley** Pre-tightening Angular tightening	**2 ± 0,2** **115°**
18	**Camshaft pulleys**	**1 ± 0,1**
20	**Timing belt tensioner roller**	**2,5 ± 0,2**
21	**Plate for the dynamic tensioner roller**	**2,5 ± 0,2**
22	**Coolant pump** Pre-tightening Tightening	 **0,5 ± 0,1** **0,8 ± 0,1**
19	**Oil pump** Pre-tightening Tightening	 **0,5 ± 0,1** **0,8 ± 0,1**

TIGHTENING TORQUES: POWER UNIT SUSPENSION

Engine: DT17BTED4



B1BP3EPD

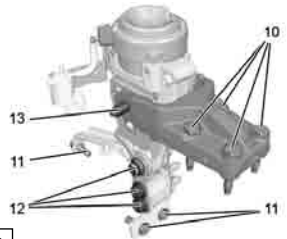


B1BP3EQD

RH engine support		
1	Screws	8,2 ± 1,25
2	Screws	6 ± 0,6
3	Screws	2,8 ± 0,4
4	Nut	6,5 ± 0,6
5	Screws	6 ± 0,6
Front piloted torque reaction rods		
6	Screws	6 ± 0,6
7	Screws	
8	Screws	4,3 ± 0,4
9	Screws	6 ± 0,6

TIGHTENING TORQUES: POWER UNIT SUSPENSION

Engine: DT17BTED4



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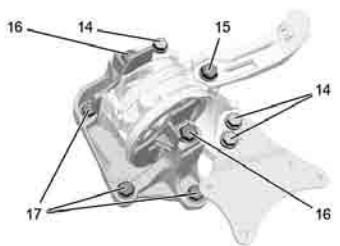
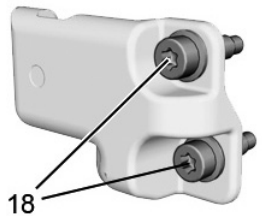


B2CP45CD

Rear piloted torque reaction rods		
10	**Screws**	**6 ± 0,6**
11	**Screws**	
12	**Screws**	
13	**Screws**	
LH gearbox support		
14	**Screws**	**6 ± 0,6**
15	**Screws**	**5,5 ± 0,8**
16	**Screws**	**6 ± 0,6**
17	**Screws**	**5,5 ± 0,8**

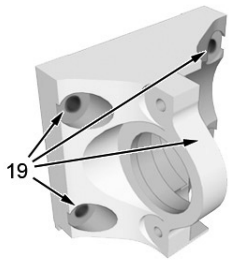
TIGHTENING TORQUES: POWER UNIT SUSPENSION

Engine: DT17BTED4



B2CP45DC

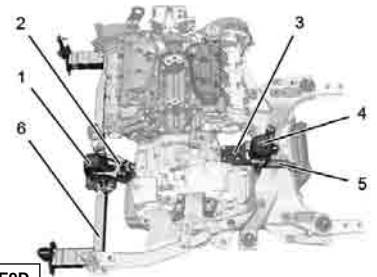
Gearbox impact absorber		
18	Screws	4 ± 0,6



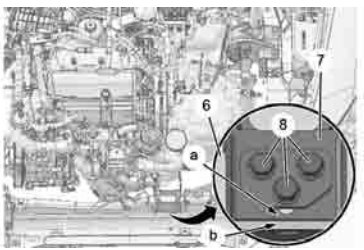
B2CP45EC

Driveshaft bearing		
19	Screws	6 ± 0,6

ADJUSTMENT OF PILOTED TORQUE REACTION ROD



B1BP3E9D



B1BP3EBD

Engine: DT17BTED4

IMPERATIVE: Respect the safety and cleanliness requirements.

IMPERATIVE: Respect the safety and cleanliness requirements specific to High pressure Diesel injection (HDi) engines.

Additional operations.

NOTE: The piloted torque reaction rods have to be adjusted in the event of removing the fixing yoke of the front piloted torque reaction rod **(1)**.

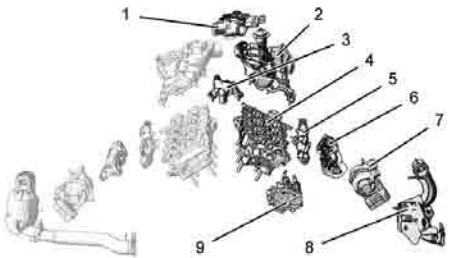
WARNING: Tighten the supports of the engine/gearbox assembly prior to adjusting the rods.

Fit the supports **(2)** and **(3)**, tighten the fixings **:**
Fit the tie-rod **(5)**, tighten the fixings **: 6,5 ± 0,6.**
Fit the rear piloted torque reaction rod **(4)**.
Fit the front piloted torque reaction rod **(1)**.
Tighten the fixings of the rear piloted torque reaction rod **(4)** **: 6,5 ± 0,6.**

Adjustment.
Position the lower edge **"a"** of the yoke **(7)** to **5 mm** from the lower edge **"b"** of the crossmember **(6)**.
Tighten the fixings **(8)** **: 6 ± 0,6.**
Tighten the fixings of the front piloted torque reaction rod **: 6 ± 0,6.**

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



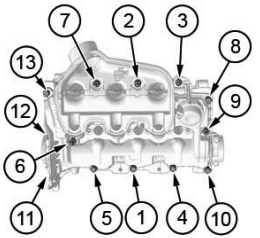
B1DP1LZD

Cylinder head		
1	**Butterfly housing**	**0,9 ± 0,2**
2	**Inlet valve cover screws (*)** **Inlet valve cover studs (*)**	
3	**Coolant outlet housing**	
4	**Cylinder heads** Pre-tightening Tightening Tightening Angular tightening	**2 ± 0,2** **4 ± 0,5** **8 ± 0,5** **180 ± 5°**
5	**EGR (exhaust gas recycling) electrovalve**	**0,9 ± 0,2**
6	**Exhaust manifold nuts** **Exhaust manifold studs**	**2,3 ± 0,3** **1,3 ± 0,2**
7	**Turbocharger nuts** **Turbocharger studs**	**2,3 ± 0,3** **1,3 ± 0,2**
8	**Pre-catalysers**	**2 ± 0,1**
9	**Vacuum pump**	**2,3 ± 0,3**

(*) Respect the sequence of tightening.

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4

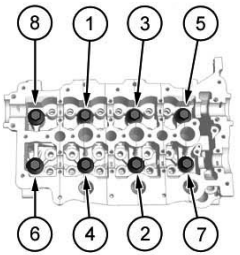


B1DP1M1C

Order of tightening of screws (2)

(2) Camshaft bearing cover screws *(from 1 to 13)*

(2) Camshaft bearing cover studs *(from 1 to 13)*



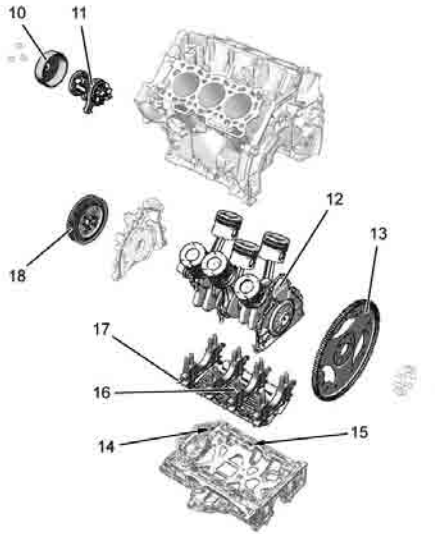
B1DP1M2C

Order of tightening of bolts (4) *(from 1 to 8)*

(4) Cylinder head bolts

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



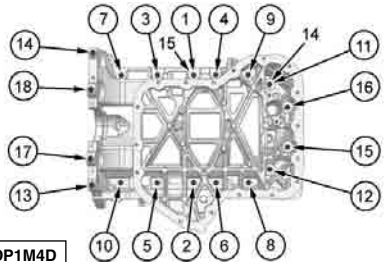
B1DP1M3P

	Cylinder block	
11	**Coolant pump**	**0,9 ± 0,2**
12	**Con rod screws** Pre-tightening Angular pre-tightening Angular tightening	 **2 ± 0,1** **45 ± 5°** **45 ± 5°**
13	**Starter gearwheel carrier** Pre-tightening Angular pre-tightening Angular tightening	 **5 ± 0,5** **45 ± 5°** **45 ± 5°**
14	**Lower engine block screw (*)**	**0,9 ± 0,2**
15	**Lower engine block screw (*)**	**2,3 ± 0,3**
16	**Bearing cap fixing screws (*)** Pre-tightening Tightening Angular tightening	 **6 ± 0,6** **14,5 ± 1,4** **90 ± 20°**
17	**Crankshaft bearing cap cover** Pre-tightening Tightening Angular tightening	 **1,5 ± 0,1** **3,3 ± 0,9** **47 ± 20°**
18	**Accessories drive pulley**	**2,5 ± 0,2**

(*) Respect the sequence of tightening.

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



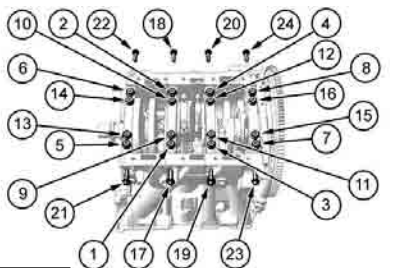
B1DP1M4D

Order of tightening for screws (14) and (15)

(14) Lower engine block screw *(screw **M6**)*
(15) Lower engine block screw *(screw **M8**)*

Method of tightening:

- Tighten the **10** screws **(15)** *(from 1 to 10)* to	**: 2,3 ± 0,3**
- Tighten the **8** screws **(14)** *(from 1 to 18)* to	**: 0,9 ± 0,1**



B1DP1M5D

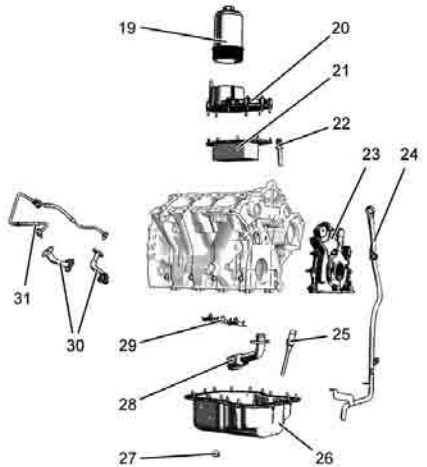
Order of tightening for screws (16) and (17)
(16) Bearing cap fixing screw *(screw **M9**)*
(17) Crankshaft bearing cap cover screw *(screw **M6**)*

Method of tightening:

- Pre-tighten the **16** screws **(16)** *(from 1 to 16)* to	**: 6 ± 0,6**
- Pre-tighten the **8** screws **(17)** *(from 17 to 24)* to	**: 1,5 ± 0,1**
- Pre-tighten the **16** screws **(16)** *(from 1 to 16)* to	**: 14,5 ± 2**
- Tighten the screws **(16)** *(from 1 to 16)*	**: 90° ± 20°**
- Tighten the 8 screws **(17)** *(from 17 to 24)* to	**: 3,3 ± 0,3**
- Tighten the screws **(17)** *(from 17 to 24)*	**: 47° ± 20°**

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4

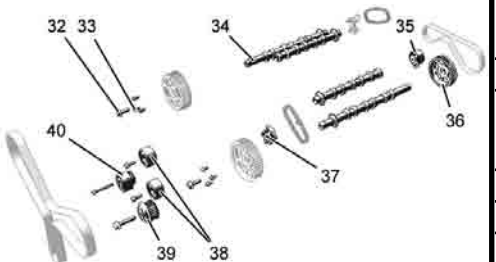


B1DP1M6P

	Lubrication	
19	Oil filter cover	2,3 ± 0,3
20	Oil filter support	0,9 ± 0,2
21	Oil/coolant heat exchanger	
22	Oil pressure switch	1,3 ± 0,2
23	Oil pump assembly	0,9 ± 0,2
24	Oil gauge	2,3 ± 0,3
25	Oil level sensor	2,7 ± 0,5
26	Oil sump	0,9 ± 0,2
27	Drain plug	2,3 ± 0,3
28	Oil suction strainer	0,9 ± 0,1
29	Piston skirt spray jets	1 ± 0,1
30	Turbocharger lubrication pipe	0,9 ± 0,2
31	Turbocharger lubrication pipe	1,3 ± 0,3

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



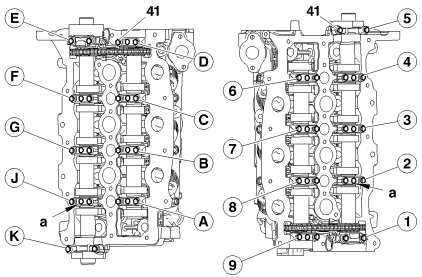
B1EP1JCD

	Valve timing	
32	**Camshaft pulley hub screw** Tightening Angular tightening	 **8 ± 0,8** **90° ± 5°**
33	**Camshaft pulley screw**	**2,3 ± 0,3**
34	**Camshaft bearing caps (*)** Tightening Pre-tightening	 **0,5 ± 0,1** **0,9 ± 0,1**
35	**Tensioner roller for the fuel high pressure pump drive belt**	**2,5 ± 0,2**
36	**Fuel high pressure pump drive pulley** Tightening Angular tightening	 **8 ± 0,8** **90° ± 5°**
37	**Camshaft timing chain tensioner**	**0,9 ± 0,1**
38	**Timing belt guide roller**	**4,5 ± 0,3**
39	**Timing pinion on crankshaft** Tightening Angular tightening	 **10 ± 1** **90° ± 5°**
40	**Timing belt tensioner roller**	**2,6 ± 0,2**

(*) Respect the sequence of tightening.

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



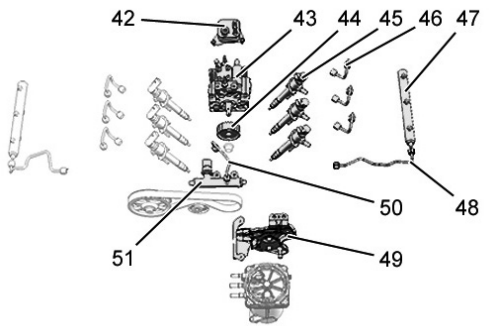
B1DP1MQD

IMPERATIVE: The camshaft bearing caps are marked at "a" with a letter on the front cylinder head and with a number on the rear cylinder head.

Refit the camshaft bearing caps according to the plan below:
Refit: The camshaft bearing caps **(34) 9, 8, 7, 6, 4, 3, 2, D, C, B, A, J, G** and **F** ; the screws **(41)**
Tightening of the screws **(41)**:
Pre-tighten the screws **(41)** of the camshaft bearing caps **(34)** by hand in the following sequence **9, 8, 7, 6, 4, 3, 2, D, C, B, A, J, G** and **F**.
Pre-tighten the screws **(41)** of the camshaft bearing caps **(34)** to **0,5 ± 0,1 m.daN** in the following sequence **9, 8, 7, 6, 4, 3, 2, D, C, B, A, J, G** and **F**.
Tighten the screws **(41)** of the camshaft bearing caps **(34)** to **1 ± 0,1 m.daN** in the following sequence **9, 8, 7, 6, 4, 3, 2, D, C, B, A, J, G** and **F**.
Apply sealing product **LOCTITE 518** on the camshaft bearing caps **(15) K, 5, E** and **J** *(see procedure: remove/refit camshaft)*.
Refit: the camshaft bearing caps **K, 5, E** and **J**.
Tightening of the screws **(41)**:
- Pre-tighten the screws **(41)** of the camshaft bearing caps **(34)** by hand in the following sequence **K, 5, E** and **J**.
- Pre-tighten the screws **(41)** of the camshaft bearing caps **(34)** to **0,5 ± 0,1 m.daN** in the following sequence **K, 5, E** and **J**.
- Tighten the screws **(41)** of the camshaft bearing caps **(34)** to **1 ± 0,1 m.daN** in the following sequence **K, 5, E** and **J**.

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4

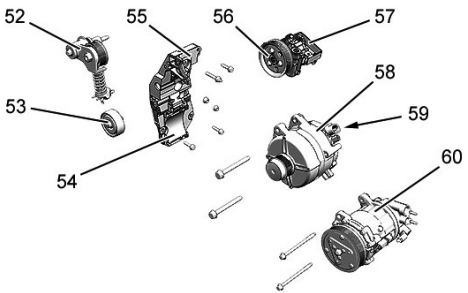


B1HP246D

	Injection circuit	
42	**Diesel fuel/cooolant exchanger**	**2,2 ± 0,3**
43	**Diesel injection pump on support**	**2,3 ± 0,3**
44	**Diesel injection pump pinion**	**5 ± 0,2**
45	**Diesel injector fixing flange screw**	**0,9 ± 0,1**
46	**Union on diesel injector** Pre-tightening Tightening	 **1,5 ± 0,3** **2,3 ± 0,3**
47	**Fuel high pressure common injection rail on engine block** Pre-tightening Tightening	 **1,5 ± 0,3** **3 ± 0,3**
48	**Unions on fuel high pressure common injection rail** Pre-tightening Tightening	 **1,5 ± 0,3** **3 ± 0,3**
49	**Fuel filter support**	**2,3 ± 0,3**
50	**Union on diesel fuel high pressure pump** Pre-tightening Tightening	 **1,5 ± 0,3** **3 ± 0,3**
51	**Fuel high pressure common injection intermediate rail** Pre-tightening Tightening	 **1,5 ± 0,3** **3 ± 0,3**

ENGINE TIGHTENING TORQUES

Engine: DT17BTED4



B1BP3C0D

Accessories		
52	**Screw M8 for automatic tensioner roller** *(accessories drive belt)* **Screw M10 for dynamic tensioner roller** *(accessories drive belt)*	**2,2 ± 0,3** **4,7 ± 0,7**
53	**Guide roller**	**4,7 ± 0,7**
54	**Accessories support**	**2,3 ± 0,3**
55	**Multifunction support**	**2,3 ± 0,3**
56	**Power steering pump pulley**	**2,3 ± 0,3**
57	**Power steering pump**	**2,3 ± 0,3**
58	**Alternator screw**	**5 ± 0,3**
59	**Alternator power circuit**	**1,4 ± 0,2**
60	**Aircon compressor screw**	**2,3 ± 0,3**

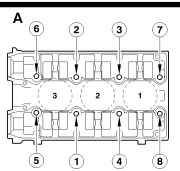
SPECIAL FEATURES: CYLINDER HEAD TIGHTENING

Engine: ES9A

Cleaning to be carried out just prior to refitting the cylinder head

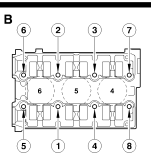
WARNING: Clean the contact faces with the approved CITROËN cleaning product.
Do not use abrasives or cutting tools on the contact faces.
The contact faces must not bear any traces of impact or scratching.
Insert a tap in the threads of the holes in the cylinder block receiving the cylinder head bolts.
Brush the threads of the cylinder head bolts.
Oil the threads and under the heads of the bolts, using **MOLYKOTE G RAPID PLUS**.

Front cylinder head



B1DP1KEC

Rear cylinder head



B1DP1KHC

Engine	Tightening *(from 1 to 8)*		X = MAX. re-usable length
ES9A	Pre-tightening	**2 ± 0,2**	**149,5 mm**
	Slackening	**yes**	
	Tightening	**1,5 ± 0,1**	
	Angular tightening	**225° ± 5°**	

IMPERATIVE: Take new screws if their length is greater than X mm.

NOTE: Tightening of the cylinder head after a repair is prohibited.

SPECIAL FEATURES: CYLINDER HEAD TIGHTENING

Engine: DT17BTED4

Cleaning to be carried out just prior to refitting the cylinder head

WARNING: Clean the contact faces with the approved CITROËN cleaning product.

Do not use abrasives or cutting tools on the contact faces.

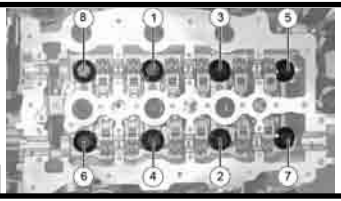
The contact faces must not bear any traces of impact or scratching.

Insert a tap in the threads of the holes in the cylinder block receiving the cylinder head bolts.

Brush the threads of the cylinder head bolts.

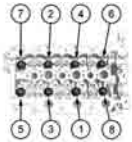
Oil the threads and under the heads of the bolts, using **MOLYKOTE G RAPID PLUS**.

Front cylinder head



B1DP1MDD

Rear cylinder head



B1DP1MLC

Engine	Tightening *(from 1 to 8)*		NOT re-usable
DT17BTED4	Pre-tightening Tightening Tightening Angular tightening	**2 ± 0,2** **4 ± 0,4** **8 ± 0,8** **180° ± 5°**	**New screws**

NOTA : Tightening of the cylinder head after a repair is prohibited.

BELT TENSION/SEEM UNITS CORRESPONDENCE TABLE

4099-T (C.TRONIC.105) ← **Tools** → **4122-T** (C.TRONIC.105.5)

TYPE DE COURROIES \ 1 daN = 1 Kg daN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	daN 1 daN = 1 Kg TYPE DE COURROIES
S	18	28	36	44	51	58	64	70	76	82	88	94	100	106	112						
	18	28	36	44	51	58	64	70	76	82	88	94	100	106	112						
P E	E5	18	23	27	31	34	37	40	43	46	49	52	54	56	58	60	62	64	66	68	
	E6	25	32	39	45	50	54	58	62	66	70	74	78	81	84	86	88	89	90	91	
		32	41	48	55	62	69	76	83	90	96	102	108	114	120	126	132	138	144	150	
P E 10	E6	27	36	43	49	55	61	66	71	76	80	84									
		32	41	49	57	63	69	75	81	87	93	99									
P E 11	E6	26	35	42	48	53	58	63	68	73	78	82									
		30	40	47	54	61	68	75	81	87	93	99									
P E 13	E7	45	55	65	74	83	89	95	101	107	113	119									
		36	49	52	64	73	80	86	92	98	104	110									
T E 10	E7	28	34	39	44	48	52	56	60	64	68	71									
		34	41	48	55	62	69	76	83	89	96	102									
T E 11	E8	32	39	45	51	56	61	66	71	76	79	81									
		37	43	51	59	66	73	80	86	92	98	104									
T E 13	E9	52	60	67	74	81	88	94	100	106	110	114									
		49	57	63	69	75	81	87	93	99	105	111									

AUXILIARY EQUIPMENT DRIVE BELT		
	Petrol	Diesel
	3.0i 24S	2,7 24V
Engine type	XFV	UHZ
C6	X	X
See pages:	47 to 48	49

AUXILIARY EQUIPMENT DRIVE BELT

Engines : all types Petrol and Diesel

Tools.

Belt tension measuring instrument **: 4122-T.(C.TRONIC 105.5).**

WARNING: If using tool 4099-T (C.TRONIC 105).

Essential.

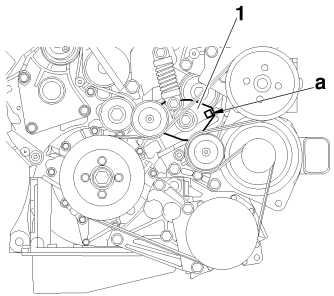
Before refitting the auxiliary equipment drive belt, check that:

- 1 / The roller(s) rotate freely *(no play or stiffness).*

- 2 / The belt is correctly engaged in the grooves of the various pulleys.

AUXILIARY EQUIPMENT DRIVE BELT

Engine: ES9A



B1BP27EC

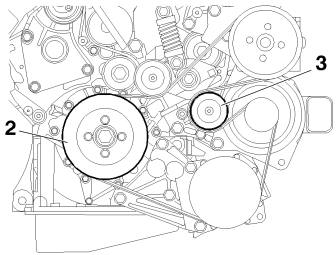
Tools.

[1] Ratchet spanner **S.171 FACOM** ***(1/2 square)*** **: S 171**
[2] Reduction box **S.230 FACOM** ***(1/2 - 3/8)*** **: S 230**

Removing.
Remove the engine cover.
Pivot the tensioner roller bracket **(1)** clockwise, until it locks, using tools **[1]** and **[2]** at **«a»**.
Remove the auxiliary equipment drive belt.
ESSENTIAL: Check that the guide rollers are turning freely *(no play and no tightness)*.

Refitting.
Refit the auxiliary equipment drive belt.
Respect the following order of assembly:
- The crankshaft pulley **(2)**.
- The tensioner roller **(3)**.

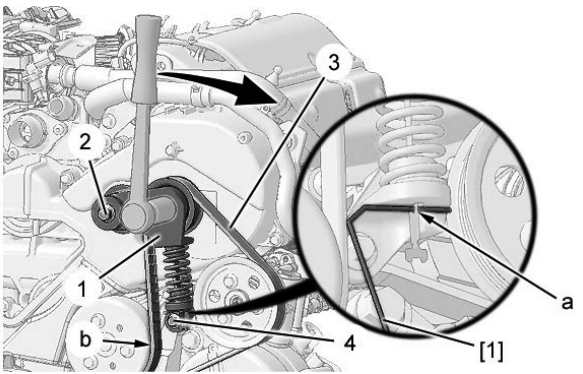
Release the tensioner roller bracket **(1)**, by turning it anti-clockwise, using tools **[1]** and **[2]**.
ESSENTIAL: Make sure that the belt is correctly positioned in the grooves of the various pulleys.



B1BP27FC

AUXILIARY EQUIPMENT DRIVE BELT

Engine: ES9A



B1BP3BSD

Tool.

[1] 2 mm diameter peg **: (-).0188-Q1**

Removing.

Remove:
- The under-engine sound-deadening.
- The front RH wheel.
- The RH splash-shield.
- The air duct *(linking the air distributor heat exchanger)*.

Compress the dynamic tensioner roller **(1)** to free the pegging hole at **"a"**.

Peg the dynamic tensioner roller at **"a"**, using tool **[1]**.

WARNING: Do not compress the dynamic tensioner roller completely *(risk of damage)*.

WARNING: Mark the direction of fitting of the auxiliary equipment drive belt if for re-use.

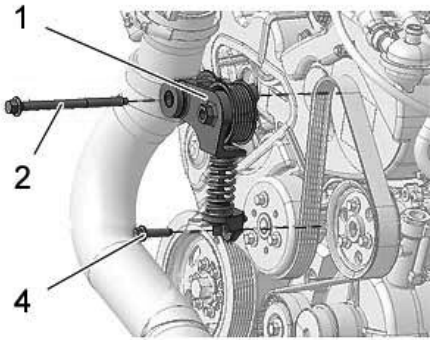
Disengage the auxiliary equipment drive belt from the various pulleys, commencing at **"b"** *(coolant pump pulley)*.

Remove:
- The screws **(2)** and **(4)**.
- The dynamic tensioner roller **(1)**.
- The auxiliary equipment drive belt **(3)**.

ESSENTIAL: Check that the tensioner and guide rollers as well as the coolant pump can turn freely *(without play, without tight spots and without projections of grease)*.

AUXILIARY EQUIPMENT DRIVE BELT

Engine: DT17BTED4



B1BP3BVC

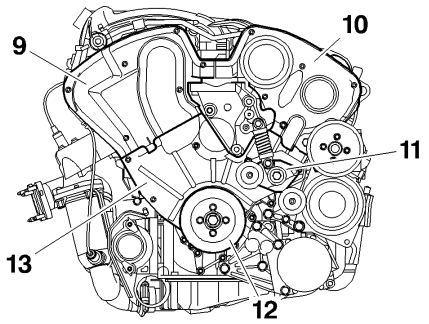
Refitting.
WARNING: If re-using the auxiliary equipment drive belt, refit it respecting its direction of fitting.
Fit the auxiliary equipment drive belt.
ESSENTIAL: Make sure that the auxiliaries drive belt is correctly positioned in the grooves of the various pulleys.
Refit:
- The dynamic tensioner roller **(1)** by engaging the belt on the roller.
- The screws **(2)** and **(4).**

Tighten:
- Screw **(2)** **: 5 ± 0,5.**
- Screw **(4)** **: 2,3 ± 0,2.**

Compress the dynamic tensioner roller.
Remove tool **[1].**
ESSENTIAL: Make sure that the auxiliaries drive belt is correctly positioned in the grooves of the various pulleys.
Refit:
- The air duct *(linking the air distributor heat exchanger).*
- The RH splash-shield.
- The front RH wheel.
- The under-engine sound-deadening.

CHECKING AND SETTING THE VALVE TIMING		
	Petrol	Diesel
	3.0i 24BS	2,7 24V
Engine type	XFV	UHZ
C6	X	X
See pages:	51 to 57	58 to 67

CHECKING THE VALVE TIMING



B1BP2BKC

Engine: ES9A

Tools.

