

CITROËN C5

2000

«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».

CAR 050007



PRESENTATION

THIS HANDBOOK summarises the specifications, adjustments, checks and special features of the **CITROEN C5**.

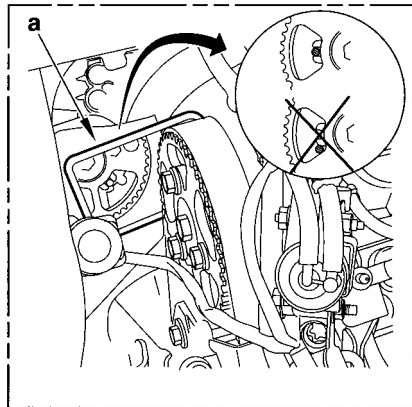
The handbook is divided into the following sections representing the main functions :

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

INDEX

GENERAL		INJECTION			
Identification of vehicles	1 - 4	Idling - antipollution	111	Suspension	217 - 220
General : Dimensions	5 - 6	Petrol injection	112	Steering specifications	221 - 222
Weight specifications	7 - 8	Emission standards	113 - 119	BRAKES	
Towing specifications	9 - 10	Prohibited operations : HDi	120 - 121	Brake specifications	223 - 228
Lifting / supporting the vehicle	11 - 14	Safety requirements : HDi	122 - 123	Handbrake adjustment	229
Capacities	15 - 18	Checking the fuel supply circuit	124 - 125	Bleeding and filling braking system	230 - 233
Lubricants	19 - 32	Checking the air supply circuit	126 - 130	HYDRAULICS	
ENGINES		Exhaust gas recycling	131 - 134	Specifications	234 - 237
Engine specifications	34 - 58	Checking turbo pressure	135 - 138	Suspension spheres	238 - 240
Cylinder head marking / tightening		Features of injection systems	139 - 168	ELECTRICAL	
6FZ-RFN-RLZ	38	IGNITION		Starter motors	241
XFX	51 - 52	Sparking plugs	169	Alternators	242
RHY-RLZ	55 - 56	CLUTCH-GEARBOX		Charging circuit	243
4HX	57 - 58	Speedometers	170	AIR CONDITIONING	
Auxiliaries drive belt	59 - 68	Clutch specifications	171 - 172	Quantities in R 134a aircon system	244
Checking and setting valve timing	69 - 90	Gearbox and tyre specifications	173 - 174	Special features	245
Power unit suspension	91 - 95	BE4/5 gearbox controls	175 - 183	Pollen filter	246
Exhaust system	96 - 100	ML/5 gearbox controls	184 - 192	Dryer cartridge	247 - 249
Cooling system	101 - 107	AL4-4HP20 gearbox controls	193 - 203	Checking oil level	250 - 251
Checking oil pressures	108	Driveshafts	204	Checking pressures	252
Oil filter	109	AXLES-SUSPENSION		Air conditioning : 6FN-RFN-RLZ	253
Filling and bleeding engine coolant	110	Wheels and tyres	205 - 211	Air conditioning circuit : XFX	254
		Axle geometry	212 - 214	Air conditioning circuit : RHY-RHZ	255
		Front and rear axle	215 - 216	Air conditioning circuit : 4HX	256

IDENTIFICATION OF VEHICLES



- (A) Chassis stamp
(cold stamp on bodywork).
- (B) Manufacturer's data plate.
(under the rear bench seat)
- (C) A-S / RP No. and RP paint code
(label on front pillar close to driver's door).
- (D) Inflation pressures and tyre references.
(label on front pillar close to driver's door)
- (E) Serial no. on bodywork.
- (F) Gearbox reference – Factory serial no.
- (G) Engine legislation type – Factory serial no.

E1APO8RD

GENERAL

IDENTIFICATION OF VEHICLES

GENERAL

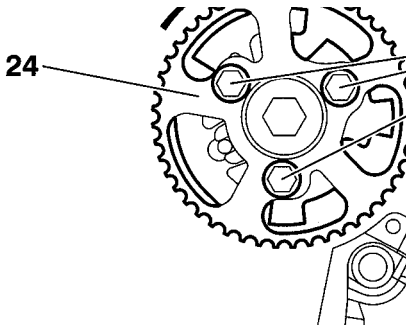
Engine families	Petrol							
	EW						ES	
	7			10			9	
	J4			J4		D	J4S	
	1.8i 16V			2.0i 16V		2.0 HPi	3.0i V6	
	Auto.		Auto.		Auto.			
	X-SX			SX-Exclusive			Exclusive	
Emission standard	L4	IF/L5	L4	IFL5	L4-IF/L5	L4	IF/L5	
Type code	DC 6FZB	DC 6FZC/IF	DC 6FZE	DCRFNC/IF	DC RFNF/IF	DC RLZB	DC XFXC/IF	DC XFXF/IF
Engine type	6FZ			RFN		RLZ	XFX	
Cubic capacity (cc)	1749			1997			2946	
Fiscal rating (hp)	7		8	9			14	
Gearbox type	BE4/5		AL4	BE4/5	AL4	BE4/5	ML5/5	4 HP 20
Gearbox ident. plate	20 DL 29		20 TP 44	20 DL 30	20 TP 42	20 DL 31	20 LE 95	20 HZ 13

IDENTIFICATION OF VEHICLES					
Engine families	Diesel				
	DW				
	10			12	
	TD	ATED		TED4	
	2.0 HDi			2.2 HDi	
		Auto.		Auto.	
	X	X-SX		SX-Exclusive	
Emission standard	L4				
Type code	DC RHYB	DC RHZB	DC RHZE	DC 4HXB	DC 4HXE
Engine type	RHY	RHZ		4HX	
Cubic capacity (cc)	1997			2178	
Fiscal rating (hp)	5	6	7	8	9
Gearbox type	BE4/5	ML/5	AL4	ML/5	4 HP 20
Gearbox ident. plate	20 DL 32	20 LE 94	20 TP 43	20 LE 96	20 HZ 20

GENERAL

IDENTIFICATION OF VEHICLES

Manufacturer's plate



- (a) Type approval number (*).
 - (b) Type serial number.
 - (c) Gross vehicle weight (*).
 - (d) Gross train weight (*).
 - (e) Maximum weight on the front axle (*).
 - (f) Maximum weight on rear axle (*).
- (*) = according to marketing country.

E1AP08SC

Factory code.

Structure.

Example : D.C.6.F.Z.B.

The factory code is composed of **6 figures** or letters.- **D** = Vehicle family.- **6FZ** = Engine.- **C** = Body shape.- **B** = Version.

Family

Ref.

Family

D

X4

Body shape

Ref.

Body shape

C

5- door saloon

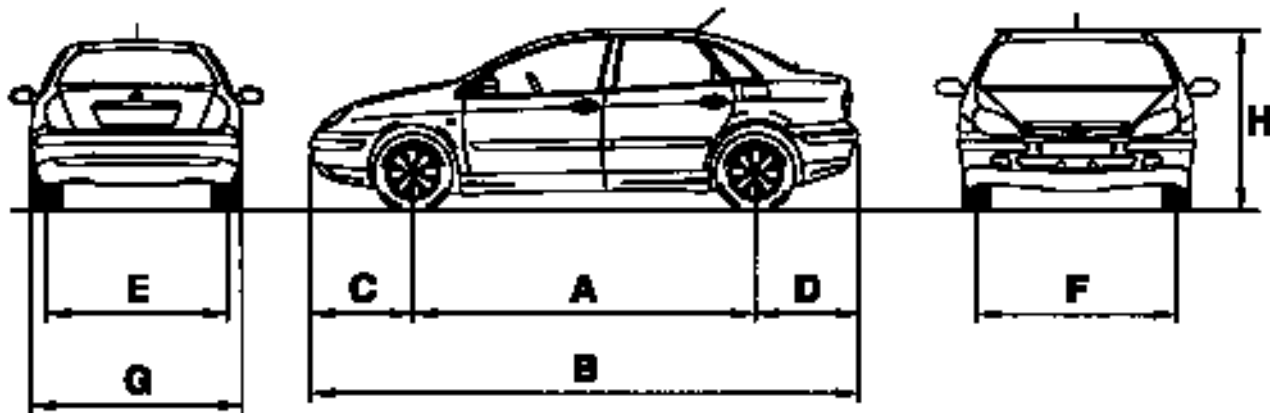
Engine

Ref.	Capacity	Type	Ref.	Capacity	Type
6FZ	1749	EW7	RHY	1997	DW10TD
RFN	1998	EW10J4	RHZ		DW10ATED
RLZ		EW10D	4HX	2179	DW12TED4
XFX	2946	ES9J4			

Version (Gearbox and emission standard)

Ref.	Gearbox	Emission standard
B	Manual 5 gears	L4
C		L5
E	Automatic 4 gears	L4
F		L5

GENERAL SPECIFICATION : DIMENSIONS



GENERAL

E1AP08TD

GENERAL SPECIFICATION : DIMENSIONS

Exterior dimensions (mm)

Vehicles		All types (except 3.0i V6 and 2.2 HDi)	2.2 HDi	3.0i V6
Wheel base	A	2750		
Length (overall)	B	4618		
Rear track on the ground	C	1509	1495	1493
Front track on the ground	D	1544	1530	1528
Width (overall)	E	1770		
Height (overall) (*)	F	1476		
Front overhang	G	971		
Rear overhang	H	897		

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

Dimensions and interior volumes (mm)

Elbow width, front	1538
Elbow width, rear	1520
Height of boot below parcel shelf	554
Minimum floor width	1170
Boot depth at floor level	985
Volume of boot below parcel shelf (dm ³)	456

GENERAL SPECIFICATION : WEIGHTS

Exterior dimensions (mm)

	Manual gearbox				Automatic gearbox		
Versions	1.8i16V	2.0i16V	2.0 HPi	3.0i V6	1.8i16V	2.0i16V	3.0i V6
	6FZ	RFN	RLZ	XFX	6FZ	RFN	XFX
Gearbox type	BE4/5			ML/5	AL4		4 HP 20
Payload	520	527	520	530	520	520	500
Unladen weight in running order	1290	1318	1325	1480	1315	1325	1520
Gross vehicle weight	1810	1845	1845	2010	1835	1845	2020
Gross train weight	3310	3345	3345	3610	3335	3345	3420
Maximum trailer weight without brakes	660	695	700	750	695	700	750
Maximum trailer weight with brakes							
Incline 12%	1500	1500	1500	1600	1500	1500	1400
Incline 10%	1550	1600	1600	1700	1550	1600	1700
Incline 8%	1800	1900	1900	2000	1800	1900	2000
Maximum nose weight	75						
Maximum roof rack load	75						

GENERAL

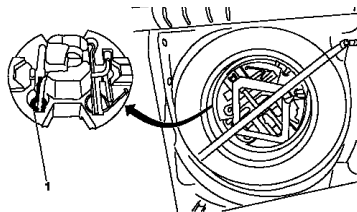
GENERAL SPECIFICATION : WEIGHTS

Exterior dimensions (mm)

Versions	Manual gearbox			Automatic gearbox	
	2.0 HDi	2 .0 HDi	2.2 HDi	2.0 HDi	2.2 HDi
	RHY	RHZ	4HX	RHZ	4HX
Gearbox type	BE4/5	ML/5		AL4	4 HP 20
Payload	520	520	500	500	500
Unladen weight in running order	1360	1385	1485	1410	1520
Gross vehicle weight	1880	1905	1985	1910	2020
Gross train weight	3380	3405	3485	3410	3120
Maximum trailer weight without brakes	715	730	750	740	750
Maximum trailer weight with brakes					
Incline 12%	1500	1500	1500	1500	1500
Incline 10%	1600	1600	1700	1600	1700
Incline 8%	2000	2000	2000	2000	1800
Maximum nose weight	75				
Maximum roof rack load	75				

GENERAL

GENERAL SPECIFICATION : TOWING THE VEHICLE



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

Towing eye

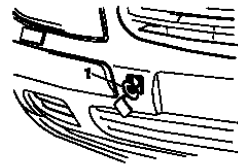
(1) Towing eye

The towing eye is stowed in the jack protection box inside the spare wheel.

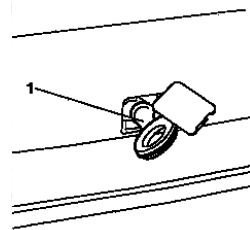
Vehicle with either manual or automatic gearbox.

ESSENTIAL : Never tow the vehicles with wheels hanging (towing by the wheels).

Remorquage avant



Remorquage arrière



GENERAL

E2AP01GD

E2AP01HC

E2AP01JC

GENERAL SPECIFICATION : TOWING THE VEHICLE

Vehicle towing : Precautions to be taken

AL4 automatic gearbox.

Towing.

In the event of impossibility to raise the front of the vehicle :

It is **ESSENTIAL** to place the selection lever in position «**N**».

Do not add oil.

Do not exceed a speed of **30 mph** over a distance of **30 miles**.

4 HP 20 automatic gearbox.

Towing.

In the event of impossibility to raise the front of the vehicle :

It is **ESSENTIAL** to place the selection lever in position «**N**».

Do not add oil.

Do not exceed a speed of **45 mph** over a distance of **60 miles**.

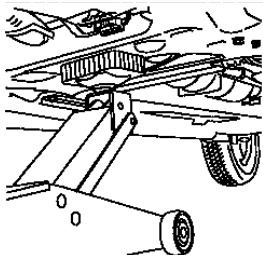
Moving the vehicle.

Never be towed with the ignition switched off.

Never attempt to push-start the vehicle. *(Impossible with an automatic gearbox).*

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

GENERAL SPECIFICATION: LIFTING AND SUPPORTING THE VEHICLE

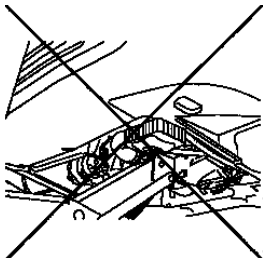
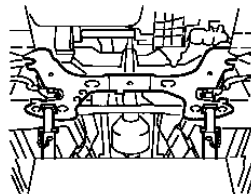


Front of the vehicle.

Position the jack to support the centre of the front subframe crossmember.

ESSENTIAL : Never attempt to lift by the front panel mounting or front panel crossmember.

Place axle stands under the front subframe.



E2AP015C

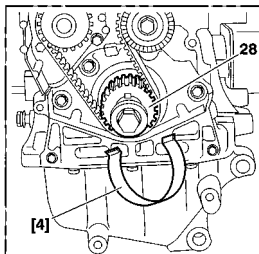
E2AP016C

E2-POOAC

GENERAL

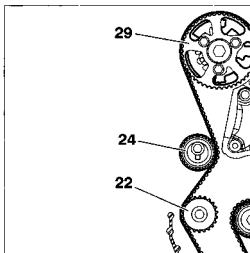
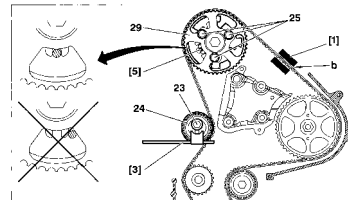
GENERAL SPECIFICATION: LIFTING AND SUPPORTING THE VEHICLE

Lifting and supporting the vehicle (continued)



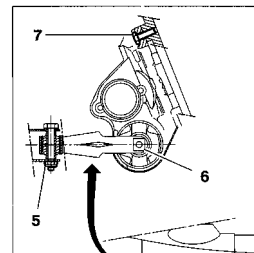
Side lifting.

ESSENTIAL : Always ensure the jack is correctly positioned at the lifting points.



ESSENTIAL : Do not place the axle stands under the jack contact lugs.

Position of the axle stand.



E2AP017C

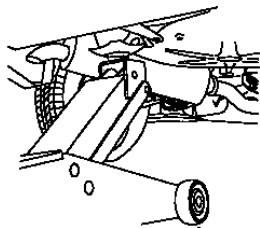
E2AP018C

E2AP019D

E2AP00GC

GENERAL SPECIFICATION: LIFTING AND SUPPORTING THE VEHICLE

Lifting and supporting the vehicle (continued)



Lifting the rear of the vehicle.

ESSENTIAL : Never lift under the spare wheel
(risk of deformation of the floor).
Do not lift under the rear subframe crossmember.

Lift under the strengthened rim of the spare wheel pan.

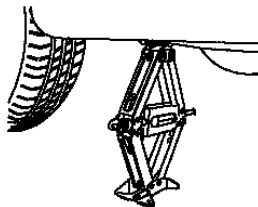
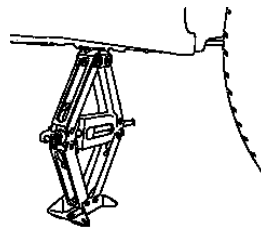
Positioning of the axle stand.

Lifting using the handle jack.

Front lifting.

Rear lifting.

NOTE : The handle jack is specific to the vehicle, do not use it for any other purposes.



E2AP01AC

E2AP01BC

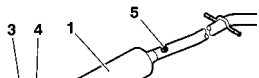
E2AP01CC

E2AP01DC

GENERAL

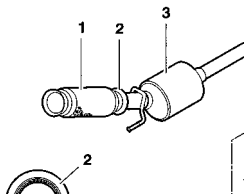
GENERAL SPECIFICATION: LIFTING AND SUPPORTING THE VEHICLE

Lifting and supporting the vehicle (continued)



Lifting on a platform.

Two-column lift.



Auxiliary lift with blocks.

E2AP01EC

E2AP01FC

CAPACITIES (in litres)

Draining method.

Oil capacities are defined as below.

- 1/ Vehicle on horizontal ground (*in the high position, if hydropneumatic suspension*).
- 2/ Engine warm (*oil temperature 80°C*).
- 3/ Drain oil sump + remove filter cartridge (*time for draining to last drops = 15 minutes*).
- 4/ Refit drain plug + filter cartridge.
- 5/ Refill the engine.
- 6/ Start the engine (*to allow the cartridge to fill*).
- 7/ Stop the engine (*to allow oil to stabilise for 5 minutes*).

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

CAPACITIES (in litres)							
	Vehicle without air conditioning						
	Petrol					Diesel	
	1.8i 16V	2.0i 16V		2.0 HPi	2.0 HDi		
	Auto.	Auto.			Auto.		
Engine type	6FZ	RFN		RLZ	RHY	RHZ	
Engine with filter change	4.25					4.75	
Between Min. and Max.	1.7					1.5	
5-speed gearbox	1.8		1.8		1.8	1.8	
Automatic gearbox		6		6			8.3
After oil change		3		3			5.3
Braking circuit							
Hydraulic circuit	4.3						
Cooling system	8.8 – 9.3 (*)				8.8	10.7	
Fuel tank capacity	66					68	
(*) = With automatic gearbox ESSENTIAL : Systematically check the oil level using the oil dipstick.							

CAPACITIES (in litres)

	Vehicle with air conditioning					
			Petrol			
	1.8i 16V		2.0i 16V		2.0 HPi	
	Auto.		Auto.		Auto.	
Engine type	6FZ		RFN		RLZ	
Engine with filter change	4.25		5.25			
Between Min. and Max.	1.7		2			
5-speed gearbox	1.8		1.8		1.8	
Automatic gearbox		6		6		8.3
After oil change		3		3		5.3
Braking circuit						
Hydraulic circuit	4.3					
Cooling system	8.8 – 9.3 (*)				8.8	14
Fuel tank capacity	66					

(*) = With automatic gearbox.

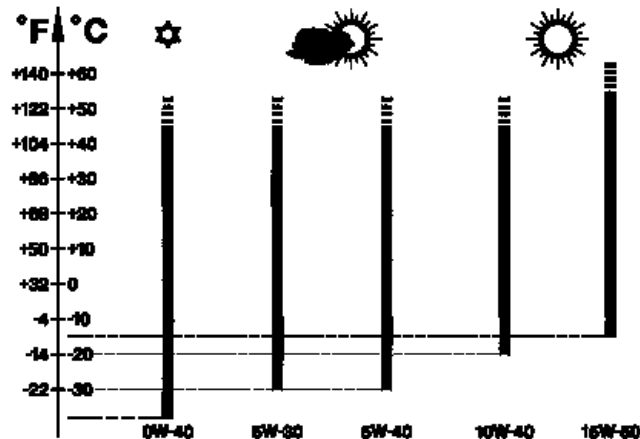
ESSENTIAL : Systematically check the oil level using the oil dipstick.

GENERAL

CAPACITIES (in litres)				
	Vehicle with air conditioning			
	Diesel			
	2.0 HDi		2.2 HDi	
	Auto.		Auto.	
Engine type	RHY	RHZ		4HX
Engine with filter change	4.5		4.75	
EBetween Min. and Max.	1.7		1.5	
5-speed gearbox	1.8			1.8
Automatic gearbox			6	8.3
After oil change			3	5.3
Braking circuit				
Hydraulic circuit	4.3			
Cooling system	10.7 - 11.7 - (With additional heating).			
Fuel tank capacity	68			
ESSENTIAL : Systematically check the oil level using the oil dipstick				

LUBRICANTS – TOTAL recommended oils

S.A.E. Norm - Table for selection of engine oil grade



Factory evolutions in 2000 model year

CITROËN engines are lubricated at the factory with **TOTAL** oil of grade **S.A.E.5W-30**.

TOTAL oil of grade **S.A.E.5W-30** allows improved fuel economies (approx. 2.5%).

This oil is not used in the following engines :

- XU10 4 RS – XSARA VTS 2.0i 16V (3-door)
- SOFIM – RELAY 2.8 D and 2.8 TD.

Engine oil norms

These engine oils have been classified by the following recognised organisations:

SAE : Society of Automotive Engineers.

API : American Petroleum Institute.

ACEA : Association des Constructeurs Européens d'Automobiles.

LUBRICANTS – TOTAL recommended oils

NOTE : See specific CITROËN C5 maintenance bulletins for oil recommendations by engine-type and by country.

Selection of engine oil grades recommended for climatic conditions in countries of distribution

ACEA Norms

The first letter corresponds to the type of engine concerned :

A : petrol and dual fuel petrol / LPG engines.

B : diesel engines.

The figure following the first letter corresponds to the type of oil.

1 : highly fluid oils, for reducing friction and lowering fuel consumption.

3 : high performance oils.

The number after that (**96** or **98**) corresponds to the year of creation of the norm.

NOTE : From **01/03/2000**, all engine oils must comply with **ACEA-98 norms**.

Example :

ACEA A1-98 / B1-98 : Blended oils for all engines, permitting fuel economy (*complying with ACEA 98 norms*).

API Norms

The first letter corresponds to the type of fuel used by the engine :

S : petrol and dual fuel petrol / LPG engines.

C : diesel engines.

The second letter corresponds to the degree of evolution, in ascending order.

Example : The norm **SJ** is more severe than the norm **SH** and corresponds to a higher level of performance.

The adding of the letters **EC** indicates that the engine oil concerned is an oil which permits fuel economy.