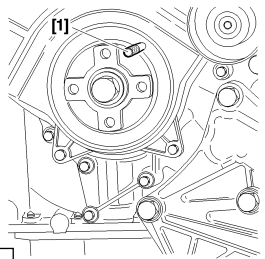
[1] Camshaft setting pegs	**: (-).0187.B**
[2] Crankshaft setting peg	**: (-).0187.A**
[3] Fuel pressure take-off union	**: 4192-T**
[4] Belt retaining pin	**: (-).0187.J**
[5] Exhaust camshaft hubs immobilising tool	**: (-).0187.F**
[6] Inlet camshaft hubs immobilising tool	**: FACOM D12**
[7] SEEM belt tension measuring equipment	**: 4122-T**

Remove components as necessary for this operation.
Remove the auxiliaries drive belt *(see corresponding operation)*.

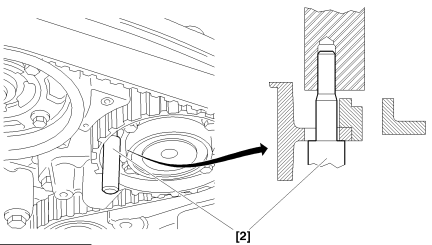
Checking the valve timing.

Remove:
- The power steering pulley.
- The roller/dynamic tensioner assembly **(11)**.
- The crankshaft pulley **(12)**.
- The upper timing covers **(9)** and **(10)**.
- The lower timing cover **(13)**.

CHECKING THE VALVE TIMING



B1EP08TC



B1EP15UD

Engine: ES9A

Checking the valve timing (continued).

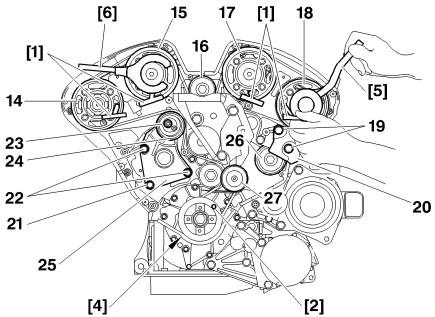
Peg the crankshaft, using tool **[1]**.
Check that the tool **[2]** engages without effort in the cylinder heads at the camshaft pulleys.
Remove the tools **[1]** and **[2]**.

Refit:
- The lower timing cover **(13)**.
- The upper timing covers **(9)** and **(10)**.
- The crankshaft pulley **(12)**.
- The roller/dynamic tensioner assembly **(11)**.
- The power steering pulley.

Complete the refitting of components.

Initialise the ignition injection ECU.

CHECKING AND SETTING THE VALVE TIMING



B1EP15VD

Engine: ES9A

Setting the valve timing.

Remove the components as necessary for the operation.

Remove the screws **(19)** and the plate **(20)**.
Peg the crankshaft, using tool **[2]**.

NOTE: Damp the rotation of the camshafts **(15)** and **(17)**, using tool **[6]**.

Untighten the camshaft pulley screws **(15)** and **(17)**.

NOTE: Damp the rotation of the camshafts **(14)** and **(18)**, using tool **[5]**.

Untighten the camshaft pulley screws **(14)** and **(18)**.

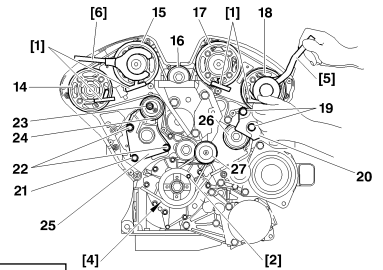
NOTE: Lubricate the tools **[1]**, with grease **G6** ***(TOTAL MULTIS)***.

Peg the camshafts, using tools **[1]**, **[5]** and **[6]**.
Remove the screw **(21)** of the panel **(25)**.
Untighten the nut **(23)** of the tensioner roller **(24)**.
Untighten the screws **(22)** of the panel **(25)**.
Remove the guide roller **(16)**.

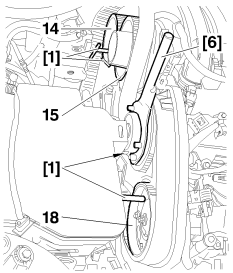
WARNING: Mark the direction of fitting of the timing belt, in case the belt is to be reused.

Remove the timing belt.

CHECKING AND SETTING THE VALVE TIMING



B1EP15VD



B1BP2BLC

Engine: ES9A

Setting the valve timing (continued).

Refitting.

Check that the camshafts and the crankshaft are correctly pegged.
Check that the rollers and the coolant pump pulley are turning freely *(no tightness)*.
Loosen the camshaft pulley screws by a **1/4 turn**.
Make sure that the pulleys are turning freely on the camshaft hub.
Turn the camshaft pulleys in a clockwise direction, to end of slots.

WARNING: Respect the direction of fitting of the belt: Facing the timing, the inscriptions on the belt should be readable the correct way up.

Fit the timing belt on the crankshaft pinion.
Position the tool **[6]**.
Position the timing belt in the following sequence *(belt well tensioned)*:
- The roller **(26)**, the pulley **(18)**, the pulley **(17)**.

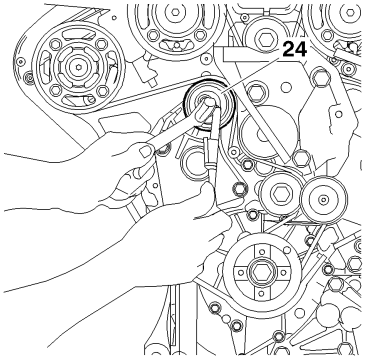
WARNING: Keep the timing belt well tensioned.

- Refit the guide roller **(16)**, tighten to **8 ± 0,8 m.daN**.

Position the timing in the following sequence:
- The camshaft pulleys **(15)** and **(14)**, the tensioner roller **(24)**, the coolant pump pulley and the guide roller **(27)**.

NOTE: When positioning the belt on the camshaft pulleys, turn these clockwise so as to engage the next tooth. The angular displacement of the pulleys should not be more than the equivalent of one tooth.

CHECKING AND SETTING THE VALVE TIMING



B1EP15WC

Engine: ES9A

Setting the valve timing (continued).

Adjusting the timing belt tension.

Preliminary operations.
Pivot the plate **(25)** of the tensioner roller **(24)**, using a spanner *(type **FACOM S.161**)*.
Engage the screw **(21)** on the plate **(25)**.
Tighten the screws **(21)** and **(22)**, tighten to **2,5 ± 0,1 m.daN**.

Act on the tensioner roller **(24)** so as to tension the belt, using a spanner *(type **FACOM R 161**)*.

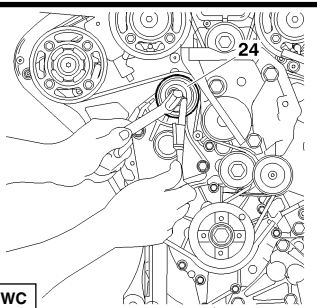
Adjust the belt tension, using tool **[7]**:

- Measuring equipment **SEEM CTI 901.1** : **440 ± 15 SEEM** units.
- Measuring equipment **SEEM CTG 105.5** : **83 ± 2 SEEM** units.
- Measuring equipment **SEEM CTG 105.6** : **88 ± 2 SEEM** units.

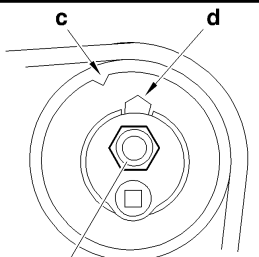
WARNING: Never go beyond the tensioner limit.

NOTE: The check of the belt tension is done on the longest belt section between the crankshaft pinion and the guide roller.

CHECKING AND SETTING THE VALVE TIMING



B1EP15WC



B1EP15XC

Engine: ES9A

Tighten the nut **(23)** of the tensioner roller **(24)**, tighten to **1 ± 0,1 m.daN**.

Check that the exhaust camshaft pulley screws are not at the end of slots *(by loosening one screw)*.

WARNING: Otherwise, restart the operation for positioning the timing belt.

Tighten at least **2 screws** per exhaust camshaft pulley to **1 ± 0,1 m.daN**.

Remove the tools **[1]**, **[2]** and **[4]**.

Rotate the crankshaft **2 turns** in a clockwise direction.

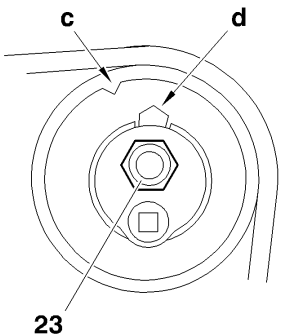
IMPERATIVE: Never turn it back.

Peg the crankshaft, using tool **[2].**

Peg the camshaft pulleys, using tool **[1]**.

Slacken the nut **(23)** of the tensioner roller **(24)**.

CHECKING AND SETTING THE VALVE TIMING



B1EP15XC

Engine: ES9A

Tensioning the timing belt.
Act on the tensioner roller **(24)** so as to align the marks **«c»** and **«d»**, without detensioning the timing belt *(failing this, restart the operation of adjusting the belt tension)*.
Hold the tensioner roller **(24)**.
Tighten the nut **(23)**, tighten to **1 ± 0,1 m.daN**.
Check the position of the tensioner roller *(the alignment of the marks «**c**» and «**d**» should be correct)*.
Remove the tools **[1]**, **[2]** and **[4]**.
Turn the crankshaft **2 rotations** clockwise.

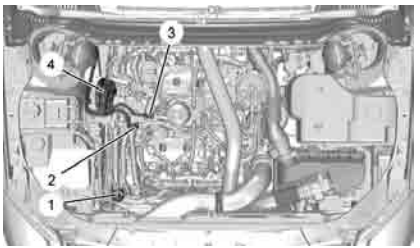
IMPERATIVE: Never turn it back.

Peg the crankshaft, using tool **[2]**.
Check the position of the tensioner roller *(the alignment of the marks «**c**» and «**d**» should be correct)*.
Peg the camshaft pulleys, using tool **[1]**.
If the peg **[1]** goes in: Loosen the exhaust camshaft pulley screws by **45**°.
If the peg **[1]** does not go in: Slacken the exhaust camshaft pulley screws by **45**°.
Bring the exhaust camshaft hub to the pegging position **(5)**, using tool **[5]**.

WARNING: Check that the exhaust camshaft pulleys are not at the end of slots. Otherwise, restart the operation to position the timing belt.

Tighten the exhaust camshaft pulley screws to **1 ± 0,1 m.daN**.
Remove tools **[1]** and **[2]**.
Complete the refitting.
Initialise the injection ECU *(see corresponding operation)*.

CHECKING THE VALVE TIMING



B1BP3BXD

Engine: DT17BTED4

Tools.

[1] Set of plugs	**: (-).0188-T**	
[2] Flywheel setting peg (double flywheel)	**: (-).0195.K**	**Toolkit 0188-T**
[3] Camshaft setting pegs	**: (-).0195.H**	**Toolkit 0188-T**

Checks.

IMPERATIVE: Respect the safety and cleanliness requirements specific to High pressure Diesel injection (HDi) engines.

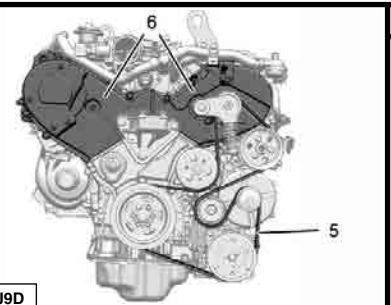
Remove the engine cover.
Disconnect the battery negative terminal.
Raise and support the front of the vehicle.

Remove:
- The under-engine sound-deadening.
- The front RH wheel.
- The front RH splash-shield *(see corresponding operation)*.

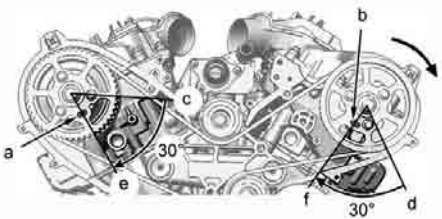
Remove:
- The air duct between the air/air exchanger and the air inlet housing **(4)**.
- The air inlet housing **(4)**.

Uncouple, plug and move aside the pipes **(2)** and **(3)**, using tools **[1]**.
Unclip and move aside the electrical harness.
Remove the venting chamber fixing **(1)**.
Move aside the venting chamber **(1)**.

CHECKING THE VALVE TIMING



B1EP1J9D



B1EP1JAD

Engine: DT17BTED4

Remove:

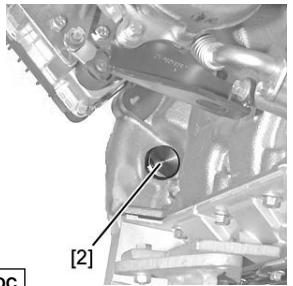
- The auxiliary drive belt **(5)** *(see corresponding operation).*

- The upper timing covers **(6)**.

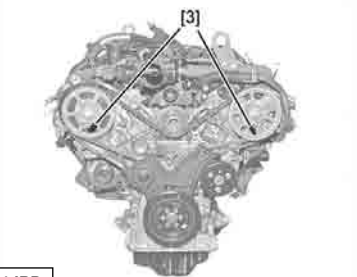
Position the camshaft pegging holes **"a"** and **"b"** at **"c"** and **"d"**, **30° ± 5°** forward of their pegging holes **"e"** and **"f"**.

NOTE: Turn the crankshaft in the normal direction of rotation, by means of the crankshaft pinion screw.

CHECKING THE VALVE TIMING



B1DP1MOC



B1EP1JBD

Engine: DT17BTED4

Remove the plug from the pegging hole on the cylinder block.

NOTE: Removing the particle filter and catalytic converter flexible pipe assembly facilitates removal of the plug from the pegging hole and the positioning of the tool **[2]**.

NOTE: Turn the crankshaft in the normal direction of rotation, by means of the crankshaft pinion screw.

Peg the crankshaft, using tool **[2]**.
Peg the camshafts, using tools **[3]**.

IMPERATIVE: If it is not possible to peg the camshafts, restart the setting of the valve timing *(see corresponding operation)*.

Remove the tools **[2]** and **[3]**.
Refit the plug on the pegging hole on the cylinder block.

Refit:
- The upper timing covers **(6)**.
- The auxiliary drive belt **(5)** *(see corresponding operation)*.

Reclip the electrical harness.
Fit the venting chamber **(1)**.
Remove the tools **[1]**.
Reposition and connect the pipes **(2)** and **(3)**.
Complete the refitting.

CHECKING AND SETTING THE VALVE TIMING

Engine: DT17BTED4

Tools.

[1] Kit of plugs	**: (-).0188-T**	
[2] Flywheel setting peg *(double damping flywheel)*	**: (-).0195.K**	**Toolkit 0188-T**
[3] Camshaft setting pegs	**: (-).0195.H**	**Toolkit 0188-T**
[4] Belt compressure spring	**: (-).0188.K**	
[5] Coolant pump pulley peg	**: (-).0195.C**	
[6] Lifting bracket	**: (-).0195.N**	

IMPERATIVE: Respect the safety and cleanliness requirements.

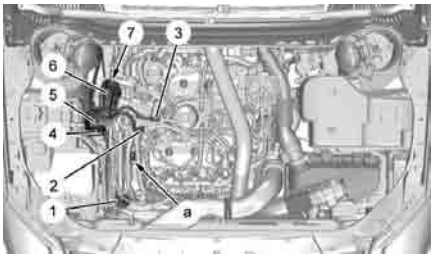
WARNING: Before disconnectng the battery, partially open the door windows.

Removing.

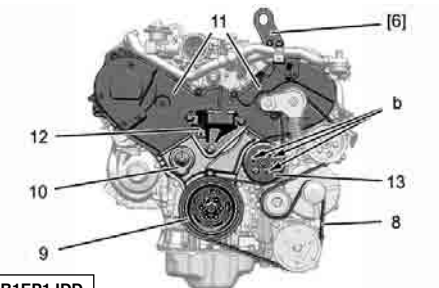
IMPERATIVE: Respect the safety and cleanliness requirements specific to High pressure Diesel injection (HDi) engines.

Remove the engine cover.
Disconnect the negative terminal of the battery.
Raise and support the front of the vehicle.
Remove:
- The under-engine sound-deadening.
- The front RH wheel.
- The front RH splash-shield *(see corresponding operation)*.

CHECKING AND SETTING THE VALVE TIMING



B1BP3C2D



B1EP1JDD

Engine: DT17BTED4

Remove:
- The air duct between the air/air exchanger and the air inlet housing **(6)**.
- The air inlet housing **(6)**.

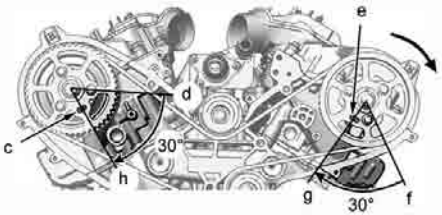
Uncouple, plug and move aside the pipes **(2)** and **(3)** using tool **[1]**.
Detach and move aside the electrical harness.
Remove:
- The header tank fixing **(1)**.
- The **"Swirl"** electrovalve fixings **(7)**.

Move aside:
- The **"Swirl"** electrovalve **(7)** with its support.
- The header tank **(1)**.

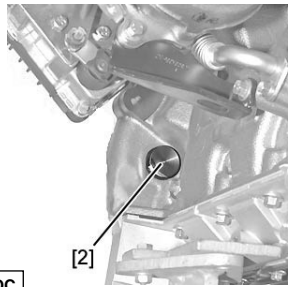
Position the lifting bracket **[6]** at **"a"**.
Support the engine by means of a workshop hoist.
Remove:
- The upper RH engine support tie bar, and the upper RH engine support **(5)**.
- The engine support **(4)** on the chassis member.
- The accessories drive belt **(8)** *(see corresponding operation)*.
- The engine support **(12)**, the crankshaft pulley **(9)**, the upper timing covers **(11)**.
- The lower timing cover **(10)**.

Line up one of the three holes **"b"** on the pulley with the hole on the body of the coolant pump.
Immobilise the coolant pump pulley, using tool **[6]**.
Remove the coolant pump pulley **(13)**.

CHECKING AND SETTING THE VALVE TIMING



B1EP1JED



B1DP1MOC

Engine: DT17BTED4

Position the camshaft pegging holes **"c"** and **"e"** at **"d"** and **"f"**, **30° ± 5°** in front of the pegging holes **"h"** and **"g"**.

NOTE: Turn the crankshaft in the normal direction of rotation, by means of the crankshaft pinion screw.

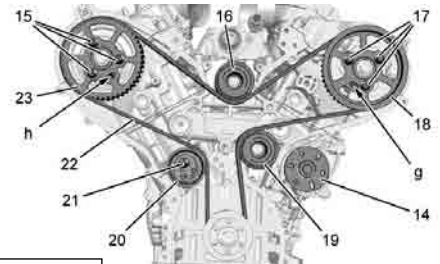
Remove the plug from the pegging hole on the cylinder block.

NOTE: Turn the engine by means of the crankshaft pinion screw to bring it to the pegging position *(following the arrow)*.

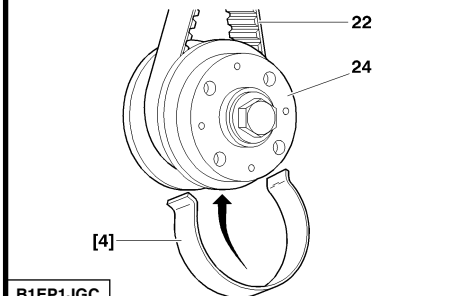
Peg the crankshaft using the tool **[2]**.

NOTE: Removing the particle filter and catalytic converter flexible pipe assembly facilitates the removal of the plug from the pegging hole and the positioning of tool **[2]**.

CHECKING AND SETTING THE VALVE TIMING



B1EP1JFD



B1EP1JGC

Engine: DT17BTED4

Peg the camshafts, using tools **[3]** at **"h"** and **"g"**.

Slacken:
- The **3 screws (15)** of the camshaft pulley **(23).**
- The **3 screws (17)** of the camshaft pulley **(18).**
- The screw **(21)** of the tensioner roller **(20).**

Remove the timing belt **(22)**.

Checks.

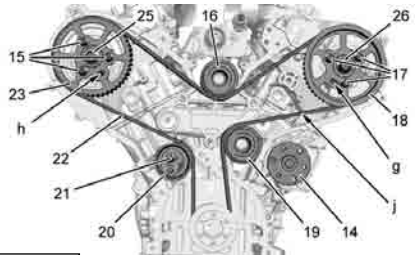
IMPERATIVE: Just before refitting, carry out the checks below.

Check that the rollers **(16)**, **(20)** and **(19)** and the coolant pump **(14)** can turn freely *(without play and without any tight spot)*.
Check that there are no signs of oil leaks *(from the crankshaft and camshaft seals)*.
Check that there are no signs of coolant leaks *(from the coolant pump)*.
Replace components that are faulty *(if necessary)*.

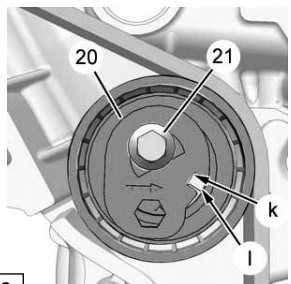
Refitting.

Reposition the timimg belt on the crankshaft pinion **(24)**.
Hold the timing belt **(22)** in position, using tool **[4]**.
Tighten the screws **(15)** and **(17)** by hand.
Turn the camshaft pulleys **(23)** and **(18)** clockwise, to place them at the end of slots.

CHECKING AND SETTING THE VALVE TIMING



B1EP1JHD



B1EP1JJC

Engine: DT17BTED4

Reposition the timimg belt, strip **«j»** well tensioned, in the following order:

- Guide roller **(19)**.
- Camshaft pulley **(18)**.
- Guide roller **(16)**.
- Camshaft pulley **(23)**.
- Tensioner roller **(20)**.

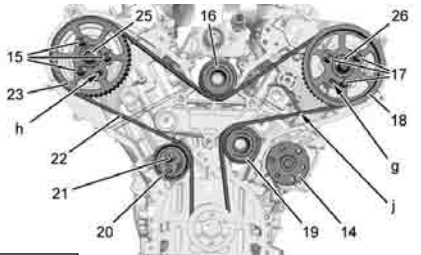
NOTE: If necessary, turn the pulleys **(23)** and **(18)** slightly anti-clockwise *(the offset must not be more than one tooth).*

Remove the tool **[4]**.
Using a hexagonal spanner, rotate the tensioner roller **(20)** anti-clockwise.
Position the index **"l"** facing the notch **"k"**.
Tighten the screw **(21)** **: 2,5 ± 0,2**.
Remove the screws **(15)** and **(17)** from the pulleys **(23)** and **(18)** in order to check that the screws **(15)** and **(17)** are not at the end of slots.

IMPERATIVE: If the screws (15) and (17) are at the end of slots, restart the operations to refit the timing belt.

CHECKING AND SETTING THE VALVE TIMING

Engine: DT17BTED4



B1EP1JHD

Tighten the screws **(15)** and **(17)** **: 2,2 ± 0,2**.
Remove tools **[2]** and **[3]**.
Rotate the crankshaft **8 times** in the normal direction of rotation.

Fit the tool **[2]**.
Peg the camshafts using tools **[3]**, at **"h"** and **"g"**.

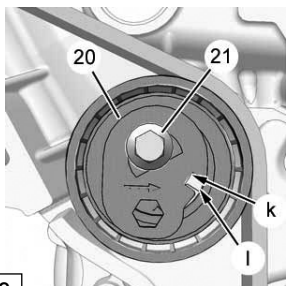
NOTE: If it is not possible to refit the tools **[3]**, slacken the screws **(15)** and/or **(17)** of the camshafts and drive the camshafts by means of their central screws **(25)** and/or **(26)**.

Peg the camshafts using tools **[3]**, at **"h"** and **"g"**.

Tighten the screws **(15)** and **(17)** **: 2,2 ± 0,2**.

Remove tools **[2]** and **[3]**.

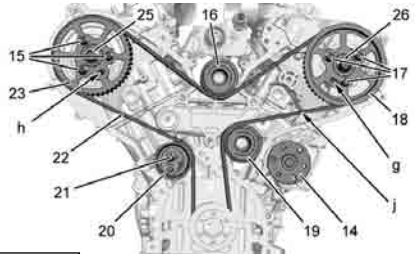
Rotate the crankshaft **8 times** in the normal direction of rotation.



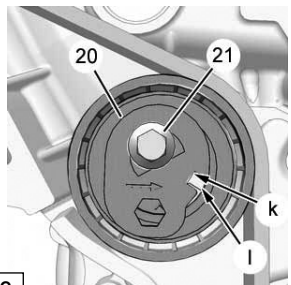
B1EP1JJC

Fit the tool **[2]**.
Fit the tools **[3]**, at **"h"** and **"g"**.
Check that the index **"l"** of the tensioner roller **(20)** is facing the notch **"k"**.

CHECKING AND SETTING THE VALVE TIMING



B1EP1JHD



B1EP1JJC

Engine: DT17BTED4

Remove tools **[2]** and **[3]**.

Refit: The lower timing cover **(10)**, the upper timing covers **(11)**, the crankshaft pulley **(9)**, the engine support **(12)**, the coolant pump pulley **(13)**, the accessories drive belt **(8)** *(see corresponding operation)*, the engine support **(4)** on the chassis member, the upper RH engine support **(5)** and the upper RH engine support tie bar.

Take away the workshop hoist.

Remove the tool **[6]**.

Refit the **"Swirl"** electrovalve **(7)** with its support, the header tank **(1)**, the electrical harness.

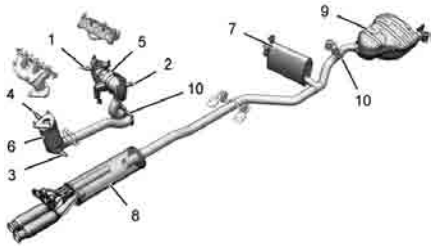
Remove the tool **[1]**.

Reposition and couple the pipes **(3)** and **(2)**.

Complete the refitting.

EXHAUST SPECIFICATIONS

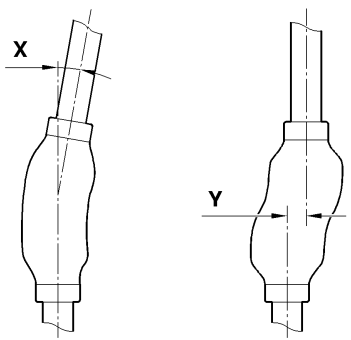
Engine: ES9A



B1JP08AD

1	Upstream oxygen sensor (rear)	**4,7 ± 0,5**
2	Downstream oxygen sensor (rear)	
3	Downstream oxygen (front)	
4	Upstream oxygen sensor (front)	
5	Precatalyser (rear)	**3,5 ± 0,5**
6	Precatalyser (front)	
7	Resonator	
8	Catalytic converter	
9	Rear silencer	
10	Clips	**2,6 ± 0,3**

EXHAUST SPECIFICATIONS



B1JP02JC

Engine: ES9A

Repair.

Respect the precautions to be taken prior to any operation:

- The front flexible pipe must be protected against any external mechanical damage.

- The front flexible pipe must not come into contact with corrosive products.

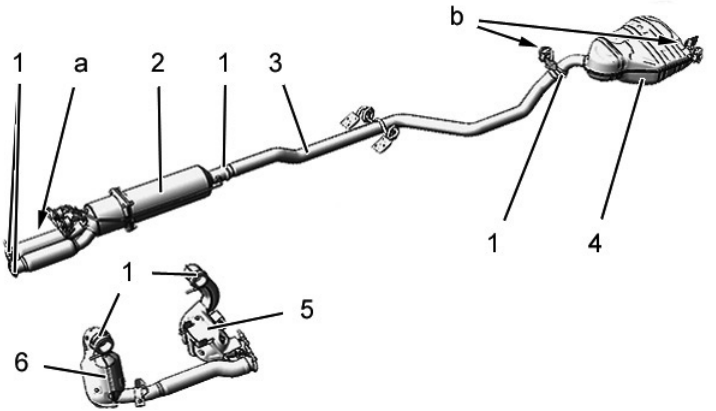
- Do not deform the front flexible pipe more than **20**° angular **(X)**, **20 mm axial**, **25 mm shearing (Y)** *(front flexible pipe removed)*.

- Do not deform the front flexible pipe more than **3**° angular **(X)**, **0 mm axial**, **3 mm shearing (Y)** *(front flexible pipe in place)*.

WARNING: Non-respect of these precautions will shorten the life of the flexible pipe. It is therefore imperative to disconnect or remove the exhaust line for any operations necessitating lifting of the engine-gearbox.

EXHAUST SPECIFICATIONS

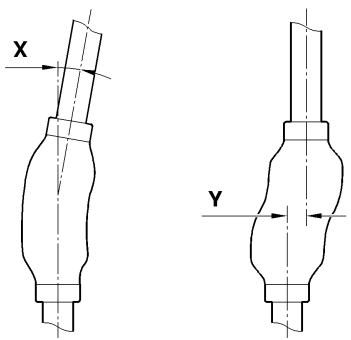
Engine: DT17BTED4



B1JP07QD

Engine versions	(1) Clip	(2) Particle filter	(3) Intermediate pipe	(4) Exhaust silencer	(5) Rear precatalyser	(6) Front precatalyser
UHZ		TR PSA F016	TR PSA K330	PSA 4234	TR PSA K311	TR PSA K310

EXHAUST SPECIFICATIONS



B1JP02JC

Engine: DT17BTED4

Repair.

Respect the precautions to be taken prior to any operation:

- The front flexible pipe must be protected against any external mechanical damage.

- The front flexible pipe must not come into contact with corrosive products.

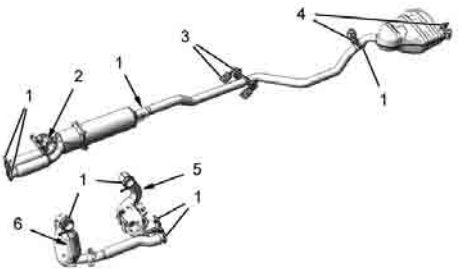
- Do not deform the front flexible pipe more than **20**° angular **(X)**, **20 mm axial**, **25 mm shearing (Y)** *(front flexible pipe removed)*.

- Do not deform the front flexible pipe more than **3**° angular **(X)**, **0 mm axial**, **3 mm shearing (Y)** *(front flexible pipe in place).*

WARNING: Non-respect of these precautions will shorten the life of the flexible pipe. It is therefore imperative to disconnect or remove the exhaust line for any operations necessitating lifting of the engine-gearbox.

TIGHTENING TORQUES - EXHAUST LINE

Engine: DT17BTED4



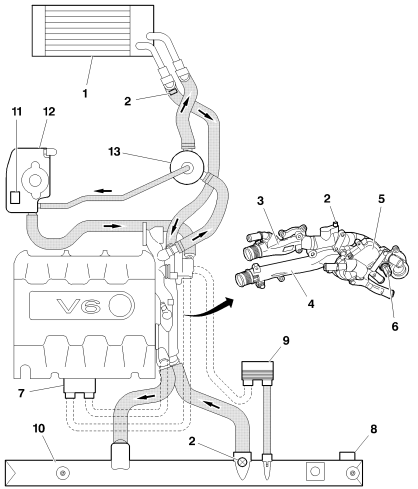
B1JP07ZD

1	Clip	**2,6 ± 0,4**
2	Particle filter hangers	**0,8 ± 0,1**
3	Intermediate pipe hangers	
4	Silencer hangers	
5	Rear precatalyser screw	**2 ± 0,3**
6	Front precatalyser screw	**2 ± 0,3**

COOLING SYSTEM SPECIFICATIONS

	Engines: ES9A - DTE17BTED4		
	3.0i 24S		2,7 24V
Engine type	XFV		UHZ
Capacity	11,3		13,2
Radiator surface	27 dm²		
Pressurisation	1,4 bar		
Opening of thermostatic regulator	78°C		83°C
Cooling fan	1 x 600 W		2 x 150W
1st speed	FRIC function		97°C or aircon in operation
2nd speed	105°C		101°C or 17 bars in the aircon circuit
3rd speed			105° or 30 bars in the aircon circuit
Air con cut-off			115°C or 30 bars in the aircon circuit
Alert	118°C		
Post cooling	6 minutes		
Marking	**11**	**6**	
Information	Level of coolant	Temperature of coolant	Temperature, diesel injection, alert, aircon
Sensor	Resistance	Thermostat	Thermostat
Colour of connector	Black	Blue	Grey
Tightening (m.daN)	1,7 ± 0,4		

COOLING SYSTEM SPECIFICATIONS



B1GP0CXP

Engine: ES9A

(1) Heater matrix

(2) Bleed screw

(3) Coolant outlet housing

(4) Coolant inlet housing

(5) Thermostat

(6) Coolant temperature sensor

(7) Coolant/oil heat exchanger *(engine)*

(8) Cooling radiator drain plug

(9) Coolant/oil heat exchanger *(automatic gearbox)*

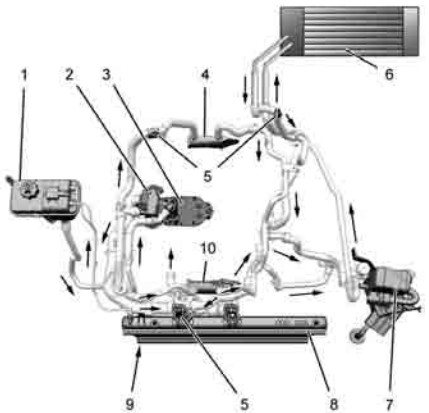
(10) Engine cooling radiator

(11) Coolant level sensor

(12) Header tank

(13) Venting chamber

COOLING SYSTEM SPECIFICATIONS



B1GP0D4P

Engine: DT17BTED4

(1) Header tank

(2) Coolant outlet housing

(3) Coolant/oil heat exchanger

(4) Coolant/EGR heat exchanger *(rear cylinder bank)*

(5) Bleed screw

(6) Heater matrix

(7) Additional heating unit

(8) Engine cooling radiator

(9) Engine cooling radiator drain tap

(10) Coolant/EGR heat exchanger *(front cylinder bank)*

CHECKING THE OIL PRESSURE

Engine	ES9A	DT17BTED4
Temperature (°C)	80°C	
Pressure (bars)	2	
Rpm	900	
Pressure (bars)	5	1 to 4
Rpm	3000	2500
Pressure (bars)		
Rpm		
2279-T.Bis	X	
4103-T	X	
(-).1503.K		X
4202-T	X	

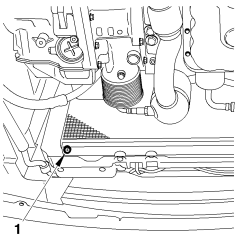
NOTE: Oil pressure should be checked with the engine cold, after checking the oil level.

VALVE CLEARANCES

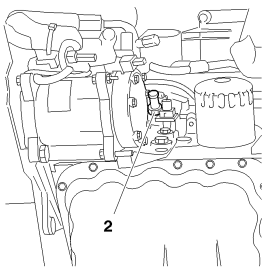
	● Inlet	⊗ Exhaust
All types	Hydraulic adjustment	

DRAINING, FILLING AND BLEEDING THE ENGINE COOLING CIRCUIT

Engine: ES9A



B1GP0BPC



B1BP2BNC

Tools.

[1] Filling cylinder	**: 4520-T**
[2] Adaptor for filling cylinder	**: 4222-T**
[3] Control rod for filling cylinder	**: 4370-T**

IMPERATIVE: Respect the safety and cleanliness requirements.

The draining and refilling operations can be carried out using coolant fluid replacement equipment. It is essential to follow the instructions as stated for that equipment.

Draining.
Remove the header tank cap with caution *(engine cold)*.

Open the bleed screw of the radiator.

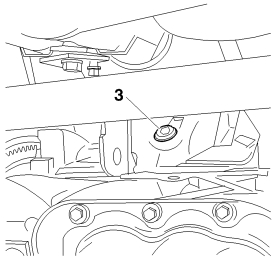
Slacken the drain screw **(1)** of the radiator

Open the plug **(2)** to drain the first bank of cylinders.

NOTE: The plug **(2)** is provided with a drain tube.

DRAINING, FILLING AND BLEEDING THE ENGINE COOLING CIRCUIT

Engine: ES9A



B1GP08TC

Open the plug **(3)** to drain the second bank of cylinders.
Remove the drain plugs **(2)** and **(3)**.

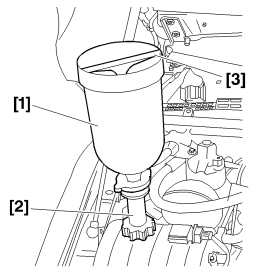
Filling and bleeding the circuit.

Prior to any filling, rinse the cooling with fresh water.

WARNING: Check the sealing of the cooling circuit.

Open the bleed screws of the following components:
- Heater matrix outlet.
- Coolant outlet housing.
- Radiator.

Close the drain screw **(1)** of the radiator.
Refit the plugs **(2)** and **(3)** with a new seal ; tighten to **3 ± 0,3 m.daN**.
Fit the filling cylinder assembly **[1]**, **[3]**, and **[2]** on the filler aperture.
Fill the cooling circuit.

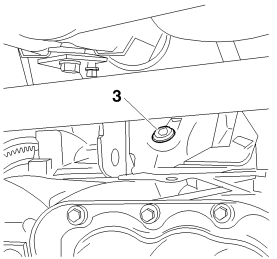


B1GP0BQC

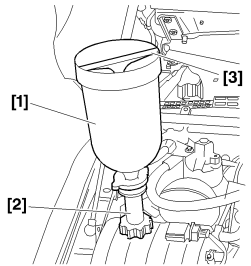
NOTE: Keep the filling cylinder full to the maximum.

DRAINING, FILLING AND BLEEDING THE ENGINE COOLING CIRCUIT

Engine: ES9A



B1GP08TC



B1GP0BQC

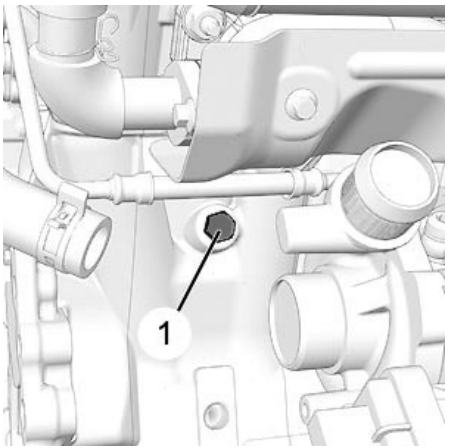
Reclose the bleed screw when the fluid flows out clear and without air bubbles.
Start the engine.
Maintain an engine speed of **1500/2500 rpm**, up to the first cooling cycle *(starting and stopping of the cooling fan)*.
Block the filling cylinder **[1]** using the control rod **[3]**.
Remove the filling cylinder assembly **[1]**, **[3]** and **[2]**.
Refit the header tank cap.
Stop the engine and wait for it to cool down.

Checks.

Start the engine.
Maintain an engine speed of **1500/2500 rpm**, up to the first cooling cycle *(starting and stopping of the cooling fan)*.
Stop the engine and wait for it to cool down.
Remove the header tank cap with caution.
If necessary, top up the level to the maximum mark.
Refit the header tank cap.

DRAINING, FILLING AND BLEEDING THE ENGINE COOLING CIRCUIT

Engine: DT17BTED4



B1GP0CNC

Tools.

[1] Filling cylinder	**: 4520-T**
[2] Adaptor for filling cylinder	**: 4222-T**
[3] Control rod for filling cylinder	**: 4370-T**

IMPERATIVE: Respect the safety and cleanliness requirements.

The draining and refilling operations can be carried out using coolant fluid replacement equipment. It is essential to follow the instructions as stated for that equipment.

Draining.

Remove the header tank cap.

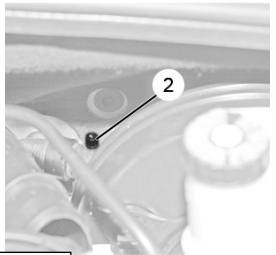
Open the bleed screw of the engine cooling radiator, located under the radiator on the LH side.

Remove the drain screw **(1)**.

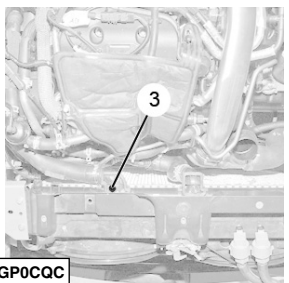
Drain the cylinder block.

DRAINING, FILLING AND BLEEDING THE ENGINE COOLING CIRCUIT

Engine: DT17BTED4

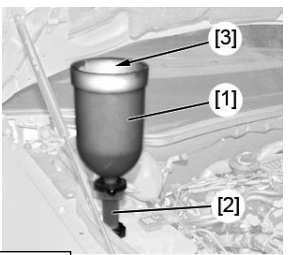


B1GP0CPC



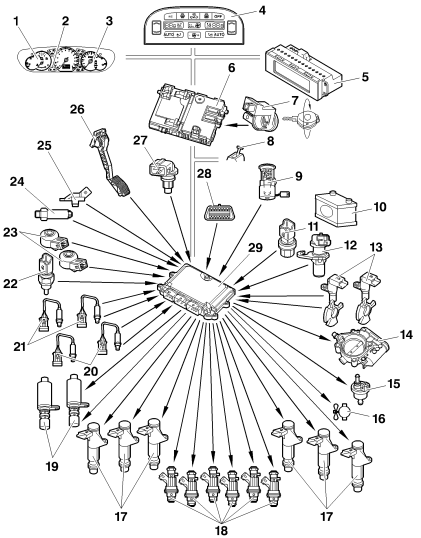
B1GP0CQC

Filling and bleeding.
Open the bleed screw **(2)** on the heater matrix hose.
Open the bleed screw **(3)** of the engine cooling radiator.
Refit the drain screw **(1)** with a new seal.
Tighten the screw **(1)** **: 3 ± 0,1.**
Fit the filling cylinder **[1]**, control rod **[3]** and adaptor **[2]** assembly on the filler aperture.
Fill the engine cooling circuit.
NOTE: Keep the filling cylinder full to the maximum.
Start the engine.
Close each bleed screw as soon as the liquid starts to flow out without air bubbles.
Block the filling cylinder **[1]**, using the control rod **[3]**.
Remove the filling cylinder **[1]**, control rod **[3]** and adaptor **[2]** assembly.
Refit the header tank cap.
Stop the engine.
Checks.
Start the engine.
Maintain an engine speed of **1600 rpm**, up to the second cooling cycle *(starting and stopping of the cooling fan)*.
Stop the engine and wait for it to cool down.
Remove the header tank cap.
If necessary, top up the level of the header tank to the maximum mark.
Refit the header tank cap.



B1GP0CRC

BOSCH ME 7.4.7 INJECTION SYSTEM



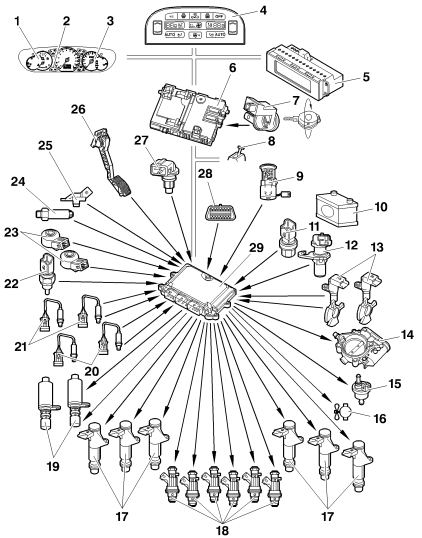
B1HP1Z9P

Engine: ES9A

Synopsis.

(1) Fuel consumption information
(2) Ignition injection test warning lamp
(3) Rev counter
(4) Air conditioning ECU
(5) Multifunction screen
(6) Built-in systems interface
(7) Transponder
(8) Automatic gearbox ECU
(9) Fuel pump, filter and pressure regulator *(except grande exportation)*
(10) Battery
(11) Pressostat
(12) Engine speed sensor
(13) Camshaft position sensor **(x2)**
(14) Motorised butterfly housing

BOSCH ME 7.4.7 INJECTION SYSTEM



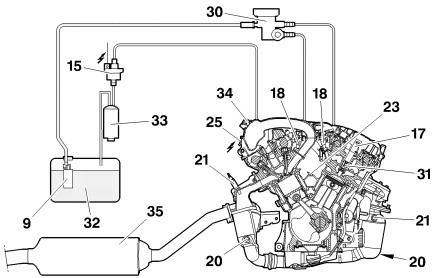
B1HP1Z9P

Engine: ES9A

Synopsis.

(15) Canister purge electrovalve
(16) Cooling fan
(17) Pencil type ignition coil **(x6)**
(18) Petrol injector **(x6)**
(19) Variable timing electrovalve **(x2)**
(20) Downstream oxygen sensor **(x2)**
(21) Upstream oxygen sensor **(x2)**
(22) Engine coolant temperature sensor
(23) Knock sensor **(x2)**
(24) Power steering pressure sensor
(25) Integrated pressure sensor
(26) Accelerator pedal position sensor
(27) Inlet air temperature sensor
(28) Diagnostic connector
(29) Ignition injection ECU

BOSCH ME 7.4.7 INJECTION SYSTEM



B1HP1ZAD

Engine: ES9A

Synopsis.

(30) Pulse damper
(31) Sparking plugs **(x6)**
(32) Fuel tank
(33) Canister reservoir
(34) Discharge valve
(35) Exhaust line

Specifications.

Cylindrical capacity (cc)	**: 2946.**
Idling speed (rpm) non-adjustable	**: 700 ± 50.**
Cut-off at maximum engine speed (rpm)	**: 6520.**

BOSCH ME 7.4.7 INJECTION SYSTEM				
Engine: ES9A				
Fuel circuit				
Component	**Location**	**Supplier**	**Reference**	**Observations**
Recommended fuel				Super unleaded **95 RON** or **98 RON**
Fuel tank	32			Capacity **65 litres**
				Composition **polyethylene**
Fuel pump, filter and pressure regulator	9	MARWALL		Electric pump submerged in the tank
				Voltage, **12 V**
				Pressure, **3 bars**
				Flow, **115** à **120 l/h**
				Regulation pressure, **3,5 bars**
Canister reservoir	33	PURFLUX	PPGF 30	Installation **under the front LH wing**
Canister purge electrovalve	15	BOSCH	0 280 142 317	Electrovalve **normally closed**
				2-way brown connector
				Installation, **under the front LH wing**
				Resistance, **24 ohms**
Petrol injectors	18	BOSCH	EV 14	Group of injectors, **1-2-3, 2-way brown** connector
			0 280 155 613	Group of injectors, **4-5-6, 2-way black** connector
				Marking, **yellow in colour**
				Injectors, **4 jets**
				Resistance, **16 ohms**
Pulse damper	30		0 280 161 500	Installation, **on the timing cover**
				Equipped with a **SCHRAEDER** valve

BOSCH ME 7.4.7 INJECTION SYSTEM

Engine: ES9A

Component	Location	Supplier	Reference	Observations
Air circuit				
Integrated pressure sensor	25	BOSCH	DS-S2 0	**3-way grey** connector
			261 260 140	Integrated in the inlet manifold
Motorised butterfly housing	14		DVE5	**6-way black** connector
			0 280 750 041	Fixing, on the inlet manifold
Accelerator pedal position sensor	26		14 43 33	**6-way black** connector
				Supply, **5 volts**
				Fixing, on the accelerator
Electrical circuit				
Ignition injection ECU	29	BOSCH	ME 7.4.7.	**128-way** connector
			0 261 B00 736	Sequential injection
				"Flash" type Eprom *(reprogrammable eprom)*
				Installation, in the electronic ECU compartment
Power steering pressure sensor	24	BITRON	280 911	**2-way blue** connector
				Opening of contact at **20 bars**
				For ECU information
				(steering on full lock)
				Marking mauve ring seal
				Fixing : on the power steering high pressure pump outlet pipe

BOSCH ME 7.4.7 INJECTION SYSTEM				
Engine: ES9A				
Electrical circuit				
Component	**Location**	**Supplier**	**Reference**	**Observations**
Inlet air temperature sensor	27	JAEGER	402 084 01	**2-way grey** connector
				Fixing: on the air filter inlet duct
Camshaft position sensor	13	ELECTRICFIL	14 43 2514 43 25	**3-way grey** connector
				Fixing: on the inlet camshaft bearing cap cover
Knock sensor	23	BOSCH	0 261 231 10	**3-way green** connector
				Fixing: on the central part of the «**V**» of the engine block
				Essential to respect tightening torque: **2 ± 0,5 m.daN**
Engine coolant temperature sensor	22	DAV	402 243 03	**2-way green** connector
				Fixing: on the coolant outlet housing
		ELECTRICFIL	14 43 32	Tightening torque:
				Tighten to: **2 ± 0,2 m.daN**
Engine speed sensor	12		14 43 28	**2-way black** connector
				Fixing: on the gearbox clutch housing

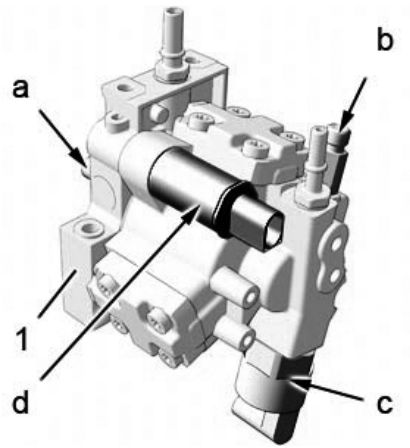
BOSCH ME 7.4.7 INJECTION SYSTEM

Engine: ES9A

Component	Location	Supplier	Reference	Observations
Ignition circuit				
Sparking plugs	31	BOSCH	FGR8MQPE	Electrode gap**: 1 mm**
				Tightening torque
		NGK	PFR6E 10	Tighten to: **1 ± 0,1 m.daN**
				Angular tightening: **90°**
Pencil type ignition coils	17	SAGEM	BAC 1	**4-way black** connector
			2526140	Twin-static type ignition
Exhaust circuit				
Upstream oxygen sensor	21	BOSCH	258 040 232	**4-way green** connector
				Front fixing: on the exhaust manifold
				Rear fixing: on the pre-catalyser
Downstream oxygen sensor	20		258 006 185	**4-way blue** connector
				Front fixing: on the pre-catalyser
				Rear fixing: on the pre-catalyser
				Tightening torque
				Tighten to: **4,7 ± 0,1 m.daN**

PROHIBITED OPERATIONS: SIEMENS HDI DIRECT INJECTION SYSTEM

Engine: DT17BTED4



B1HP23GC

Cleaning.

The use of high pressure cleaners is prohibited.
Do not use compressed air.

Fuel supply circuit.
Required fuel: **Diesel**.

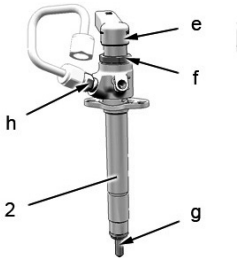
WARNING: Do not use other fuels.

Electrical circuit.
Swapping injection ECUs between two vehicles will render it impossible to start either vehicle.
It is **forbidden** to supply a diesel injector with **12 volts**.
Do not disconnect a diesel injector when the engine is running.

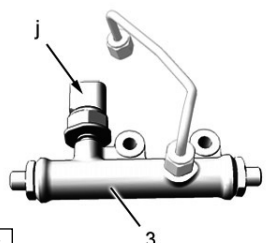
Fuel high pressure pump.
Do not separate the fuel high pressure pump **(1)** from the following components:
- The sealing ring **(a)** *(no replacement parts).*
- The high pressure outlet connector **(b)** *(will cause a malfunction).*
- The fuel pressure regulator **(c)** *(no replacement parts).*
- The flow electrovalve **(d)** *(no replacement parts).*

PROHIBITED OPERATIONS: SIEMENS HDI DIRECT INJECTION SYSTEM

Engine: DT17BTED4



B1HP23HC



B1HP23JC

Diesel injectors.

WARNING: <u>Diesel and ultrasonic cleaners are prohibited.</u>

Do not separate the diesel injector carrier **(2)** from the following components:

- Diesel injector **(g)** *(no replacement parts)*.

- The fuel flow actuator **(e)** *(destruction)*.

Do not move the nut **(f)** *(will cause a malfunction)*.

Do not separate the union **(h)** from a diesel injector.

It is **<u>forbidden</u>** to clean the carbon deposits from the diesel injector nozzle.

Central fuel high pressure common injection rail.

Do not separate the fuel high pressure sensor **(j)** from the central fuel high pressure injection rail **(3)**.

SAFETY REQUIREMENTS: HDi DIRECT INJECTION SYSTEM

Safety requirements.

Preamble.
All interventions on the injection system must be carried out to conform with the following requirements and regulations:
- Competent health authorities.
- Accident prevention.
- Environmental protection.

WARNING: Repairs must be carried out by specialised personnel informed of the safety requirements and of the precautions to be taken.

Safety requirements.

IMPERATIVE: Take into account the very high pressures in the high pressure fuel circuit *(1600 bars)*, and respect the requirements below:
- No smoking in proximity to the high pressure circuit when work is being carried out.
- Avoid working close to flame or sparks.

Engine running:
- Do not work on the high pressure fuel circuit.
- Always stay clear of the trajectory of any possible jet of fuel, which could cause serious injuries.
- Do not place your hand close to any leak in the high pressure fuel circuit.

After the engine has stopped, wait **30 seconds** before any intervention.

NOTE: This waiting time is necessary in order to allow the high pressure fuel circuit to return to atmospheric pressure.

Cleanliness requirements.
Preliminary operations.

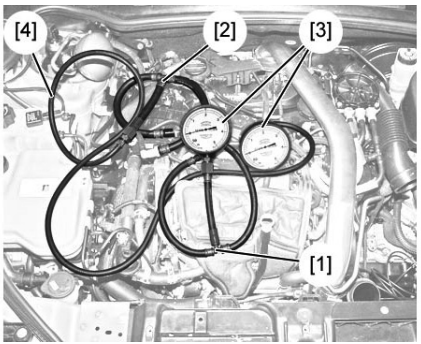
IMPERATIVE: The technician should wear clean overall.

Before working on the injection system, it may be necessary to clean the apertures of the following sensitive componen *(refer to corresponding procedures)*:
- Fuel filter.
- Fuel high pressure pump.
- Fuel high pressure common injection rail.
- Fuel high pressure pipes
- Diesel injector carriers.

IMPERATIVE: After dismantling, immediately block the apertures of sensitive components with plugs, to avoid the entry of impurities.
Work area:
- The work area must be clean and free of clutter.
- Components being worked on must be protected from dust.

CHECKS: LOW PRESSURE FUEL SUPPLY CIRCUIT

Engine: DT17BTED4



B1BP3CRD

Tools.

[1] Ø 10 mm low pressure connector	**: 4215-T**	
[2] Ø 8 mm low pressure connector	**: 4218-T**	
[3] Pressure gauge for testing boost pressure	**: 4073-T**	**Kit 4073-T**
[4] Extension	**: 4251-T**	

Checks.

IMPERATIVE : Respect the safety and cleanliness requirements specific to high pressure diesel injection (HDi) engines.

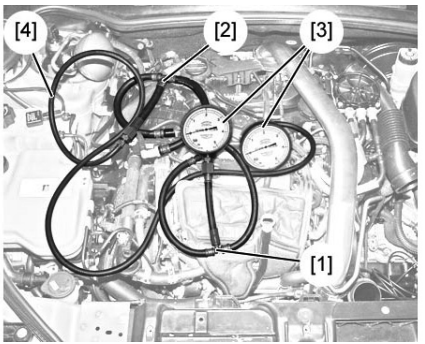
Connect the tool **[1]** between the booster pump and the fuel filter *(white mark on the fuel supply pipe)*.
Connect the tool **[2]** downstream of the diesel injectors, between the high pressure fuel pump and the fuel filter green mark on the fuel return pipe.
Connect the tool **[3]** on tool **[1]** or on tool **[2]**.

WARNING: Any check of pressure downstream of the fuel filter is prohibited.

NOTE: To check the pressures while the vehicle is being driven, insert the extension **[4]** between tool **[3]** and tools **[1]** or **[2]**.

CHECKS: LOW PRESSURE FUEL SUPPLY CIRCUIT

Engine: DT17BTED4



B1BP3CRD

Checks on pressure: static.

Switch on the ignition.

For **3 seconds** *(normal functioning)*:
- Fuel supply pressure shown by the pressure gauge **[3] = 1.1 ± 0.4 bar**.
- Fuel return pressure shown by the pressure gauge **[3] = 2 ± 0.5 bar**.

Abnormal functioning:

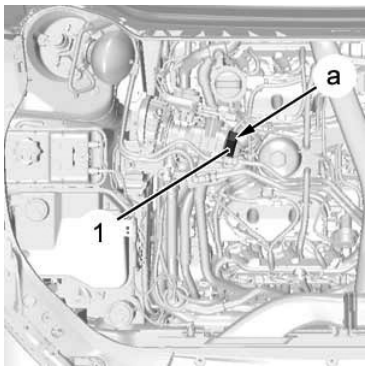
Fuel supply pressure	Fuel return pressure	Checks
Between **2** and **3 bar**	**0.8 ± 0.4 bar**	Check the condition of the diesel fuel filter
More than **3 bar**	More than **0.8 bar**	Check the fuel return circuit *(pipe pinched)*
Between **0.3** and **0.5 bar**	Less than **0.8 bar**	Check the fuel suppy circuit : Booster pump *(low pressure)*, piping

Impossible to start the engine:

- Fuel supply pressure less than **0.3 bar**.