EC : Energy Conserving, reduction in fuel consumption..

Examples :

API SJ / CF : Blended oils for **diesel** and dual fuel **petrol / LPG engines**.

API CF / EC : Oils specifically for **diesel** engines, permitting fuel economy.

API SJ / CF / EC : Blended oils for all engines, permitting fuel economy.

LUBRICANTS – TOTAL recommended oils

Recommendations.

Denominations of **TOTAL** oils, according to country of marketing :

TOTAL ACTIVA (France only).
TOTAL QUARTZ (Outside France).

IMPERATIVE : From 1999 model year, to preserve engine performance, all engines fitted in CITROEN vehicles must be lubricated with high quality oils (synthetic or semi-synthetic)

These oils must comply with the following norms :

Petrol and dual fuel petrol / LPG engines: **ACEA A3-98** and **API SJ**.

Diesel engines: **ACEA B3-98** and **API CF**.

WARNING : Engines fitted in CITROEN vehicles prior to 2000 model year must not be lubricated with oil complying with standards ACEA A1-98 / B1-98 and API SJ/CF EC.

Summary

Engine oil norms to be respected in **2001 model year**.

Model year	Types of engine	ACEA norms	API norms
2001 model year	Petrol and dual fuel petrol / LPG engines	A3-98 or A1-98 (*)	SJ or SJ / EC (*)
	Diesel engines	B3-98 or B1-98 (*)	CF or CF / EC (*)

(*) = It is essential not to use engine oils respecting these norms for the following engine-types :

XU10J4RS, 1580 SPI, SOFIM 2.8 D and SOFIM 2.8 TD.

LUBRICANTS – TOTAL recommended oils

Blended oils for all engines (petrol, dual-fuel petrol / LPG and diesel)

TOTAL ACTIVA 9000 TOTAL QUARTZ 9000	5W-40	SJ / CF	A3-98 / B3-98
TOTAL ACTIVA 9000. (*) TOTAL QUARTZ 9000. (*)	5W-30	SJ / CF EC	A1-98 / B1-98
TOTAL ACTIVRAC	10W-40	SJ / CF	A3-98 / B3-98

(*) = Blended oils for all engines, permitting fuel economy.

Oils specifically for petrol and dual-fuel petrol / LPG engines

TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	10W-40	SJ	A3-98
TOTAL QUARTZ 9000	0W-40		
TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	15W-50		

Oils specifically for diesel engines

TOTAL ACTIVA DIESEL 7000 TOTAL QUARTZ DIESEL 7000	10W-40	CF	B3-98
TOTAL ACTIVA DIESEL 7000 TOTAL QUARTZ DIESEL 7000	15W-50		
TOTAL ACTIVA 9000	5W-40		

GENERAL

LUBRICANTS – TOTAL RECOMMENDED OILS			
FRANCE			
	Blended oils for all engines		
Metropolitan FRANCE	TOTAL ACTIVRAC	Norms S.A.E : 10W-40	
	TOTAL ACTIVA		TOTAL ACTIVA DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Metropolitan FRANCE	9000 5W-40 9000 5W-30 (*)	7000 10 W-40	7000 10W-40 9000 5W-40
New Caledonia Guadeloupe Saint-Martin La Réunion Martinique Guyana Tahiti Mauritius Mayotte	9000 5W-40	7000 15W-50	7000 15W-50
(*) = Blended oils for all engines, permitting fuel economy.			

GENERAL

LUBRICANTS – TOTAL RECOMMENDED OILS

GENERAL

EUROPE			
(*) = Blended oils for all engines, permitting fuel economy	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Germany	9000 5W-40 9000 5W-30 (*)	7000 10W-40 9000 0W-40	7000 10W-40
Austria		7000 10W-40	
Belgium		7000 10W-40 9000 0W-40	
Bulgaria		7000 10W-40 7000 15W-50	
Cyprus		7000 10W-40	7000 10W-40 7000 15W-50
Croatia		7000 10W-40 9000 0W-40	7000 10W-40
Denmark		7000 10W-40 7000 15W-50	
Spain		7000 10W-40 9000 0W-40	7000 10W-40
Finland		7000 10W-40	
Great Britain		7000 10W-40	

LUBRICANTS – TOTAL recommended oils			
(*) = Blended oils for all engines, permitting fuel economy	EUROPE (continued)		
	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Greece	9000 5W-40 9000 5W-30 (*)	7000 10W-40 7000 15W-40	7000 10W-40 7000 15W-40
Holland		7000 10W-40	7000 10W-40
Hungary		9000 0W-40	
Italy		7000 10W-40	
Latvia		7000 10W-40	
Lithuania		9000 0W-40	
Macedonia		7000 10W-40	
Malta		7000 10W-40 7000 15W-40	7000 10W-40 7000 15W-40
Norway		7000 10W-40 9000 0W-40	7000 10W-40
Poland		7000 10W-40	
Portugal			
Slovak Republic			

GENERAL

LUBRICANTS – TOTAL recommended oils

EUROPE (continued)

	(*) = Blended oils for all engines, permitting fuel economy	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
GENERAL	Czech Republic	9000 5W-40 9000 5W-30 (*)	7000 10W-40 9000 0W-40	7000 10W-40
	Romania		7000 10W-40 7000 15W-40	7000 10W-40 7000 15W-40
	Russia		7000 10W-40 9000 0W-40	7000 10W-40
	Slovenia		7000 10W-40	
	Sweden		7000 10W-40 9000 0W-40	
	Switzerland		7000 10W-40	
	Turkey		7000 10W-40 7000 15W-40 9000 0W-40	7000 10W-40 7000 15W-40
	Ukraine		7000 10W-40 9000 0W-40	7000 10W-40

LUBRICANTS – TOTAL recommended oils				
		TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Australia New Zealand	OCEANIA	9000 5W-40	7000 10W-40	7000 10W-40
Angola - Ivory Coast Egypt - Ecuador - Gabon Madagascar - Morocco Dominican Republic Senegal - Tunisia	AFRICA	9000 5W-40	7000 15W-50	7000 15W-50
Argentina - Brazil - Chile Colombia - Cuba Guatemala- Paraguay Peru - El Salvador Uruguay	SOUTH AMERICA	9000 5W-40	7000 15W-50	7000 15W-50

GENERAL

LUBRICANTS – TOTAL recommended oils

		TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
China	SOUTH & EAST ASIA	9000 5W-40	7000 10W-40 7000 15W-50	7000 15W-50
South Korea			7000 10W-40	
Hong Kong - India Indonesia			7000 15W-50	
Japan			7000 10W-40 7000 15W-50	
Malaysia			7000 15W-50	
Singapore			7000 15W-50	
Taiwan			7000 10W-40 7000 15W-50	
Thailand			7000 15W-50	
Vietnam				

LUBRICANTS – TOTAL recommended oils				
		TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Saudi Arabia Bahrain Dubai United Arab Emirates Israel Jordan Kuwaït Lebanon Qatar Yemen	MIDDLE EAST	9000 5W-40	7000 15W-50	7000 15W-50

GENERAL

LUBRICANTS – TOTAL recommended oils		
Gearbox oils		
Manual gearbox	Europe Overseas France Asia	TOTAL TRANSMISSION (new formula) Norms S.A.E 75W-80
Automatic gearbox MB3	All countries	TOTAL FLUIDE ATX ou TOTAL FLUIDE AT 42. Special oil distributed by CITROEN (Part No. : 9730 94).
Automatic gearbox 4 HP 14 et 4 HP 18		TOTAL FLUIDE AT 42 ou Special oil distributed by CITROEN (Part No. : 9730 94).
Automatic gearbox 4 HP 20 et AL4		Special oil distributed by CITROEN (Part No. : 9736 22).
Transfer box and differential		TOTAL TRANSMISSION X 4
C MATIC gearbox		TOTAL FLUIDE T
Oils for power-assisted steering		
Power-assisted steering	All countries	TOTAL FLUIDE ATX

LUBRICANTS – TOTAL recommended oils				
Liquide de refroidissement moteur				
All countries	CITROEN Fluid Protection : - 35°C	Packs	CITROEN reference	
			GLYSANTIN G 33	REVCOGEL 2000
		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				
All countries	CITROEN Fluid	Packs	CITROEN reference	
		0.5 litre	9979 05	
		1 litre	9979 06	
		5 litres	9979 07	
CITROEN hydraulic circuit fluid				
All countries	Orange-coloured synthetic fluid, for HYDRACTIVE 3 suspension and for steering			
	TOTAL LDS FLUID	Packs	CITROEN reference	
		1 litre	9979.69	
	Hydraulic circuit rinsing fluid – green colour			
	TOTAL HYDRAURINCAGE			

GENERAL

LUBRICANTS – TOTAL recommended oils

Wash/wipe fluid

CITROEN reference

All countries	Concentrated : 250 ml	9980 33	ZC 9875 953 U	9980 56
	Liquid ready to use: 1 litre	9980 06	ZC 9875 784 U	
	Liquid ready to use: 5 litres	9980 05	ZC 9885 077 U	ZC 9875 279 U

Grease

Norms NLGI (1)

All countries		
	TOTAL MULTIS EP2	2
	TOTAL MULTIS COMPLEX EP2	2
	TOTAL MULTIS N4128	1
	TOTAL SMALL MECHANISMS	

(1) NLGI = National Lubricating Grease Institute.

GENERAL

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 WORK 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

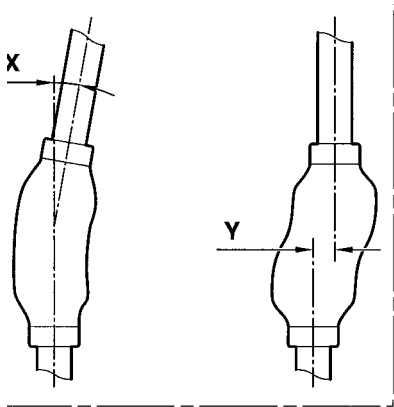
	Petrol			
	Engines : 6FZ - RFN -LZ - XFX			
	All Types			
	1.8i 16V	2.0i 16V	2.0i Hpi	3.0i V6
Engine type	6FZ	RFN	RLZ	XFX
Cubic capacity (cc)	1749	1997	1998	2946
Bore / Stroke	82.7/81.4	85/88	85/88	87/82.6
Compression ratio	10.8/1	10.8/1	11.4/1	10.9/1
Power ISO or EEC KW - rpm	85-5500	99-6000	103-5500	152-6000
Power DIN (HP - rpm)	117-5500	136-6000	143-5500	21-6000
Torque ISO or EEC (m.daN - rpm)	16-4000	19-4100	19.2-4250	28.5-3750
Torque DIN (mkg-rpm)	16.5-4000	19.8-4100	20-4250	29.7-3750
Max. speed (rpm)				

ENGINE SPECIFICATIONS

	Diesel		
	Engines : RHY - RHZ - 4HX		
	All Types		
	2.0 HDi		2.2 HDi
Engine type	RHY	RHZ	4HX
Cubic capacity (cc)	1997		2179
Bore / Stroke	85/88		85/96
Compression ratio	17.6/1		18/1
Power ISO or EEC KW - rpm	66-4000	80-4000	100-4000
Power DIN (HP - rpm)	90-4000	110-4000	13.8-4000
Torque ISO or EEC (m.daN - rpm)	20.5-1900	25-1750	31.5-2000
Torque DIN (mkg-rpm)	24.1-1900	26-1750	32.8-2000
Max. speed (rpm)	5300	5300	

ENGINE SPECIFICATIONS

Engines : 6FZ-RFN-RLZ



B1BPWMD

Compulsory engine plate :

"a" Engine legislation type.

"b" Component reference.

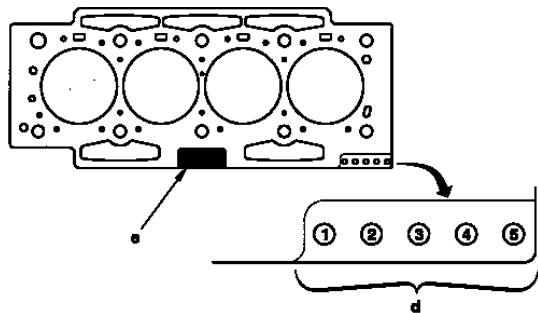
"c" Factory serial no.

CYLINDER HEAD

Engines : 6FZ-RFN-RLZ

Cylinder head gasket identification

	Nominal dimension		Repair dimension	
	6FZ	RFN-RLZ		
Marking zone "d"	4.5	1.4	2-4-5	
Marking zone "e"			R1	R2
Gasket thickness			1.1 mm	1.4 mm
Supplier	MEILLOR			



(d) Marking zone

(e) Marking zone

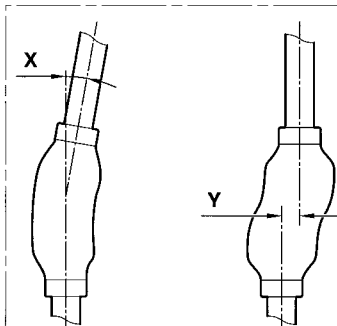
Multilayer metallic cylinder head gasket.

B1DP183D

CYLINDER HEAD

Engines : 6FZ - RFN - RLZ

Cylinder head tightening (m.daN)



NOTE : Retightening of the cylinder head after a completed repair is prohibited. Intervention est interdit.

B1BP05BC

6FZ - RFN - RLZ

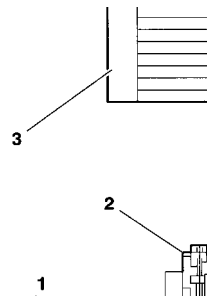
- Pre-tightening 1.5 ± 0.1
- Tightening 5 ± 0.1

- Untightening $360^\circ \pm 2^\circ$
- Tightening 2 ± 0.2
- Angular tightening $285^\circ \pm 5^\circ$

(in the order 1 to 10)

NOTE : Oil the threads and under the heads of the cylinder head bolts. (Use engine oil or Molykote G Rapid Plus.)

Cylinder head bolts



A = Washer thickness : 4 ± 0.2 mm.

X = Length under heads of the new bolts = 144.5 ± 0.5 mm.

B1DP16FC

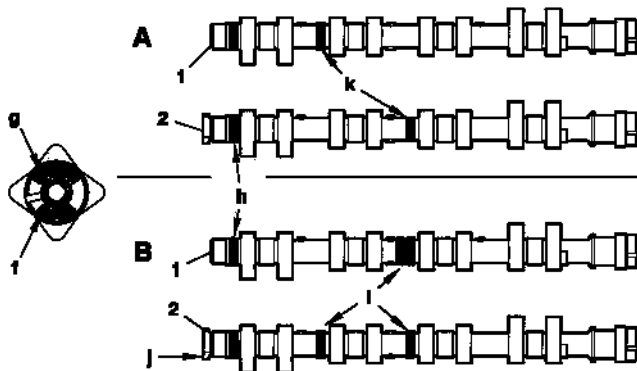
X = MAXI reusable

6FZ - RFN - RLZ

X= 147 mm

CYLINDER HEAD (Continued)

Engines : 6FZ - RFN - RLZ



Camshafts

The camshafts are identified by the following markings :

- Paint rings.
- Cold stamp at the camshaft extremity (*Distribution end*).

(1) Inlet camshaft.

(2) Exhaust camshaft.

"j" Camshaft position sensor target.

"h" Paint rings : repair reference.

Valve clearances when cold :

Hydraulic followers with clearance

Inlet camshaft

Exhaust camshaft

B1EP15YD

	6FZ	RFN-RLZ	6FZ	RFN-RLZ
Marking at «g»	9630426980	9624727280	9630426680	9624728080
Lifting law marking at «f»	D1269	D1149	D5016	D1148
Paint rings	Blue at «k»		Green at «i»	

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)						
	Engines : 6FZ-RFN-RLZ-RHY-RHZ-4HX					
Crankshaft	Petrol			Diesel		
	6FZ	RFN	RLZ	RHY	RHZ	4HX
Bearing cap screws. - Pre-tightening - Angular tightening	2 ± 0.1 $60^\circ \pm 6^\circ$			2.5 ± 0.2 60°		
Con-rod cap screws. - Tightening - Untightening - Tightening - Angular tightening	2.3 ± 0.2 $46^\circ +2^\circ -4^\circ$					1 180° 2.3 ± 0.1 $46^\circ \pm 5^\circ$
Con-rod nuts. - Pre-tightening - Angular tightening				2 ± 0.2 70°		
Accessories drive pulley - Tightening - Angular tightening	2.1 ± 0.1			4 ± 0.4 51°		7 ± 0.25 60°
Accessories drive pulley hub - Pre-tightening - Angular tightening (<i>Sintered washer</i>) Angular tightening (<i>Steel washer</i>)	4 ± 0.4 $40^\circ \pm 4^\circ$ $53^\circ \pm 5^\circ$					

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

	Engines : 6FZ-RFN-RLZ-RHY-RHZ-4HX					
Cylinder block	Petrol			Diesel		
	6FZ	RFN	RJZ	RHY	RHZ	4HX
Piston skirt spray jet				1 ± 0.1		
Sump - Pre-tightening - Tightening	0.8 ± 0.2			1.6 ± 0.2		1 1.6 ± 0.3
Timing belt guide roller - Pre-tightening - Tightening	3.7 ± 0.3			2.5 ± 0.2		1.5 4.3 ± 0.4
Timing guide roller - Pre-tightening - Tightening				2.5 ± 0.2		1.5 4.3 ± 0.4
Timing belt tensioner roller	2.1 ± 0.2			2.5 ± 0.2		
RH engine mounting - Pre-tightening - Tightening - Tightening	6.1 ± 0.6			2.7 ± 0.2		1 (4 screws) 2 ± 0.2 (Ø 8) 4.5±0.2 (Ø10)

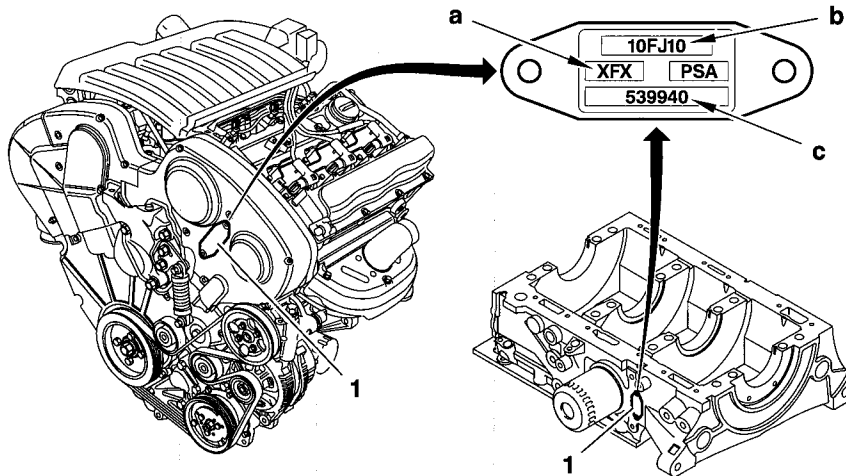
SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)						
	Engines : 6FZ-RFN-RLZ-RHY-RHZ-4HX					
Cylinder head	Petrol			Diesel		
	6FZ	RFN	RLZ	RHY	RHZ	4HX
Camshaft bearing cover - Tightening - Pre-tightening - Tightening	0.5 ± 0.1 0.9 ± 0.1			1 ± 0.1		1 ± 0.1 0.5 (Ø6) 1±0.1(Ø10)
Exhaust manifold - Pre-tightening - Tightening	3.5 ± 0.3			2 ± 0.2		1.5 3 ± 0.3
Valve cover - Pre-tightening - Tightening	0.5 1.1 ± 0.1		0.9 ± 0.1	0.8 ± 0.1		0.5 ± 0.15 0.9 ± 0.1
Camshaft pulley hub	7.5 ± 0.7			4.3 ± 0.5		
Hub pulley				2 ± 0.2		
Flywheel / Clutch						
Flywheel - Pre-tightening - Tightening	2 ± 0.2 21° ± 3°			4.8 ± 0.5		1.5 4.7 ± 0.4
Clutch plate	2 ± 0.2			2 ± 0.2		

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

	Engines : 6FZ-RFN-RLZ-RHY-RHZ-4HX					
Lubrication circuit	Petrol			Diesel		
	6FZ	RFN	RJZ	RHY	RHZ	4HX
Oil pump - Pre-tightening - Tightening	0.9 ± 0.1			1.3 ± 0.1		0.7 0.9 ± 0.1
Water / oil heat exchanger				5.8 ± 0.5		
Lubrication pipe - Engine end - Turbocompressor end				3 ± 0.3 2 ± 0.2		
Injection circuit						
Injector - Tightening - Angular tightening				(Flange nut) 3 ± 0.3		4 ± 0.3 45° ± 5°
Union on injection rail				2 ± 0.2		
Injection pump			0.5 ± 0.1	2.25 ± 0.3		
Union on injector						
Common rail fixing screw	0.9 ± 0.1		0.8 ± 0.1			
Injection pump pulley				5 ± 0.5		
Union on injection pump			2.6 ± 0.3	2 ± .02		
Cooling circuit						
Water pump	1.4 ± 0.1					1.6 ± 0.3
Water inlet housing	0.9 ± 0.1					2 ± .02

ENGINE SPECIFICATIONS

Engine : XFX



Compusory engine plate :

(1) Identification plate

"a" Engine legislation type.

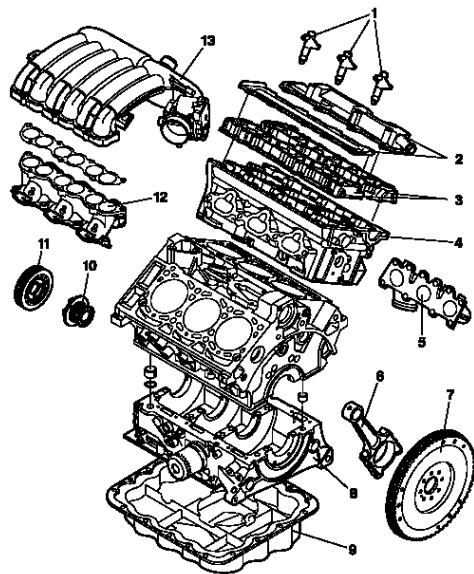
"b" Component reference.

"c" Factory serial no.