CHECKS: TURBO PRESSURE

Engine: DT17BTED4



B1BP3CZC

Tools.

[1] Pressure gauge for checking the pressure	**: 7073-T.A**
[2] Tool for checking the inlet air pressure/vacuum	**: (-).0171.G3**
[3] LEXIA diagnostic tool	**: 4171-T**
[4] PROXIA diagnostic tool	**: 4165-T**

Checks.

IMPERATIVE: Respect the safety and cleanliness specific to high pressure diesel injection engines.

Preliminary operations.

WARNING: Prior to any intervention, check the connections of the turbocharger pressure regulation actuators.

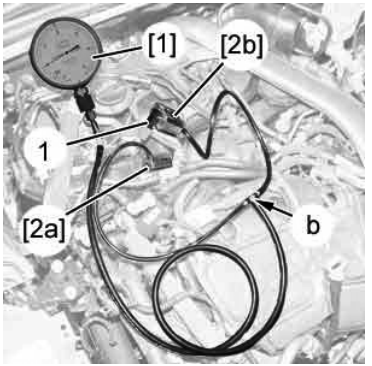
NOTE: If an air flow fault is memorised by the diagnostic tool, refer to the chapter **"Air flow from the turbochargers"**.

Turbo pressure sensor.

Remove the engine cover.
Disconnect the connector **"a"**.
Remove the turbo pressure sensor **(1)**.

CHECKS: TURBO PRESSURE

Engine: DT17BTED4



B1BP3D0C

Connect:
- The tool **[2a]** in place of the turbo pressure sensor **(1).**
- The turbo pressure sensor **(1)** on the tool **[2b]**.
- Tool **[1]** on tool **[2]**, at **"b"**.

Connect the diagnostic tool **[3]** or **[4]** to the vehicle's diagnostic socket:
- Put the diagnostic tool **[3]** or **[4]** in parameter measures.

Start the engine.
Accelerate to **2500 rpm**.
Compare the pressure values read on the diagnostic tool and on the pressure gauge **[1]**.
NOTE: If there is a significant difference in pressure, replace the turbo pressure sensor.

Air/air exhanger.

Check the condition of the following components:
- Air inlet pipe.
- Airoutlet pipe.
- Air /air exchanger.

Air flow from the turbochargers.

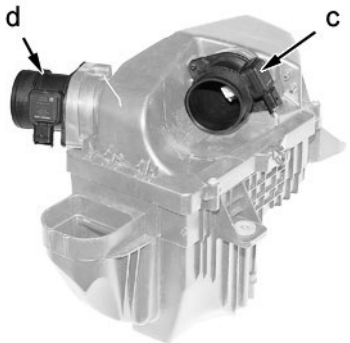
NOTE: If an air flow fault is memorised by the diagnostic tool, check the air flow from the turbocharger incriminated.

Connect the diagnostic tool **[3]** or **[4]** to the vehicle's diagnostic socket:
- Put the diagnostic tool **[3]** or **[4]** in parameter measures.

Start the engine.
Accelerate to **2500 rpm**.
Compare the air flows *(mg/stroke)* from the two turbochargers.

CHECKS: TURBO PRESSURE

Engine: DT17BTED4



B1HP24TC

Significant difference in pressure between the two turbochargers:

- Stop the engine.
- Remove the air filter with the two flowmeters.
- Mark the flowmeters **"d"** and **"c".**
- Remove both flowmeters.

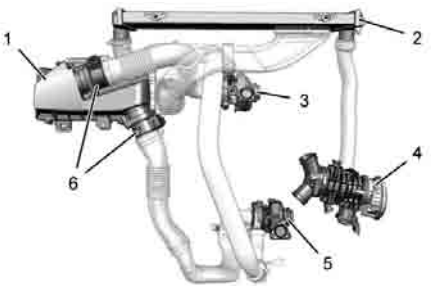
Refit:
- Flowmeter **"d"** in place of flowmeter **"c"**.
- Flowmeter **"c"** in place of flowmeter **"d"**.

Start the engine.
Accelerate to **2500 rpm**.

Compare the air flows ***(mg/stroke)*** from the two turbochargers:

- If the difference in air flow has changed turbochargers, replace the flowmeter that is faulty.
- If the difference in air flow is coming from the same turbocharger, check the condition of the air inlet and outlet pipes of this turbocharger: replace or repair the parts that are faulty.
- If no anomaly is detected on the air inlet and outlet pipes of the turbocharger: replace the turbocharger.

CHECKING THE AIR SUPPLY CIRCUIT SPECIFICATIONS



B1HP26UD

Engine: DT17BTED4

(1) Air filter**: MECAPLAST**

(2) Air/air heat exchanger**: BEHR**

(3) Front turbocharger**: GARETT**

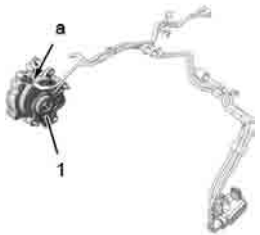
(4) Air butterfly housing**: MAN HUMEL**

(5) Rear turbocharger**: GARETT**

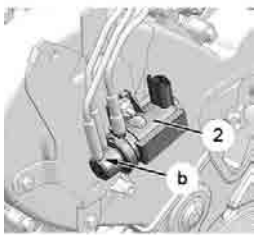
(6) Flowmeters**: SIEMENS VDO**

CHECKING THE AIR SUPPLY CIRCUIT

Engine: DT17BTED4



B1HP26DC



B1HP26EC

Tool.

[1] Manual pressure-vacuum pump **: FACOM DA 16**

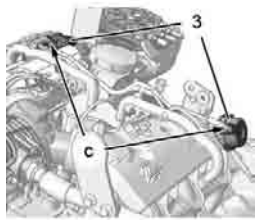
Checks.

IMPERATIVE: Respect the safety and cleanliness specific to high pressure diesel injection engines.

Checking the vacuum source *(vacuum pump)*.
Connect the tool **[1]** on the take-off **"a"** of the vacuum pump **(1)**.
Start the engine.
The value should be **0,85 ± 0,2 bar**.

"Swirl" control electrovalve.
Connect the tool **[1]** on the vacuum supply **"b"** of the electrovalve **(2)**.
Start the engine.
The value should be **0,85 ± 0,2 bar**.

"Swirl" control diaphragm.
Connect the tool **[1]** on the **"Swirl"** control diaphragms **(3)** at **"c"**.
Apply a vacuum of approx. **0,7 ± 0,2 bar**, the **"Swirl"** butterfly should be fully open.



B1HP26FC

SPARKING PLUGS

Vehicles		Engine	BOSCH	Electrode gap	NGK	Electrode gap	Tightening torque (m.daN)
C6	3.0i 24S	ES9A	FGR8MQPE	1 mm	PFR6E10	1 mm	Tightening : 1 ± 01 Angular tightening : 90° ± 5°

SPEEDOMETER

An E.E.C. **decree of 25 June 1976**, regulates the speed displayed by the speedmeter in relation to the actual speed travelled.

This decree stipulates:

- The speed indicated by a speedometer must never be lower than the actual vehicle speed.
- Between the speed displayed «**SD**» and the speed travelled «**ST**», there must always be the following relationship:

ST < SD < 1.10 ST + 4 Kph

Example: For an actual speed of **100 Kph** the speed displayed by the speedometer may be between **100** and **114 Kph**.
The speed indicated by the speedometer may be influenced by:

- The speedometer.
- The tyres fitted to the vehicle.
- The final drive ratio.
- The speedometer drive ratio.

Any of these components can be checked without removing them from the vehicle *(see information note **N° 78-85 TT of 19 October 1978**)*.

NOTE: Before replacing the speedometer, check the conformity of the following points:

- The tyres fitted to the vehicle.
- The gearbox final drive ratio.
- The speedometer drive ratio.

AM6 AUTOMATIC GEARBOX SPECIFICATIONS

Vehicle	Engine	Gearbox type	Sequence	Torque ratio	Drive ratio
C6	ES9A	AM6	20 GH 07	15 x 53	49 X 52
	DT17BTED4		20 GG 07		54 X 47

PROCEDURE PRIOR TO OPERATIONS: AM6 AUTOMATIC GEARBOX

Engines: ES9A - DT17BTED4

If a gearbox malfunction occurs, there are two possible configurations depending on the seriousness of the fault:
- Gearbox in back-up mode with a replacement programme of *(the fault values are taken in substitution)*.
- Gearbox in back-up mode with an emergency programme *(3rd hydraulic).*

WARNING: In the emergency programme, an impact is felt when changing P/R or N/R.

Reception of the customer.
Discuss with the customer, to find out all the malfunction symptoms.

Oil quality.
If the gearbox has suffered a serious fault resulting in a malfunction or the destruction of a clutch, the oil will overheat and become contaminated with impurities: the oil is said to be **«burnt»**.
This is characterised by a black colour and the presence of an unpleasant smell.

ESSENTIAL: The gearbox must be replaced.

Oil level.

Preliminary conditions:

- Vehicle horizontal, parking brake off.
- Check that the gearbox is not in back-up mode *(using a diagnostic tool)*.
- The oil temperature should be **60°C *(+8, -2)*** *(using a diagnostic tool).*
- Press on the brake pedal, change through all the gears.
- Place the gear lever in position **P**.

With the engine running at idle, without power consumers *(aircon, heating, etc.)*:
- Remove the oil level plug.
The oil should flow out, then drip-drip.
Refit the oil level plug *(the oil level is correct)*.
The oil does not flow out through the oil level plug *(see operation: drain fill - bleed the gearbox)*.

PRECAUTIONS TO BE TAKEN : AM6 AUTOMATIC GEARBOX

Engines: ES9A - DT17BTED4

Precautions to be taken

Towing.
The front of the vehicle must be raised in order to be towed.
If the front of the vehicle cannot be raised.

IMPERATIVE:
- Put gear lever in position «N».
- Do not add any oil.
- Do not exceed 70 km/h *(45 mph)* over a distance of 100 km *(60 miles)* maximum.

Driving.
Never drive with the ignition switched off.
NOTE: The automatic gearbox is only lubricated when the engine is running.

Repairs on electrical components.
Do not disconnect:
- The battery when the engine is running.
- The ECU when the ignition is switched on.

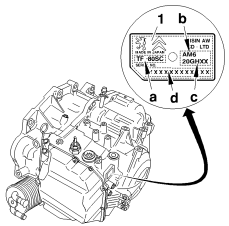
Before reconnecting a switch, check:
- The condition of the various contacts *(for deformation, corrosion etc.)*
- The presence and condition of the mechanical locking.

When performing electrical checks:
- The battery should be correctly charged.
- Never use a voltage source higher than **16V**.
- Never use a test lamp.

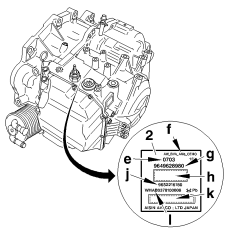
Repairs on mechanical components.
Never place the gearbox on the ground without protection.
Do not use the unions on the gearbox as handles for moving the gearbox.
It is **imperative** that the converter retaining peg should be in place when removing the gearbox.
It is **imperative** to use the centring pegs to couple the gearbox on the engine.
Remove the converter retaining peg before coupling the gearbox on the engine.

AM6 AUTOMATIC GEARBOX: GENERAL SPECIFICATIONS

Engines: ES9A - DT17BTED4



B2CP3YRC



B2CP3YSC

Identification.

(1) identification plate *(riveted on the casing)*

"a" Type of automatic gearbox (AISIN)
"b" Type of automatic gearbox (PSA)
"c" Component marking
"d" Serial no.

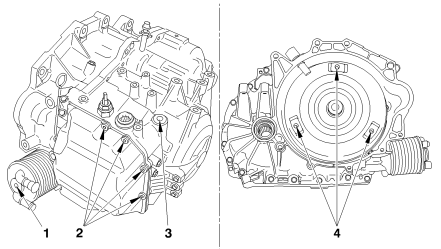
(2) identification label *(affixed on the ECU)*

"e" Date of manufacture
"f" Homologation code (PSA)
"g" ECU no. (PSA)
"h" Bar code (PSA)
"j" Gearbox no. (PSA)
"k" Bar code (AISIN)
"l" Serial no.

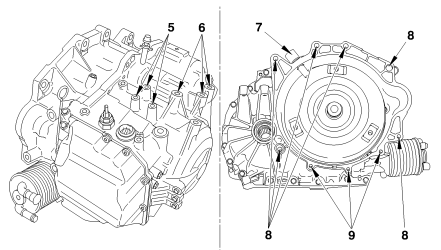
Specifications

Weight	**: 93 kg *(approx.)*.**
Torque capacity	**: 33 m.daN.**

AM6 GEARBOX: TIGHTENING TORQUES



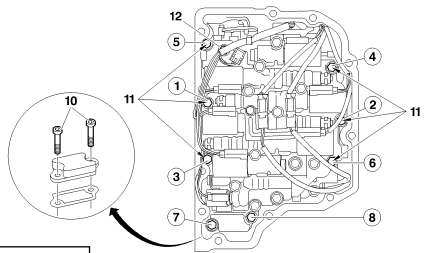
B2CP42WD



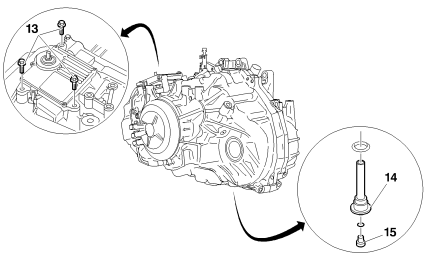
B2CP42XD

Engines: ES9A - DT17BTED4		
1	Automatic gearbox heat exchanger	4,2 ± 0,4
2	Hydraulic valve block casing	1,5 ± 0,2
3	Filler plug	4 ± 0,4
4	Torque converter screw [(ES9 3 screw) (DT17 6 screw)] Pre-tightening Slackening Tightening	 2 ± 0,2 100° 6 ± 0,6
5	Sleeve stop	3,5 ± 0,3
6	Gearbox support	5,5 ± 0,5
7	Engine speed sensor (ES9J4)	0,8 ± 0,1
8	Fixing of gearbox on cylinder block	6 ± 0,6
9	Closing panel fixing	2 ± 0,2

AM6 GEARBOX: TIGHTENING TORQUES



B2CP42YD

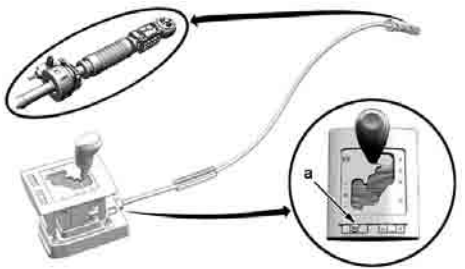


B2CP42ZD

Engines: ES9A - DT17BTED4		
12	Oil induction cover	1 ± 0,1
11	Hydraulic valve block *(in the order indicated)*	1 ± 0,1
12	Oil temperature sensor tightening plate	1 ± 0,1
13	ECU screws	2,5 ± 0,2
14	Oil drain and overflow plug	1 ± 0,1
15	Oil level plug	4,8 ± 0,5

AM6 GEARBOX CONTROLS

Engines: ES9A - DT17BTED4



B2CP430D

The gear selector is guided by the shape of the stepped gate and by a retaining spring which pulls it to the left hand side.

The gear control has **5 positions**:
- Position **"P"**: parking *(locking and immobilisation of the vehicle).*
- Position **"R"**: reverse gear.
- Position **"N"**: neutral.
- Position **"D"** : drive *(for use of the **6 gears** in autoadaptive automatic operation).*
- Position **"M"**: manual *(this position allows the driver to select his gears in one-touch mode by pulling **"M -"** or pushing **"M +"** on the gear selector).*

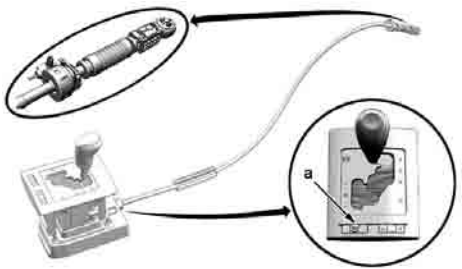
NOTE: Only positions **"P"** or **"N"** authorise starting of the engine.

In position **"M"**, the selection is enabled by an electronic sensor located close to the gear selector:

- The variation of flux necessary to affect the sensor cells is obtained by a magnet on the lever opposite the cells, provoking the changes of status.
- The information on this is transmitted to the gearbox ECU.

AM6 GEARBOX CONTROLS

Engines: ES9A - DT17BTED4



B2CP430D

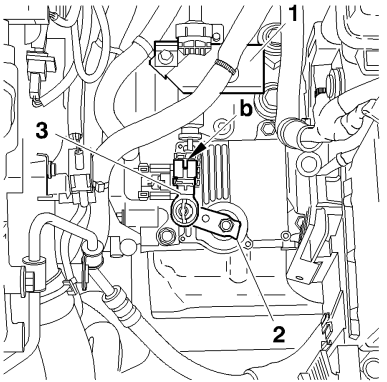
NOTE: The vehicle is equipped with **«shift lock»**. It is necessary to switch on the ignition and press the brake pedal to release the selection lever from position **"P"**.

The switch **"a"** positioned on the gear control panel allows the driver to choose one of the following **3 driving programmes**:
- **Normal programme:** The normal programme operates in the absence of any other selection being made *(auto-adaptive mode ; eco law)*.
- **Sport programme:** The sport programme permits a more dynamic driving style, with greater performances and acceleration.
- **Snow programme:** The snow programme facilitates moving off and traction on ground that has limited adhesion.

To revert to the **normal** programme, you have to press a **second time** on the **sport** or **snow** switch.

AM6 GEARBOX CONTROLS

Engines: ES9A - DT17BTED4



B2CP431C

Gearbox end.

The automatic gearbox is controlled by a cable.

"b" Push-button in pushed-in position

(1) Sleeve stop
(2) Control lever with ball-joint
(3) Automatic adjustment

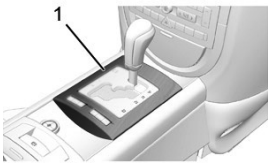
Automatic adjustment:

- Pull out button **"b"** to adjust the control.

- Push in button **"b"** to lock the adjustment of the control.

AM6 GEARBOX CONTROLS: «SHIFT LOCK» FUNCTION

Engines: ES9A - DT17BTED4



C5FP0RBC

C5FP0RCD

IMPERATIVE: Respect the safety and cleanliness requirements, with reference to the brochure: «Recommendations-Precautions».

The **«shift lock»** is a system that locks the gear selection lever in position **«P»**.

Unlocking the «SHIFT LOCK» ***(normal operation).***
Switch on the ignition.
Press the brake pedal and keep it pressed.
Move the gear selection lever out of position **«P»**.

Unlocking the «SHIFT LOCK» ***(with an operating fault).***
Should it be impossible to unlock the **«shift lock»** with the **«Normal operation»** method.

The fault may originate from one of the following components:
- **«Shift lock»**.
- Gear lever position switch.
- Automatic gearbox ECU.
- Electrical harness.
- Battery voltage.

Operations to be performed.
Unclip the cover **(1)**.
Unlock the **«shift lock»** by pressing at **"a"** with the aid of a screwdriver *(screwdriver with a minimum length of **150 mm**)*.
Move the gear selection lever out of position **"P"**.

PROCEDURE FOR INITIALISATION OF THE AUTOMATIC GEARBOX ECU

NOTE: For all these operations, follow the procedure in the diagnostic tool.

Replacement of the automatic gearbox without replacement of the ECU.

Carry out the following operations:
- Initialisation of the neutral position of the gear selection lever position sensor.
- Initialisation of the adaptation of the oil pressure regulators and electrovalves.
- Initialisation of the autoadaptatives.
- Resetting the oil usage counter to zero.

Replacement of the automatic gearbox ECU.

Carry out the following operations:
- Read the value of the gearbox oil usage counter from the old ECU.
- Write the value of the oil usage counter into the new ECU.
- Initialisation of the neutral position of the gear selection lever position sensor.
- Initialisation of the adaptation of the oil pressure regulators and electrovalves.
- Initialisation of the autoadaptatives.

PROCEDURE FOR INITIALISATION OF THE AUTOMATIC GEARBOX ECU

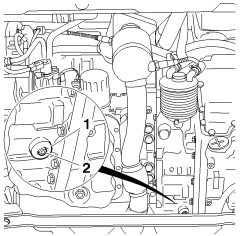
Replacement of the automatic gearbox and of the automatic gearbox ECU.
Carry out the following operations:
- Initialisation of the autoadaptatives.
- Resetting the oil usage counter to zero.
- Initialisation of the adaptation of the oil pressure regulators and electrovalves.

Draining of the automatic gearbox oil.
Carry out the following operations:
- Initialisation of the adaptation of the oil pressure regulators and electrovalves.
- Resetting the oil usage counter to zero.

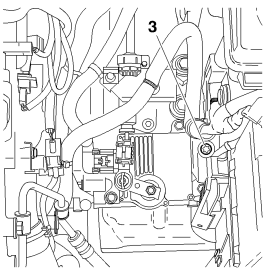
NOTE: If downloading the automatic gearbox ECU, there is no specific operation, follow the procedure in the diagnostic tool.

IMPERATIVE: For a certain time, having carried out an ECU initialisation procedure, one may obtain gear changing quality that is more or less good *(adaptation of the ECU parameters to the gearbox)*. To improve the quality, it is necessary to perform a road test with frequent changing through the gears *(auto-adaptive laws)*.

DRAINING, FILLING AND TOPPING UP THE AM6 AUTOMATIC GEARBOX



B1BP317C



B2CP3WZC

Tool.

[1] Filling cylinder **: (-).0340**

Respect the safety and cleanliness requirements.

Draining.

IMPERATIVE: Draining of the gearbox must be done with the oil hot *(60°C minimum)*, in order to ensure that the impurities in suspension in the oil are eliminated.

NOTE: Drainage is only partial, as the torque converter cannot be drained totally.
Raise the vehicle.

Remove:
- The oil level plug **(2)** by means of the **Torx** spanner.
- The drain plug **(1)** using a **hexagonal** spanner.

NOTE : Around **3 litres** of oil should flow out.

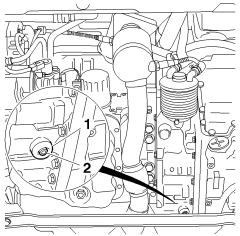
Filling.

Fit the drain plug **(1)** *(with a new seal)*.
Tighten the plug **(1)** to **: 5 ± 1 mdaN**.

Remove:
- The air filter housing.
- The oil filler plug **(3)**.

Use tool **[1]**.

DRAINING, FILLING AND TOPPING UP THE AM6 AUTOMATIC GEARBOX



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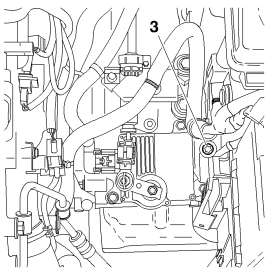


B2CP3WZC

WARNING: Do not take account of the information mentioned on tool [1].

Oil capacity for a dry gearbox: **7 litres** ***(approx.)***.

Type of oil: **JWS 3309 ESSO** *(red in colour)*.

Volume of oil remaining after draining: **4 litres** ***(approx.).***

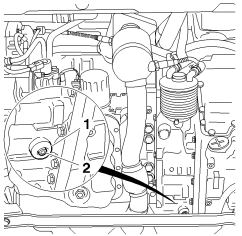
Quantity of oil to be added: **3 litres** ***(approx.).***

Refit the filler plug **(3)** *(with a new seal)*.
Tighten the plug **(3)** to **: 4 ± 1 mdaN**.
Initialise the oil usage counter *(follow the procedure in the diagnostic tool)*.

Checking the oil level.
Prior conditions:
- Vehicle in a horizontal position.
- Check that the gearbox is not in back-up mode.

Remove the filler plug **(3)**.
Add **0.5 litre** of extra oil into the gearbox.
Press the brake, change through all the gears.
Gear lever in position **"P"**.
Engine running, at idle:
- Oil temperature **60°C (+ 8 ; - 2)** *(parameter measures with a diagnostic tool).*
- Remove the level plug **(2)**.

DRAINING, FILLING AND TOPPING UP THE AM6 AUTOMATIC GEARBOX

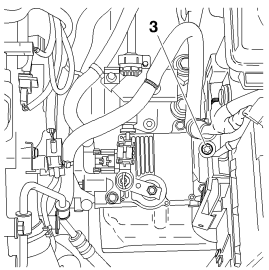


B1BP317C

Thread of oil, then "drip-drip".
Refit the level plug **(2)**.
Tighten the plug **(2)** to **: 0.8 ± 0,1 mdaN.**

"drip-drip" or nothing.
Refit the level plug **(2)**.
Stop the engine.
Add **0.5 litre** of extra oil into the gearbox.
Repeat the topping-up procedure.

NOTE: The level is correct when the thread of oil becomes "**drip-drip**".

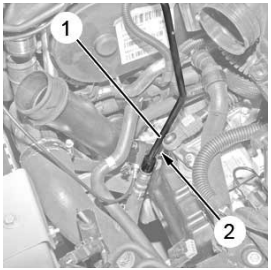


B2CP3WZC

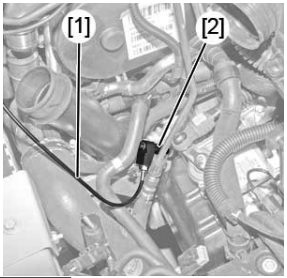
Refit the level plug **(2)** *(with a new seal)*.
Tighten the plug **(2)** to **: 0.8 ± 0,1 mdaN**.
Refit the filler plug **(3)** *(with a new seal)*.
Tighten the plug **(3)** to **: 4 ± 1 mdaN.**

A level of oil that is too high can have the following consequences: Abnormal overheating of the oil, leaks of oil causing a level which is too low resulting in destruction of the gearbox.

CHECKING THE OIL PRESSURE IN THE AM6 AUTOMATIC GEARBOX



B2CP45FC



B2CP45GC

Tools.

[1] Flexible pipe and pressure gauge **: 4601- TF1 Toolkit 4601-T**
[2] Flexible union **: (-).0336.X Toolkit 8010-T**

IMPERATIVE: Respect the safety and cleanliness requirements.

Preliminary operations.

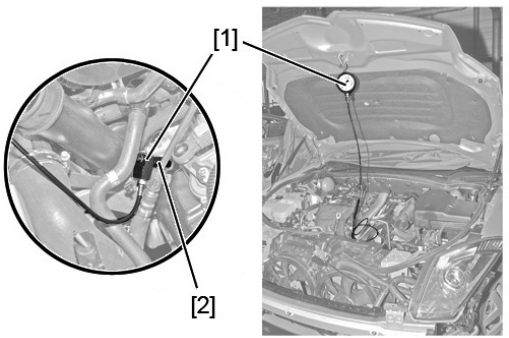
Remove the air filter housing.

Move aside the pipe **(1)**.

Remove the screw **(2)**.

Screw in the tool **[2]** in place of the screw **(2)**.

CHECKING THE OIL PRESSURE IN THE AM6 AUTOMATIC GEARBOX



B1BP3END

WARNING: Clean the flexible pipe of the tool [1] each time before use; the different automatic gearbox oils cannot be intermixed.

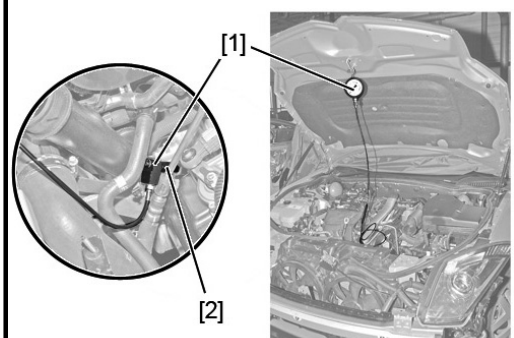
Fit the tool **[1]** on the tool **[2]**.
Perform the following operations:
- Raise the vehicle, wheels hanging.
- Apply the parking brake.
- Start the engine.
- Check the oil pressure.

WARNING: Wait for the gearbox oil to reach a temperature between 58°C and 68°C. Check the level of oil in the gearbox *(see corresponding operation)*.

NOTE: Check the temperature of the oil using the diagnostic tool in parameter measures.

Gear lever position	**: D.**
Engine speed	**: Idling.**
Principal oil pressure	**: 3.7 to 4.2 bars.**

CHECKING THE OIL PRESSURE IN THE AM6 AUTOMATIC GEARBOX



B1BP3END

Checking the torque converter.