B1BP27CD

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFX

**(1) Pencil type ignition coil** 0.8 ± 0.3 .**(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

- Untightening

YES

- Tightening

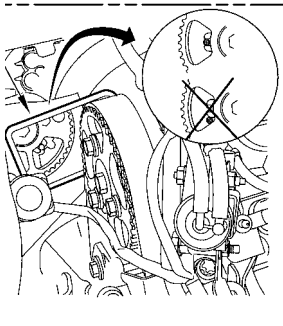
 1.5 ± 0.2

- Angular tightening

 225°

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFX

**(5) Exhaust manifold***(Equipped with a new seal).*

- Pre-tightening **1 ± 0.1**
- Tightening **3 ± 0.3**

(6) Con-rod caps

- Tightening **2 ± 0.2**
- Angular tightening **74°**

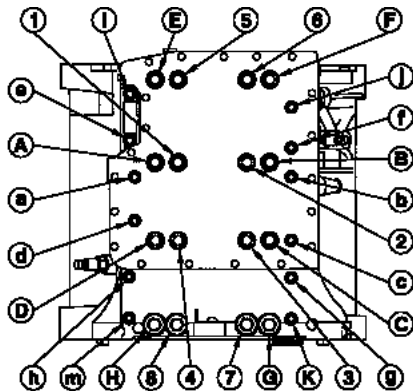
(7) Flywheel.

- Tightening **2 ± 0.2**
- Angular tightening **60°**

B1JP02LD

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFX



(8) Crankshaft bearings

Carry out the following operations :

- Clean the threads of the screws with a brush.
- Refit the screws with a coating of grease, on threads and under heads "MOLYKOTE G RAPID PLUS".
- Check that the 8 centring pins are in place.

Tightening :

- Pre-tightening **M11 to 3 ± 0.3** (Order from 1 to 8)
- Pre-tightening **M8 to 1 ± 0.1** (Order from A to H)
- Tightening **M6 to 1 ± 0.1** (Order from a to m)
- Untightening **M11 to M8**

Proceed screw by screw :

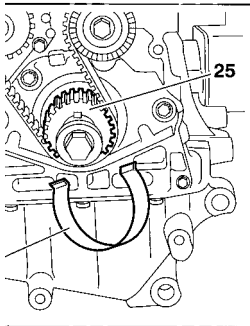
- Tightening **M11 to 3 ± 0.3** (order from 1 to 8), then
One angular tightening of **180°**
- Tightening **M8 to 1 ± 0.1** (Order from A to H), then
One angular tightening of **180°**

Max. length under heads of the screws **M11 = 131.5 mm.**

Max. length under heads of the screws **M8 = 119 mm.**

B1BP1GYD

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)



Engine : XFX

(9) Oil sump.

- Pre-tightening 0.5 ± 0.1
- Tightening 0.8 ± 0.1

(10) Crankshaft hub.

- Tightening 4 ± 0.4
- Angular tightening 80°

(11) Crankshaft pulley 2.5 ± 0.6 **(12) Inlet distributor** *(Equipped with a new seal)*

- Pre-tightening 0.4 ± 0.1
- Tightening 0.8 ± 0.1

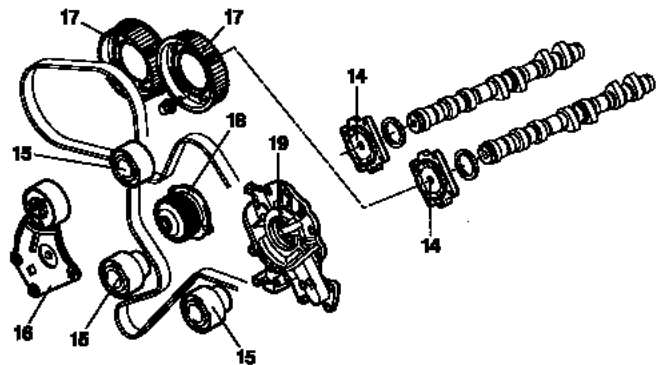
(13) Air inlet manifold.

- Pre-tightening 0.4 ± 0.1
- Tightening 0.8 ± 0.1

B1BP1GZD

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFX

**(14) Camshaft hubs :****1st method** (*Advised method*).

- Tightening 2 ± 0.2
- Angular tightening 57°

2nd method

- Tightening 8 ± 0.8

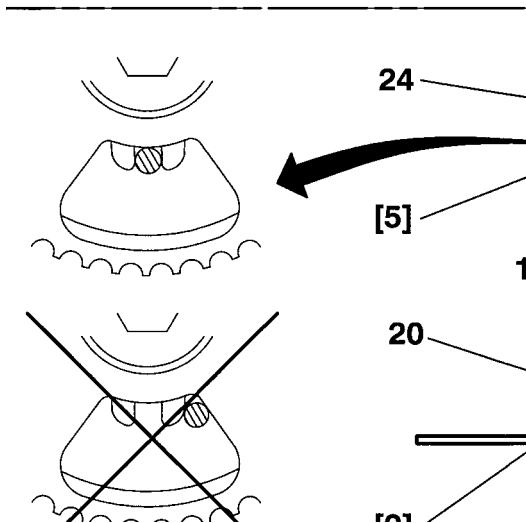
(15) Guide roller**(16) Timing belt tensioner roller** 8 ± 1.2 **(17) Camshaft pulley** 8 ± 1.2 **(18) Water pump.**

- Pre-tightening 0.5 ± 0.1
- Tightening 0.8 ± 0.1

B1EP151D

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFX



In the order indicated

(19) Oil pump.

- Pre-tightening
- Tightening

 0.5 ± 0.1 0.8 ± 0.1

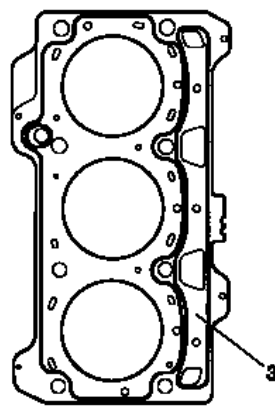
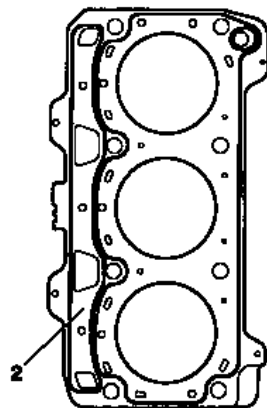
B1FP04KC

CYLINDER HEAD

Engine : XFX

Cylinder head gasket identification

Supplier	Thickness (Standard) (mm)	Thickness reference
ERLING	0.75	Central lug Exhaust end



- (1) LH cylinder head gasket.
(2) RH cylinder head gasket.

Multilayer metallic cylinder head seal.

B1DP18YD

CYLINDER HEAD

Engine : XFX

Cylinder head tightening (m.daN)

Cylinder head bolts

B1DP09VC

In the order indicated

Pre-tightening	2 ± 0.2
Untightening	YES
Pre-tightening	1.5 ± 0.2
Angular tightening	225°

[5]

24

23

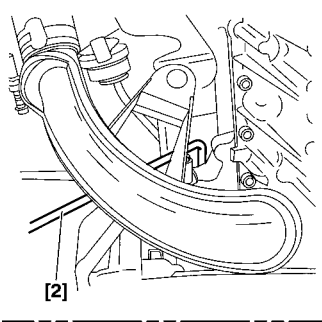
22

NOTE : Oil the threads and under the heads of the bolts. (Use engine oil or Molykote G Rapid Plus).

X = MAXIMUM reusable length

XFX

149.5 mm.

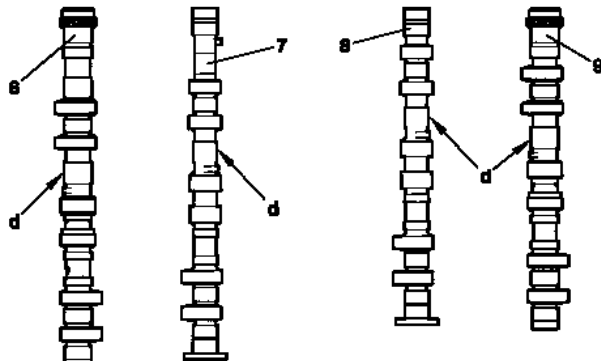


B1DP18ZD

CYLINDER HEAD

Engine : XFX

Camshafts

**Marking of the camshafts at «d».**

- (6) Exhaust camshaft (front cylinder head)
- (7) Inlet camshaft (front cylinder head)
- (8) Inlet camshaft (rear cylinder head)
- (9) Exhaust camshaft (rear cylinder head)

A 389
A 423
E 422
E 388

Valve clearances when cold.

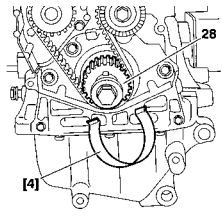
Hydraulic followers with automatic clearance adjustment.

ENGINE SPECIFICATION

Engines : RHY - RHZ - 4HX

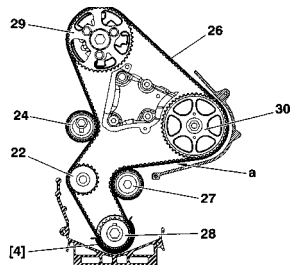
Engine identification

Engines : RHY-RHZ



B1CP046D

Engine : 4HX



B1CP07YD

References

Compulsory engine plate :

"a" Engine legislative type.

"b" Component reference.

"c" Factory serial no.

CYLINDER HEAD

Engines : RHZ - RHY

Cylinder head gasket identification

Engine plate	Piston stand-proud (mm)	Thickness (mm)	Number of notches at A
RHZ	0.47 to 0.605	1.30 ± 0.06	1
	0.605 to 0.655	1.35 ± 0.06	2
RHY	0.655 to 0.705	1.40 ± 0.06	3
	0.705 to 0.755	1.45 ± 0.06	4
	0.755 to 0.83	1.50 ± 0.06	5

Cylinder head.

- New cylinder head height = **133 mm.**
- Maximum permitted deformation = **0.03 mm.**

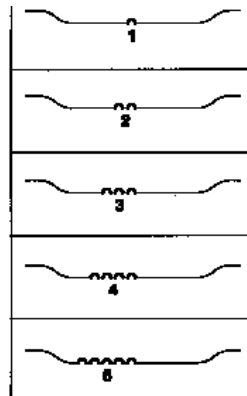
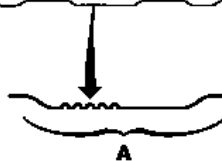
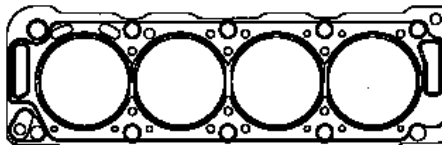
Cylinder head gasket.

Multilayer cylinder head gasket.

Select seal thickness as a function of the piston stand-proud.

Hydraulic followers.

The hydraulic followers have automatic clearance adjustment.



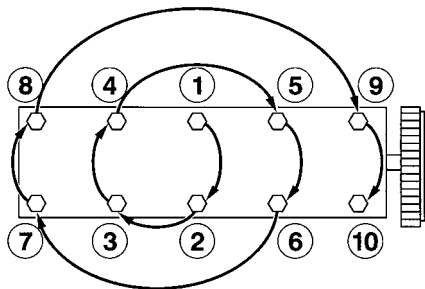
B1DP15AD

CYLINDER HEAD

Engines : RHY - RHZ

Cylinder head gasket identification

Cylinder head tightening (m.daN)



B1DP05BC

ESSENTIAL :

Tighten screw by screw in the order indicated.

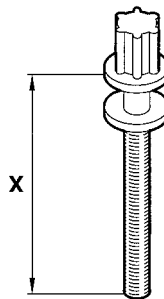
Pre-tightening 2 ± 0.2
 Tightening 6 ± 0.6
 Angular tightening $220^\circ \pm 5^\circ$

(Order from 1 to 10)

B1DP13PC

B1DP15EC

Cylinder head bolts



NOTE : Grease the bolts on the threads and under the heads, (using engine oil or Molykote G plus).

X = MAXIMUM reusable length

RHY - RHZ

X = 133.3 mm

CYLINDER HEAD

Engine : 4HX

Cylinder head gasket identification

			Number of notches	
Engine plate	Piston stand-proud (mm)	Thickness (mm)	At A	At B
4HX	0.55 to 0.60	1.25 ± 0.04	1	1
	0.61 to 0.65	1.30 ± 0.04		2
	0.66 to 0.70	1.35 ± 0.04		3
	0.71 to 0.75	1.40 ± 0.04		4

Cylinder head.

- New cylinder head height = 133 mm.
- Maximum permitted deformation = 0,03 mm.

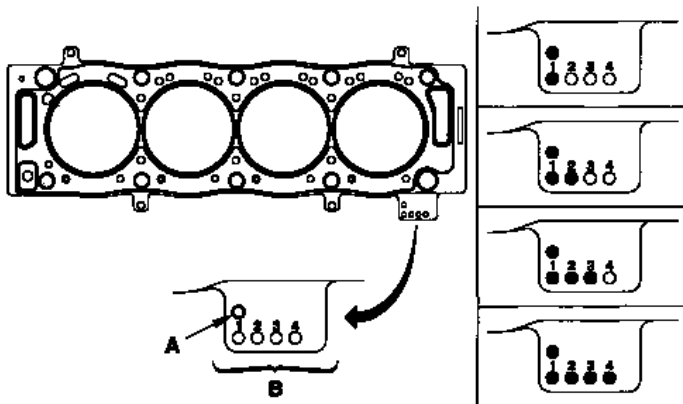
Cylinder head gasket.

Multilayer cylinder head gasket.

Select seal thickness as a function of the piston stand-proud.

Hydraulic followers.

The hydraulic followers have automatic clearance adjustment.



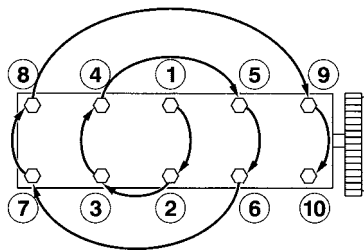
B1DP18XD

CYLINDER HEAD (Continued)

Engine : 4HX

Cylinder head gasket identification

Cylinder head tightening (m.daN)



B1DP05BC

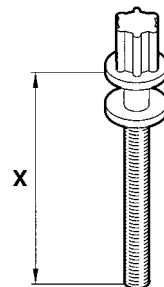
4HX

ESSENTIAL : Tighten screw by screw
and in the order indicated.

Pre-tightening 2 ± 0.2 (Order 1 to 10)
 Tightening 6 ± 0.6 (Order 1 to 10)
 Untightening 360° (Order 10 to 1)
 Pre-tightening 2 ± 0.2 (Order 1 to 10)
 Tightening 6 ± 0.6 (Order 1 to 10)
 Angular tightening $220^\circ \pm 5^\circ$ (Order 1 to 10)
 (In 2 attempts max.)

B1DP15EC

Cylinder head bolts










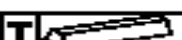
NOTE : Grease the bolts on the threads and under the heads,
(using engine oil or Molykote G plus.)

X = MAXIMUM reusable length

4HX

X = 134.5 mm

BELT TENSION/SEEM UNITS CORRESPONDENCE TABLE

↓ 4099-T (C.TRONIC.105)		← Tooling →		4122-T (C.TRONIC.105.5) ↓	
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				
	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100				

B1EP135D

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), refer to the correspondence table on page 59.

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

Engines : 6FZ-RFN-RLZ

TOOLS

[1] Pliers for removing plastic pegs

7504-T

Remove the belt.

- Detension the belt (3) by turning the tensioner roller (1), by the screw (2) (*anti-clockwise*).

WARNING: the screw (2) has a left hand thread.

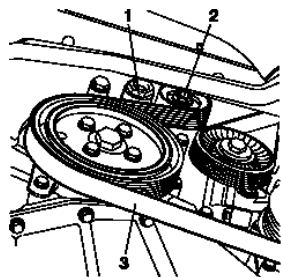
- Remove the belt (3), while keeping the tensioner roller (1) tensioned.

Refit the belt.

- Compress the tensioner roller (1).
- Fit the belt (3).
- Release the tensioner roller (1).

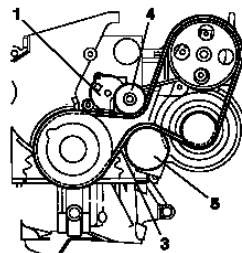
Tightening torques m.daN.

Tensioner roller screw (4)	2 ± 0.2
Guide roller screw (5)	3.5 ± 0.3

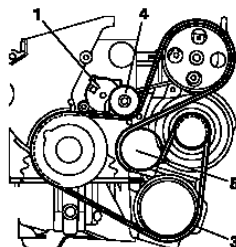


B1BP23PC

Without Aircon



With Aircon

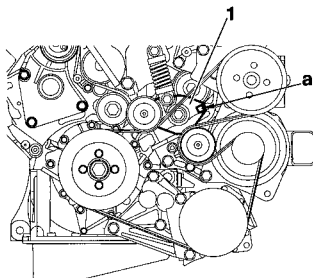


B1BP23QC

B1BP23RC

AUXILIARY EQUIPMENT DRIVE BELT

Engine : XFX



B1BP27EC

Tools

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

Remove.

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).

Refit.

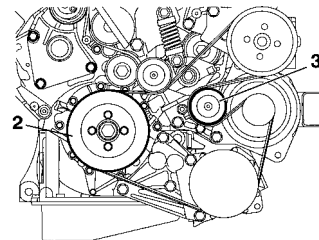
Refit the auxiliary equipment drive belt:

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

Engines : RHY - RHZ

Without air conditioning

TOOLS

- | | |
|---|----------------|
| [1] Belt tension adjusting square | : (-).0188 J2 |
| [2] Ø 4 mm peg | : (-).0188.Q1 |
| [3] Ø 2 mm peg | : (-).0188.Q2. |
| [4] Dynamic tensioner compression lever | : (-).0188.Z |

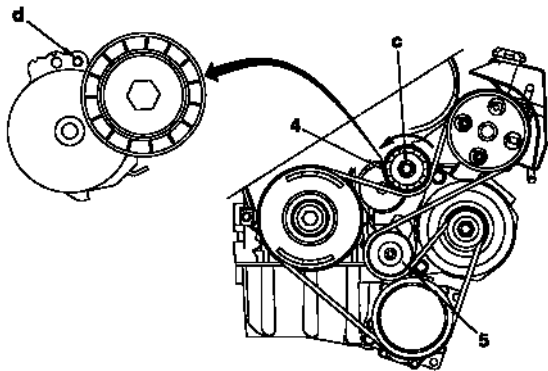
Remove
Re-use of belt

WARNING : Mark the direction the belt was fitted in case of re-use of the same belt.

- Compress the tensioner roller (2) by action at «a» (*in anti-clockwise direction*), tool [4].
- Keep the tensioner roller (2) compressed and remove the belt.

No re-use of belt.

- Compress the dynamic tensioner roller (2) by action at «a» (*anti-clockwise*), using tool [4].
- Peg using tool [2], at «b».
- Hold the dynamic tensioner roller (2) compressed and remove the belt.
- Loosen the screw (1).

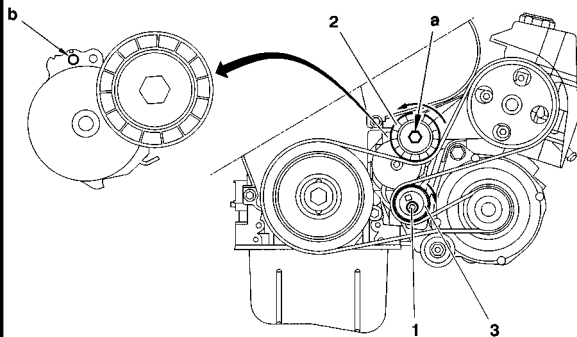


B1BP1YKD

AUXILIARY EQUIPMENT DRIVE BELT

Engines : RHY - RHZ

Without air conditioning (continued)

**Refit.****Re-used belt.**

- Compress the tensioner roller (2) by action at «a» (*anti-clockwise*), tool [4].
- Refit the belt.

WARNING : Respect the direction in which the belt is fitted.

- Remove the tool [4].

New belt.

- Refit the belt.
- Turn the eccentric roller (3), tool [1] (*clockwise*) to free the tool [2] from its pegging at «b».
- Hold the eccentric roller (3), tool [1], and tighten the screw (1) to 4.3 ± 0.4 m.daN.
- Remove the tool [2].
- Rotate the crankshaft 4 times in the direction of rotation.
- Check that it is possible to peg at «b», tool [3].
- If not possible to peg, restart the adjustment.

B1BP1YMD

AUXILIARY EQUIPMENT DRIVE BELT

Engines : RHY - RHZ

With air conditioning

TOOLS

- | | |
|---|---------------|
| [1] Belt tension adjusting square | : (-).0188 J2 |
| [2] Ø 4 mm peg | : (-).0188.Q1 |
| [3] Ø 2 mm peg | : (-).0188.Q2 |
| [4] Dynamic tensioner compression lever | : (-).0188.Z |

Remove

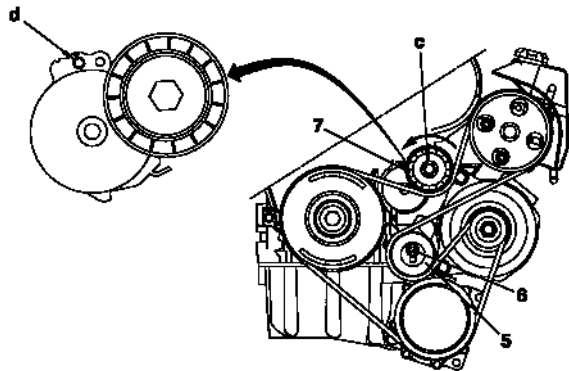
Re-use of belt

WARNING : Mark the direction the belt was fitted in case of re-use of the same belt.

- Compress the tensioner roller (7) by moving it at «c» (in anti-clockwise direction), tool [4].
- Hold the tensioner roller (7) compressed and remove the belt.

No re-use of belt.

- Compress the tensioner roller (7) by moving it at «c» (in anti-clockwise direction), tool [4].
- Peg using tool [2], at «d».
- Loosen the screw (6).
- Bring the eccentric roller (5) towards the rear.
- Tighten the screw (6) by hand.
- Remove the belt.

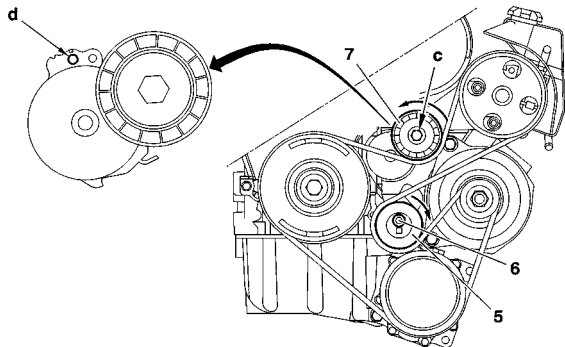


B1BP1YLD

AUXILIARY EQUIPMENT DRIVE BELT

Engines : RHY - RHZ

With air conditioning (continued)

**Refit.****Re-used belt.**

- Compress the tensioner roller (**7**) by action at «**c**» (*in anti-clockwise direction*), tool [**4**].
- Refit the belt.

WARNING : Respect the direction in which the belt is fitted.

- Remove the tool [**4**].

New belt.