WARNING: This check has to be of short duration *(2 seconds)*, as it causes a rapid rise in the temperature of the oil in the automatic gearbox.

Respect the following checking conditions:
- Engine at operating temperature.
- Gear lever in position **D**.
- Press on the brake pedal.
- Accelerate the engine to the maximum engine speed *(see below)*.

Gear lever position.	**: D.**
Maximum engine speed for **ES9A**	**: 2400 ± 50 rpm.**
Maximum engine speed for **DT17**	**: 2600 ± 50 rpm.**

Diagnosis:
- If the maximum engine speed obtained is lower than the value indicated, the torque converter is the cause.
- If the maximum engine speed obtained is higher than the value indicated, the automatic gearbox is the cause *(slipping)*.

Additional operations.
Remove tools **[1]** and **[2]**.
Refit the screw **(2)**, with a new seal.
Reposition the pipe **(1)**.
Refit the air filter housing.

TRANSMISSION

			Tightening torques (m.daN)		Gearbox oil seal mandrels		
Vehicle	Gearbox	Engines	Driveshaft bearing	Driveshaft nut	Right	Left	Tool kit
C6	AM6	ES9A - DT17BTED4	2 ± 0,2	34,5 ± 2	(-).0336.U	(-).0336.V	8010-T
					(-).0336.W (1)		

(1) Guide for fitting driveshaft seal.

Tightening torques (m.daN) of the wheel bolts

CITROËN	ES9AI DT17BTED4	Steel Alloy	9 ± 1

WHEEL AND TYRES

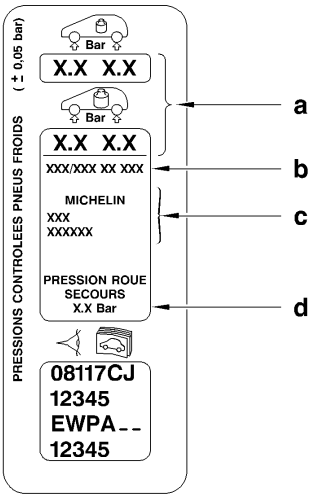
		3.0i 24S		2,7 24V
Engine plate		**XFV**		**UHZ**
Tyre/circumference	**S**	225/55 R17 97W/2,071 m	245/45 R18 100W/2,065m	245/45 R18 100W/2,065m
Type		Michelin PRIMACY		
Wheel	**T**			
	A	7 J17-CH5-32	8 J18-CH5-33	8 J18-CH5-33
Name of rim		SATURNE	SAN MARIN 2	SAN MARIN 2
Normal operating pressure: front/rear		2,4/2,4	2,4/2,4	2,4/2,4
Pressure for maximum load : front/rear		2,6/2,6	2,4/2,4	2,6/2,6
Pressure: loaded, high speed: front/rear		2,4/2,4	2,4/2,4	2,6/2,6
Tyre	**S**	225/55 R17 97W		
Spare wheel	**T**	7 J17-5-32		
Normal operating pressure		2,6	2,4	2,6
Pressure for maximum load		2,6	2,4	2,6
Pressure: loaded, high speed				

S = Standard fitting. **T =** Steel wheel. **A =** Alloy wheel.

NOTE: The label indicating the recommended tyre pressures is affixed to the front LH door pillar.

WHEEL AND TYRES

Identification of inflation pressures



B2GP01FD

NOTE: The label indicating the recommended tyre pressures is affixed to the front LH door pillar.

«a» Recommended tyre inflation pressures *(empty and under load)*

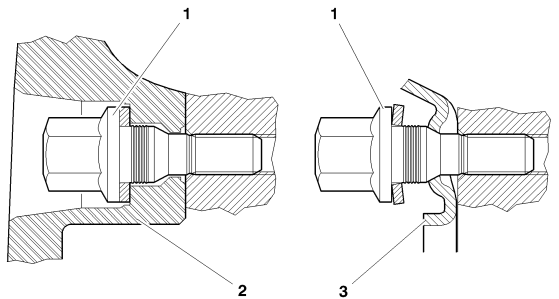
«b» Tyre specifications

«c» Type of tyres

«d» Recommended inflation pressure for the spare wheel

WHEEL AND TYRES

Identification of the wheel bolts



B2GP00JD

(1) Wheel bolt *(all rim types)*

(2) Light alloy wheel

(3) Steel aluminium wheel

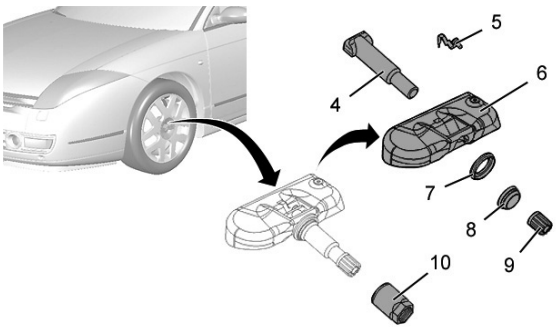
NOTE: If mixed fixing bolts are fitted on steel wheels, the shoulders of the bolts remain free.

Tightening torques for the wheel bolts.

9 ± 1 m.daN

WHEEL AND TYRES

Deflation detection system



B2GP01ND

(4) Valve
(5) Antenna
(6) HF transmitter unit
(7) Washer
(8) Seal
(9) Cap
(10) Nut

Composition.
A SIEMENS HF transmitter module **(6)** integral to each wheel in the place of the valve, each including a lithium battery.
An **HF** receiver in the communication module under the dashboard.

WARNING: Each time a tyre is replaced, it is necessary to replace the valve (4).

WARNING: Each time a wheel rim is replaced, it is necessary to replace the seal (8).

WARNING: Each time a transmitter module is changed, it is necessary to have the replacement recognised by the deflation detection ECU, using a diagnostic tool.

CHECKING AND ADJUSTING VEHICLE HEIGHT

Reference heights: REFERENCE = Ignition switched on

IMPERATIVE: Respect the safety and cleanliness requirements.

Tools.

[1] Gauge for measuring radius of wheels ***(5 bolts)*** **: 9801-T**
[2] Gauge for height under bodyshell **: 2305-T**
[3] LEXIA station **: 4171-T**
[4] PROXIA station **: 4165-T**

Preliminary operations.

Check the tyre pressures.
Place the vehicle on a **4 column lift**.
Switch on the ignition.
Release the parking brake.
Put the vehicle in the high position.
Put the vehicle in the normal height position *(driving height)*.

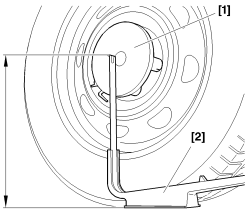
During: During the measuring, do not move the vehicle.

CHECKING AND ADJUSTING VEHICLE HEIGHT

Warning: During measurement of reference heights: Do not switch off the ignition

Reference heights: REFERENCE = Ignition switched on

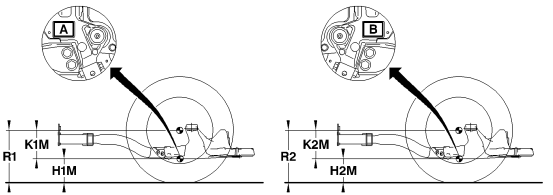
Measuring the front wheel radiuses



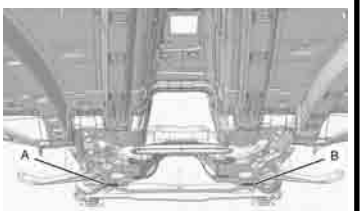
B3CP0AQD

Place the tool **[1]** on the wheel fixing bolts.
Measure the wheel radiuses using tool **[2]**.

Measuring the front heights



B3CP0ARD



B3CP0ASD

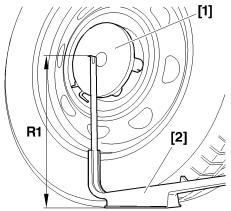
Measure, using tool **[2]**.

The **front LH** height **H1M**: Measure between the ground and **zone A** under the front subframe.
The **front RH** height **H2M**: Measure between the ground and **zone B** under the front subframe.

CHECKING AND ADJUSTING VEHICLE HEIGHT

Reference heights: REFERENCE = Ignition switched on

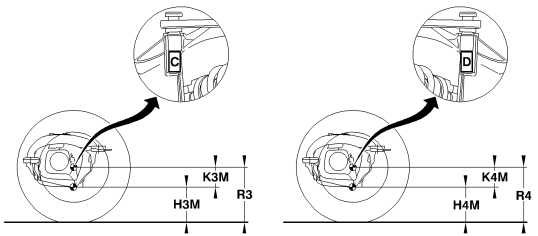
Measuring the rear wheel radiuses



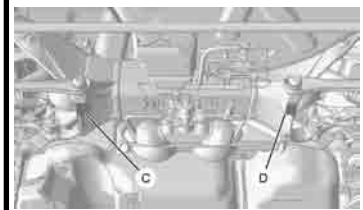
B3CP06AC

Place the tool **[1]** on the wheel fixing bolts.
Measure the wheel radiuses using tool **[2]**.

Measuring the rear heights



B3CP0ATD



B3CP0AUD

Measure, using tool **[2]**.

The **rear LH** height **H3M**: Measure between the ground and **zone C** under the rear axle crossmember.
The **rear RH** height **H4M**: Measure between the ground and **zone D** under the rear axle crossmember.

CHECKING AND ADJUSTING VEHICLE HEIGHT

Reference heights: REFERENCE = Ignition switched on

Adjusting the heights.

Calculate the following values:

- Front LH **: K1M = R1 - H1M.**
- Front RH **: K2M = R2 - H2M.**
- Rear LH **: K3M = R3 - H3M.**
- Rear RH **: K4M = R4 - H4M.**

Connect the diagnostic tool **[3]** or **[4]** to the vehicle's diagnostic socket.
Switch on the ignition.
Perform a global test.
Go into the menu.

Variable damping.

Adjustment of vehicle reference heights.
Enter the values **K1M**, **K2M**, **K3M** and **K4M** in the diagnostic tool.

WARNING: The values should consist of 4 figures: Example: K1 = 160 mm - enter the value 0160.

Checking the heights after adjustment.

Check the heights:

- Front LH **: K1 = 160 ± 6 mm**.
- Front RH **: K2 = 160 ± 6 mm**.
- Rear LH **: K3 = 111 ± 6 mm**.
- Rear RH **: K4 = 111 ± 6 mm**.

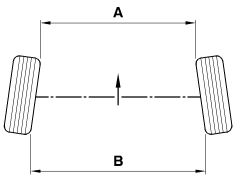
VALUES FOR CHECKING AND ADJUSTING AXLE GEOMETRIES

IMPERATIVE: Respect the safety and cleanliness requirements.

Tools.

[1] Gauge for measuring radius of wheels ***(5 bolts)*** **: 9801-T**
[2] Gauge for height under bodyshell **: 2305-T**

WARNING: «Check and adjust the axle geometries at reference height».



NOTE: Front of vehicle *(following the arrow)*.

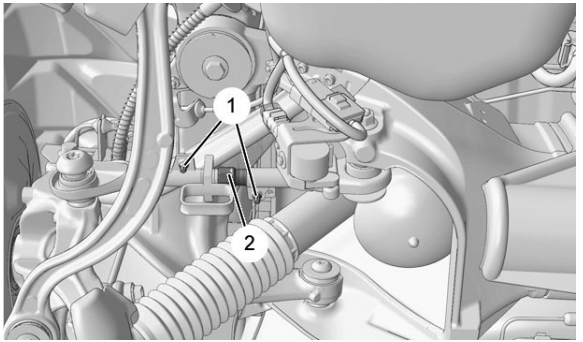
Conditions for checking and adjusting.
Check the tyre pressures.
Place the vehicle on a **4 column lift**.
Check and adjust if necessary the vehicle heights *(see corresponding operation)*.
Steering rack locked at its zero point *(see corresponding operation)*.
Switch off the ignition before removing the tools from the wheels.
Lower the vehicle.
Start the engine.
Put the vehicle in the high position.
Put the vehicle in the normal height position *(driving height)*.
Stop the engine.
Switch on the ignition.
Check and adjust the front and rear axle geometries at reference height.

WARNING: Do not switch off the ignition during checking and adusting of the front and rear axle geometries.

	NOTE	
A < B = Positive figure:	+ =	TOE-IN
A > B = Negative figure:	- =	TOE-OUT

B3CP02UC

VALUES FOR CHECKING AND ADJUSTING AXLE GEOMETRIES



B3BP1BND

Rod for adjusting the rear tracking.

(1) Locking screw

(2) Adjusting screw

VALUES FOR CHECKING AND ADJUSTING AXLE GEOMETRIES

Reference heights: REFERENCE = Ignition switched on

Front axle	Rear axle
Dissymmetry of lower **castor**: **0° 30'.** Dissymmetry of lower **camber**: **0° 25'.**	Dissymmetry of lower **camber**: **0° 30.**

IMPERATIVE: Distribute symmetrically, LH / RH wheel, the total tracking value.

«Tyres: 225/55 R17»

		Front axle				Rear axle		
Vehicle		Tracking	Castor	Camber	Pivot Angle	Tracking	Camber	Push Angle
		Adjustable	Non adjustable			Adjustable	Non adjustable	
C6	mm	- 1 ± 1	5° 30' ± 30'	- 0°24' ± 30	8° 40' ± 30'	4,32 ± 1	- 1° 27' ± 30'	0° ± 12'
	0°	- 0°09' ± 0°09'				0° 34' ± 0°09'		

«Tyres: 245/45 R18»

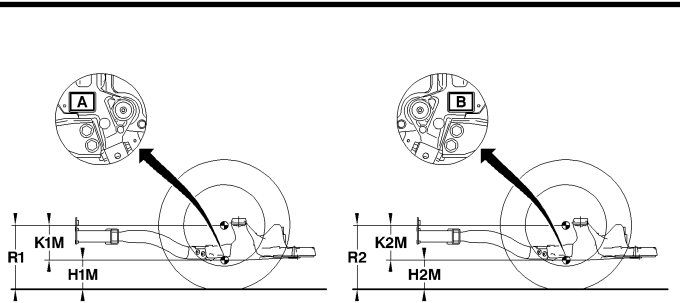
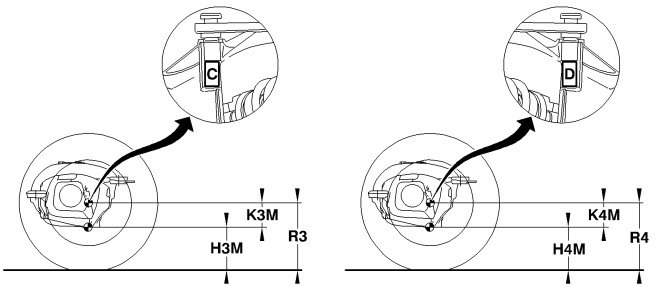
		Front axle				Rear axle		
Vehicle		Tracking	Castor	Camber	Pivot Angle	Tracking	Camber	Push Angle
		Adjustable	Non adjustable			Adjustable	Non adjustable	
C6	mm	- 1,1 ± 1	5° 30' ± 30'	- 0°24' ± 30	8° 40' ± 30'	4,58 ± 1	- 1° 27' ± 30'	0° ± 12'
	0°	- 0°09' ± 0°09'				0° 34' ± 0°09'		

VALUES FOR CHECKING AND ADJUSTING AXLE GEOMETRIES

Warning: During measuring of PARKING heights: Switch off the ignition

PARKING heights: ***(values given AS A GUIDE only)***

Front and rear PARKING heights ***(ignition switched off)***

Front axle	Rear axle
 B3CP0ARD	 B3CP0ATD

Front LH: **K1 = 175 ± 6 mm**	Front RH: **K2 = 175 ± 6 mm**	Rear LH: **K3 = 131 ± 6 mm**	Rear RH: **K4 = 131 ± 6 mm**

VALUES FOR CHECKING AND ADJUSTING AXLE GEOMETRIES

PARKING heights: ***(values given AS A GUIDE only)***

Front and rear PARKING heights ***(ignition switched off)***

Front axle	Rear axle
Dissymmetry of lower **castor: 0° 30'.** Dissymmetry of lower **camber: 0° 25'.**	Dissymmetry of lower **camber: 0° 30.**

IMPERATIVE: Distribute symmetrically, LH / RH wheel, the total tracking value.

«Tyres: 225/55 R17»

Front axle						Rear axle		
Vehicle		Tracking	Castor	Camber	Pivot Angle	Tracking	Camber	Pivot Angle
		Adjustable	Non adjustable			Adjustable	Non adjustable	
C6	mm	- 2,32 ± 1	5° 30' ± 30'	- 0°30' ± 30	8° 21' ± 30'	5,13 ± 1	- 1° 54' ± 30'	0° ± 12'
	0°	- 0°18' ± 0°09'				0° 41' ± 0°09'		

«Tyres: 245/45 R18»

Front axle						Rear axle		
Vehicle		Tracking	Castor	Camber	Pivot Angle	Tracking	Camber	Pivot Angle
		Adjustable	Non adjustable			Adjustable	Non adjustable	
C6	mm	- 2,46 ± 1	5° 30' ± 30'	- 0°30' ± 30	8° 21' ± 30'	5,43 ± 1	- 1° 54' ± 30'	0° ± 12'
	0°	- 0°18' ± 0°09'				0° 41' ± 0°09'		

FRONT AXLE

ES9A

B3CP09BD

DT17BTED4

B3CP09LD

Front subframe.

Front subframe in cast aluminium alloy.

NOTE: Subframe positioned by indexing on body.

Front subframe frame with screwed-in subframe extensions *(UHZ engine).*

(1) Front subframe frame crossmember

(2) Subframe extensions

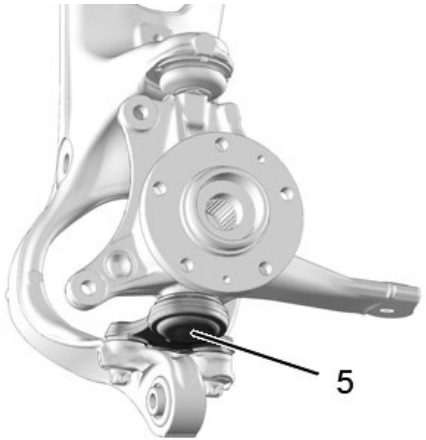
(3) Front subframe

Front subframe frame with welded subframe extensions *(XFV engine).*

(3) Front subframe

(4) Front subframe frame

FRONT AXLE



B3CP09CC

Front pivot.

Front pivot fixed on the pivot support by means of an upper balljoint and a lower balljoint.

Front hub bearing:

- Diameter **83 mm**.
- Bearing with double row of balls, with an integral magnetic wheel *(**48 pairs** of poles)*.

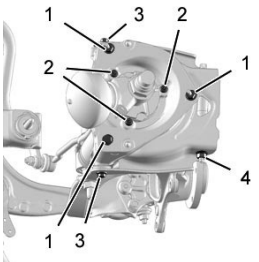
Suspension leg:

- Front axle with wheels independent, of multi-arm type.
- Travel stop: height **60 mm**.
- Anti-roll bar

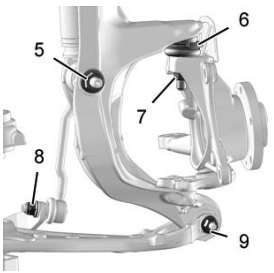
	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
ES9A	**23,5 mm**	**Yellow**
DT17BTED4	**24 mm**	**Pink**

NOTE: The geometry specifications are given with the values for checking and adjusting the axle geometries.

FRONT AXLE: TIGHTENING TORQUES



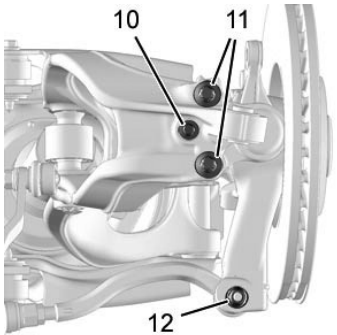
B3CP09DC



B3CP09EC

Engines: ES9A - DT17BTED4		
Suspension leg		
1	Body suspension upper support	2,6 ± 0,3
2	Front suspension cylinder on Suspension upper support	2,4 ± 0,3
3	Suspension upper arm on Suspension upper support	4,5 ± 0,6
4	Suspension upper arm on Pivot support	8,5 ± 0,8
5	Front anti-roll bar rod on Pivot support	20,5 ± 2
6	Pivot upper balljoint on Pivot support	15 ± 1,5
7	Pivot upper balljoint nut	6 ± 0,6
8	Front anti-roll bar rod on Front anti-roll bar	5 ± 0,5
9	Suspension lower arm on Pivot support	7,5 ± 1,1

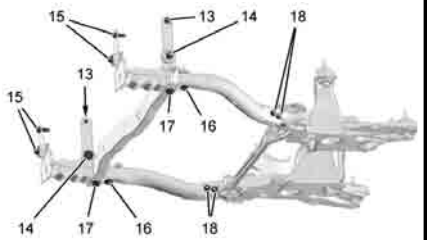
FRONT AXLE: TIGHTENING TORQUES



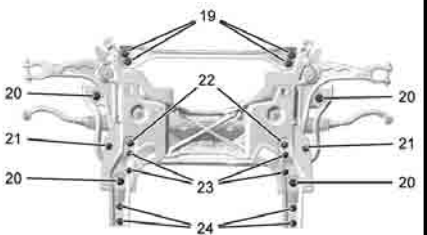
B3CP09FC

Engines: ES9A - DT17BTED4		
Suspension leg		
10	Pivot lower balljoint on Pivot support	6,5 ± 0,9
11	Pivot lower balljoint on Pivot support	17 ± 1,7
12	Steering rack balljoint on Front pivot	3,5 ± 0,3

FRONT AXLE: TIGHTENING TORQUES



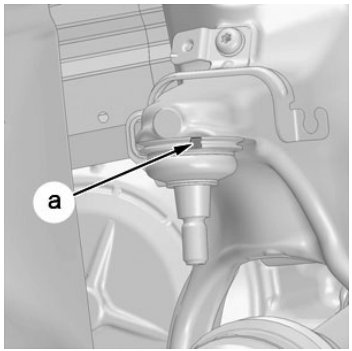
B3CP09GD



B3CP09HD

Engines: ES9A - DT17BTED4		
Front subframe		
13	Front subframe frame tie-bar on Body	5 ± 0,7
14	Front subframe frame tie-bar on Front subframe frame	6,5 ± 0,9
15	Front absorber support tie-bar	6,5 ± 0,9
16	Front subframe frame on Subframe extension	10 ± 1
17	Front subframe frame crossmember	10 ± 1
18	Subframe extension on Front subframe	5,5 ± 0,5
19	Front subframe stabiliser bar	12,5 ± 1,2
20	Front subframe on Body	14 ± 1,4
21	Suspension lower arm on Front subframe	6,5 ± 0,6
22	Suspension lower arm on Front subframe	11 ± 1,1
23	Front anti-roll bar bearing on Front subframe	4,5 ± 0,6
24	Body yoke	10 ± 1

FRONT AXLE: TIGHTENING TORQUES

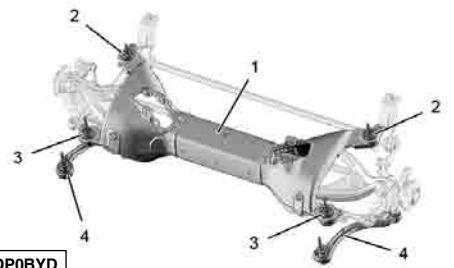


B3CP09TC

Engines: ES9A - DT17BTED4		
Front subframe		
25	Suspension lower arm support on Front subframe	6,5 ± 0,9
26	Suspension lower arm on Front subframe	12,3 ± 1,2

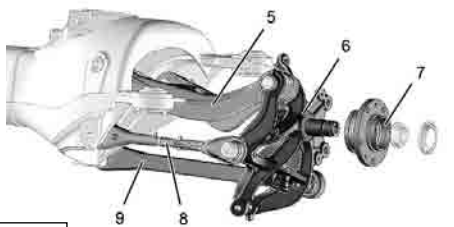
REAR AXLE

Rear axle



B3DP0BYD

Rear pivot



B3DP0BZD

(1) Rear axle crossmember
(2) Rear axle crossmember rear rubber bush
(3) Rear axle crossmember front rubber bush
(4) Suspension longitudinal arm

NOTE: Rear axle in cast aluminium alloy, of multi-arm type.

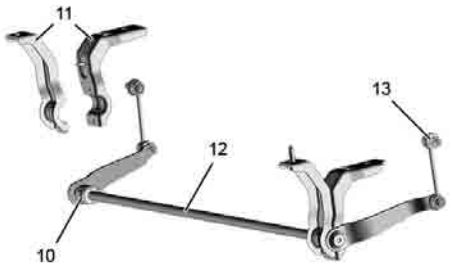
(5) Suspension upper arm
(6) Rear pivot
(7) Hub-bearing
(8) Tracking adjustment rod
(9) Suspension lower arm

Hub-bearing:
- The rear hub-bearing is equipped with an ABS radial target *(**48** pairs of poles)*.

Stub axle:
- Diameter **32 mm**.
- The stub axle, joined onto the rear pivot, is not separable.

IMPERATIVE: The rear hub-bearing must not be placed in proximity to a source of magnetism or of pollution by metal particles. Components must be clean and free from any signs of abnormal wear or damage.

REAR AXLE



B3BP1AED

(10) Rear anti-roll bar bearing
(11) Rear anti-roll bar bearing half-support
(12) Rear anti-roll bar
(13) Rear anti-roll bar rod

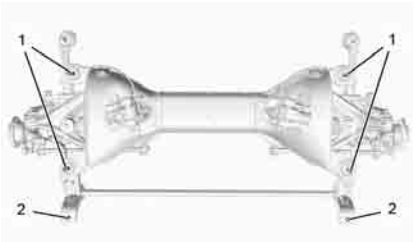
NOTE: The rear anti-roll bar bearings are not separable.

	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
ES9A - DT17BTED4	**20,6**	**Orange**

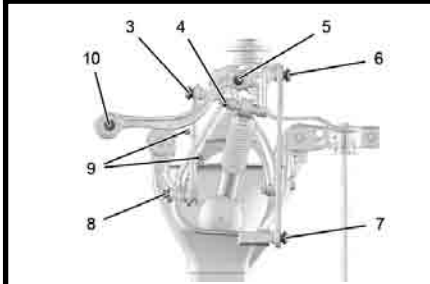
Vehicle geometry.

NOTE: The geometry specifications are given with the values for checking and adjusting the axle geometries.

REAR AXLE: TIGHTENING TORQUES



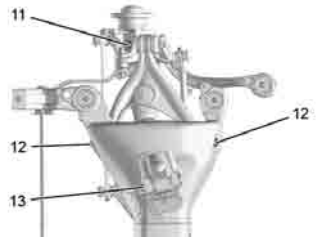
B3DP0BUD



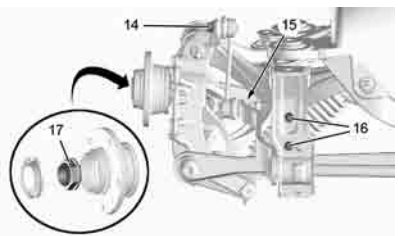
B3DP0BVD

Engines: ES9A - DT17BTED4		
1	Rear axle crossmember on Body	7,5 ± 0,7
2	Rear anti-roll bar bearing on Body	7 ± 0,7
3	Tracking adjustment rod on Rear pivot	
4	Rear suspension cylinder on Rear pivot	
5	Suspension longitudinal arm on Rear pivot	
6	Suspension lower arm on Rear pivot	
7	Suspension lower arm on Rear axle crossmember	
8	Tracking adjustment rod on Rear axle crossmember	
9	Locking of tracking adjustment rod	1 ± 0,2
10	Suspension longitudinal arm on Body Pre-tightening Angular tightening	 3,3 ± 0,3 150° ± 5°

REAR AXLE: TIGHTENING TORQUES



B3DP0BWD



B3DP0BXD

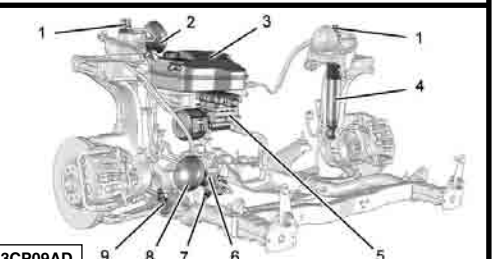
Engines: ES9A - DT17BTED4		
11	Suspension upper arm on Rear pivot	7 ± 0,7
12	Suspension upper arm on Rear axle crossmember	
13	Rear suspension cylinder on Rear axle crossmember	
14	Rear anti-roll bar rod on Rear pivot	4 ± 0,6
15	Rear anti-roll bar rod on Rear anti-roll bar	
16	Rear anti-roll bar bearing half support	1,8 ± 0,4
17	Rear hub-bearing nut	25 ± 2

ACTIVE SUSPENSION WITH VARIABLE DAMPING

Location of components

B3BP1ASD

Front axle



B3CP09AD

A: Front suspension
B: Rear suspension

NOTE: The rear stiffness regulator is equipped with two accumulators.