- Refit the belt.
- Turn the eccentric roller (**5**), tool [**1**] (*clockwise*) to free the tool [**2**] from its pegging at «**d**».
- Hold the eccentric roller (**5**), tool [**1**], and tighten the screw (**6**) to $4.3 \pm 0.5 \text{ m.daN}$.
- Remove the tool [**2**].
- Rotate the crankshaft 4 times in the normal direction of rotation.
- Check that it is possible to peg at «**d**», tool [**3**].
- If not possible to peg, restart the adjustment..

B1BP1YND

AUXILIARY EQUIPMENT DRIVE BELT

Engine : 4HX

Without air conditioning

TOOLS

[1] Dynamic tensioner compression lever

: (-).0188.Z

[2] Ø 4 mm peg

: (-).0188.Q1

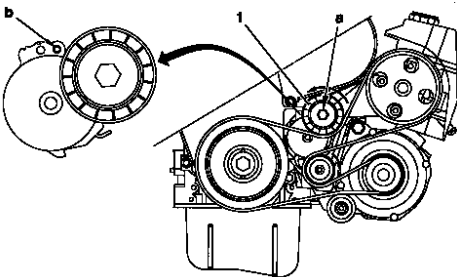
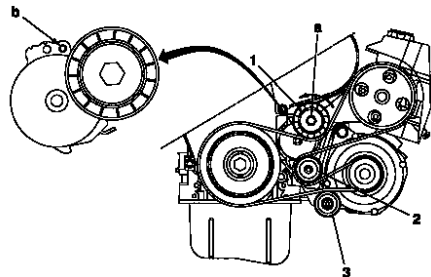
Remove.

WARNING : mark the direction of fitting in case the belt is to be reused.

- Compress the tensioner roller (1) by action at «a» (*anti-clockwise*), using tool [1].
- Peg at «b», using tool [2].
- Remove the auxiliaries drive belt.

Refit.

- Refit the auxiliaries drive belt.
- Compress the tensioner roller (1) by action at «a» (*anti-clockwise*), using tool [1].
- Remove the tool [2] at «b».



B1BP270D

B1BP272D

AUXILIARY EQUIPMENT DRIVE BELT

Engine : 4HX

With air conditioning

TOOLS

[1] Dynamic tensioner compression lever

: (-).0188.Z

[2] Ø 4 mm peg

: (-).0188.Q1

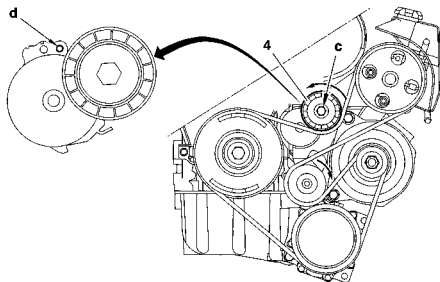
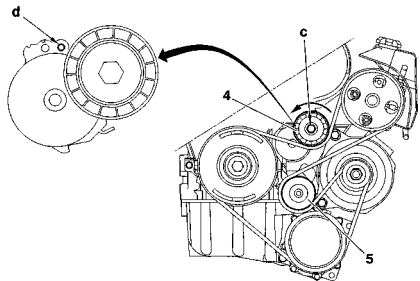
Remove.

WARNING : mark the direction of fitting in case the belt is to be reused.

- Compress the tensioner roller (4) by action at «c» (*anti-clockwise*), using tool [1].
- Peg at «d», using tool [2].
- Remove the auxiliaries drive belt.

Refit.

- Refit the auxiliaries drive belt.
- Compress the tensioner roller (4) by action at «c» (*anti-clockwise*), using tool [1].
- Remove the tool [2] at «d».



B1BP271D

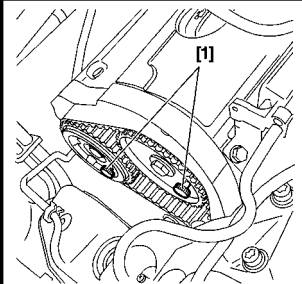
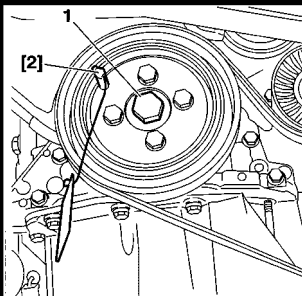
B1BP273D

CHECKING AND SETTING THE VALVE TIMING

	Petrol				Diesel		
	EW		ES		DW		
	7	10		9	10		12
	J4		J4D	J4	TD	ATED	TED4
	1.8i 16V	2.0i 16V		3.0i V6	2.0 HDi		2.2 HDi
Engine plate	6FZ	RFN	RLZ	AFX	RHY	RHZ	4HX
CITROËN C5	X	X	X	X	X	X	X
See pages	70 to 73			74 to 79	80 to 84		85 to 90

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN - RLZ



TOOLS

- | | | |
|------------------------------------|--------------|------------------|
| [1] Camshaft setting peg | : (-).0189.A | Tool kit C.0189. |
| [2] Crankshaft setting peg | : (-).0189.B | |
| [3] Belt retaining pin | : (-).0189.K | |
| [4] Adaptor for angular tightening | : 4069-T | |
| [5] Hub immobilising tool | : 6310-T | |

Checking the valve timing.

- Turn the engine by the crankshaft pinion screw (1) to bring it to pegging position.
- Peg the crankshaft, using tool [2].
- Peg the camshaft pulleys, using tools [1].

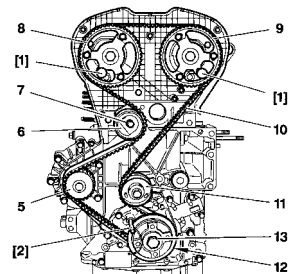
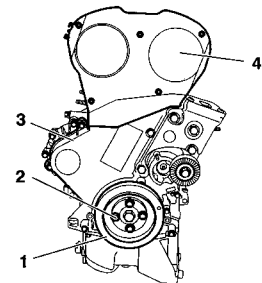
NOTE : The pegs [1] should engage without effort.

WARNING : If the pegs do not engage without effort, restart the fitting and tensioning of the timing belt (see below).

Setting the valve timing.

Remove.

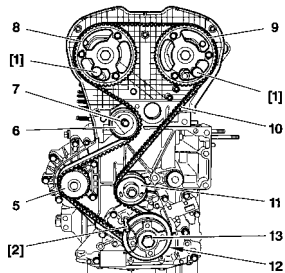
- Remove the screws (2), the pulley (1), upper valve cover (4), lower valve cover (3).
- Turn the engine by the screw (13) of the pinion (12) to bring it to pegging position.
- Peg the pulleys (8) and (9) using tools [1].
- Peg the pinion (12) using tool [2].
- Loosen the screw (7) of the tensioner roller (6).
- Turn the tensioner roller (6) (clockwise).
- Remove the timing belt (10).



B1BP22SC B1BP25PC B1BP23XC B1EP14JD

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN - RLZ



Refit (continued)

- Refit the belt (10) on the pinion (12).
- Hold the belt (10) with tool [3].
- Position the belt (10) in the following order :
 - The guide roller (11), the inlet camshaft pinion (9), the exhaust camshaft pinion (8), the water pump (5), the tensioner roller (6).

NOTE : Make sure that the belt (10) is as flush as possible with the outer face of the various pinions and rollers.

- Remove the tools [3] and [1].

Timing belt.

Adjusting the tension.

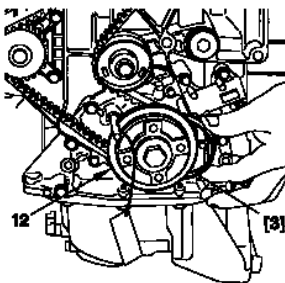
- Turn the roller (6) in the direction of the arrow «b» ; using an Allen key at «a».
- Position the index «c» in its maximum setting at «d».

IMPERATIVE : The index «c» must stand proud of the notch «f» by an angular value of 10°. If it does not, replace the tensioner roller (6) or the timing belt and the tensioner roller (6)

Bring the index «c» to its adjusting position «f» by turning the tensioner roller (6) in the direction of the arrow «e».

WARNING: The index «c» must not stand proud of the notch «f» : if it does, restart the timing belt tensioning operation.

IMPERATIVE : The tensioner roller (6) must not turn while its fixing is being tightened up. If it does, recommence the adjusting operation.

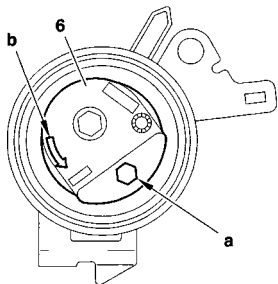


B1EP14JD

B1EP14KC

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN - RLZ

Adjusting the tension (continued).

- Tighten the screw (7) of the the tensioner roller (6) to 2.1 ± 0.2 m.daN.

IMPERATIVE : The hexagonal drive of the tensioner roller (6) must be at 15° below the level of the cylinder head gasket «g». If not, replace the tensioner roller (6) or the timing belt and the tensioner roller (6).

Refit (continued).

- Remove the tools [1] et [2].
- Turn the crankshaft **10 times** in the normal direction of rotation.

IMPERATIVE : No pressure or outside action must be brought to bear on the timing belt.

- Peg the inlet camshaft pulley, using the tool [1].

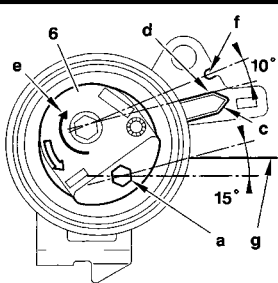
Checks.Timing belt tension.

IMPERATIVE : Check the position of the index «c», it should be facing the notch «f». If the position of index «c» is not correct, restart the adjustment of its position.

Positioning of the crankshaft.

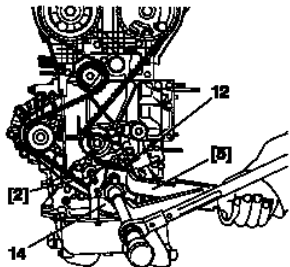
- Fit tool [2].
- As long as it is possible to fit tool [2], continue with the refit operations.

IMPERATIVE : If it is not possible to fit tool [2], reposition the flange (14).



CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN - RLZ



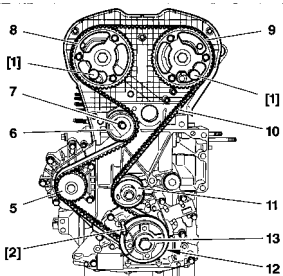
Checks (continued)

Repositioning the flange.

- Immobilise the crankshaft using tool [5].
- Loosen the screw (13).
- Release the pinion (12) of the crankshaft.
- Bring the flange (14) to the pegging position; using tool [5].
- Fit the tool [2].
- Immobilise the crankshaft using tool [5].
- Tighten screw (13) to $4 \pm 0.4 \text{ m.daN}$, then angular tighten to :
 $53^\circ \pm 4^\circ$ (Assembly with steel washer, gold in colour)
 $40^\circ \pm 4^\circ$ (Assembly with sintered washer, metallic in colour)
- using the tool [4].
- Remove tools [1]. [2] and [5].

Refit :

- The lower valve cover (3).
- The upper valve cover (4).
- The crankshaft pulley (1).
- The screws (2).
- Pretighten the screws (2) to 1.5 m.daN .
- Tighten the screws (2) to $2.1 \pm 0.5 \text{ m.daN}$.



B1EP14PC

B1BP23XC

CHECKING AND SETTING THE VALVE TIMING

Engine : XFX

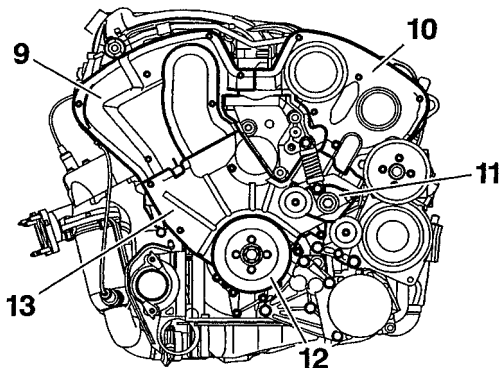
TOOLS

[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	(-).0187.F

Remove the auxiliaries drive belt (*See corresponding operation*).

Checking the valve timing setting.**Remove :**

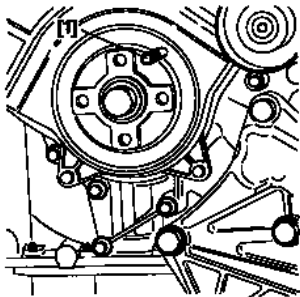
- The power steering pulley.
- The roller / dynamic tensioner assembly (11).
- The crankshaft pulley (12).
- The upper timing covers (9) and (10).
- The lower timing cover (13).



B1BP2BKC

CHECKING AND SETTING THE VALVE TIMING

Engine : XFX

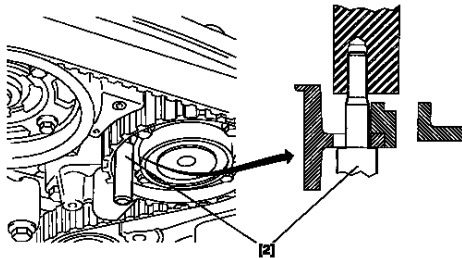


Checking the valve timing setting (continued).

- 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.

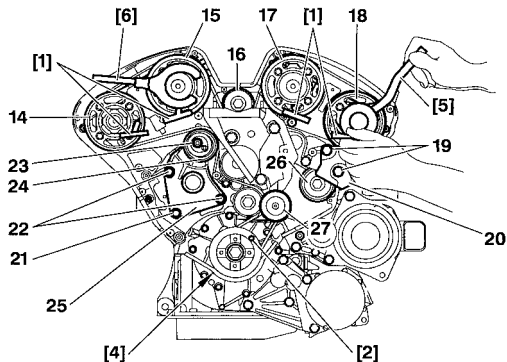


B1EP08TC

B1EP15UD

CHECKING AND SETTING THE VALVE TIMING

Engine : XFX

**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.

B1EP15VD

CHECKING AND SETTING THE VALVE TIMING

Engine : XFX

Setting the valve timing (continued)

Refit.

- Check that the camshafts and the crankshaft are correctly pegged.
- Check that the rollers and the water 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.

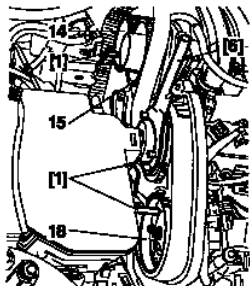
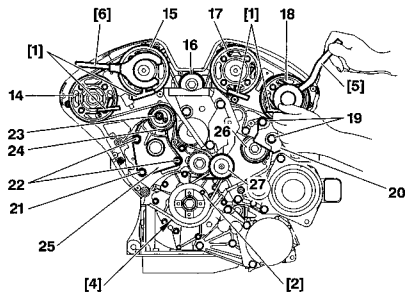
WARNING : Respect the direction of fitting of the belt : facing the timing, the inscriptions on the belt should be readable the correct way up.

- 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),
- 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 pulley (15), the camshaft pulley (14), the tensioner roller (24), the water 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.

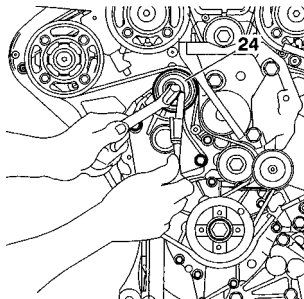
B1EP15VD

B1BP2BLC



CHECKING AND SETTING THE VALVE TIMING

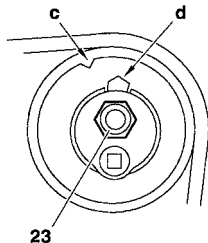
Engine : XFX



Setting the valve timing (continued)

Adjusting the timing belt tension.

- 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 $2,5 \pm 0,1$ m.daN.
- Position the belt under maximum tension ; pivot the tensioner roller (24), using a spanner (type FACOM R 161).
- **Tighten the nut (23) of the tensioner roller (24) , tighten to $1 \pm 0,1$ m.daN.**
- Check that the camshaft pinion screws are not at the end of slots.
(By loosening one screw).
- Otherwise, restart the operation of positioning the timing belt.
- Tighten at least **2 screws** per camshaft pulley to $1 \pm 0,1$ 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], and the camshaft pulleys, using tool [1].
- Untighten the nut (23) of the tensioner roller (24).
- Adjust the belt tension, pivoting the roller (24) using tool (type FACOM S.161).

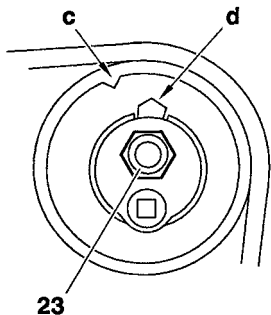


B1EP15WC

B1EP15XC

CHECKING AND SETTING THE VALVE TIMING

Engine : XFX

**Setting the valve timing (continued)**

- 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 $1 \pm 0,1$ m.daN.
- Check the position of the tensioner roller.
- Remove the tools [1], [2] and [4].
- Turn the crankshaft **2 rotations** in the direction of engine rotation.

IMPERATIVE : Never turn it back.

- Peg the crankshaft, using tool [2].
- Check the roller position (24) (the alignment of the marks «c» and «d» should be correct).
- Peg the camshaft pinions, using tool [1].
- If the peg [1] goes in, loosen the camshaft pulley screws by 45° .
- If the peg [1] does not go in, then loosen the camshaft pulley screws by 45° and manoeuvre the hub using tool [5] until pegging is achieved.
- **WARNING** : Check that the camshaft pinion pulleys are not at the end of slots. Otherwise, restart the operation of positioning the timing belt.
- Tighten the camshaft pinion screws to $1 \pm 0,1$ m.daN.
- Remove the tools [1] and [2].
- Refit the panel (20), the screws (19) and tighten to 4 ± 0 , m.daN.
- Complete the refitting of all components.

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Tools

[1]	Belt tension measuring instrument	: 4122-T
[2]	Tension lever	: (-).188.J2
[3]	Engine flywheel peg	: (-).188.X
[4]	Belt retaining pin	: (-).0188.K
[5]	Camshaft pinion peg	: (-).0188.M
[6]	Engine flywheel lock	: (-).0188.F
[7]	Set of blocking plugs	: (-).0188.T
[8]	Crankshaft pulley extractor	: (-).0188.P

Checking the setting of the valve timing.

Peg :

- The engine flywheel, using tool [3]. *(From under the vehicle).*
- The camshaft, using tool [5].

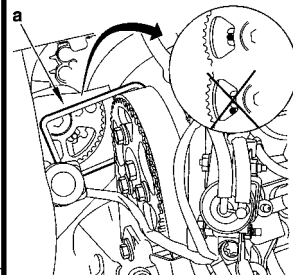
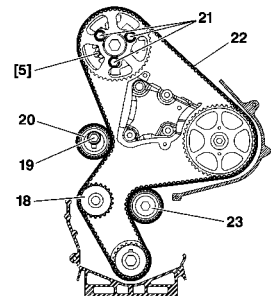
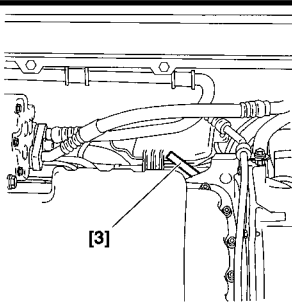
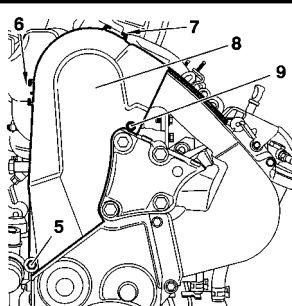
WARNING : On removing screws (6), (7), (9), and (5) of the timing cover, refit the screw (5) equipped with a spacer (thickness : 17 mm).

Tighten to $1,5 \pm 0,1$ m.daN.

(The screw (5) is one of the screws fixing and sealing the water pump).

WARNING : Should it be impossible to peg the camshaft, check that the offset between the camshaft pinion hole and the pegging hole is not more than 1 mm, with the help of a mirror «a» and a $\varnothing 7$ mm screw.

IMPERATIVE : If pegging is impossible, restart the adjusting.
(See corresponding operation).



B1EP14AC

B1BP282C

B1EP152D

B1BP1YSC

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Setting the valve timing.

Peg :

- The engine flywheel, tool [3]. *(From under the vehicle).*
- The camshaft, tool [5].

Loosen :

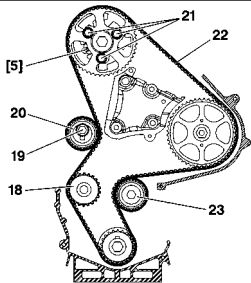
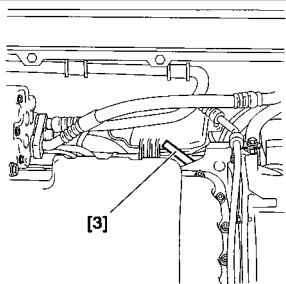
- The three screws (21).
- The screw (19) of the tensioner roller (20).
- Remove the timing belt (22).

Checks.

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

Check that :

- The rollers (20), (23) and the water pump turn freely *(without play or tightness).*
- There are no traces of oil *(on camshaft or crankshaft).*
- There are no leaks of coolant fluid *(from water pump).*
- Replace defective components *(if necessary).*



B1BP282C B1EP152D

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Setting the valve timing (continued).

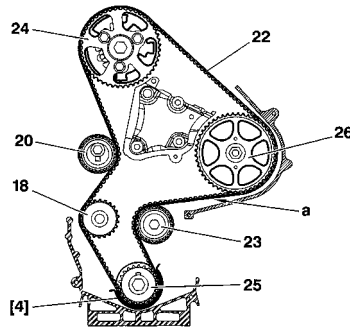
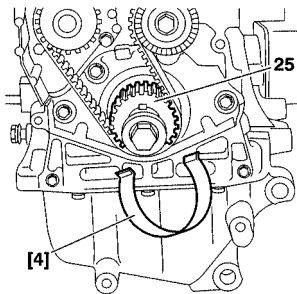
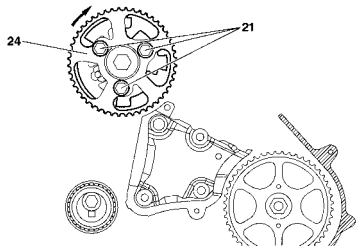
- Retighten the screws (21) by hand.
- Turn the pinion (24) (clockwise) to the bottom of the buttonhole.
- Refit the belt on the crankshaft (25).
- Hold the belt, using tool [4].

Reposition the timing belt, keeping the belt tight at «a», in the following order :

- Guide roller (23).
- Fuel high pressure pump pinion (26).
- Camshaft pinion (24).
- Water pump pinion (18).
- Tensioner roller (20).

NOTE : If needed, slightly turn the pinion (24) anti-clockwise (*not by more than one tooth*).

- Remove the tool [4].