(1) Variable damping suspension actuator

(2) Front suspension accumulator

(3) LDS fluid reservoir

(4) Front suspension cylinder

(5) Built-in Hydro-electronic Interface **(BHI)**

(6) Front stiffness regulator

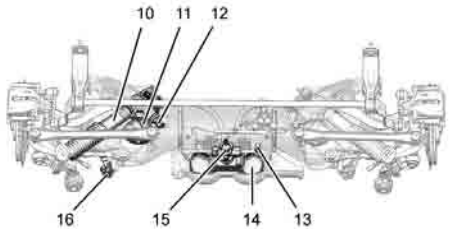
(7) Suspension pressure sensor

(8) Front stiffness regulator accumulator

(9) Wheel travel sensor

ACTIVE SUSPENSION WITH VARIABLE DAMPING

Rear axle



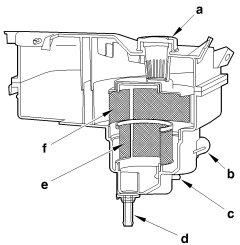
B3DP0BSD

(10) Rear suspension cylinder
(11) Rear suspension accumulator
(12) Variable damping suspension actuator
(13) Suspension pressure sensor
(14) Rear stiffness regulator accumulator
(15) Rear stiffness regulator
(16) Wheel travel sensor

Source of pressure.
Features.
Hydraulic fluid **: LDS TOTAL H50126.**
The **LDS fluid orange** in colour is **100% synthetic.**
Capacity of the hydraulic circuit **: 6.3 litres.**

NOTE: LDS: Liquide Direction Suspension *(steering/suspension fluid).*

LDS fluid reservoir



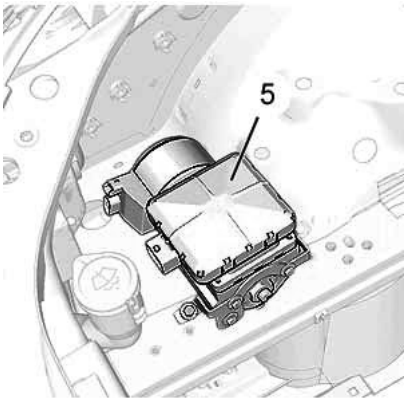
B4BP01SD

«a» LDS fluid reservoir filler *(cap)*
«b» Suction **(BHI)** *(power steering pump)*
«c» Return *(stiffness regulators)*
«d» Return *(power steering pump)*
«e» Return *(filter)*
«f» Suction *(filter)*

The level of the **LDS** fluid must be checked with the vehicle in the low position *(refer to the procedure «Depressurisation: suspension circuit»).*

ACTIVE SUSPENSION WITH VARIABLE DAMPING

Built-in Hydro-electronic Interface (BHI)



B3BP1A1C

Composition of the Built-in Hydro-electronic Interface:
- An electric motor.
- A pump with **5 pistons**.
- **4** electrovalves.
- **2** non-return valves.
- A pressure limiter.
- An anti-pulse accumulator.
- A filter.
- The suspension ECU.

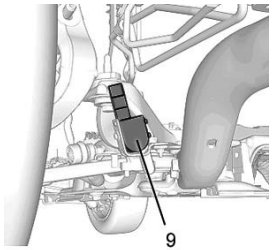
Features of variable damping suspension.

Variable damping suspension ECU (CSS).
The ECU **(CSS)** is located in the engine compartment, in the ECU tray.
The ECU **(CSS)** manages the different damping laws, as a function of the information delivered by the following components:
- The **4** wheel travel sensors.
- The **2** suspension pressure sensors.
- The speed of the vehicle.
- The speed of rotation of the steering wheel.

The suspension ECU **(CSS)** pilots the following components:
- The **4** variable damping suspension actuators.
- The Built-in Hydro-electronic Interface **(BHI)**.

ACTIVE SUSPENSION WITH VARIABLE DAMPING

Wheel travel sensor



B3BP19ZC

(9) Front RH wheel travel sensor

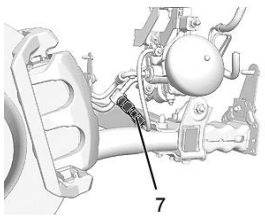
The wheel travel sensor defines the angular position of the suspension lower arm.

Identification of the sensors:

- Front RH wheel travel sensor **: Yellow.**
- Front LH wheel travel sensor **: Red.**
- Rear RH wheel travel sensor **: Green.**
- Rear LH wheel travel sensor **: Blue.**

IMPERATIVE: Before operating on a wheel travel sensor, uncouple its rod so as not to go past the maximum angular travel *(see corresponding operation)*.

Suspension pressure sensor

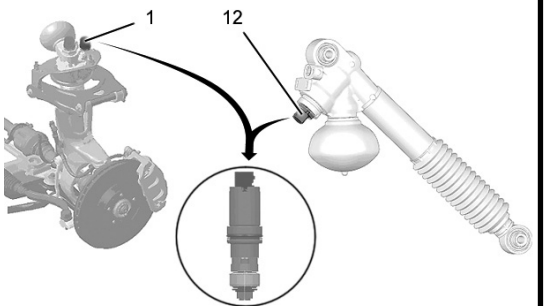


B3BP19YC

The suspension pressure sensors **(7)** informs the suspension ECU **(CSS)** of the pressure in the hydraulic high pressure pipes of the front suspension.
The sensor **(13)** informs the suspension ECU **(CSS)** of the pressure in the hydraulic high pressure pipes of the rear suspension.

ACTIVE SUSPENSION WITH VARIABLE DAMPING

Variable damping suspension actuator



B3BP1A0D

Each suspension cylinder has a variable damping suspension actuator.

(1) Variable damping suspension actuators *(front)*
(12) Variable damping suspension actuators *(rear)*

Anti-roll bars:

Front anti-roll bar.

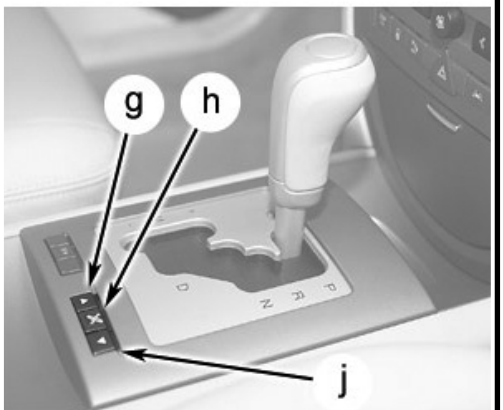
ES9A	: Diameter **23.5 mm Yellow.**
DT17BTED4	: Diameter **24 mm Pink.**

Rear anti-roll bar.

ES9A and DT17BTED4	: Diameter **20.6 mm Orange.**

ACTIVE SUSPENSION WITH VARIABLE DAMPING

One-touch control for body height



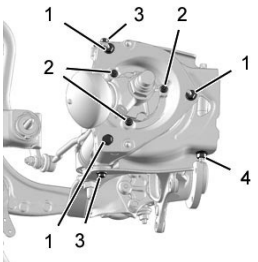
C5FP0R8C

«g» One-touch control to raise body height

«h» Sport mode activation/deactivation switch

«j» One-touch control to lower body height

SUSPENSION: TIGHTENING TORQUES

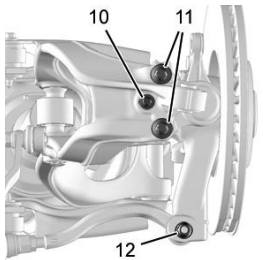


B3CP09DC

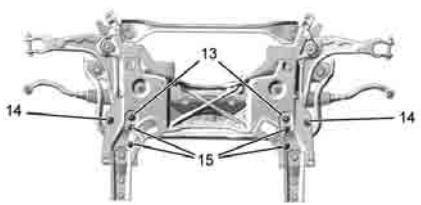
B3CP09EC

Front suspension		
1	Body suspension upper support	2,6 ± 0,3
2	Front suspension cylinder on Suspension upper support	2,4 ± 0,3
3	Suspension upper arm on Suspension upper support	4,5 ± 0,6
4	Suspension upper arm on Pivot support	8,5 ± 0,8
5	Suspension upper arm on Pivot support	20,5 ± 2
6	Pivot upper balljoint on Pivot support	15 ± 1,5
7	Pivot upper balljoint nut	6 ± 0,6
8	Front anti-roll bar rod on Front anti-roll bar	5 ± 0,5
9	Suspension lower arm on Pivot support	7,5 ± 1,1

SUSPENSION: TIGHTENING TORQUES



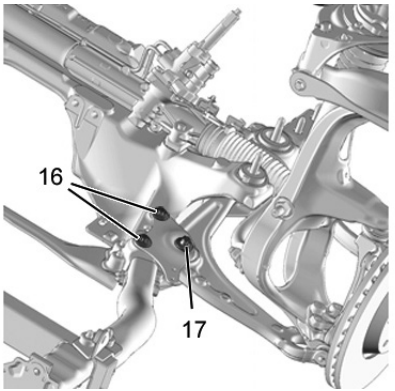
B3CP09FC



B3CP09WD

10	Front pivot lower balljoint on Pivot support	6,5 ± 0,9
11	Front pivot lower balljoint on Pivot support	17 ± 1,7
12	Steering rack balljoint on Front pivot	3,5 ± 0,3
13	Rear fixing of suspension lower arm on Front subframe	11 ± 1,1
14	Rear fixing of suspension lower arm on Front subframe	6,5 ± 0,6
15	Fixing of front anti-roll bar bearing on Front subframe	4,5 ± 0,4

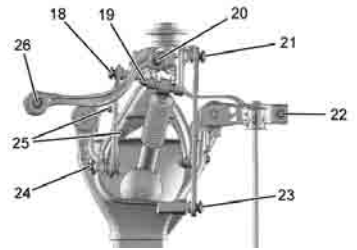
SUSPENSION: TIGHTENING TORQUES



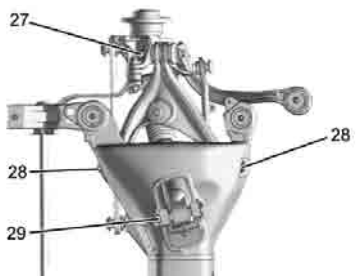
B3CP09XD

16	Fixing of suspension lower arm support on Front subframe	8 ± 0,8
17	Front fixing of suspension lower arm on Front subframe	12,3 ± 1,2

SUSPENSION: TIGHTENING TORQUES



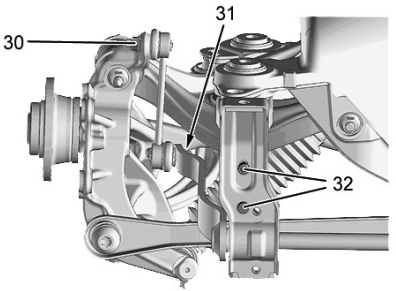
B3DP0CPD



B3DP0CQD

Rear suspension		
18	Tracking adjustment rod on Rear pivot	7 ± 0,7
19	Lower fixing of rear suspension cylinder on Rear pivot	
20	Suspension longitudinal arm on Rear pivot	
21	Suspension lower arm on Rear pivot	
22	Rear anti-roll bar bearing on Body	7,5 ± 0,7
23	Suspension lower arm on Rear axle crossmember	7 ± 0,7
24	Tracking adjustment rod on Rear axle crossmember	
25	Screw for locking of tracking adjustment rod	1 ± 0,2
26	Suspension longitudinal arm on Body Pre-tightening Angular tightening	3,3 ± 0,3 150° ± 5°
27	Suspension upper arm on Rear pivot	7 ± 0,7
28	Suspension upper arm on Rear axle crossmember	
29	Upper fixing of rear suspension cylinder on Rear axle crossmember	

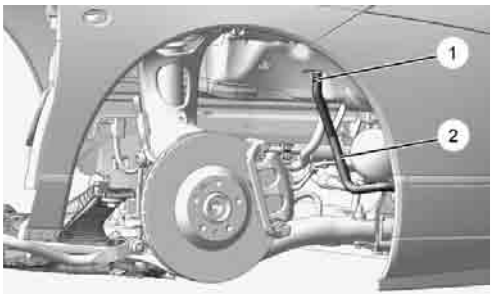
SUSPENSION: TIGHTENING TORQUES



B3DP0CRD

	Rear suspension	
30	Upper fixing of rear anti-roll bar rod on Rear pivot	
31	Lower fixing of rear anti-roll bar rod on Rear anti-roll bar	4 ± 0,6
32	Fixing of rear anti-roll bar half-bearing	1,8 ± 0,4

DRAINING, FILLING AND BLEEDING THE HYDRAULIC SUSPENSION/STEERING CIRCUIT



B3FP7HED

Tools.

[1] Pliers for clic clips **: 4121-T**
[2] LEXIA diagnostic tool **: 4171-T**
[3] PROXIA diagnostic tool **: 4165-T**

Draining.

Start the engine.
Place the vehicle in the low position.
Stop the engine.
Raise and support the vehicle, wheels hanging.

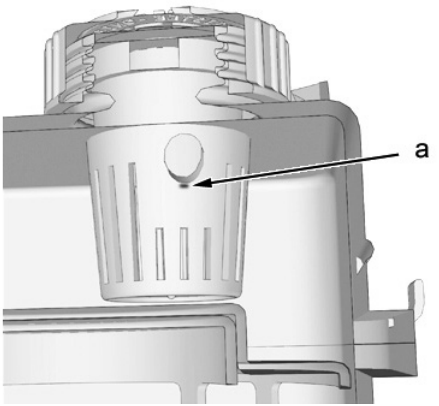
WARNING: The LDS fluid reservoir is pressurised.

Open the cap of the **LDS** fluid reservoir.
Remove:
- The front RH wheel.
- The front RH splash-shield.

Remove the clip **(1)** using tool **[1]**.
Uncouple the hose **(2)** from the **LDS** fluid reservoir.
Drain the **LDS** fluid reservoir.

IMPERATIVE: Any LDS fluid recovered must not be re-used.

DRAINING, FILLING AND BLEEDING THE HYDRAULIC SUSPENSION/STEERING CIRCUIT



B3FP7HFD

Filling.

Couple the hose **(2)** on the **LDS** fluid reservoir.

Refit:

- The clip **(1)**.

- The front RH splash-shield.

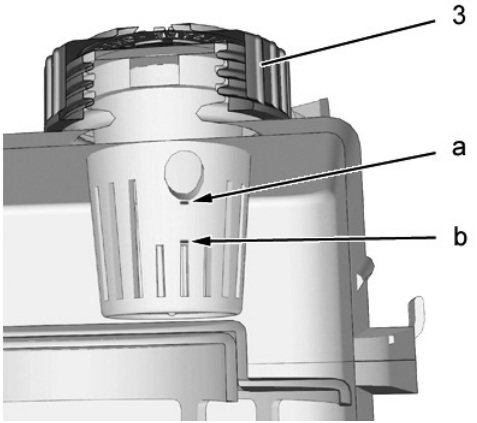
- The front RH wheel.

Lower the vehicle.

"a" maximum level for the **LDS** fluid

Fill the **LDS** fluid reservoir up to the maximum level for the **LDS** fluid **"a"**.

DRAINING, FILLING AND BLEEDING THE HYDRAULIC SUSPENSION/STEERING CIRCUIT



B3FP7HGD

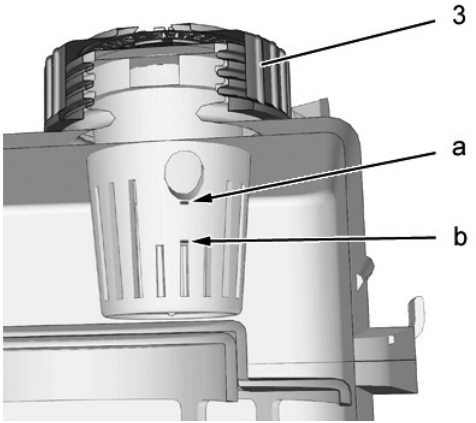
Bleeding.

Connect tool **[2]** or **[3]** to the vehicle's diagnostic socket.
Switch on the ignition.
Perform a global test.
Go into the menu:
- Variable damping.
- Bleeding the suspension circuit.

Follow the instructions on the screen.
Apply a pressure of **0.5 bar** in the **LDS** fluid reservoir *(using a tool **FACOM 920**)*.

Start the engine.
Wait for the vehicle height to stabilise.
Place the vehicle in the high position.
Place the vehicle in the low position.
Move the steering in each direction, from lock to lock.
Stop the engine.
Check the **LDS** fluid level.

DRAINING, FILLING AND BLEEDING THE HYDRAULIC SUSPENSION/STEERING CIRCUIT



B3FP7HGD

Checking and topping up the LDS fluid level.

NOTE: Checking the **LDS** fluid level is done with the vehicle in the forced low position *(hydraulic suspension circuit depressurised)*.

"a" Maximum level for the **LDS** fluid

"b" Minimum level for the **LDS** fluid

Open the cap **(3)**.

If necessary, add **LDS** fluid up to the maximum level **"a"**.

IMPERATIVE: A container of LDS that has been opened must be sealed and kept in a clean place. A container of LDS has to be used up within two weeks of opening, after which any unused LDS fluid must be disposed of.

POWER STEERING SPECIFICATIONS

Top of column

C5FP0U2D

Steering column

B3EP17SD

(1) Driver's airbag

(2) Steering wheel

(3) Controls under the steering wheel

(4) Steering lock

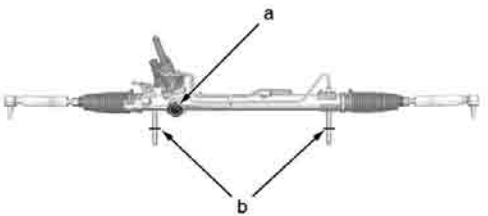
(5) Fixing of steering wheel on the shaft of the steering column

(6) Steering column support

(7) Fixing of steering cardan on the distributor valve stem

POWER STEERING SPECIFICATIONS

Steering mechanism



B3EP17TD

The steering mechanism with integral ram is fixed on the front subframe by **two** studs.
The steering assistance valve has groove technology.

The hydraulic supply and return pipes are fixed on the steering assistance valve by means of a flange.

The adjustment of the steering push-rod is via a screw plug **«a»**.

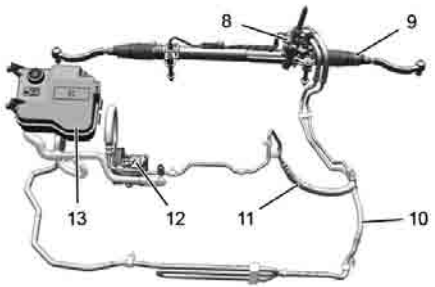
IMPERATIVE: The toothed washers «b» must be placed between the steering mechanism and the front subframe.

Engines ES9A/DT17BTED4.

Steering rack travel	**: 90 mm x 2.**
Number of teeth on the distributor valve pinion	**: 9.**
Steering ratio	**: 1/61,26.**
Number of rotations of steering wheel *(from lock to lock)*	**: 2,94.**
Inner angle of lock	**: 37°25'.**
Outer angle of lock	**: 31°36'.**

POWER STEERING SPECIFICATIONS

Steering assistance circuit



B3EP17UD

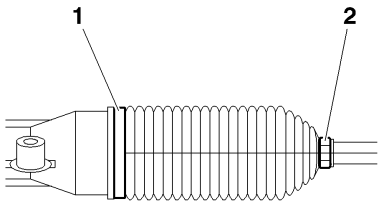
(8) Steering assistance valve
(9) Steering mechanism with integral ram
(10) Low pressure piping
(11) High pressure piping
(12) Power steering pump
(13) LDS fluid reservoir

LDS fluid reservoir.
The **LDS fluid** reservoir supplies the suspension circuit as well as the steering assistance circuit *(fluid:* ***LDS TOTAL H50126****)*.

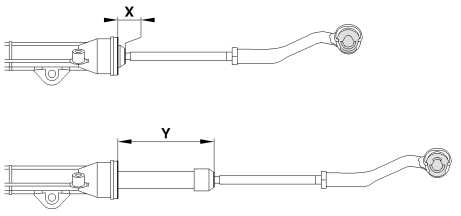
Steering assistance pump with constant flow *(engines: ES9A, DT17).*
The power steering pump is driven by the accessories belt.
A stepper motor incorporated in the steering assistance valve modulates the steering assistance as a function of the vehicle speed.

Regulation pressure	**: 115 ± 5 bars.**
Diameter of the pulley of the power steering pump.	
Engine ES9A	**: 128 mm.**
Diameter of the pulley of the power steering pump.	
Engine DT17BTED4	**: 100 mm.**

POWER STEERING SPECIFICATIONS



B3EP13UC



B3EP13VD

Setting the steering rack mid-point.

IMPERATIVE: Respect the precautions to be taken prior to any operation *(refer to the brochure "Recommendations-precautions")*.

Preliminary operation.
Raise and support the vehicle on **2-column lift**.
Remove *(on the RH side)*:
- The clip **(1)**.
- The clip **(2)**.

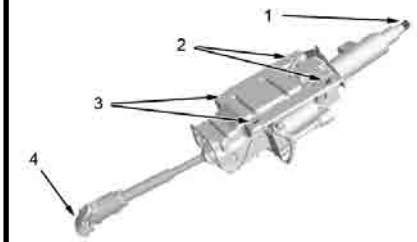
Detach the steering rack protection gaiter.

Setting.
Turn the steering wheel to full **LH** lock.
Measure the dimension **X**.
Turn the steering wheel to full **RH** lock.
Measure the dimension **Y**.
Calculate the dimension **L = (Y - X) : 2**.
Position the steering rack to the dimension **"L"** *(mid point of the steering rack)*.

Additional operation.
Refit:
- The protection gaiter.
- The clip **(2)**.
- The clip **(1)** *(new)*.

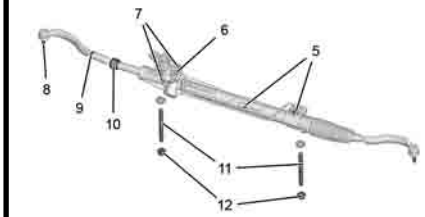
POWER STEERING: TIGHTENING TORQUES

Steering column



B3EP17GD

Steering mechanism with integral ram

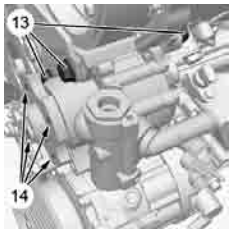


B3EP17HD

Engines: ES9A - DT17BTED4		
1	Steering wheel bolt	3,3 ± 0,5
2	Upper nuts	2 ± 0,3
3	Lower nuts	2 ± 0,3
4	Fixing of steering cardan on valve stem	2 ± 0,3
5	Union of hydraulic pipe on ram	1,4 ± 0,35
6	Fixing of supply pipes bracket on distributor valve	0,8 ± 0,1
7	Fixing of distributor valve on steering mechanism	2 ± 0,2
8	Steering ball-joint nut	3,5 ± 1
9	Locking nut for adjustment of steering track rods	5,3 ± 0,8
10	Fixing of steering rack ball-joint	9,0 ± 0,9
11	Steering mechanism stud	0,9 ± 0,2
12	Steering mechanism nut	14 ± 1,4

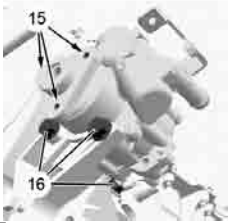
POWER STEERING: TIGHTENING TORQUES

Steering assistance pump: ES9A engine



B3EP17JC

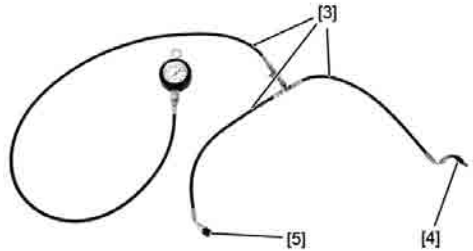
Steering assistance pump: DT17BTED4 engine



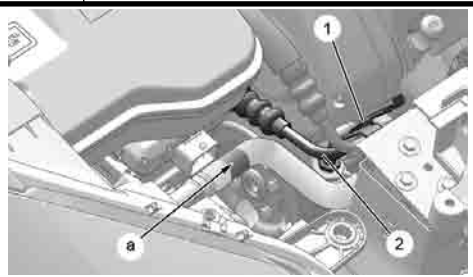
B3EP17KC

Engines: ES9A - DT17BTED4		
13	Fixation of steering assistance pump on support	2,5 ± 0,6
14	Fixation of pulley on steering assistance pump	0,8 ± 0,2
15	Fixation of pulley on steering assistance pump	2,2 ± 0,3
16	Fixation of steering assistance pump on support	2 ± 0,3

CHECKING THE STEERING ASSISTANCE PRESSURE (ES9A ENGINE)



E5AP2PND



B1BP3GPD

Tools.

[1] Pipe spanner	**: FACOM 18.17**
[2] Set of **2 hose** clamps	**: 4153-T**
[3] Pressure checking assembly	**:**
[3a] Pressure gauge	**: (-).0710.AZ**
[3b] Checking tube: Pressure gauge to tap	**: (-).0710.B1**
[3c] Checking tube: High pressure pipe to tap	**: (-).0710.B2**
[3d] Checking tube: High pressure pump to tap	**: (-).0710.B3**
[3e] 3-way tap	**: (-).0710.C**
[4] Union	**: (-).0710.E1Z**
[5] Union	**: (-).0710.E2Z**
[6] Plug for checking sealing of the steering valve	**: (-).0410.N**

Precautions to be taken.

Work with care to avoid entry of polluting particles.

NOTE: Correct operation of the system requires the **LDS** fluid and the hydraulic components to be perfectly clean.

Check:

- The level of the **LDS** fluid *(see procedure: drain-fill-bleed the suspension circuit)*.
- The condition of the piping and unions.

Using the tools.

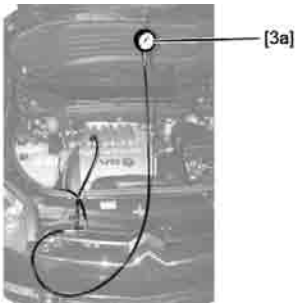
Prepare the checking assembly **[3]**, **[4]** and **[5]**.

Remove the bracket **(1)**.

Clamp the pipe at **"a"**, using tool **[2]**.

Uncouple and move aside the piping **(2)**, using tool **[1]**.

CHECKING THE STEERING ASSISTANCE PRESSURE (ES9A ENGINE)



B1BP3GQD

B1BP3GRD

Attach the tool **[3a]**.

Do up:
- The union **[5]** on the pipe **(2)**.
- The union **[4]** on the steering assistance pump.

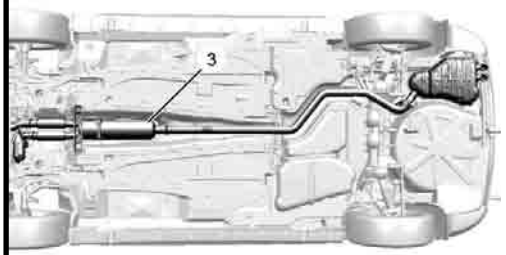
Connect the assembly **[3]** to the unions **[4]** and **[5]**.

Tighten all the unions.
Remove the tool **[2]**.
Open the tap **[3e]**.
Start the engine and allow it to run for **5 seconds**.
Stop the engine.
Move the steering several times in each direction.
Check that there are no leaks.

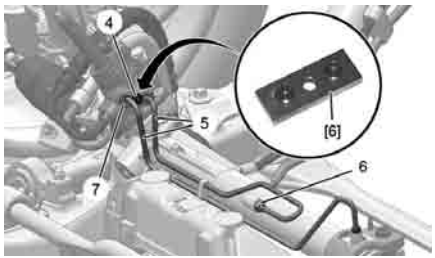
Checking the steering assistance pump pressure.

Start the engine.
Close the tap **[3e]** for **5 seconds**.
Open the tap **[3e]**.
Accelerate between **1200** and **1500 rpm**, the pressure should be **: 115 ± 5 bars**.
Stop the engine.
If the steering assistance pump pressure is correct, check the sealing of the valve.