B1EP153D

B1EP154C

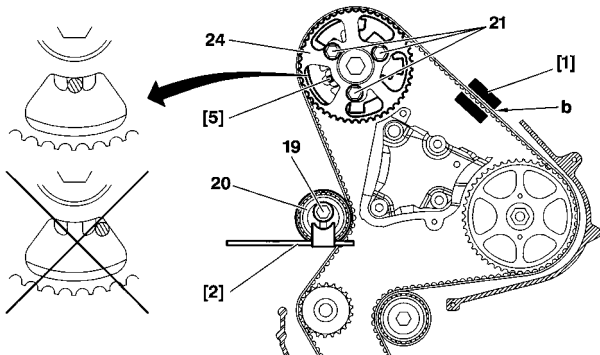
B1EP155D

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Setting the valve timing (continued).

- Position tool [1] on the belt at «b».
- Turn the roller (20) (*anti-clockwise*) using tool [2] to attain a tension of :
 98 ± 2 SEEM units.
- Tighten the screw of the roller (19), tighten to **2.5 m.daN.**
- Remove one screw (21) from the pinion (24).
(*to check that the screws are not against the end of the buttonhole*).
- Tighten the screws (21) to **2.m daN.**
- Remove tools [1], [2], [3] and [5].
- Rotate the crankshaft **8 times** (*normal direction of rotation*).
- Fit the tool [3].
- Loosen screws (21).
- Fit tool [5].
- Loosen screw (19) (*to free the roller*).
- Fit tool [1].
- Turn the roller (20) (*anti-clockwise*), tool [2], to attain a tension of :
 54 ± 2 SEEM units.



B1EP156D

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Setting the valve timing (continued).

Tighten :

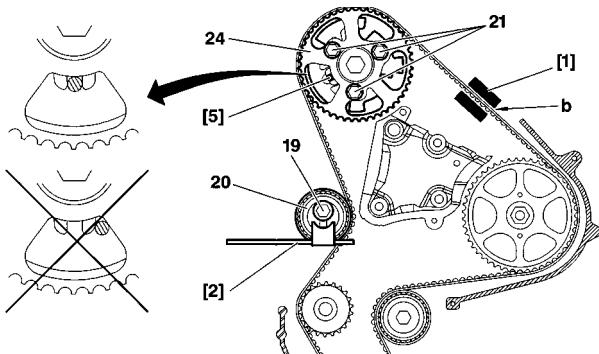
- The screw of the roller (19) to 2.5 ± 0.2 m.daN.
- The screws (21) to $2. \pm 0.2$ m.daN.
- Remove the tool [1].
- Refit the tool [1].
- Tension value should be :

 54 ± 3 SEEM units.**IMPERATIVE :** If value is incorrect, restart the operation

- Remove tools [1], [3] and [5].
- Rotate the crankshaft **2 times** (*normal direction of rotation*).
- Fit the tool [3].

WARNING : Should it be impossible to peg the camshaft, check that the offset between the camshaft pinion hole and the pegging hole is not more than 1 mm.
In the case of an incorrect value, recommence the operation.

- Remove the tool [3].
- Complete the refitting of components.



B1EP156D

CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX

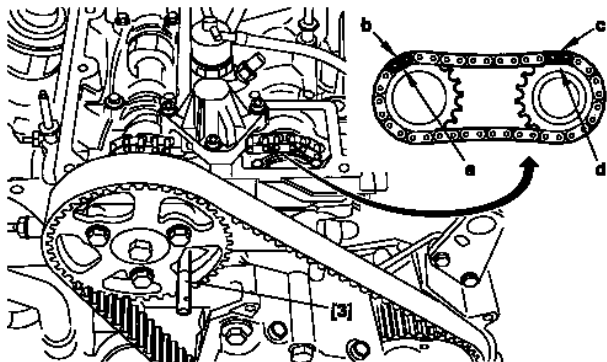
TOOLS

[1] Belt tension measuring instrument	: 4122-T
[2] Engine flywheel peg	: (-).0188.X.
[3] Tension lever	: (-).0188.Y.
[4] Belt compression spring	: (-).0188.K.
[5] Camshaft pinion peg	: (-).0188.M.
[6] Engine flywheel lock	: (-).0188.F.
[7] Set of blocking plugs	: (-).0188.T.

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

Checking the setting of the valve timing.

- Turn the crankshaft (*normal direction of rotation*) and line up the black markings on the chain **(b)** and **(c)** with the teeth marked **(a)** and **(d)** of the camshaft drive pinions (**40 turns max. of the camshaft**).



CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX

Checking the setting of the valve timing (continued).

IMPERATIVE : If it is impossible to line up the marks on the chain and on the camshaft drive pinions, restart the camshaft setting.
(See operation for removing and refitting camshafts).

- If the marks on the chains and pinions are coinciding, continue the checking operations.

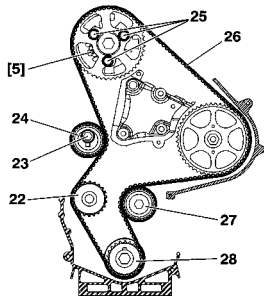
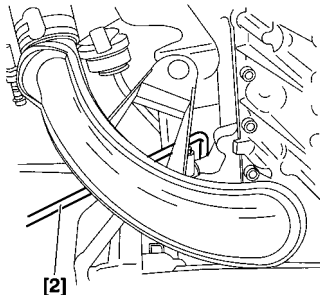
Peg :

- The crankshaft, using tool [3].
- The camshaft pinion, using tool [5]

IMPERATIVE : Should it be impossible to peg the camshaft, check that the offset between the camshaft pinion hole and the pegging hole is not more than 1 mm (use a screw 7 mm in dia.).

If the offset is more than 1 mm, restart the setting of the valve timing
(See corresponding operation).

- Remove the tools [3] and [5].

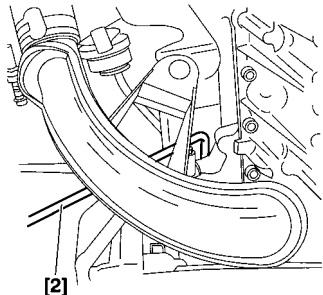


B1BP298C

B1EP15AD

CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX



Setting the valve timing.

- Turn the crankshaft to bring camshaft to its pegging point.
- Peg the crankshaft, using tool [3].
- Peg the camshaft, using tool [5].

Untighten :

- The three screws (25).
- The screw (23) of the tensioner roller (24).
- Remove the timing belt (26).

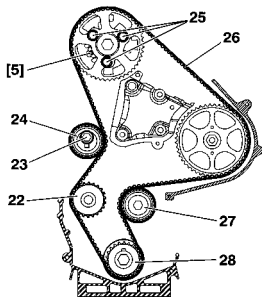
Checks.

IMPERATIVE : just prior to refitting, carry out the checks below:

Check :

- That the rollers (24) and (27) and the water pump (22) are turning freely. *(Without play and without tightness).*
- Absence of traces of oil leaks *(Crankshaft and camshaft sealing rings).*
- Absence of leaks of coolant fluid *(Water pump).*

NOTE : Replace defective components *(If necessary).*



B1BP298C

B1EP15AD

CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX

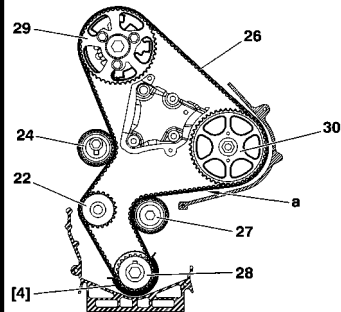
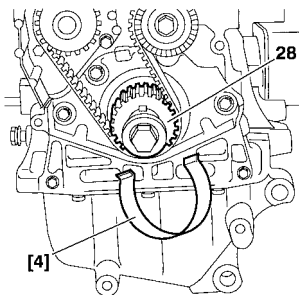
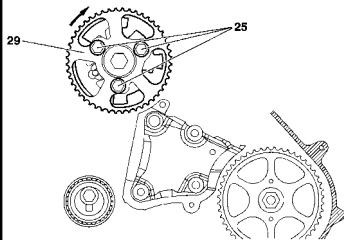
Setting the valve timing (continued).

Refit

- Retighten the screws (25) by hand.
- Turn the pinion (29) (clockwise) to the bottom of the buttonhole.
- Refit the belt on the crankshaft (28).
- Hold the belt, using tool [4].
- Reposition the timing belt, keeping the belt tight at «a», in the following order :
 - Guide roller (27).
 - Fuel high pressure pump pinion (30).
 - Camshaft pinion (29).
 - Water pump pinion (22).
 - Tensioner roller (24).

NOTE : If needed, slightly turn the pinion (29) anti-clockwise (*not by more than one tooth*).

- Remove the tool [4].



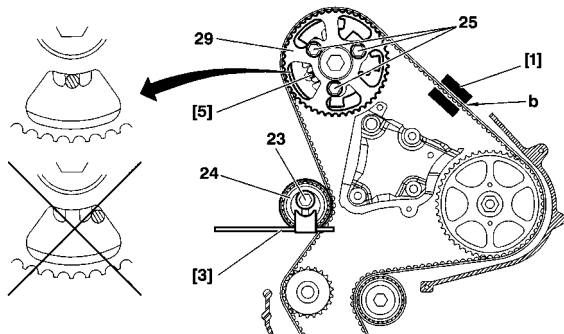
B1EP15BD

B1EP15CC

B1EP15DD

CHECKING AND SETTING THE VALVE TIMING

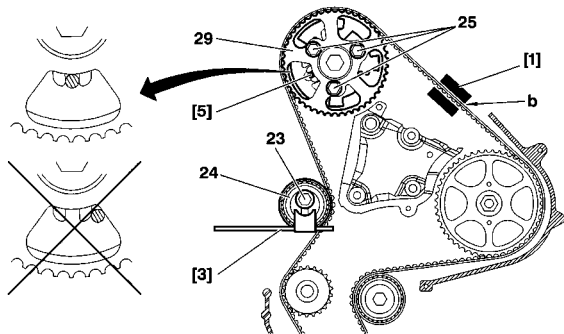
Engine : 4HX

**Setting the valve timing (continued)**

- Position tool [1] on the belt at «b».
- Turn the tensioner roller (24) (anti-clockwise) using tool [2] to attain a tension of :
106 SEEM units.
- Tighten screw (23) of the tensioner roller, tighten to **2.5 m.daN.**
- Remove one screw (25) from the pinion (29).
(to check that the screws are not against the end of the buttonhole).
- Tighten the screws (25) to **2 m.daN.**
- Remove tools [1], [2], [3] and [5].
- Rotate the crankshaft **8 times** (normal direction of rotation).
- Fit the tool [3].
- Loosen screws (25).
- Fit tool [5].
- Loosen screw (23) (to free the tensioner roller (24)).
- Fit tool [1].
- Turn the tensioner roller (24) (anti-clockwise), using tool [2], to attain a tension of :
51 SEEM units.
- Tighten :
 - The screw (23) of the tensioner roller (24) to **2.5 ± 0.2 m.daN.**
 - The screws (25) to **2 ± 0.2 m.daN.**

CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX



Setting the valve timing (continued)

- Remove the tool [1].
- Refit the tool [1].
- Tension value should be :
51 ± 3 SEEM units.

IMPERATIVE : If value is incorrect, restart the operation.

- Remove tools [1], [2] and [5].
- Rotate the crankshaft **2 times** (*normal direction of rotation*).
- Fit the tool [3].

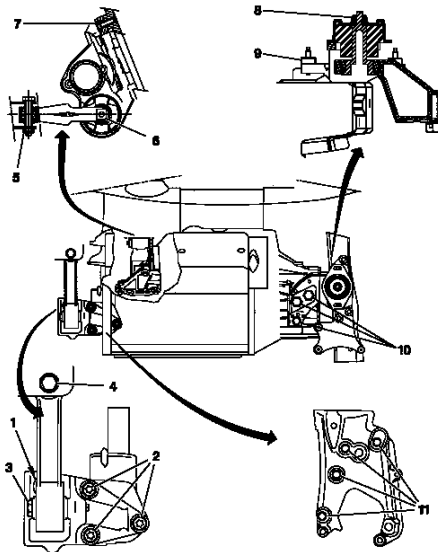
IMPERATIVE : Should it be impossible to peg the camshaft, check that the offset between the camshaft pinion hole and the pegging hole is not more than 1 mm. In the case of an incorrect value, recommence the operation.

- Remove the tool [2].
- Complete the refitting of components.

B1EP15ED

SPECIAL FEATURES : POWER UNIT SUSPENSION

Engines : 6FZ-RFN- RLZ

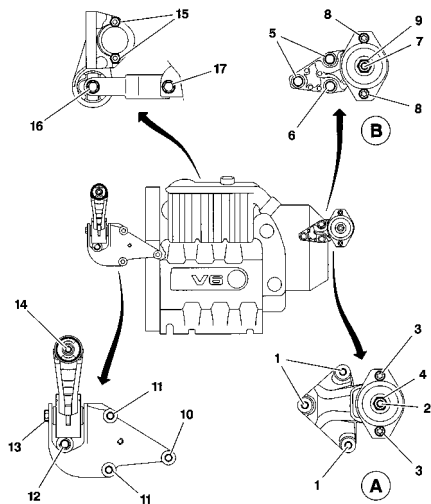


Tightening torques (m.daN)

- (1) 4.5 ± 0.5
- (2) 6.1 ± 0.6
- (3) 5 ± 0.5
- (4) 5 ± 0.5
- (5) 5 ± 0.5
- (6) 5 ± 0.5
- (7) 4.5 ± 0.5
- (8) 6.5 ± 0.6
- (9) 2.7 ± 0.3
- (10) 4.5 ± 0.5
- (11) 4.5 ± 0.5

SPECIAL FEATURES : POWER UNIT SUSPENSION

Engine : XFX

**A - Manual gearbox: (LH mounting):**

- | | |
|----------|---------------|
| (1) Bolt | 4.5 ± 0.5 |
| (2) Pin | 5 ± 0.5 |
| (3) Bolt | 3 ± 0.3 |
| (4) Nut | 6.5 ± 0.6 |

B - Automatic gearbox:

- | | |
|----------|---------------|
| (5) Bolt | 6 ± 0.6 |
| (6) Bolt | 5.5 ± 0.5 |
| (7) Pin | 0.8 ± 0.1 |
| (8) Bolt | 2.7 ± 0.3 |
| (9) Nut | 2.8 ± 0.1 |

Upper RH engine mounting:

- | | |
|-----------|---------------|
| (10) Bolt | 6.1 ± 0.6 |
| (11) Bolt | 6.1 ± 0.6 |
| (12) Bolt | 4.5 ± 0.5 |
| (13) Nut | 5 ± 0.5 |
| (14) Nut | 5 ± 0.5 |

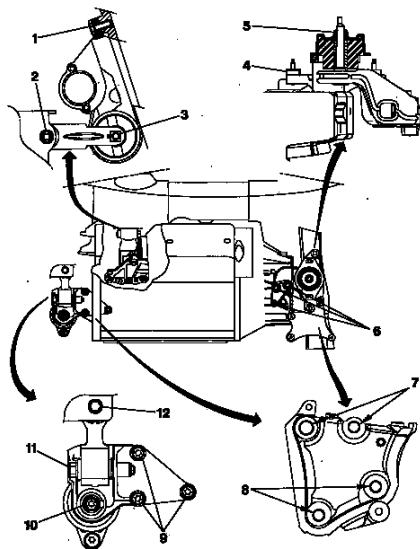
Lower RH engine mounting - Torque reaction rod:

- | | |
|-----------|-------------|
| (15) Nut | 1 ± 0.1 |
| (16) Bolt | 5 ± 0.5 |
| (17) Bolt | 5 ± 0.5 |

B1BP27GP

SPECIAL FEATURES : POWER UNIT SUSPENSION

Engine : RHY



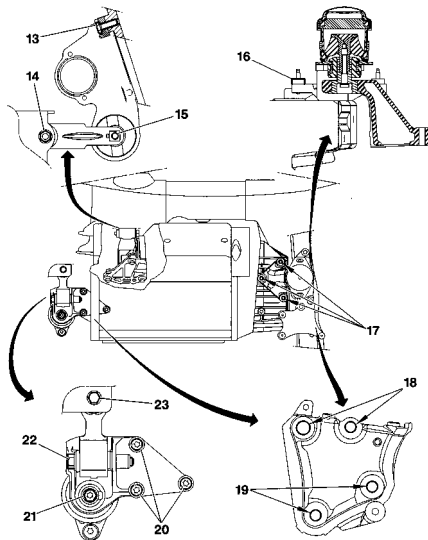
Tightening torques (m.daN)

(1)	4.5 ± 0.5
(2)	5 ± 0.5
(3)	5 ± 0.5
(4)	2.7 ± 0.3
(5)	6.5 ± 0.6
(6)	4.5 ± 0.5
(7)	2.1 ± 0.2
(8)	4.5 ± 0.5
(9)	6.1 ± 0.6
(10)	4.5 ± 0.5
(11)	5 ± 0.5
(12)	5 ± 0.5

B1BP27KP

SPECIAL FEATURES : POWER UNIT SUSPENSION

Engine : RHZ



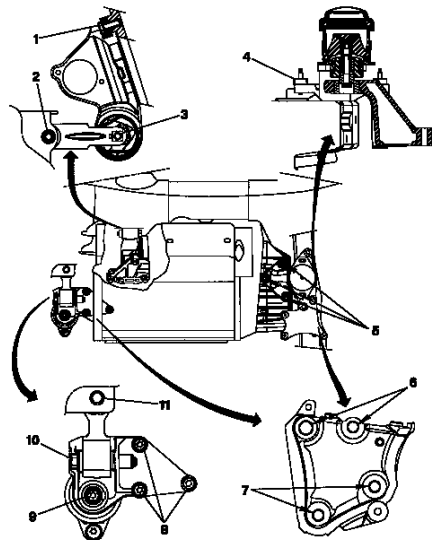
Tightening torques (m.daN)

(13)	4.5 ± 0.5
(14)	5 ± 0.5
(15)	5 ± 0.5
(16)	2.7 ± 0.3
(17)	4.5 ± 0.5
(18)	2.1 ± 0.2
(19)	4.5 ± 0.5
(20)	$61. \pm 0.6$
(21)	4.5 ± 0.5
(22)	5 ± 0.5
(23)	5 ± 0.5

B1BP27LP

SPECIAL FEATURES : POWER UNIT SUSPENSION

Engine : 4HX



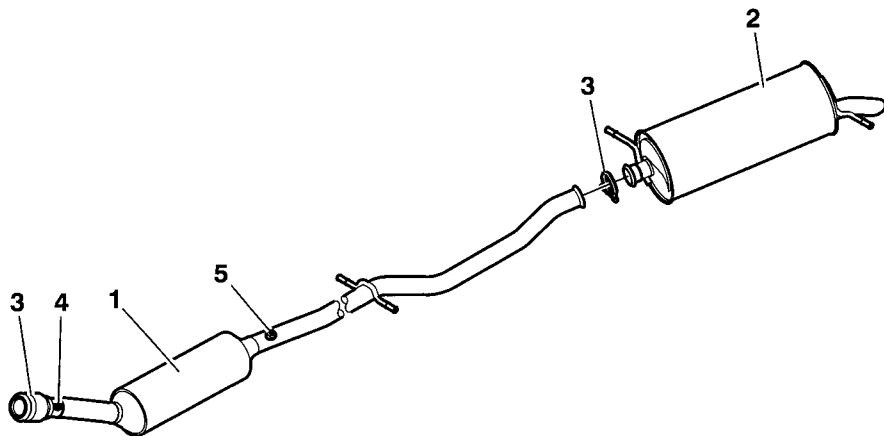
Tightening torques (m.daN)

(1)	4.5 ± 0.5
(2)	5 ± 0.5
(3)	5 ± 0.5
(4)	2.7 ± 0.3
(5)	4.5 ± 0.5
(6)	2.1 ± 0.2
(7)	4.5 ± 0.5
(8)	6.1 ± 0.6
(9)	4.5 ± 0.5
(10)	5 ± 0.5
(11)	5 ± 0.5

B1BP284P

EXHAUST SPECIFICATIONS

Engines : 6FZ - RFN



B1JP02RD

Tightening torques (m.daN)

(3) Collars 2.5 ± 0.3

6FZ

RLZ

(4) Oxygen sensor

 4.5 ± 0.5 5 ± 1

(5) Oxygen sensor

 4.5 ± 0.5 5 ± 1

Engines

Catalytic converter (1)

Rear silencer (2)

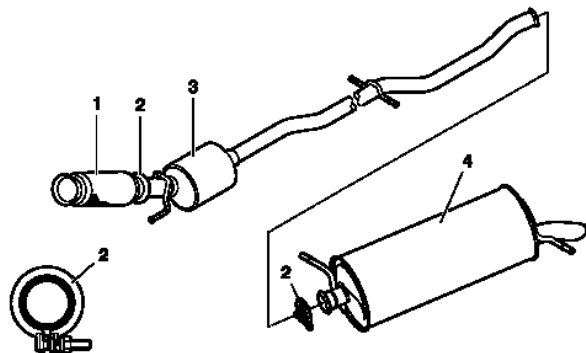
6FZ - RFN

TR PSA K183

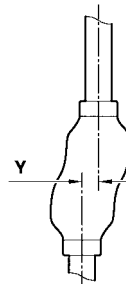
PSA K 4156

EXHAUST SPECIFICATIONS

Engine : RLZ



B1JP02HD



B1JP02JC

Tightening torques (m.daN).

(2) Collars

 2.5 ± 0.3

Repair

Respect the precautions to be taken when operating on a vehicle.

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

Do not distort the flexible pipe by more than **20°** angular (X), **20mm** axial, **25 mm** shear (Y) (flexible pipe not fitted).

Do not distort the flexible pipe by more than **3°** angular (X), **0 mm** axial, **3 mm** shear (Y) (flexible pipe in place).

WARNING : Non-respect for these precautions will result in a reduction in the lifetime of the flexible pipe. It is thus essential to disconnect or remove the exhaust line in any operation necessitating the lifting of the power unit.

Engine

RLZ

Front flexible pipe (1)

Catalytic converter (3)

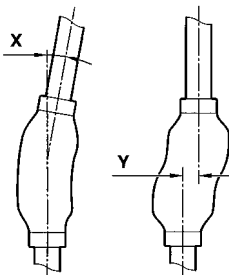
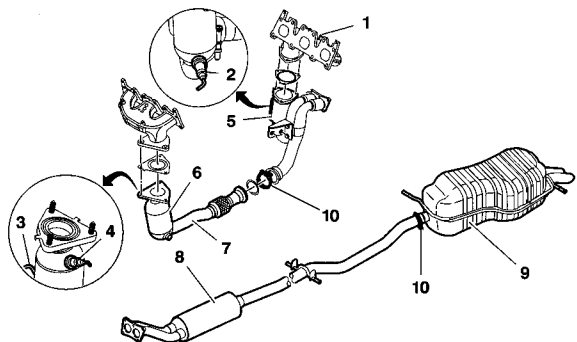
PSA K185

Rear silencer (4)

PSA 4157

EXHAUST SPECIFICATIONS

Engine : XFX



Tightening torques (m.daN)

(10) Collars

 2.5 ± 0.3

Repair

Respect the precautions to be taken when operating on a vehicle.