CHECKING THE STEERING ASSISTANCE PRESSURE (ES9A ENGINE)



B1JP08WD



B3EP185D

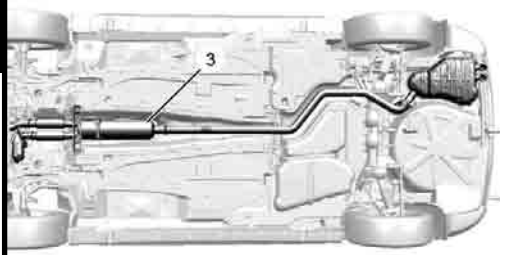
Checking the valve sealing.

Remove the exhaust line **(3)**.
Move aside the heat shield from the steering mechanism.
Slacken the union **(6)** on the power steering ram.

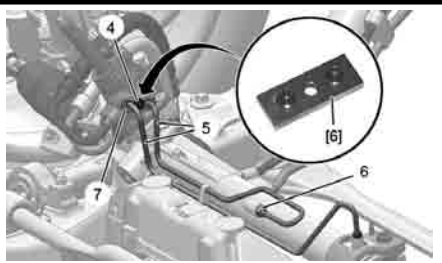
Remove:
- The screw **(4)**.
- The bracket **(7)**.

Uncouple the two supply pipes **(5)** from the distributor valve, and move them aside.
Fit on the distributor valve the tool **[6]**, tighten the screw to: **0,8 ± 0,1 m.daN**.
Couple two pipes at the outlets of the pipes **(5)**.
Move the steering slowly from lock to lock, to drain the ram.
Collect the **LDS** fluid in a tray.
Refit the exhaust line **(3)**.
Open the tap **[3e]**.
Start the engine.
Hold the engine speed between **1200** and **1500 rpm**.
Hold the steering at full lock to the right, then at full lock to the left.
The pressure should adjust to **: 115 ± 5 bars**.

CHECKING THE STEERING ASSISTANCE PRESSURE (ES9A ENGINE)



B1JP08WD



B3EP185D

Remove:
- The exhaust line **(3)**.
- The tool **[6]**.

Couple the two supply pipes **(5)** on the distributor valve.

Refit:
- The bracket **(7)**.
- The screw **(4)**, tighten to **0,8 ± 0,1 m.daN**.

Retighten the union **(6)** on the power steering ram; tighten to **1,4 ± 0,35 m.daN**.
Refit the exhaust line **(3)**.
Pinch the pipe at **"a"**, using tool **[2]**.
Remove:
- The assembly **[3]**.
- The union **[5]** on the pipe **(2)**.
- The union **[4]** on the steering assistance pump.

Couple the pipe **(2)**, using tool **[1]**.
Tighten the pipe **(2)** to **2 ± 0,2 m.daN**.
Refit the bracket **(1)**.
Bleed the hydraulic steering assistance circuit *(see corresponding operation)*.
Top up the level of the LDS fluid *(see procedure: drain-fill-bleed the suspension circuit)*.

BLEEDING THE HYDRAULIC STEERING ASSISTANCE CIRCUIT

Precautions to be taken.

Proceed with care so as to prevent any entry of polluting particles.

IMPERATIVE: Respect the safety and cleanliness requirements.

IMPERATIVE: Fill the LDS fluid reservoir with new fluid: TOTAL LDS.

Bleeding.

Check the level and top up the **LDS** fluid *(see procedure: drain-fill-bleed the suspension circuit)*.

Apply a pressure of **0.5 bar** in the **LDS** fluid reservoir *(using tool **FACOM 920**)*.

Start the engine.

Wait for the vehicle height to stabilise.

Move the steering in each direction, from lock to lock.

Stop the engine.

Check the level and top up the **LDS** fluid *(see procedure: drain-fill-bleed the suspension circuit)*.

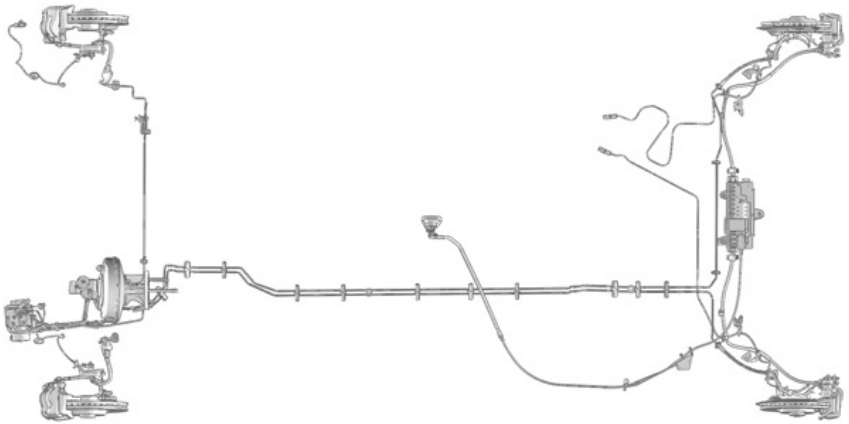
BRAKE SPECIFICATIONS

			3.0i 24S	2,7 24S
Engine plate			**ES9A**	**DT17BTED4**
FT	**Master cylinder/diameter/travel**		23,8 / 19,8/20,2/AFU **(1)**	
	Amplifier/supplier/type		254 / TEVES / AMCT / AFT **(2)**	
	Supplier/type/piston diameter		TRW / C II 40 + 45 WE - 30-12 PE / 40 et 45	
	Disc diameter	**Ventilated**	330	
	Disc thickness/min. thickness		30/28	
	Brake pad grade		JURID-966 *(with wear warning lamps)*	
RR	**Caliper/supplier/type/piston diameter**		TRW / C38 HR-PEX / 38	
	Disc diameter	**Ventilated**	302	
	Disc thickness/min. thickness		22/20	
	Brake pad grade		GALFER / G4555	

(1) AFU = Emergency braking assistance.
(2) AFT = Automatic lighting of hazard lamps under emergency braking.

BRAKING SYSTEM: GENERAL SPECIFICATIONS

Braking circuit



B3FP7GED

Braking system

Braking circuit in the form of an **X**.

Disc brakes at the front and at the rear *(vehicles all types)*:

- The **front** brake discs are ventilated.
- The **rear** brake discs are ventilated.

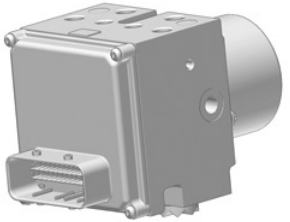
Electric parking brake **(FSE)** acting via cables on the rear wheels.

The compensator and main brake limiter functions are assured by the **ABS REF** systems.
ESP is fitted as standard on the entire range.

NOTE: - REF (EBD) = Electronic Brakeforce Distribution.
- ESP = Electronic Stability Programme.

BRAKING SYSTEM: GENERAL SPECIFICATIONS

ABS/ESP hydraulic valve block

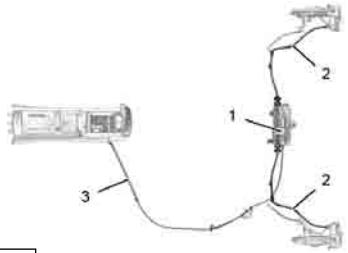


B3FP7GFC

Components	Supplier	Reference	Observations
Hydraulic valve block	TRW	ESP VSC 440	Located on the front LH chassis member: **4** regulation channels
ECU			**25-way** connector
			Integral to the hydraulic valve block
Front wheel sensor	SIEMENS VDO		**2-way black** connector
			The sensors, of inductive type, are fitted on the pivot
			Air gap non-adjustable: **0.25 to 1.65 mm**
Rear wheel sensor			**2-way black** connector
			The sensors, of inductive type, are fitted on the pivot
			Air gap non-adjustable: **0.23 to 1.35 mm**
Front pivot bearing	NSK		The hub has a bearing with integral magnetic wheel *(**48 pairs** of poles)*
Rear hub bearing			The rear hub-bearing has a radial ABS target *(**48 pairs** of poles)*

BRAKING SYSTEM: GENERAL SPECIFICATIONS

Parking brake



B3FP7GDD

(1) Electrically-controlled parking brake system **(FSE)**
(2) Parking brake cables
(3) Cable for manual unlocking of the electric parking brake **(FSE).**

WARNING: It is forbidden to open the electric parking brake system in After Sales. If a malfunctioning of the electric parking brake is diagnosed, it is necessary to replace it. Changing of the parking brake cables does not necessitate opening of the electric parking brake system *(see corresponding operation)*.

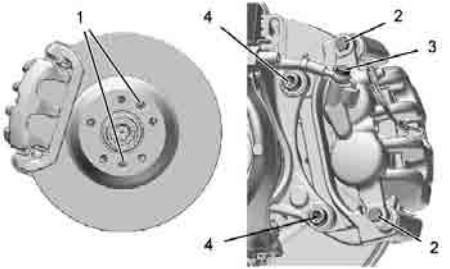
C5FP0T8C

(4) Handle for manual unlocking of the electric parking brake **(FSE)**

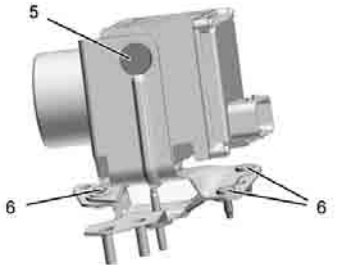
(5) Switch for the electric parking brake **(FSE)**

If it is impossible to release the electric parking brake, a handle **(4)** located in the front central armrest will mechanically unlock the electric parking brake.

TIGHTENING TORQUES: BRAKING SYSTEM

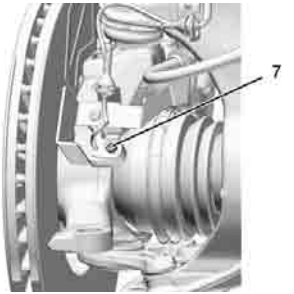


B3FP7HMD



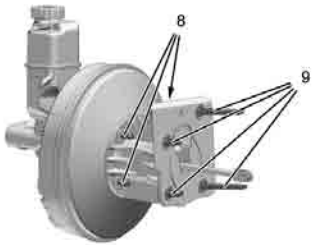
B3FP7HND

Front brakes		
1	Front brake disc	1 ± 0,1
2	Yoke on brake caliper	3 ± 0,2
3	Unions on brake piping	4 ± 0,5
4	Front brake caliper	11,5 ± 1
5	Hydraulic valve block on intermediate support	0,8 ± 0,2
6	Intermediate support on support	
7	Front wheel sensor	0,8 ± 0,1



B3FP7HPD

TIGHTENING TORQUES: BRAKING SYSTEM

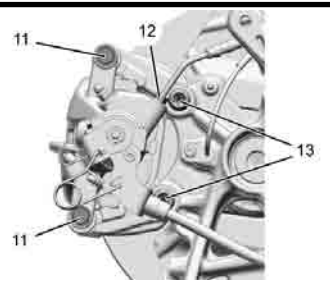


B3FP7HQD

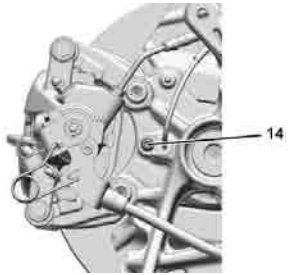
B3FP7HRD

Braking amplifier		
8	Braking amplifier on support	2,1 ± 0,3
9	Support on bulkhead	
10	Master-cylinder	

TIGHTENING TORQUES: BRAKING SYSTEM



B3FP7HSD

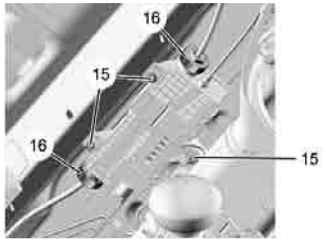


B3FP7HTD

Rear brakes		
11	Rear brake caliper	3,5 ± 0,3
12	Unions on brake piping	1,5 ± 0,1
13	Rear brake caliper support	10,8 ± 1
14	Rear wheel sensor	0,8 ± 0,1

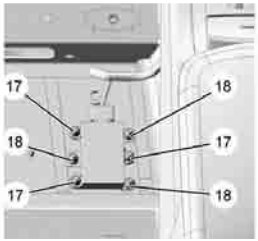
TIGHTENING TORQUES: BRAKING SYSTEM

Parking brake



B3FP7HUD

Gyrometer/accelerometer sensor



B3FP7HVD

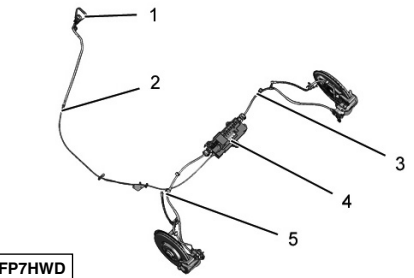
15	Electric parking brake system (FSE)	0,4 ± 0,06
16	Nut for parking brake cables	6 ± 0,6
17	Gyrometer/accelerometer sensor on support	0,9 ± 0,1
18	Sensor support on body	0,4 ± 0,06

VALUES FOR CHECKING AND ADJUSTING THE BRAKING SYSTEM

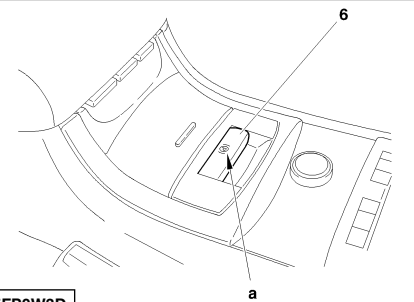
Front brakes		Rear brakes	
Engines	ES9A - DT17BTED4	Engines	ES9A - DT17BTED4
Type	Ventilated brake discs	Type	Ventilated brake discs
Diameter (mm)	330	Diameter (mm)	302
Nominal thickness (mm)	30	Nominal thickness (mm)	22
Minimum thickness (mm)	28	Minimum thickness (mm)	20
Difference in maximum thickness on same circumference (mm)	0,01	Difference in maximum thickness on same circumference (mm)	0,01
Maximum run-out (mm)	0,05	Maximum run-out (mm)	0,05

Front brake pads (engines all types)		Rear brake pads (engines all types)	
Nominal thickness (mm)	13	Nominal thickness (mm)	11,15
Minimum thickness (mm)	3	Minimum thickness (mm)	2

GENERAL FEATURES OF ELECTRIC PARKING BRAKE



B3FP7HWD



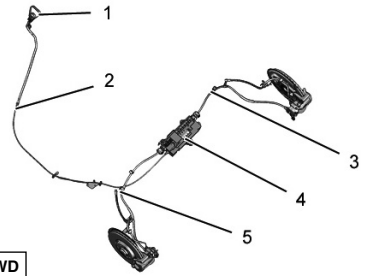
C5FP0W3D

Presentation.
(6) Electric parking brake control
"a" Parking brake warning lamp
Functioning of the electric parking brake.
To apply the parking brake:
Prior conditions:
- Vehicle stationary or not.
- Ignition switched on.
- Engine running or not.

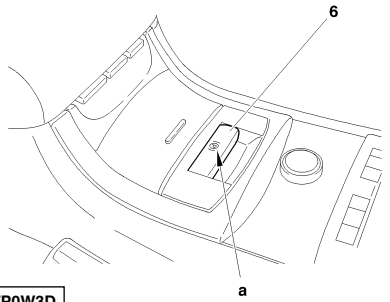
Pull and release the control **(6)**.
NOTE: The parking brake can be activated when the vehicle is moving, at whatever speed, but only if the control **(6)** is kept pulled, the parking brake being deactivated as soon as the control **(6)** is released.
NOTE: The electric parking brake has an **"anti-lock"** system for limiting the locking of the wheels and guaranteeing vehicle stability if the parking brake is actioned while the vehicle is moving.
To release the parking brake:
Prior conditions:
- Vehicle stationary.
- Gear lever in position **P**.
- Ignition switched on.
- Engine running.

Press on the brake pedal.
Pull and release the control **(6)**.
Parking brake warning lamp:
Condition for the warning lamp **"a"** coming on:
- Electric parking brake activated or incorrectly deactivated.
- Malfunctioning of the electric parking brake.

GENERAL FEATURES OF ELECTRIC PARKING BRAKE



B3FP7HWD



C5FP0W3D

Presentation.

(1) Handle for manual unlocking of the electric parking brake **(FSE)**
(2) Cable for manual unlocking of the electric parking brake
(3) Rear RH cable of the electric parking brake
(4) Electric parking brake system **(FSE)**
(5) Rear LH cable of the electric parking brake
(6) Electric parking brake control

"a" Parking brake warning lamp

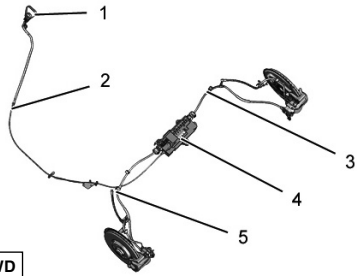
Normal functioning of the electric parking brake.

Applying the parking brake.

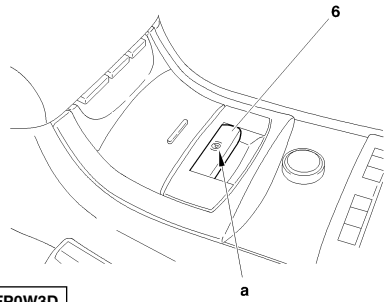
Prior conditions:
- Vehicle stationary or not.
- Ignition switched on.
- Engine running or not.

Pull and release the control **(6)**.

GENERAL FEATURES OF ELECTRIC PARKING BRAKE



B3FP7HWD



C5FP0W3D

NOTE: The parking brake can be activated when the vehicle is moving, at whatever speed, but only if the control **(6)** is kept pulled, the parking brake being deactivated as soon as the control **(6)** is released.

NOTE: The electric parking brake has an **"anti-lock"** system for limiting the locking of the wheels and guaranteeing vehicle stability if the parking brake is actioned while the vehicle is moving.

Releasing the parking brake.

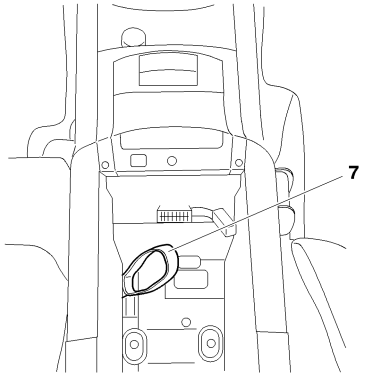
Prior conditions:
- Vehicle stationary.
- Gear lever in position **P**.
- Ignition switched on.
- Engine running.

Press on the brake pedal.
Pull and release the control **(6)**.

Parking brake warning lamp.

Condition for the warning lamp **"a"** coming on:
- Electric parking brake activated or incorrectly deactivated.
- Malfunctioning of the electric parking brake.

GENERAL FEATURES OF ELECTRIC PARKING BRAKE



C5FP0W4D

Releasing of the electric parking brake *(with a fault)*.

NOTE: Impossible to release the parking brake with the method **"Normal functioning"**.

The fault may be caused by the following components:
- Battery voltage.
- Malfunctioning of the electric parking brake system.

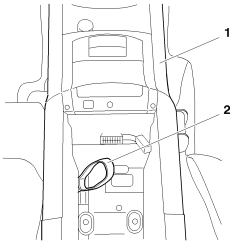
Open the central armrest.

Pull on the handle **(7)** located on the plastic part of the central armrest in order to release the parking brake mechanically.

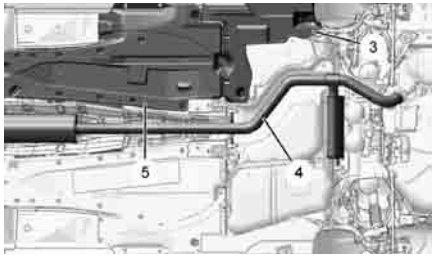
WARNING: This control does not permit application of the parking brake.

WARNING: It is forbidden to open up the electric parking brake system.

ELECTRIC PARKING BRAKE SYSTEM



C5FP0VVD



B1JP08XD

Removing-refitting the electric parking brake system.

IMPERATIVE: Respect the safety and cleanliness requirements.

WARNING: Before disconnecting the battery, partially open the door windows.

Removing.

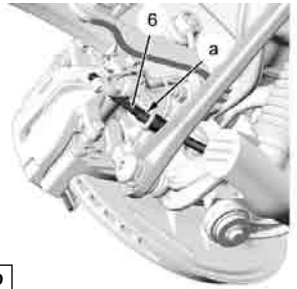
IMPERATIVE: Disconnect the battery prior to operating on the parking brake cables.

IMPERATIVE: Perform a manual unlocking of the parking brake, using the handle located in the central armrest, before operating on the parking brake cables.

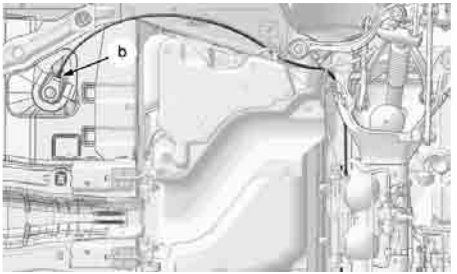
Disconnect the battery.
Raise and support the vehicle, wheels hanging.
Remove the central console **(1)** *(see corresponding operation)*.
Uncouple the handle **(2)** from the manual unlocking cable of the electric parking brake.

Remove:
- The exhaust line **(4)** ***(ES9A engine).***
- The protection **(5).**
- The protection **(3).**

ELECTRIC PARKING BRAKE SYSTEM



B3FP7HHD



B3FP7HJD

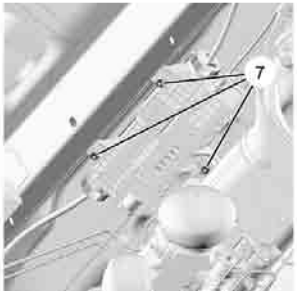
Uncouple the parking brake cable **(6)** from the brake caliper *(on each side)*.

Unclip the parking brake cable at **"a"** *(on each side)*.

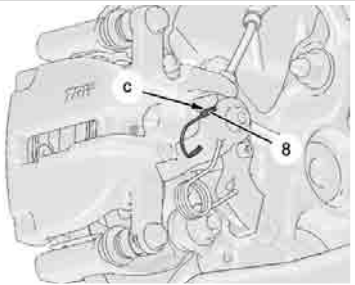
Detach the brake cables from their attachments on the bodywork.

Extract the manual unlocking cable of the electric parking brake from its location at **"b"**.

ELECTRIC PARKING BRAKE SYSTEM



B3FP7HKD



B3FP7HLD

Slacken the nuts **(7)**.
Remove the electric parking brake system assembly.

Refitting.
Refit the electric parking brake system assembly.
Tighten the nuts **(7)** **: 0,4 ± 0,1 m.daN.**
Attach the brake cables on their attachments on the bodywork.
Clip the parking brake cable, at **"a"** *(on each side)*.
Couple the parking brake cable **(6)** on the brake caliper *(on each side)*.

IMPERATIVE: Position the shim (8) *(thickness 3 mm)* at "c" *(on each side)*.

Engage the manual unlocking cable of the electric parking brake in its location at **"b"**.
Couple the handle **(2)** to the parking brake cable.
Refit the central console **(1)** *(see corresponding operation)*.

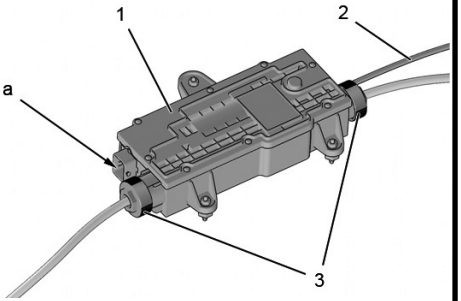
Refit:
- The protections **(5)** and **(3)**.
- The exhaust line **(4)** ***(ES9A engine)*.**

Reconnect the battery.
Apply and release the electric parking brake.
Check the functioning of the electric parking brake.

NOTE: Remove the shim **(8)** from the brake calipers.

IMPERATIVE: Perform the operations that are necessary following a reconnection of the battery *(see corresponding operation)*.

ELECTRIC PARKING BRAKE CABLES



B3FP7HXD

Removing-refitting the parking brake cables.

IMPERATIVE: Respect the safety and cleanliness requirements.

WARNING: Before disconnecting the battery, partially open the door windows.

Removing.

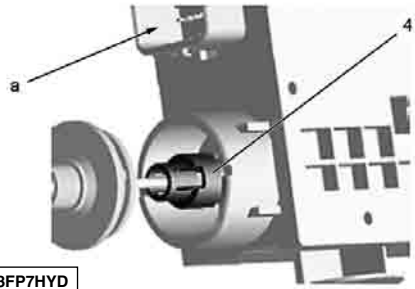
IMPERATIVE: Disconnect the battery prior to operating on the parking brake cables.
IMPERATIVE: Perform a manual unlocking of the parking brake, using the handle located in the central armrest, before operating on the parking brake cables.

Disconnect the battery.
Raise and support the vehicle, wheels hanging.

IMPERATIVE: Do not introduce any foreign body into the electric parking brake system.

Remove the electric parking brake system *(see corresponding operation).*
"a" connector
(1) electric parking brake system **(FSE)**
(2) manual unlocking cable
Undo the nuts **(3)**.

ELECTRIC PARKING BRAKE CABLES



B3FP7HYD

Connector end.

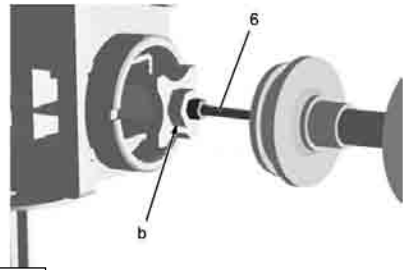
Unclip and push back the ring **(4)**.

Uncouple the parking brake cable **(5)**.

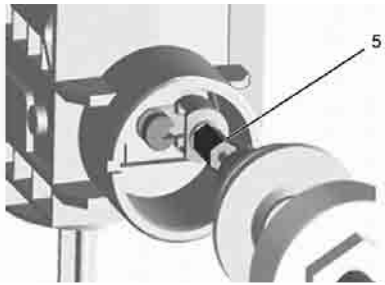
Manual unlocking cable end.

Do up at **«b»**.

Uncouple the parking brake cable.

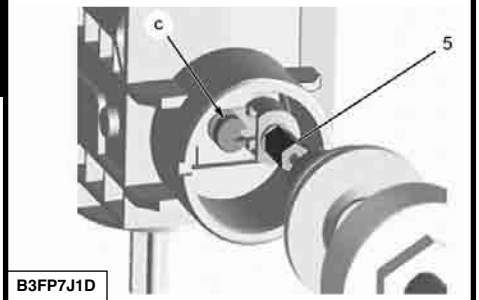


B3FP7JOD

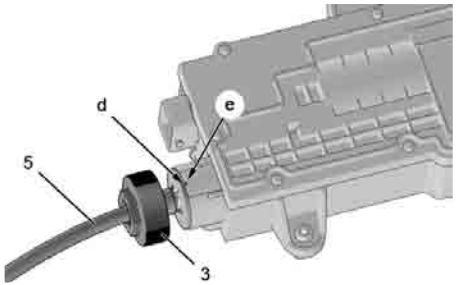


B3FP7HZD

ELECTRIC PARKING BRAKE CABLES



B3FP7J1D



B3FP7J2D

Refitting.

Connector end.

Clip the parking brake cable **(5)** at **«c»**.

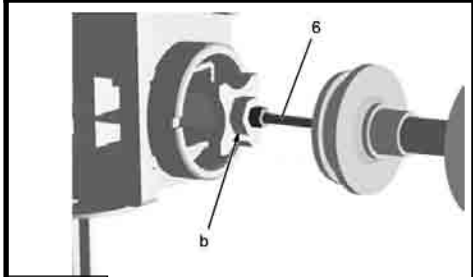
Clip the ring **(4)**.

NOTE: Align the pin **«d»** with the notch **«e»**.

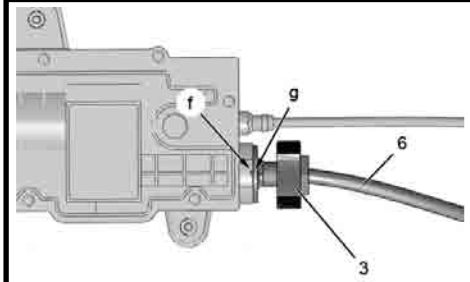
Do up the nut **(3)**.

Tighten the nut **(3)** to **: 0,6 ± 0,1 m.daN.**

ELECTRIC PARKING BRAKE CABLES



B3FP7JOD



B3FP7J3D

Manual unlocking cable end.

NOTE: Grease the cable worm **(6)**.

Engage the parking brake cable **(6)** into the electric parking brake system.

Do up **3 turns** anti-clockwise at **"b"**.

NOTE: Align the pin **"g"** with the notch **"f"**.

Do up the nut **(3)**.