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

Do not distort the flexible pipe by more than **20°** angular (X), **20mm** axial, **25 mm** shear (Y) (*flexible pipe not fitted*).

Do not distort the flexible pipe by more than **3°** angular (X), **0 mm** axial, **3 mm** shear (Y) (*flexible pipe in place*).

WARNING : Non-respect for these precautions will result in a reduction in the lifetime of the flexible pipe. It is thus essential to disconnect or remove the exhaust line in any operation necessitating the lifting of the power unit..

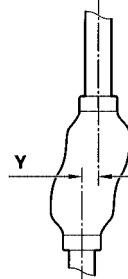
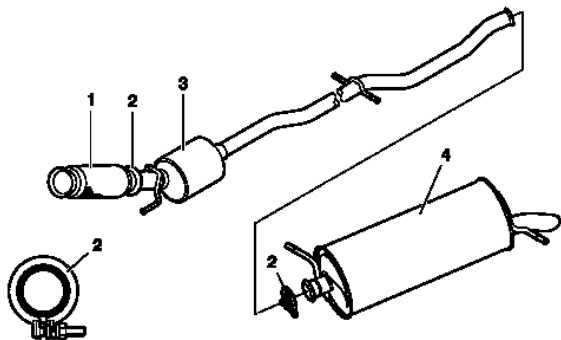
B1JP02MD

B1JP02JC

Oxygen sensor									
Engine	Upstream Rear (1)	Downstr. Rear (2)	Downstr. Front (3)	Upstream Front (4)	Pre-catalyser Rear (5)	Pre-catalyser Front (6)	Flexible Pipe (7)	Catal. conv. (8)	Rear Silencer (9)
XFX	A 258 040 232				TR PSA K 160	TR PSA K 159		TRPSAK 175	PSA 4143
Tightening	5 ± 1 m.daN				3.3 ± 0.5 m.daN			3.3 ± 0.5 mdaN	

EXHAUST SPECIFICATIONS

Engines : RHY- RHZ



Tightening torques (m.daN)

(2) Collars

2.5 ± 0.3

Repair

Respect the precautions to be taken when operating on a vehicle.

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

Do not distort the flexible pipe by more than **20°** angular (X), **20mm** axial, **25 mm** shear (Y) (flexible pipe not fitted).

Do not distort the flexible pipe by more than **3°** angular (X), **0 mm** axial, **3 mm** shear (Y) (flexible pipe in place).

WARNING : Non-respect for these precautions will result in a reduction in the lifetime of the flexible pipe. It is thus essential to disconnect or remove the exhaust line in any operation necessitating the lifting of the power unit.

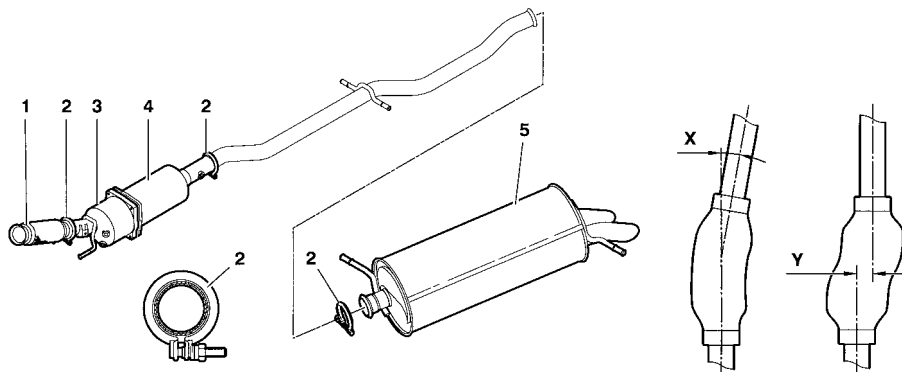
B1JP02HD

B1JP02JC

Engines	Front pipe (1)	Catalytic converter (3)	Rear silencer (4)
RHY - RHZ	Flexible	PSA K 185	PSA 4157

EXHAUST SPECIFICATIONS

Engine : 4HX



Tightening torques (m.daN)

(2) Collars

 2.5 ± 0.3

Repair

Respect the precautions to be taken when operating on a vehicle.

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

Do not distort the flexible pipe by more than **20°** angular **(X)**, **20mm** axial, **25 mm** shear **(Y)** (*flexible pipe not fitted*).

Do not distort the flexible pipe by more than **3°** angular **(X)**, **0 mm** axial, **3 mm** shear **(Y)** (*flexible pipe in place*).

WARNING : Non-respect for these precautions will result in a reduction in the lifetime of the flexible pipe. It is thus essential to disconnect or remove the exhaust line in any operation necessitating the lifting of the power unit.

Engine	Front pipe (1)	Pre-catalyser (3)	Particle filter (4)	Rear silencer (5)
4HX	Flexible	PSA K 186	PSA F 002	PSA 4158

COOLING SYSTEM SPECIFICATIONS

Vehicle without air conditioning

Engines : 6FZ – RFN - RLZ - RHY - RHZ

	1.8i 16V	2.0i 16V	3.0i 16V	2.0 HDi	
Engine plate	6FZ	RFN	RLZ	RHY	RHZ
Capacity	8.8 - 9.3 (*)			8.8	
Radiator surface	21dm²				
Pressurisation	1.4 bar				
Opening of thermostatic regulator	89°C			83°C	
Cooling fan	1x250W (1-speed)			1x350 W (2-speed)	
1st speed	91°C			97°C	
2nd speed				105°C	
Warning	118°C				
Post-cooling	6 mn (Max.)				

(*) = With automatic gearbox

COOLING SYSTEM SPECIFICATIONS

Vehicle with air conditioning

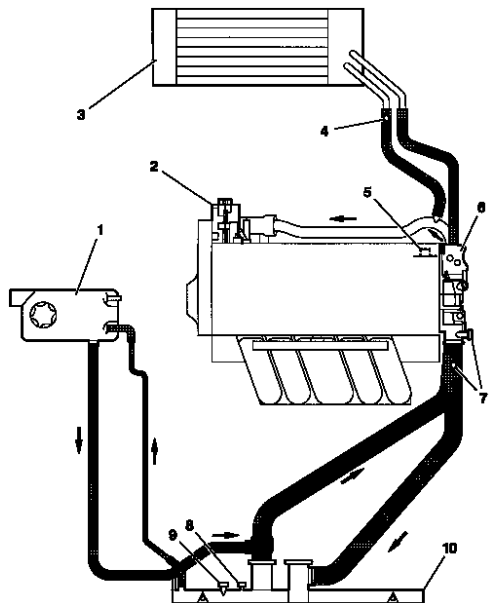
Engines : 6FZ - RFN - RLZ - XFX - RHY - RHZ - 4HX

	1.8i 16V	2.0i 16V	2.0 HPi	3.0i 16V	2.0 HDi		2.2 HDi
Engine plate	6FZ	RFN	RLZ	XFX	RHY	RHZ	4HX
Capacity	8.8 - 9.3 (*)		8.8	14	10.7 (*)		
Radiator surface	27 dm²				21 dm²		
Pressurisation	1.4 bar						
Opening of thermostatic regulator	89°C			78°C	89°C		
Cooling fan	1x500 W 3-speed						
1st speed	1 = 97°C			10 Bars			
2nd speed	2 = 101°C			17 Bars			
3rd speed	3 = 105°C			22 Bars			
Aircon cut-out	115°C			112°C	115°C		
Warning	118°C						
Post-cooling	6 minutes (Max.)						

(*) = With automatic gearbox

COOLING SYSTEM SPECIFICATIONS

Engines : 6FZ - RFN

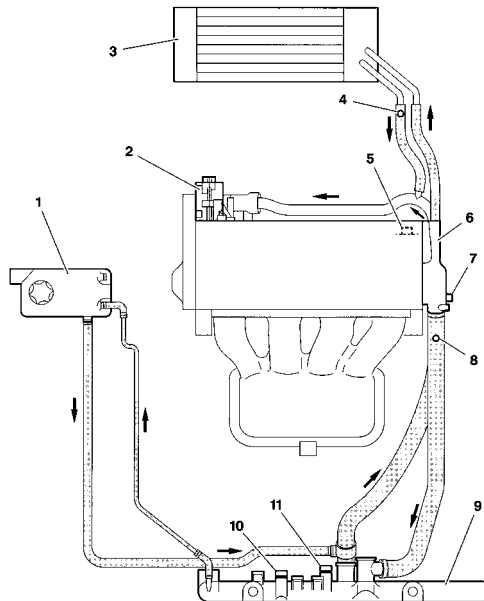


- (1) Venting chamber.
- (2) Water pump.
- (3) Heater matrix.
- (4) Bleed screw, heater matrix.
- (5) Drain screw, cylinder cover.
- (6) Water outlet housing.
- (7) Bleed screw, water outlet housing.
- (8) Drain screw, cooling radiator.
- (9) Plug, cooling radiator.
- (10) Cooling radiator.

Thermostat tightening : 1.7 ± 0.2 m.daN

COOLING SYSTEM SPECIFICATIONS

Engine : RLZ



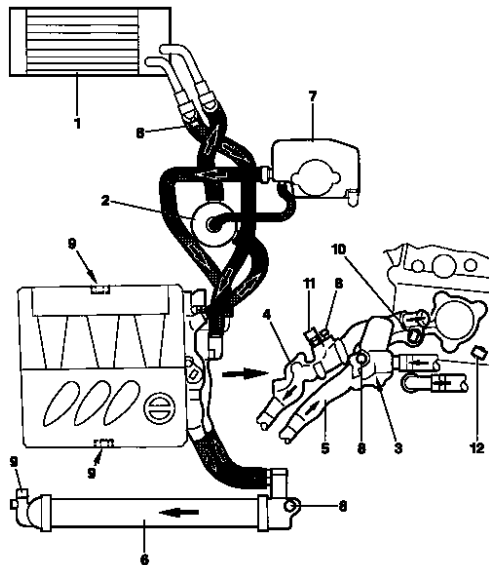
- (1) Venting chamber
- (2) Water pump
- (3) Heater matrix
- (4).Bleed screw, heater matrix
- (5) Drain screw, cylinder block
- (6) Coolant outlet housing
- (7) Bleed screw, coolant outlet housing
- (8) Bleed screw, top hose.
- (9) Cooling radiator.
- (10) Drain screw, cooling radiator
- (11) Drain screw, cooling radiator.

Thermostat tightening : $1.7 \pm 0.2 \text{m.daN}$

B1GP08JP

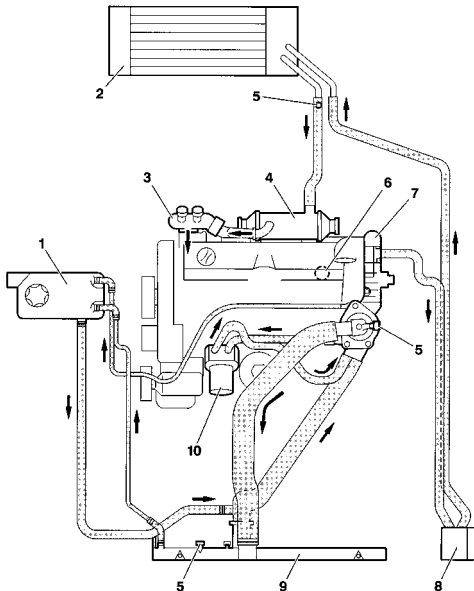
COOLING SYSTEM SPECIFICATIONS

Engine : XFX



- (1) Heater matrix
 - (2) Venting chamber
 - (3) Thermostat.
 - (4) Coolant outlet housing
 - (5) Coolant inlet housing
 - (6) Engine cooling radiator
 - (7) Venting chamber
 - (8) Bleed screw
 - (9) Water / oil exchanger
 - (10) Thermostat
 - (11) Thermostat (*Coolant outlet housing*)
 - (12) Thermal switch
- (10). (11) and (12) : Tightening 1.7 ± 0.4 m.daN

COOLING SYSTEM SPECIFICATIONS



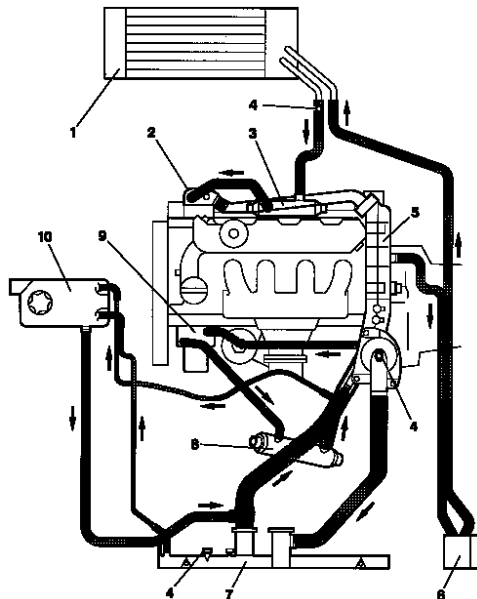
B1GP08EP

Engines : RHY-RHZ

- (1) Venting chamber
- (2) Heater matrix
- (3) Coolant inlet housing
- (4) Exhaust gas / coolant heat exchanger
- (5) Bleed screw
- (6) Cylinder block drain plug
- (7) Coolant outlet housing
- (8) Additional heating (*Option or according to version*)
- (9) Radiator
- (10) Coolant / oil heat exchanger

COOLING SYSTEM SPECIFICATIONS

Engine : 4HX



- (10) Heater matrix
- (2) Coolant inlet housing.
- (3) Exhaust gas / coolant heat exchanger
- (4) Bleed screw
- (5) Coolant outlet housing.
- (6) Additional heating *(Option or according to version)*
- (7) Radiator
- (8) Air / coolant heat exchanger
- (9) Coolant / oil heat exchanger
- (10) Venting chamber

B1GP08HP

CHECKING THE OIL PRESSURE

Tools Tool kit 4103-T	Petrol engines							
	1.8i 16V		2.0i 16V		2.0 HPi		3.0i V6	
Engine type	6FZ		RFN		RLZ		XFX	
Temperature (°C)	90°C							
Pressure (Bars)	1.5	5	1.5	5	1.5	5	7	8
Rpm	1000	3000	1000	3000	1000	3000	900	3000
	Diesel engines							
	2.0 HDi					2.2 HDi		
Engine type	RHY			RHZ			4HX	
Temperature (°C)	90°							
Pressure (Bars)	2	4	2	4	2	4	2	4
Rpm	1000	2000	1000	2000	1000	2000	1000	2000

ESSENTIAL : Respect the safety and cleanliness recommendations.

OIL FILTERS

To be read together with the Petrol and Diesel correspondence tables

		6FZ	RFN	RLZ	AFX	RHY	RHZ	4HX
PURFLUX	LS 304	X	X	X		X	X	X
	LS 880				X			

		Dia. (mm)	Height (mm)
Specifications	LS 304	76	89
	LS 880		

FILLING AND BLEEDING THE COOLING CIRCUIT

TOOLS

- [1] Filling cylinder
[2] Adaptor for filling cylinder

- : 4520-T
: 4222-T.

ESSENTIAL : Respect the safety and cleanliness recommendations.

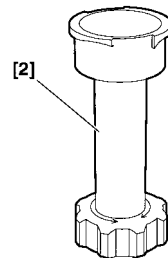
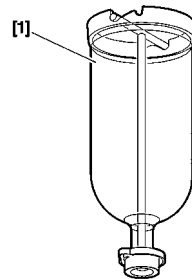
- The draining and refilling operations can be carried out by means of a WINN'S coolant replacement apparatus or similar; **it is essential to follow the instructions when using this apparatus.**

Filling and bleeding

- Fit the cylinder adaptor [2] 4222-T and the filling cylinder [1] 4520 -T.
- Use the coolant to ensure protection between - 15°C and - 37°C.
- Slowly fill the system.

NOTE : Keep the cylinder filled up (*visible level*).

- Close each bleed screw as soon as the coolant flows without air bubbles.
- Start the engine : Engine speed **1500 rpm**.
- Maintain this speed until the third cooling cycle (*cooling fans have cut in and cut out*).
- Stop the engine and allow it to cool down.
- Remove the filling cylinder [1] 4520-T and the adaptor [2] 4222-T.
- Top up the system to the **maximum** mark, with the engine cold.
- Refit the filler cap.



B1GP00AC

E5AP1GNC

IDLING - ANTI-POLLUTION								
Vehicles		Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content	
					Manual gearbox	Auto. gearbox: N gear engaged	CO	CO2
C5	1.8 i 16V	6FZ	L4	SAGEM S2000	7000		< 0.5	> 9
			IF/L5					
	2.0 i 16V	RFN	IF/L5	MAGNETTI MARELLI 48P	900			
	2.0 i 16V	RLZ	L4	SIEMENS SIRIUS 81	900			
	3.0 i V6	XFZ	IF/L5	BOSCH ME 7.4.6.	650	600		

INJECTION

		PETROL INJECTION			
		Petrol			
		1.8i 16V	2.0i 16V		3.0i V6
INJECTION	Engine type	6FZ	RFN	RLZ	XFX
	Emission standard	L4 - IF/L5	IF/L5	L4	IF/L5
	Make Injection type	SAGEM S2000	MAGNETTI MARELLI MM. 48P	SIEMENS SIRIUS 81	BOSCH ME 7.4.6.
	Fuel pressure (bars)	3.5	3.5	5	3.5
	Overspeed cut-off (rpm)				6520
	Injection cut-in during deceleration (rpm)				1100
	Injector resistive value (ohms)	12.2	14.5	1.88	16
	Engine coolant temperature sensor resistive value (ohms)	3 800 at 10°C	2500 at 20° C	800 at 50°C	230 at 90° C
	Idling actuator or stepper motor resistive value (ohms)	Stepper motor : 53			
	Air temperature sensor resistive value (ohms)	3 800 at 10°C	2500 at 20° C	800 at 50°C	230 at 90° C

EMISSION STANDARDS							
STANDARD			APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
ECE R 15.04	K K'	15.04 15.04	Petrol Diesel	Private vehicles : > 2 litres • new cyl. < 2 litres • existing cyl. < 2 litres	→ 06/89 → 06/92 → 12/92	Brussels directive 83/351 → except special derogations for certain private vehicles cyl. > 2 litres	With oxygen sensor, without catalytic converter
				Utility vehicles : All Types	→ 10/89 en cours	→ Utility vehicle limits = private vehicle limits increased by 25 % → For private vehicles and utility vehicles in major export	
ECE R 15.05	W vp	15.05	Petrol	Private vehicles : > 2 litres • new models • existing models	01/10/88 → 01/10/89 →	→ Brussels directive 88/76 «Luxembourg Accords» → Replaced by 89/458 + 91/441	

INJECTION

EMISSION STANDARDS							
STANDARD			APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
ECE R 15.05	W vu	15.05	Petrol Diesel	Utility vehicles : All Types <ul style="list-style-type: none">• new models• existing models	01/10/88 → 01/10/89 → → 10/94	Brussels directives 88/76 and 88/436 → Utility vehicle limits = private vehicle limits of Brussels directive 88/436 7 classes of limits by vehicle weight	
US 83	Z	US 83	Petrol Diesel	Private vehicles : <ul style="list-style-type: none">• certain non-EEC European countries• certain Export countries	Current	→ Adoption of U.S. standard	With oxygen sensor and catalytic converter for petrol vehicles

EMISSION STANDARDS							
STANDARD			APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
US 87	Y	US 87	Diesel	Private vehicles : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of U.S. standard	With catalytic converter and EGR
US 93	Y2	US 93	Petrol Diesel	Private vehicles : • certain Export countries	Current	→ Adoption of U.S. standard	
US 84 LDT	X1	US 84	Petrol Diesel	Utility vehicles : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of U.S. standard standard for light utility vehicles	
US 87 LDT	X2	US 87	Petrol Diesel	Utility vehicles : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of U.S. standard standard for light utility vehicles	

INJECTION

EMISSION STANDARDS								
STANDARD				APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable			
	A-S	RP						
US 90 LDT	X3	US 90	Petrol Diesel	Private vehicles : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of the U.S. standard for light utility vehicles		
EURO 1 (EURO 93)	L1	CEE 19.5	Petrol Diesel	Private vehicles : < 1.4 litres • new models • existing models	07/92 → → 01/07/93 → 31/12/94	Brussels directive 89/458 → Possible alternative to emission standard L from 1992 to 1994		
EURO 1 (EURO 93)	L	CEE 19.5	Petrol Diesel	Private vehicles : All Types • new models • existing models • new models • existing models	07/92 → 01/93 → → 01/96 → 01/97	EU Brussels Directive 93/59 (91/441)	With oxygen sensor and catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.	

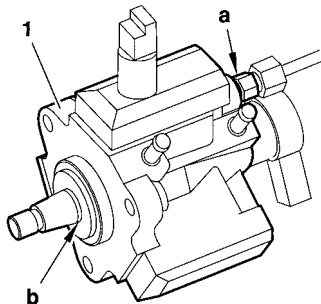
All Types			EMISSION STANDARDS				
STANDARD			APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 1 (EURO 93)	W2	CEE W2	Petrol Diesel	Utility vehicles : < 3.5 tonnes • new models • existing models Class 1 : • new models • existing models Class 2/3 : • new models • existing models	01/10/93 → 01/10/94 → → 01/97 → 10/97 → 01/98 → 10/98	Brussels Directive 93/59 → 3 classes depending on vehicle weight : Class 1 < 1250 kg Class 2 : 1250/1700 kg Class 3 > 1700 kg	With oxygen sensor and catalytic converter for petrol vehicles
EURO 2 (EURO 96)	L3	CEE 95	Petrol Diesel	Private vehicles : < 6 seats and < 2.5 tonnes • new models • existing models	01/96 → 01/97 →	Brussels Directive 94/12 → EURO 93 standard made stricter	With oxygen sensor and reinforced catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.

INJECTION

EMISSION STANDARDS							
STANDARD				APPLICATION		NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 2 (EURO 96)	W3	CEE 95	Petrol Diesel Gaz	Utility vehicles : < 3.5 tonnes Class 1 : • new models • existing models Class 2/3 : • new models • existing models	01/97 → 10/97 → 01/98 → 10/98 →	Brussels Directive 96/69 → 3 classes depending on vehicle weight : Class 1 < 1250 kg Class 2 : 1250/1700 kg Class 3 : 1700 kg	With oxygen sensor and reinforced catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.
EURO 3 (EURO 2000)	L4	CEE 2000	Petrol Diesel Gaz	Private vehicles : All Types • new models • existing models	→ 01/2000 → 01/2001	Brussels Directive 98/69 → EURO 2 standard (L3) made stricter → Fiscal incentives	With 2 oxygen sensors and catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles. With EOBD on-board diagnosis.

EMISSION STANDARDS							
STANDARD			APPLICATION		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 3 (EURO 2000)	W3		Petrol Diesel Gaz	Utility vehicles : < 3.5 tonnes Class 1 : • new models • existing models Class 2/3 : • new models • existing models	 → 01/2000 → 01/2001 → 01/2001 → 01/2002	Brussels Directive 98/69 → EURO 2 standard (L3) made stricter → Fiscal incentives → 3 classes depending on vehicle weight : Class 1 < 1305 kg Class 2 : 1305/1760 kg Class 3 : 1760 kg	With 2 oxygen sensors and catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles. With EOBD on-board diagnosis.
EURO 4	IF / L5		Petrol	Private vehicles : All Types • new models • existing models	 → 01/2001 → 01/2003	Brussels Directive 98/69 → EURO 3 standard (L4) made stricter → Fiscal incentives	With 2 oxygen sensors and catalytic converter for petrol vehicles. With EOBD on-board diagnosis.

INJECTION

PROHIBITED OPERATIONS: HDi DIRECT INJECTION SYSTEM**Engines : RHY - RHZ - 4HX****Cleaning.**

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

Fuel supply circuit.

- Required fuel : diesel.

Electric 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.

High pressure fuel pump.

Do not separate the following components from the high pressure fuel pump **(5)** :

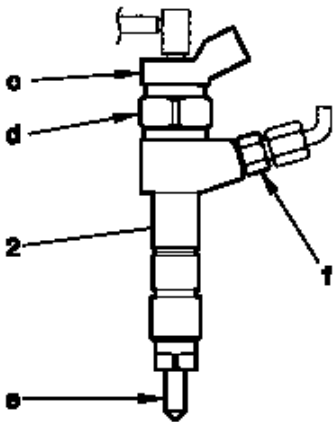
- Sealing ring **(b)** (*no replacement parts*).
- High pressure outlet connector **(a)** (*will cause a malfunction*).

PS : HDi = High pressure diesel injection.

B1HP19LC

PROHIBITED OPERATIONS: HDi DIRECT INJECTION SYSTEM

Engines : RHY - RHZ - 4HX



Diesel injectors.

WARNING: Diesel and ultrasonic cleaners are prohibited.

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

- Diesel injector **(e)** *(no replacement parts)*.
- Electromagnetic element **(c)** *(no replacement parts)*.

Do not alter the position of the nut **(d)** (malfunction).

Do not separate the connector **(f)** from a diesel injector.

It is forbidden to clean the carbon deposits from the diesel injector nozzle.

B1HP19NC

INJECTION

SAFETY REQUIREMENTS : HDi DIRECT INJECTION SYSTEM

Engines : RHY - RHZ - 4HX

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 (1350 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.

SAFETY REQUIREMENTS : HDi DIRECT INJECTION SYSTEM

Engines : RHY - RHZ - 4HX

CLEANLINESS REQUIREMENTS.

Preliminary operations

IMPERATIVE : The technician should wear clean overalls.

Before working on the injection system, it may be necessary to clean the apertures of the following sensitive components :
(refer to corresponding procedures).

- Fuel filter.
- High pressure fuel pump.
- Third piston deactivator.
- High pressure regulator.
- High pressure sensor.
- High pressure fuel injection common rail.
- High pressure fuel pipes
- Diesel injector carriers.

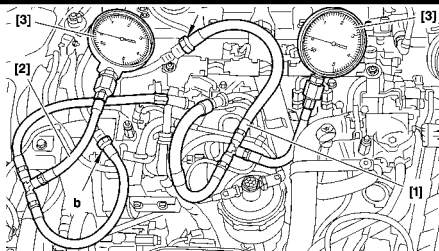
IMPERATIVE : After dismantling, immediately block the apertures of the sensitive components with plugs, to avoid the entry of impurities.

Work area.

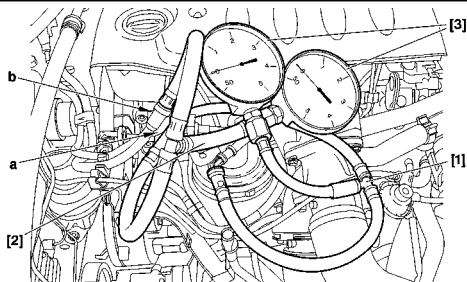
- The work area must be clean and free of clutter.
- Components being worked on must be protected from dust contamination.

CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

Engines : RHY - RHZ



Engine : 4HX



Engines : RHY - RHZ - 4HX

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 | Tool kit 4073-T |
| [4] Extension | : 4251-T. | |

Connect the tool [1] Between the booster pump and the fuel filter (*white mark at "a" 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 at "b" on the fuel return pipe*).

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

NOTE : To check the pressures while the vehicle is being driven, insert tool [4] Between tool [3] and tools [1] et [2].

Checks on pressure : static.

- Switch on ignition
- For **3 seconds** (normal functioning):
- Fuel supply pressure shown by the pressure gauge [3] = 2.6 ± 0.4 Bar.
- Fuel return pressure shown by the pressure gauge [3] = 0.6 ± 0.4 Bar.

B1BP20JD

B1BP27BD

CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

Engines : RHY - RHZ - 4HX (continued)

Checks on pressure : dynamic.

Engine running, at idle (normal functioning):

- Fuel supply pressure shown by the pressure gauge [3] = 2 ± 0.4 Bar.
- Fuel return pressure shown by the pressure gauge [3] = 0.8 ± 0.4 Bar.

Abnormal functioning

Fuel supply pressure	Fuel return pressure	Checks
Between 3.3 et 4 Bars	0.8 ± 0.4 Bar	Check the condition of the diesel filter
More than 4 Bars	Less than 0.8 Bar	Check the low pressure regulator incorporated in the filter (<i>locked shut</i>) : replace.
More than 4 Bars	More than 0.8 Bar	Check the fuel return circuit (<i>pipe pinched or trapped...</i>).
Between 0.8 et 1.5 Bar	Less than 0.8 Bar	Check the fuel supply circuit : - Booster pump (<i>low pressure</i>), piping.

Impossible to start the engine :

Fuel supply pressure less than 0.8 Bar :

- Check the low pressure regulator incorporated in the filter (*locked open*)
- Check the high pressure pump distribution valve (*locked shut*)

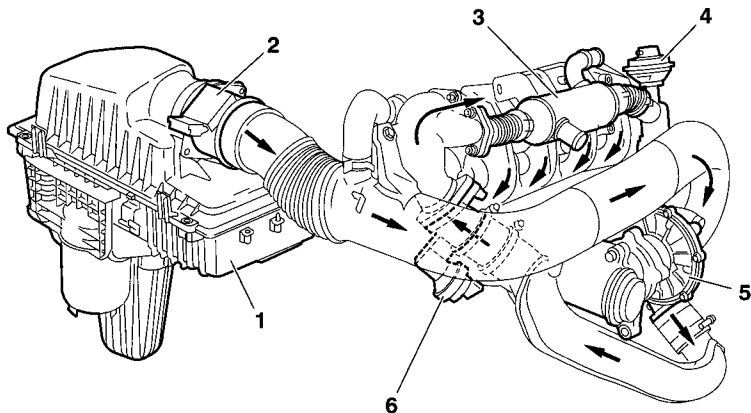
Check : diesel injector return flow. (Table below)

Uncouple the diesel injector return pipe.

Check :	Observe :
The flow should be drop by drop	Diesel injector functioning correctly
Excessive fuel return	Diesel injector locked shut.

AIR SUPPLY CIRCUIT SPECIFICATION

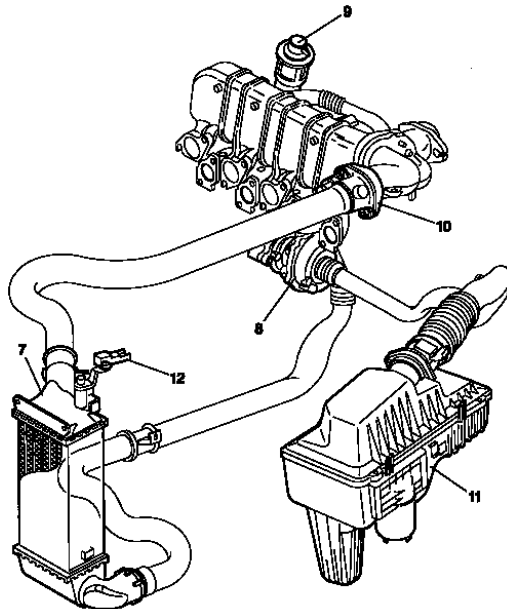
Engine : RHY



(1) Air filter	PSA 7899.
(2) Flowmeter	SIEMENS
(3) Water / recycled gas exchanger	VALEO
(4) E.G.R. valve	PURFLUX
(5) Turbocharger	KKK K03
(6) Air butterfly	MAGNETI MARELLI 48W7 Ref. 648

B1HP1A6D

AIR SUPPLY CIRCUIT SPECIFICATION



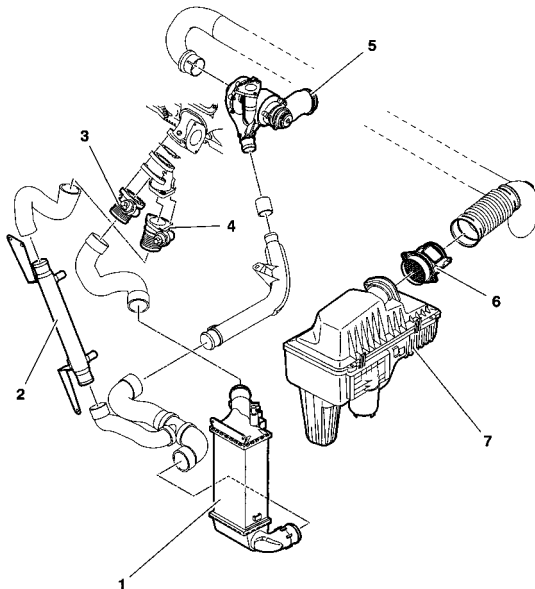
Engine : RHZ

(7) Air / air heat exchanger	VALEO.
(8) Turbocharger	KKK K03.
(9) EGR valve	PURFLUX.
(10) Air butterfly	MAGNETI MARELLI 48W7 Ref. 648.
(11) Air filter	PSA 7899.
(12) Turbocharging pressure sensor	NIPPON DENSO.

B1HP1A7P

INJECTION

AIR SUPPLY CIRCUIT SPECIFICATION



Engine : 4HX

- (1) Air / air exchanger
- (2) Air / water exchanger
- (3) Warm air metering device **BOSCH.**
- (4) Cold air metering device **BOSCH.**
- (5) Turbocharger **ALLIEDSIGNAL GT1549P.**
- (6) Flowmeter **SIEMENS.**
- (7) Air filter **PSA 7885.**

B1HP1BYP

AIR SUPPLY CIRCUIT SPECIFICATION

Engine : 4HX

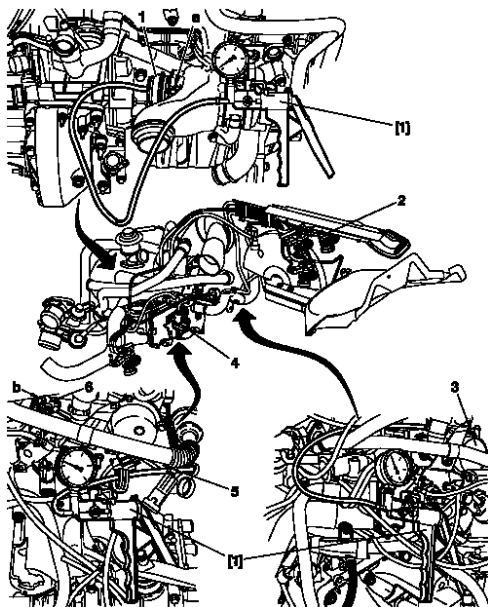
ESSENTIAL : Respect the safety and cleanliness recommendations.

Tool.

[1] Manual vacuum pump : FACOMM DA 16.

Checks.

ESSENTIAL : Respect the safety and cleanliness recommendations that are specific to high pressure diesel injection (HDi) engines.



B1HP1ARP

INJECTION

CHECKS : AIR SUPPLY CIRCUIT

Engine : 4HX

Vacuum pump.

- Connect the tool [1] on the vacuum pump (3).
- Start the engine.
- The vacuum should be **0.8 bar** at **750 rpm**.

Boost vacuum regulation electrovalve.

- Connect the tool [1] between the electrovalve (2) and the valve (1).
- Compare readings with the values in the table below.

Engine speed (rpm)	Vacuum (Bar)
780	0.6 Bar
4000	0.25 Bar

Boost pressure regulation valve.

- Connect the tool [1] on the valve (1). (*Grey marking on pipe*).
- Apply a vacuum of **0.8 bar**. The rod "a" should move **12 ± 2 mm**.
- Rod "a" should be moved **12 mm**.

«Swirl» control electrovalve.

- Connect the tool [1] as an adaptor between the electrovalve (4) and the control diaphragm of the «Swirl» (5).
- Compare readings with the values in the table below :

Engine speed (rpm)	Vacuum (Bar)
780	0.6 Bar
4000	0.25 Bar

«Swirl» control diaphragm.

- Connect the tool [1] on the control diaphragm of the «Swirl» (5).
- Apply a vacuum of approx. **0,6 Bar** ; the pin (6) should be at the end stop, at «b».

CHECKS : EXHAUST GASES RECYCLING CIRCUIT

Engines : RHZ - RHY

- | | |
|---|---|
| (1) Butterfly housing | (3) Electrovalve (<i>black connector</i>) |
| (2) EGR valve (<i>tube with blue marking</i>) | (4) Electrovalve (<i>blue connector</i>) |

TOOL

[1] Manual vacuum pump : FACOM DA 16.

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

EGR electrovalve

- Check, not under load, between the electrovalve (4) and the EGR valve (2).
- Connect the tool [1] between the electrovalve (3) and the butterfly housing (1).
- Compare readings with the values in the table below.

Butterfly housing electrovalve.

- Check, not under load, between the electrovalve (3) and the butterfly housing (1).
- Connect the tool [1] between the electrovalve (3) and the butterfly housing (1).
- Compare readings with the values in the table below.

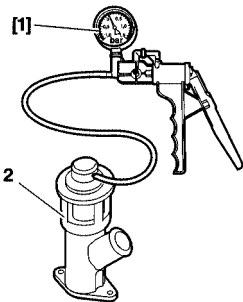
Engine speed (rpm)	Vacuum value (bar)
780	0.5 Bar
2500	0 Bar

B1HP1BVD

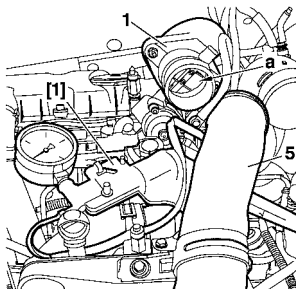
INJECTION

CHECKS : EXHAUST GASES RECYCLING CIRCUIT

Engines : RHZ – RHY

**EGR valve**

- Connect tool [1] on the **EGR** valve capsule take-off (2).
- Apply a vacuum of approx. **0,6 bar** to activate the **EGR** valve.
- In abruptly suppressing the vacuum, the valve should click and lock itself back on its seating.
- Repeat the operation several times.

Butterfly housing

- Remove the air duct between the air/air exchanger and the butterfly housing (5), (1).
- Connect tool [1] on the butterfly housing vacuum capsule (1).
- Apply a vacuum of approx. **0,8 bar**, the flap (a) of the butterfly housing (1) should be closed.

B1HP1BWC

B1BP2ADC

CHECKS : EXHAUST GASES RECYCLING CIRCUIT

Engine : 4HX

TOOL

[1] Manual vacuum pump

: FACOMM DA 16.

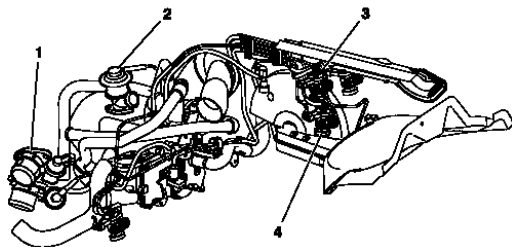
ESSENTIAL : Respect the safety and cleanliness requirements specific to high pressure diesel injection (HDi) engines..

Electrovalve (EGR).

- Check, not under load, between the electrovalve (3) (*blue connector*) and the EGR valve (2) (*tube with blue marking*).
- Connect the tool [1] between the electrovalve (3) and the EGR valve (2).
- Compare readings with the values in the table below.

Butterfly housing electrovalve

- Check, not under load, between the electrovalve (4) (*black connector*) and the butterfly housing (1) (*Metering pump cold*), (*tube with white marking*).
- Connect the tool [1] between the electrovalve (4) and the butterfly housing (1).
- Compare readings with the values in the table below.



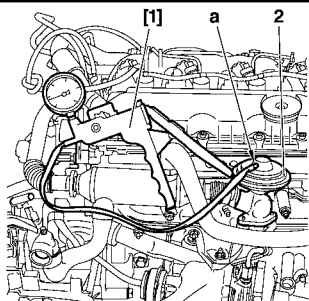
Engine speed (rpm)	Vacuum value (bar)
780	0.5 Bar
2500	0 Bar

B1HP1B8D

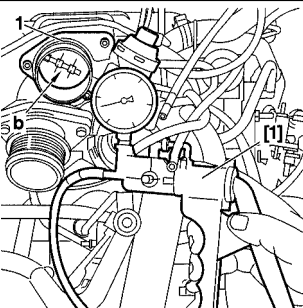
INJECTION

CHECKS : EXHAUST GASES RECYCLING CIRCUIT

Engine : 4HX

**EGR valve**

- Connect tool **[1]** on the take-off **(a)** of the **EGR** valve capsule **(2)**.
- Apply a vacuum of approx. **0,6 bar** to activate the **EGR** valve.
- In abruptly suppressing the vacuum, the valve should click and lock itself back on its seating.
- Repeat the operation several times.

**Butterfly housing**

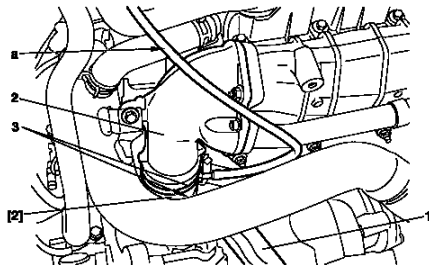
- Remove the air duct between the air/air exchanger and the butterfly housing **(1)**.
- Disconnect the tube (*white marking*) on the electrovalve **(4)** (*black connector*).
- Connect tool **[1]** on the tube with the white marking.
- Apply a vacuum of approx. **0,8 bar**, the flap **(b)** of the butterfly housing **(1)** should be closed.

B1BP29NC

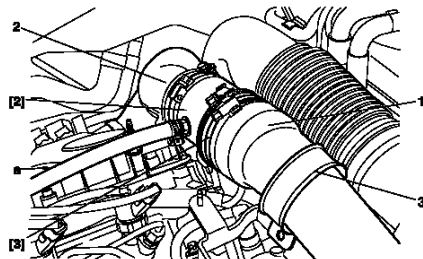
B1BP29PC

CHECKS : TURBO PRESSURE

Engine RHY



Engine RHZ



Engines : RHY - RHZ

TOOLS.

- [1] Pressure gauge for checking boost pressure
 [2] Sleeve for checking boost pressure
 [3] Adaptor sleeve

: 4073-T.A Tool kit 4073-T
 : 4185-T
 : 4219-T

Checks.

Preparation for RHY engine

Remove :

- The collars (3).
- The sleeve.
- Insert the tool [2] between the tube (1) and the duct (2).
- Position the tool [1] in the vehicle.
- Connect the pressure gauge [1] to the tool [2] with its tube (a) long enough for the gauge to be positioned inside the vehicle.

Checks.

Preparation for RHZ engine

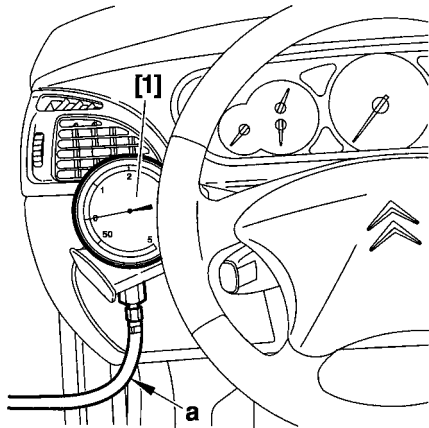
- Remove the collar fixing (3).
- Insert the tool [2] equipped with tool [3], between the tube (1) and the duct (2).
- Position the tool [1] in the vehicle.
- Connect the sleeve [2] on the pressure gauge [1] with the tube (a).

B1BP1ZXD

BHP12JD

CHECKS : TURBO PRESSURE

Engines : RHY - RHZ



C5FP0ACC

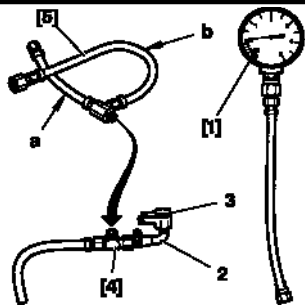
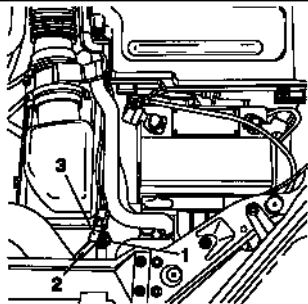
Procedure.**ESSENTIAL : Observe the following checking requirements :**

- Engine at running temperature.
- Vehicle in running order.
- Engine at full load.
- Start the engine.
- Engage first gear and start the vehicle.
- Engage the gears up to third gear.
- Decelerate to **2000 rpm**.
- Gradually accelerate.
- Check the pressure : **0.95 ± 0.05 Bar**.
- Remove the tools [1] and [2].

Refit

- The sleeve.
- The collars **(3)**.
- Tighten the collars **(3)**.

CHECKS : TURBO PRESSURE



Engine : 4HX

TOOL

[1] Pressure gauge for checking pressure	7073-T.A.
[2] Extension cable for taking pressure	8607-T.A
[3] Union and hose for taking pressure	8607-T.B.
[4] Adaptor for taking pressure	8607-T.C.
[5] Unions and hoses for taking pressure	4088-T

Checks.

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

Preliminary operations.

Carry out the following operations:

Remove the screw (1).

Disconnect the tube (2).

Move aside the pressure sensor (3).

Preparation of tools : in position on the vehicle.