Tighten the nut **(3)** to **: 0,6 ± 0,1 m.daN.**

Refit the electric parking brake system *(see corresponding operation)*.
Reconnect the battery.
Apply and release the electric parking brake.
Check the functioning of the electric parking brake.

IMPERATIVE: Perform the operations that are necessary following a reconnection of the battery *(see corresponding operation)*.

BRAKE FLUID CHECKS

IMPERATIVE: Respect the safety and cleanliness requirements.
WARNING: Brake fluid is toxic to health. Avoid any contact with your skin or with your eyes. If there is contact with your eyes, rinse immediately with copious amounts of water for several minutes.
WARNING: Brake fluid is highly corrosive to paintwork. If there is spillage onto the bodywork, clean the surface immediately.
Tools: Brake fluid tester (*):

Supplier	Reference	Type
SURETEST	TLF	Measures the boiling point of brake fluid
DOW AUTOMOTIVE	BETATEST	
FACOM OUTILLAGE	DF.16	
EBT	06.1	Measures the rate of hydrometry of brake fluid

(*) The list not exhaustive, refer to the catalogue **"Tools and Equipment"**.

Checks.
Remove the filter of the brake fluid reservoir.

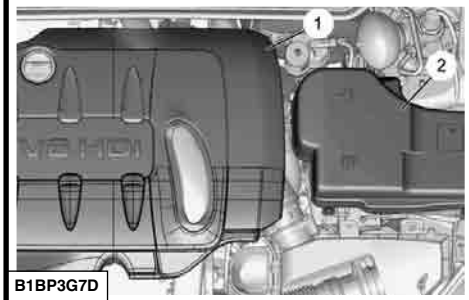
IMPERATIVE: Any pollution of the brake fluid is forbidden. The brake fluid should be limpid and free of suspended matter or sediments.

Check the brake fluid, following the method recommended by the supplier of the testing equipment.
Test values:

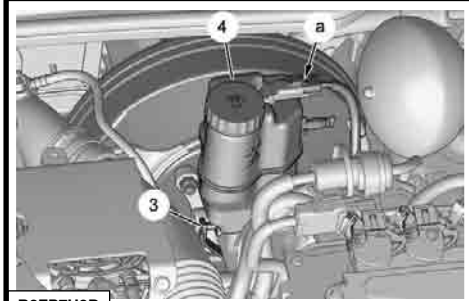
Brake fluid	Minimum boiling point «Humid»
DOT 3	140°C
DOT 4	155°C
SUPER DOT 4	180°C
DOT 5	

NOTE: If the tested value is lower than the minimum **"humid"** boiling point or within a tolerance of **+10 %** of this value, replace the brake fluid *(see corresponding operation).*
IMPERATIVE: Use exclusively the hydraulic fluids that are approved and recommended.

DRAINING, FILLING AND BLEEDING THE BRAKING SYSTEM



B1BP3G7D



B3FP7H3D

Tools.

[1] Generic bleeding apparatus	**: «LURO» or similar**
[2] LEXIA station	**: 4171-T**
[3] PROXIA station	**: 4165-T**

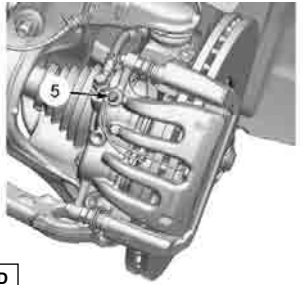
NOTE: Bleeding of the secondary braking circuit is done with the help of diagnostic tools **[2]** or **[3]**.

Draining the brake fluid reservoir.

Disconnect the battery.
Remove the engine cover **(1)** and the lid **(2)**.
Disconnect the connector **«a»**.
Take out the filter of the brake fluid reservoir **(4)**.
Drain the brake fluid reservoir **(1)** to the maximum extent *(if necessary, use a clean syringe)*.
Remove the pin **(3)** and the brake fluid reservoir **(4)**.
Clean the brake fluid reservoir **(4)**.
Refit the brake fluid reservoir **(4)**, the pin **(3)** and the filter of the brake fluid reservoir.
Reconnect the connector.
Reconnect the battery.

IMPERATIVE: Perform the operations that are necessary following a reconnection of the battery *(see corresponding operation)*.

DRAINING, FILLING AND BLEEDING THE BRAKING SYSTEM



B3FP7H4D

B3FP7H5D

Filling the braking circuit.

WARNING: Use only the approved and recommended hydraulic fluids.

IMPERATIVE: Only use new brake fluid that has not emulsified; avoid any introduction of impurities into the hydraulic circuit.

Fill the brake fluid reservoir **(4)**.

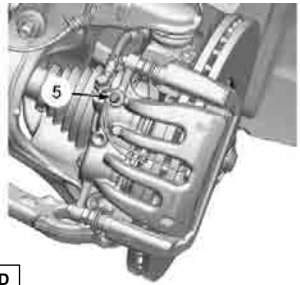
Bleeding the primary braking circuit.

WARNING: During the bleed operations: take care to maintain the level of the brake fluid in the reservoir, keep it topped up.
WARNING: The ABS system must not be in action during the bleed operation.
WARNING: Respect the sequence for the opening of the bleed screws.

Front brake caliper : Bleed screw **(5)**.
Rear brake caliper : Bleed screw **(6)**.

Bleed each brake caliper, proceeding in the following sequence:
- Front LH wheel.
- Front RH wheel.
- Rear LH wheel.
- Rear RH wheel.

DRAINING, FILLING AND BLEEDING THE BRAKING SYSTEM



B3FP7H4D

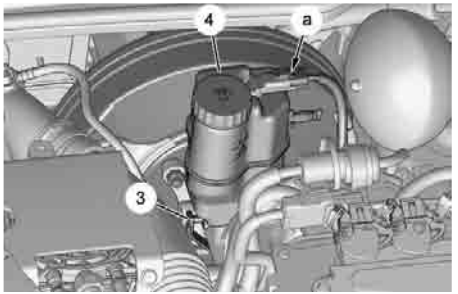
B3FP7H5D

Using the bleeding apparatus.
Connect the bleeding apparatus **[1]** on the brake fluid reservoir **(4)**.
Adjust the apparatus pressure to **2 bars**.
For each brake circuit:
- Connect a transparent tube onto the bleed screw.
- Submerge the other end of the tube in a clean container.
- Open the bleed screw.
- Wait until the fluid is flowing out without air bubbles.
- Close the bleed screw.
- Remove the bleeding apparatus.
- Check the brake fluid level *(should be between «**DANGER**» level and «**MAXI**» level)*.
- Fill if necessary with the approved and recommended synthetic brake fluid.

Without bleeding apparatus.
NOTE: Two operators are necessary.
For each brake circuit:
- Apply the brake pedal to place the circuit under pressure.
- Connect a transparent tube onto the bleed screw.
- Submerge the other end of the tube in a clean container.
- Open the bleed screw.
- Wait until the fluid is flowing out without air bubbles.
- Close the bleed screw.

NOTE: Recommence the process a **second time** if that is necessary.
- Check the brake fluid level *(should be between «**DANGER**» level and «**MAXI**» level)*.
- Fill if necessary with the approved and recommended synthetic brake fluid.

DRAINING, FILLING AND BLEEDING THE BRAKING SYSTEM



B3FP7H3D

Bleeding the secondary braking system.

WARNING: During the bleeding operation, take care to maintain the level of brake fluid in the reservoir and to top it up.

NOTE: Connect the bleeding apparatus **[1]** on the brake fluid reservoir **(4)**.

Use the diagnostic tools **[2]** or **[3]**.

Select the menu **ESP VSC 440**.

Bleed sequence: Menu **ESP**.
- Front LH wheel.
- Front RH wheel.
- Rear LH wheel.
- Rear RH wheel.

Follow the instructions given by the diagnostic tool.

At the end of the bleeding programme, check the brake fluid level and top up, if necessary.
Check the brake pedal travel *(no lengthening)*, if not satisfactory repeat the bleeding procedure.

SAFETY REQUIREMENTS: ACTIVE SUSPENSION WITH VARIABLE DAMPING

All operations on the hydraulic suspension circuit must be performed in conformity with the following requirements and regulations:

Authorities competent in matters of health:
- Accident prevention.
- Environmental protection.

WARNING: Operations should be carried out by specialised personnel who have had training in the safety requirements and precautions to be taken.

Safety requirements.

ESSENTIAL: In view of the special features of the hydraulic suspension system, observe the requirements below, before undertaking any repair.

IMPERATIVE: Depending on the operation to be carried out, respect the requirements for supporting and securing the vehicle.

<table>
<tr><th>Wheels hanging</th><th colspan="3">Wheels not hanging</th></tr>
<tr><td rowspan="2">2-column lift or secure the vehicle on 4 axle stands</td><th>Vehicle on the ground</th><th colspan="2">Vehicle on 4-column lift</th></tr>
<tr><td>Depressurisation of the circuit (see corresponding operation)</td><td>Checking and adjusting of heights (switch on ignition)</td><td>Other operations (depressurisation of the hydraulic circuit)</td></tr>
</table>

SAFETY REQUIREMENTS: ACTIVE SUSPENSION WITH VARIABLE DAMPING

During the operation.

Wait for the pressure in the hydraulic circuit to fall fully before disconnecting the unions on the following components *(risk of sudden sinking of the vehicle)*:
- Built-in Hydro-electronic Interface **(BHI).**
- Front suspension cylinder.
- Rear suspension cylinder.
- Front stiffness regulator.
- Rear stiffness regulator.
- Suspension pressure sensors.

IMPERATIVE: Do not operate on the hydraulic circuit without making the pressure drop *(see corresponding operation)*.

Engine running.

Do not operate on the hydraulic suspension circuit.
Always remain out of range of any possible projections of fluid, as these could cause serious injuries.

NOTE: In the event of contact of **LDS** fluid with the eyes, rinse them with copious amounts of water and seek specialist advice.

NOTE: In the event of lengthy contact of **LDS** fluid with the skin, wash it with soap and water.

WARNING: After the engine has stopped, wait 30 seconds before commencing any operation.

SAFETY REQUIREMENTS: ACTIVE SUSPENSION WITH VARIABLE DAMPING

IMPERATIVE: Do not remain underneath the vehicle during an operation to adjust vehicle heights or during actuator *(electrovalve)* tests.

IMPERATIVE: Any deforming of the wheel travel sensor supports is forbidden. If there is any deformation found, replace the component.

Cleanliness requirements.

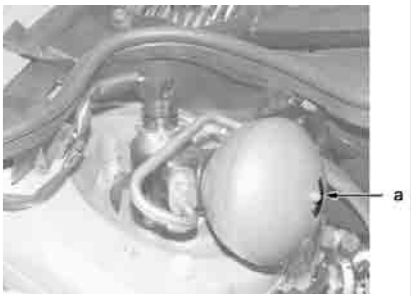
WARNING: Non-respect of the cleanliness requirements may cause a contamination of the circuit and a malfunctioning of the suspension.

Preliminary operations.
The work area must be kept clean and uncluttered.
The technician must wear clean overalls.
Components being stored during the repair must be protected from dust.
The tooling required for an operation on the suspension system should always be cleaned prior to the operation.
During the operation:
- Before operating on the suspension circuit, proceed to clean the hydraulic components and unions.

IMPERATIVE: Approved cleaner: SODIMAC degreaser.
IMPERATIVE: After a dismantling, immediately blank the hydraulic components and unions with plugs. The plugs should be used for one operation only.

Any component that has been removed must be plugged and placed in a clean plastic bag.
IMPERATIVE: After a dismantling, any cleaning using compressed air or products is strictly prohibited. Any LDS fluid that is collected must not be re-used. Any topping-up must be done with new fluid.

SUSPENSION SPHERES: GENERAL SPECIFICATION



B3BP1BJD

Each suspension sphere is identified at **"a"**, by one number and two letters, marked in bold characters:

- The number consists of **2 digits**, corresponding to the nitrogen pressure inside the suspension sphere.

- The **two letters** identify the location of the suspension sphere.

Other information marked on the suspension sphere:

- Day of the year of manufacture.
- Year of manufacture.
- Time of manufacture.
- Factory no. of the suspension sphere.

SUSPENSION SPHERES: SPECIFICATION - IDENTIFICATION

Specifications.

The **«slimline»** accumulators are grey in colour.

NOTE: Recharging the **«slimline»** accumulators with nitrogen is impossible.

Volume of nitrogen **: 385 ± 15 cc.**

Suspension cylinder accumulators (front).

Engine version	Suspension sphere marking	Pressure rating (bars)
ES9A	GO	50
DT17BTED4		

Suspension cylinder accumulators (rear).

Engine version	Suspension sphere marking	Pressure rating (bars)
ES9A	KS	40
DT17BTED4		

NOTE: The dampers are integral to the suspension cylinders *(**AMVAR** cartridge).* ***(*)***

(*) AMVAR = Amortissement Variable *(variable damping).*

SUSPENSION SPHERES: SPECIFICATION - IDENTIFICATION

Stiffness regulator accumulators (front).

NOTE: The dampers are integral to the hydractive regulator.

Engine version	Suspension sphere marking	Pressure rating (bars)
ES9A DT17BTED4	KR	70

Stiffness regulator accumulators (rear).

NOTE: The dampers are integral to the hydractive regulator.

Engine version	Suspension sphere marking	Pressure rating (bars)
ES9A DT17BTED4	KS	40

The suspension cylinders on the same axle have to be equipped with the same type of suspension accumulators.

IMPORTANT: Tightening torque for the suspension accumulators : 2,7 ± 0,5 m.daN.

DE-PRESSURISING THE HYDRAULIC SUSPENSION CIRCUIT

Tools.

[1] PROXIA station **: 4165-T**
[2] LEXIA station **: 4171-T**

De-pressurisation.

NOTE: It is possible to de-pressurise the suspension by individual axle.

Using a diagnostic tool.

Start the engine.
Place the height control in the **«LOW»** position.
Wait for the vehicle height to reach the position required.
Stop the engine.
Connect the diagnostic tool **[1]** or **[2]** to the vehicle's diagnostic socket.
Switch on the ignition.

Carry out a global test.

Go into the menu:
- Suspension.
- De-pressurisation.

Follow the instructions displayed on the screen.
Wait for the vehicle's suspension to sink completely.
NOTE: This operation takes around **3 minutes**.
Switch off the ignition.
Disconnect the battery.

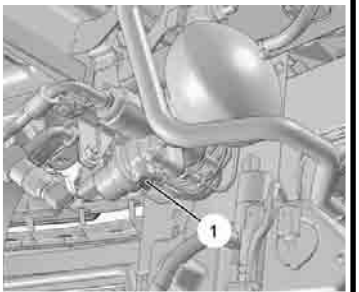
Without a diagnostic tool.

IMPERATIVE: Any LDS fluid that is collected must not be re-used.

NOTE: Collect the **LDS** fluid in order to keep the work area clean.
Respect the environment.

Start the engine.
Place the height control in the **«LOW»** position.
Stop the engine.

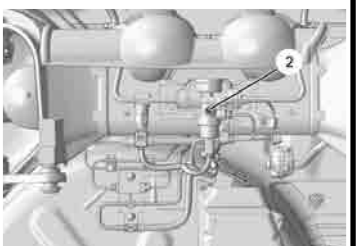
DE-PRESSURISING THE HYDRAULIC SUSPENSION CIRCUIT



B3BP1BED

Front suspension: Undo the pressure release screw **(1)** by **one turn**.

Wait for the pressure in the hydraulic circuit to drop fully.



B3FP7HDD

Rear suspension: Undo the pressure release screw **(2)** by **one turn**.

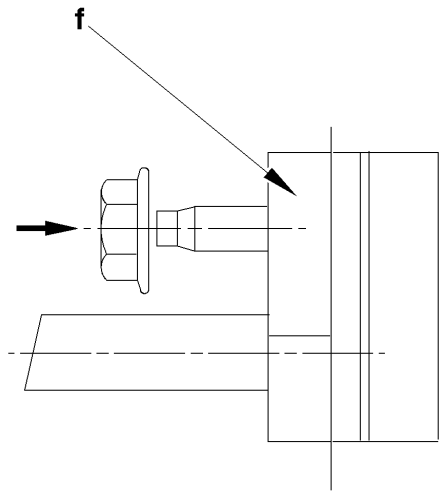
Wait for the pressure in the hydraulic circuit to drop fully.

AIR CONDITIONING R 134.a (HFC)

Vehicle	Engine version	Date	Refrigerant Refill (± 25 gr)	Compressor		
				Variable capacity	Oil quantity cc	Oil reference
C6	ES9A	12/05 →	625	SD 7 C16	135	SP 10
	DT17BTED4		525			

SPECIAL FEATURES: AIR CONDITIONING SYSTEM	
Compressor	**Condenser**
The variable capacity air conditioning compressor has external control. The internal pneumatic valve is replaced by an external electrovalve.	The condenser has a cylinder incorporating the function of aircon fluid reservoir and with integral filtering cartridge. **NOTE:** The filtering cartridge is not interchangeable.

Tightening



C5HP1CWC

Requirements for fitting the inlet and outlet brackets:

- Aircon compressor.

- Aircon condenser.

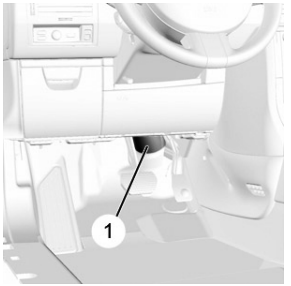
- Aircon pressure reducer valve.

IMPERATIVE: Assembly requirement: the bracket(s) «f» must be against their interface(s) before the nut(s) are tightened.

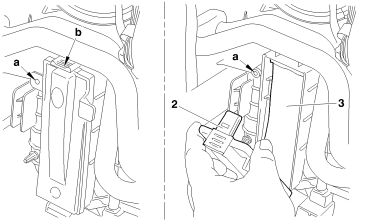
IMPERATIVE: Respect the tightening torques.

SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134.a)

Pollen filter



C5FP0S1C



C5HP1BDD

<u>The pollen filter is located on the driver's side under the dashboard to the right of the steering column.</u>

IMPERATIVE: Respect the safety and cleanliness requirements.

Removing.

Remove the trim **(1)** under the dashboard *(driver's side)*.

Release the tab at **"b"**.

Tilt, lift and remove the cover **(2)**.

Remove the pollen filter **(3)**.

NOTE: If the tab **"b"** is damaged, position a screw for soft materials at **"a"**.

Refitting.

Refit the various components in reverse order to removal.

SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134.a)

Compressor lubricant

ESSENTIAL: The compressor lubricant is extremely hygroscopic; always use FRESH oil.

Checking the compressor oil level

There are three specific cases:
- 1) Repairs to a system without leaks.
- 2) Slow leak.
- 3) Fast leak.

1) Repairing a system without leaks.

a) - Using draining/recovery equipment not fitted with an oil decanter.
- Drain the system as slowly as possible via the **LOW PRESSURE** valve, so as not to lose any oil.
- No more oil should be added when filling the system with **R 134.a** fluid.

b) - Using draining/filling equipment fitted with an oil decanter.
- Drain the **R 134.a** fluid from the system in accordance with the instructions in the equipment handbook.
- Measure the amount of oil recovered.
- Add the same amount of **NEW** oil when filling the system with **R 134.a** fluid.

c) - Replacing a compressor.
- Remove the old compressor, drain it and measure the oil quantity.
- Drain the new compressor *(supplied full)*, so that the same amount of **NEW** oil is left in the compressor as was in the old compressor.
- No more oil should be added when filling the system with **R 134.a** fluid.

Checking the compressor oil level (continued)

2) Slow leak.
Slow leaks do not lead to oil loss, therefore the same procedure should be followed as if there was no leak at all.

3) Fast leak.
This type of leak causes both oil loss as well as allowing air to enter the system.

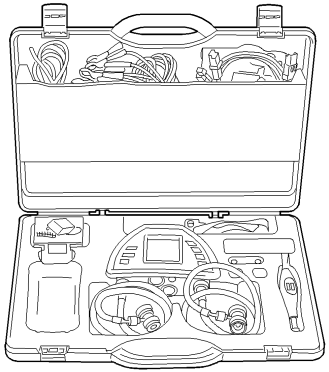
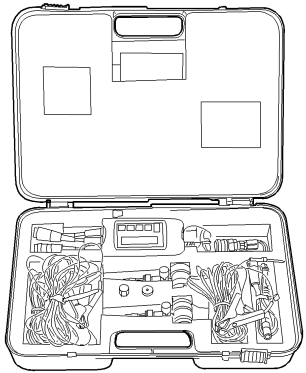
It is therefore necessary to:
- Replace the dryer.
- Drain as much oil as possible *(when replacing the faulty component)*.

Either before or during filling of the system with **R 134.a** fluid, introduce **80 cc** of **NEW** oil into the system.

If changing one of the following components, add as below:

- A drying bottle	: **15 cc** of compressor oil.
- A condenser or an evaporator	: **20 cc** of compressor oil.
- A high pressure or low pressure pipe	: **5 cc** of compressor oil.
- A drying cartridge	: **15 cc** of compressor oil.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Equipment: EXXOTest	Equipment:VALEO
Tooling *(tools and Equipment flash).*	**Tooling.**
Exxoclim : 2.4.2-1.	**Clim test 2 : 4372-T.**
Method of use **: See instructions.**	Method of use **: See instructions.**
	
E5AP2N4D	E5AP2N5D

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Testing procedure.

Checking.
Position the equipment - **Exxoclim** or **Clim test 2** - *(see instructions)*.

Preliminary operations.

Close all the front air vents.
Start the engine.
Open the front air vent.
Activate the **«air conditioning»** control.
Position the air distribution control to **«frontal flow»**.
Activate the **«air recirculation»** control.

Positions of the air conditioning controls:
- Temperature control on maximum cold *(**LH** and **RH**).*
- Blower control in maximum speed position.

Let the air conditioning operate for **5 minutes**.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Reminder (for information)

Under-cooling.

The under-cooling represents the difference between the condensation temperature and the aircon fluid temperature at the aircon condenser outlet.
The under-cooling gives the quantity of aircon fluid *(in the liquid state)* in the air conditioning circuit.

Values for under-cooling (SR).

Values	Origins	Solutions
SR < 2°C	Lack of aircon fluid in the aircon condenser	Add some aircon fluid
2°C < SR <4°C	Lack of aircon fluid in the aircon condenser	
4°C < SR < 10°C/12°C	Correct quantity	
SR > 10°C/12°C	Excess aircon fluid in the aircon condenser	Remove some aircon fluid
SR > 15°C		

Over-heating.
The over-heating represents the difference between the aircon fluid temperature at the evaporator outlet and the evaporation temperature.
The over-heating gives the quantity of aircon fluid *(in the liquid state)* in the air conditioning circuit
Values for over-heating (SC).

Values	Origins	Solutions
2° < SC < 15°C	Correct quantity	
SC > 15°C	Lack of aircon fluid in the cooling circuit	Add some aircon fluid
SC < 2°C	Excess aircon fluid in the cooling circuit	Remove some aircon fluid

Blown air temperature.
The blown air temperature should be between **2°C** and **10°C**.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Aircon circuit diagnosis table (for information)

Principal problem	Symptom	Possible causes
The aircon compressor does not turn or stops suddenly	The clutch of the aircon compressor does not engage, or disengages suddenly	Aircon compressor clutch
		Lack of aircon fluid in the aircon circuit
		Aircon pressostat
		Aircon evaporator sensor
		Electrical circuit *(wiring, fuses, etc.)*
	The clutch of the aircon compressor remains engaged and stops suddenly	Auxiliaries drive belt
		Aircon compressor
		Filtering and drying cartridge
		Aircon pressure reducer
		Leak of aircon fluid
		Aircon compressor clutch

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Aircon circuit diagnosis table (for information)

Principal problem	Symptom	Possible causes
The aircon compressor makes an abnormal noise	The clutch of the aircon compressor remains engaged	Incorrect adjustment of the aircon compressor clutch
		Aircon fluid quantity
		Aircon compressor defective
		Lack of aircon fluid in the aircon circuit
		Aircon compressor valves defective
	The clutch of the aircon compressor remains engaged and slips	Aircon compressor clutch
		Auxiliaries drive belt

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

Aircon circuit diagnosis table (for information)

Principal problem	Symptom	Possible causes
Abnormal levels of pressure	Low pressure and high pressure too high	Aircon pressure reducer defective
		Duct clogged
	Low pressure too high and high pressure too low	Aircon compressor seal defective
	Low pressure too low and high pressure too high too high	Aircon evaporator sensor defective
		Aircon pressure reducer jammed
		Filtering and drying cartridge obstructed
		Duct clogged
	Low pressure and high pressure too low	Duct clogged
		Aircon pressure reducer jammed
		Lack of aircon fluid in the aircon circuit
		Aircon compressor defective

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

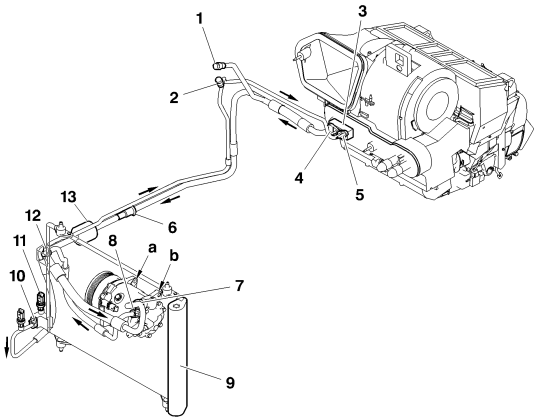
Aircon circuit diagnosis table (for information)

Principal problem	Symptom	Possible causes
Abnormal levels of pressure	Low pressure normal and high pressure too high	Presence of air in the aircon circuit
	Low pressure normal and high pressure too low	Aircon pressostat defective
		Evaporator sensor defective
	Low pressure too high and high pressure normal	Aircon pressure reducer jammed open
	Low pressure too low and high pressure normal	Filtering and drying cartridge saturated or clogged
		Aircon pressure reducer iced up
Air conditioning operating in back-up mode	Under cooling too weak	Lack of aircon fluid
	Under cooling excessive	Excess aircon fluid
		Presence of air in the aircon circuit
		Filtering and drying cartridge clogged

NOTE: In all cases, measure the excessive heating **(SC)** and the blow air temperature.

AIR CONDITIONING SYSTEM R.134.a

Engine: ES9A

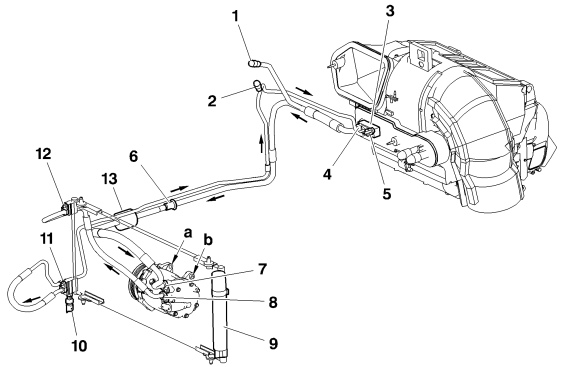


C5HP1E0P

Tightening torques (m.daN).

(1) High pressure valve	
(2) Low pressure valve	
(3) Pressure reducer	
(4) Pressure reducer outlet, tighten to	**: 0,6**
(5) Pressure reducer inlet, tighten to	**: 0,6**
(6) Clickfit union, tool	**: 8005-T.A Black**
(7) Compressor inlet, tighten to	**: 0,7**
(8) Compressor outlet, tighten to	**: 0,7**
(9) Filtering cartridge	**: Not interchangeable**
(10) Condenser outlet, tighten to	**: 0,6**
(11) Pressostat, tighten to	**: 0,6**
(12) Condenser inlet, tighten to	**: 0,6**
(13) Buffer capacity	
«a» Compressor front support	**: 3,9**
«b» Compressor rear support	**: 2,5**

Engine: DT17BTED4



C5HP1DRP

Tightening torques (m.daN).

(1) High pressure valve	
(2) Low pressure valve	
(3) Pressure reducer	
(4) Pressure reducer outlet, tighten to	**: 0,6**
(5) Pressure reducer inlet, tighten to	**: 0,6**
(6) Clickfit union, tool	**: 8005-T.A Black**
(7) Compressor inlet, tighten to	**: 0,7**
(8) Compressor outlet, tighten to	**: 0,7**
(9) Filtering cartridge	**: Not interchangeable**
(10) Condenser outlet, tighten to	**: 0,6**
(11) Pressostat, tighten to	**: 0,6**
(12) Condenser inlet, tighten to	**: 0,6**
(13) Buffer capacity	
«a» Compressor front support	**: 3,9**
«b» Compressor rear support	**: 2,5**

VERY IMPORTANT

As the booklet is constantly re-edited, this one only covers vehicles for this particular model year.

It is therefore necessary to order a new booklet each year and RETAIN THE OLD ONES.