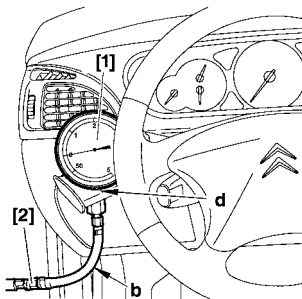
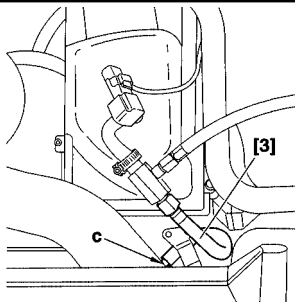
Fit as follows :

Remove the hose (a) of tool [5], screw in its place the tool [3], remove the hose (b) of tool [5], screw the hose (b) of tool [5] on the pressure gauge [1], screw the adaptor [4] onto the tool [5]. Connect the tube (2) of the pressure sensor (3) on the tool [4], tighten the tube (2) with a Serflex type collar.

B1BP28DC

E5AP1SUC

CHECKS : TURBO PRESSURE



Engine : 4HX

Preparation of tools : in position on the vehicle (continued).

Screw the tool [3] on the take-off of the turbo air radiator at «c».

Place the pressure gauge on the cup holder at «d».

Connect the extension [2] on the hose «b» and tool [5].

ESSENTIAL : Observe the following checking requirements.

- Start the engine.
- Engage first gear and start the vehicle.
- Engage the gears up to third gear.
- Decelerate to **1500 rpm**.

Accelerate gradually : the pressures should be the following :

 $1,1 \pm 0,05$ b at 2000 rpm **$1,2 \pm 0,05$ b at 3000 rpm.****Return the vehicle to normal.**

Remove the tools [1], [2], [3], [4] and [5].

Reposition the pressure sensor (3).

Couple the tube (2).

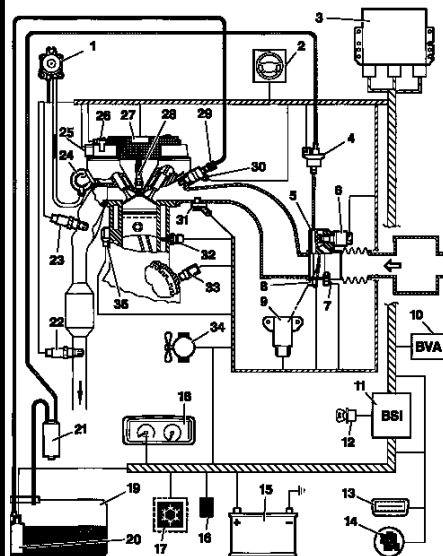
Refit and tighten the screw (1).

B1BP28EC

C5FPOBLC

FEATURES OF MULTIPOINT INJECTION SYSTEM

Summary



- (1) Air pump
- (2) Power steering pressure sensor
- (3) Engine management ECU
- (4) Canister purge electrovalve
- (5) Butterfly housing
- (6) Idle regulation stepper motor
- (7) Inlet air temperature sensor
- (8) Inlet housing heater element
- (9) Butterfly potentiometer
- (10) Automatic gearbox (Option)
- (11) Built-in systems interface
- (12) Transponder
- (13) Diagnostic connector
- (14) Ignition injection test warning lamp
- (15) Battery
- (16) Immobiliser unit
- (17) Air conditioning
- (18) Instrument panel
- (19) Fuel tank
- (20) Fuel pump, gauge and filter assembly

- (21) Canister reservoir
- (22) Downstream oxygen sensor
- (23) Upstream oxygen sensor
- (24) Air inlet valve
- (25) EGR electrovalve
- (26) Camshaft position sensor
- (27) Ignition coil
- (28) Sparking plug
- (29) Injector supply rail
- (30) Injectors
- (31) Air inlet pressure sensor
- (32) Engine coolant temperature sensor
- (33) Engine speed sensor
- (34) Cooling fan unit
- (35) Knock sensor

FEATURES OF MULTIPOINT INJECTION SYSTEM

Fuel circuit

(diagr.)	Component	Supplier	Reference	Observations
	Recommended fuel			Unleaded 95 RON or 98 RON
30	Petrol injector	SAGEM		2 way black connector. Resistance : 12,2 ohms
4	Canister purge electrovalve	BOSCH SAGEM (1)	280520274	2 way brown connector. Installation : between the engine fusebox and the brake amplifier
19	Fuel tank	SOLVAY		Capacity = 66 Litres
21	Canister reservoir	MGI		Installation : in the rear LH wheelarch
20	Fuel pump and gauge assembly with integral fuel filter	MARWAL		6 way black connector. Pressure : 3,5 Bars.

Air inlet circuit

7	Air temperature sensor	MAGNETI MARELLI	IAT S04	2 way grey connector, fixed on the butterfly housing
31	Air inlet pressure sensor	BOSCH	0261230034	3 way grey connector integral with the inlet manifold.
6	Idle regulation stepper motor	MGI MAGNETI MARELLI (1)	B13 (1)	4 way black connector, fixed on the butterfly housing
5	Butterfly housing	MGI MAGNETI		The butterfly housing comprises the inlet air temperature sensor, the butterfly potentiometer, the electric motor.
9	Potentiometer	MARELLI		3 way black connector, installed on the butterfly housing.

(1) = RFN engine

FEATURES OF MULTIPOINT INJECTION SYSTEM

Electrical circuit

(diagr.)	Component	Supplier	Reference	Observations
3	Engine management ECU with «FRIC»	SAGEM MAGNETI MARELLI	S2000 MM 48.P2 (1)	«Flash» eprom (reprogrammable eprom), sequential injection, 112 way connector.
26	Camshaft position sensor	ELECTRIFIL	144323	3 way grey connector, fixed on the cylinder head
35	Knock sensor	SIEMENS SAGEM (1)	F 207 326 257 603 2A	2 way black connector, fixed on the front part of the engine block, tightening torque 2 ± 0.5 m.daN.
32	Engine coolant temperature sensor	ELECTRIFIL	14 43 32	2 way green connector, fixed on the coolant outlet housing, tightening torque 1.8 ± 0.1 m.daN.
		DAV	402 244 03	
33	Engine speed sensor	ELECTRIFIL	14 43 27	2 way black connector, fixed on the clutch casing.
2	Power steering pressure sensor	BITRON	280 291	2 way blue connector, fixed on the power steering high pressure pump outlet tube, tightening torque 2 ± 0.2 m.daN.

(1) = Engine RFN

Ignition circuit

28	Sparkling plug	SAGEM	RFN52HZ	Electrode gap = 1mm.
		BOSCH	FR8ME	Tightening torque 2.5 ± 0.2 m.daN.
27	Ignition coil	SAGEM	BBC2.2NDE 2 526 118	4 way black connector.

FEATURES OF MULTIPOINT INJECTION SYSTEM

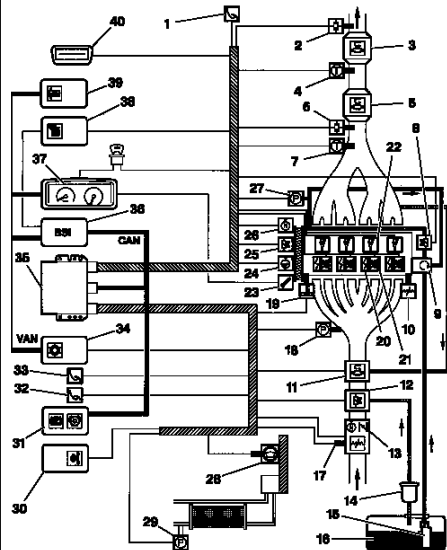
Exhaust system

(diagr.)	Component	Supplier	Reference	Observations
	EGR electrovalve	DELPHI	97097 A	5 way black connector, installed on the cylinder head.
23	Upstream oxygen sensor	NGK BOSCH (1)	OZA 495-PG2	4 way blue connector, length of wire : 555 mm, Tighten to 4.5 ± 0.4 m.daN.
22	Downstream oxygen sensor	NGK BOSCH (1)	OZA 341-PG7	6 way black connector, length of wire : 1500 mm, Tighten to 4.5 ± 0.4 m.daN.
1	Air pump	SAGEM	2 590 004	2 way black connector, located under the battery.
2	Air inlet valve	SAGEM	2 580 034	Installed on the cylinder head.

(1) = Engine RFN

FEATURES OF MULTIPOINT INJECTION SYSTEM

Summary



- | | |
|---|---|
| 1) Accelerator pedal position sensor | (19) Engine coolant temperature sensor |
| (2) Denox catalyser downstream oxygen sensor | (20) Sparking plug |
| (3) Denox catalyser | (21) Ignition coil block |
| (4) Downstream exhaust gas temperature sensor | (22) High pressure injector |
| (5) 3-function precatalyser | (23) Engine oil temperature sensor |
| (6) Precatalyser upstream oxygen sensor | (24) Engine speed sensor |
| (7) Upstream exhaust gas temperature sensor | (25) Inlet camshaft dephaser electrovalve |
| (8) Petrol pressure regulator | (26) Camshaft position sensor |
| (9) Petrol high pressure pump | (27) Petrol high pressure sensor |
| (10) Knock sensor | (28) Power steering pressure sensor |
| (11) EGR electrovalve | (29) Aircon fluid pressure sensor |
| (12) Canister purge electrovalve | (30) Cooling fan unit |
| (13) Motorised butterfly housing | (31) ABS block |
| (14) Canister reservoir | (32) Clutch pedal sensor |
| (15) Fuel pump and tank assembly | (33) Brake pedal sensor |
| (16) Fuel tank | (34) Air conditioning ECU |
| (17) Inlet air temperature sensor | (35) Engine management ECU |
| (18) Inlet air pressure sensor | (36) Built-in systems interface BSI |
| | (37) Rev counter |
| | (38) Coded immobiliser |
| | (39) Vehicle cruise control |
| | (40) Diagnostic connector |

B1HP1C6P

FEATURES OF MULTIPOINT INJECTION SYSTEM

Fuel circuit

(diagr.)	Component	Supplier	Reference	Observations
8	Petrol pressure regulator	SIEMENS	5403	2 way brown connector, located on the petrol injection common rail.
22	Petrol injector		5048	2 way orange connector, resistance : 1,88 ohms.
27	Petrol high pressure sensor		5402	3 way black connector, located on the petrol injection common rail.
11	Canister purge electrovalve	BOSCH	280520274	2 way brown connector.
16	Fuel tank	SOLVAY		Capacity = 66 Litres.
14	Canister reservoir	MGI		Installed inside the rear LH wheelarch.
15	Fuel pump and gauge assembly	MARWAL		6 way black connector, pressure : 5 bars, integrated fuel filter.

Air inlet circuit

17	Air temperature sensor	MAGNELI MARELLI	IAT S04	2 way grey connector, resistance : 2,05 kohms
13	Butterfly housing	MGI	98023100	The butterfly housing comprises : Inlet air temperature sensor, butterfly potentiometer, electric motor.
13	Butterfly housing motor	MAGNELI MARELLI		
13	Butterfly potentiometer			6 way black connector.
18	Inlet air pressure sensor	BOSCH		3 way grey connector, fixed under the air inlet manifold.

FEATURES OF MULTIPOINT INJECTION SYSTEM

Electrical circuit

(diagr.)	Component	Supplier	Reference	Observations
35	Engine management ECU with «FRIC»	SIEMENS	SIRIUS 81	112 way connector.
26	Camshaft position sensor	ELECTRIFIL	F207 326	3 way grey connector, fixed on the cylinder head.
10	Knock sensor	SIEMENS		2 way black connector, fixed on the front part of the engine block. ESSENTIAL: Respect the tightening torque $2,5 \pm 0,5$ m.daN.
9	Engine coolant temperature sensor	ELECTRIFIL		2 way green connector, fixed on the coolant outlet housing.
1	Accelerator pedal position sensor			4 way black connector, fixed on the pedal carriage.
24	Engine speed sensor			2 way black connector, fixed on the clutch casing.
28	Power steering pressure sensor	BITRON		2 way blue connector, fixed on the power steering high pressure pump outlet tube, tighten to $2 \pm 0,2$ m.daN.
25	Inlet camshaft dephaser electrovalve.	UNISIA		2 way green connector, fixed on the upper part of the cylinder head.

INJECTION

FEATURES OF MULTIPOINT INJECTION SYSTEM

Ignition circuit

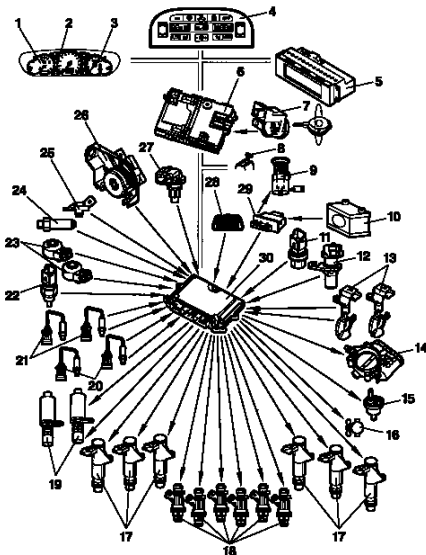
(diagr.)	Component	Supplier	Reference	Observations
20	Spark plug	BOSCH	BNA - R13-318	Electrode gap = 1 mm. Tighten to $2,5 \pm 0,2$ m.daN.
21	Ignition coil block	DELPHI	BBC 4.1 HP	6 way black connector.

Exhaust system

12	EGR electrovalve	SAGEM	2580105A	6 way grey connector, installed on the cylinder head.
4 and 7	Exhaust gas temperature sensor	HERAEUS	TS-200	2 way brown connector, length of wire : 250 mm. Tighten to $4,5 \pm 0,4$ m.daN.
6	Precatalyser upstream proportional oxygen sensor	NGK	LZA-A06-U1	6 way black connector, length of wire : 250 mm. Tighten to $4,5 \pm 0,4$ m.daN.
2	Catalytic converter downstream oxygen sensor		OZA 538-PG1	4 way blue connector.

FEATURES OF BOSCH ME 7.4.6 MULTIPOINT INJECTION SYSTEM

Summary



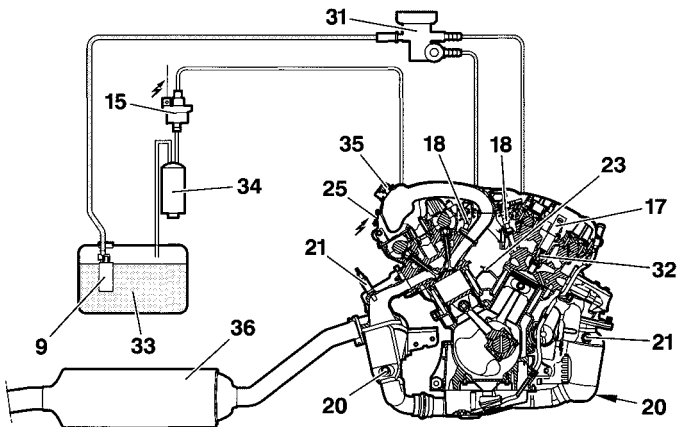
- (1) Rev counter
- (2) Consumption information
- (3) Ignition injection test warning lamp
- (4) Air conditioning ECU (*according to equipment*)
- (5) Multifunction screen
- (6) Built-in systems interface (BSI)
- (7) Transponder
- (8) Automatic gearbox ECU (*according to equipment*)
- (9) Pump, fuel filter and pressure regulator assembly
- (10) Battery
- (11) Pressostat
- (12) Engine speed sensor
- (13) Camshaft position sensors (x2)
- (14) Motorised butterfly housing
- (15) Canister purge electrovalve
- (16) Cooling fan unit
- (17) Pencil type ignition coils (x2)
- (18) Petrol injectors (x6)

- (19) Variable timing electrovalves (x2)
- (20) Upstream oxygen sensors (x2)
- (21) Downstream oxygen sensors (x2)
- (22) Engine coolant thermal sensor
- (23) Knock sensors (x2)
- (24) Power steering pressure sensor
- (25) Integral pressure sensor
- (26) Accelerator pedal position sensor
- (27) Inlet air thermal sensor
- (28) Diagnostic connector
- (29) Multifunction double relay
- (30) Ignition injection ECU

B1HP1B2P

FEATURES OF BOSCH ME 7.4.6 MULTIPOINT INJECTION SYSTEM

Summary



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

FEATURES OF BOSCH ME 7.4.6 MULTIPOINT INJECTION SYSTEM

Fuel circuit

(diagr.)	Component	Supplier	Reference	Observations
	Recommended fuel			Super unleaded 95 RON or 98 RON
33	Fuel tank			Capacity = 66 Litres, polyethylene.
9	Pump, fuel filter and pressure regulator assembly	MARWAL		Electric pump immersed in the tank, voltage = 12 V, Bars, Flow = 115 at 120 l/h, regulation pressure = 3,5 Bars.
34	Canister reservoir	PURFLUX	PPGF 30	Located under front LH wing.
15	Canister purge electrovalve	BOSCH	0 280142 317	Electrovalve normally closed. 2 way brown connector, located under the front LH wing, resistance = 24 ohms.
18	Petrol injector		EV 8 E 0280155613	Group of injectors 1.2.3: 2 way brown connector. Group of injectors 4.5.6 : 2 way yellow connector, injector with 4 jets. Resistance = 16 ohms.
31	Pulse damper		0280161500	Installed on the timing cover, equipped with a SCHRAEDER valve.

Air circuit

25	Integral pressure sensor	BOSCH	DS-S2 0261260140	2 way black connector, incorporated in the air inlet manifold.
14	Motorised butterfly housing			
26	Accelerator pedal position sensor			Double potentiometer, supply = 5 Volts, fixed on the engine compartment.

INJECTION

FEATURES OF BOSCH ME 7.4.6 MULTIPOINT INJECTION SYSTEM

Electrical circuit

(diagr.)	Component	Supplier	Reference	Observations
30	Ignition injection ECU	BOSCH	ME 7.4.6 0261206418	128 way connector, flash eeprom type sequential injection (reprogrammable eeprom). Installed in the ECU compartment.
29	Multifunction double relay (incorporated in the engine fusebox)	SIEMENS	S210500000	Main relay 1, 16 way grey connector. Main relay 2, 16 way green connector Power relay 3, 16 way black connector Installed in the ECU compartment.
24	Power steering pressure sensor	BITRON		2 way blue connector, switch opens at 20 Bars, for ECU information (steering wheel on full lock). Ring seal marked violet, fixed on the power steering 4 way hydraulic union, beneath the vehicle.
27	Inlet air thermal sensor	JAEGER	402 084 01	2 way grey connector, fixed on the air filter inlet duct.
13	Camshaft position sensor	ELECTRIFIL	14 43 25	3 way grey connector, fixed on the inlet camshaft bearing cap cover.
23	Knock sensor	BOSCH	026123125	3 way green connector, fixed on the central part of the engine block V. ESSENTIAL : respect the tightening torque $2 \pm 0,2$ m.daN.
22	Engine coolant thermal sensor	DAV	402 243 03	2 way green connector, fixed on the coolant outlet housing. Tighten to 2 ± 0.2 m.daN
		ELECTRIFIL	14 43 32	
12	Engine speed sensor	ELECTRIFIL	14 43 28	2 way black connector, fixed on the gearbox clutch casing.

FEATURES OF BOSCH ME 7.4.6 MULTIPOINT INJECTION SYSTEM

Ignition circuit

(diagr.)	Component	Supplier	Reference	Observations
32	Sparking plug	BOSCH	FGR8MQPE	Electrode gap = 1 mm. Tightening torque 2.5 ± 0.1 m.daN.
17	Pencil type ignition coils	SAGEM	BAC 1 2526140	4 way black connector Static type ignition.

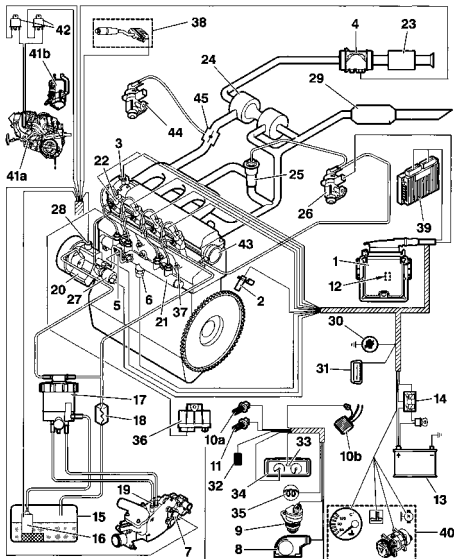
Exhaust system

20	Upstream oxygen sensors	BOSCH	258040232	4 way green connector. Front fixing : On the exhaust manifold. Rear fixing : On the front precatalyser.
21	Downstream oxygen sensors			4 way blue connector. Fixed on the precatalyser. Tightening torque 5 ± 0,1 m.daN.

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Summary



B1HP1BTP

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit

Component	(diagr.)	Supplier	Reference	Observations
Diesel injection ECU	1	BOSCH	EDC 15C2	88 way connector. Flash eeprom type sequential injection (reprogrammable eeprom). Installed in the ECU compartment.
Engine speed sensor	2	ELECTRIFIL		
Camshaft position sensor	3	ELECTRIFIL		Air gap value : 1,2 mm.
Coolant temperature sensor	7	ELECTRIFIL	962859028A	Fixed on the coolant housing.
Accelerator pedal sensor	8	PHILIPS		
Vehicle speed sensor	9	EATON		On the gearbox.
Brake pedal switch	10a			Open at rest.
	10b			Closed at rest.
Clutch pedal switch	11			
Atmospheric pressure sensor	12	BOSCH		Integrated in the injection ECU.
Battery	13	FULMEN	058426 – 12 Volt 400 amps	Under the bonnet.
Injection double relay	14	BITRON	240 109	15 way black connector. Installed in the ECU compartment.
Inertia switch	30	FIRST INERTIA SWITCH	Type 505	3 way black connector. Installed in the front RH wheelarch, fixed on the suspension mounting. Manual rearming in the event of the cut-out system being activated.

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit (continued)

INJECTION

Component	(diagr.)	Supplier	Reference	Observations
Diagnostic warning lamp	31			Incorporated in the dashboard instrument panel.
Central diagnostic socket	32			In the passenger compartment.
Electronic immobiliser	33			
Consumption information	34			Incorporated in the dashboard instrument panel.
Rev counter	35			Incorporated in the dashboard instrument panel.
Preheater warning lamp	36			Incorporated in the dashboard instrument panel.
Pre-postheating unit	37	NAGARES	960411P	
		CARTIER	735068	
Preheater plugs	38	CHAMPION	CH170	
		BOSCH	0250202032	
Cruise control switch	39			
Automatic gearbox ECU	40			
Air conditioning compressor	41	SANDEN	SD7V16	
Additional heating by heating elements in boiler	42 a 42 b			
Additional heating control relay	43			

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Fuel circuit

Component	(diagr.)	Supplier	Reference	Observations
Recommended fuel				Diesel
Fuel temperature sensor	5	ELTH		On the injection rail
Fuel high pressure sensor	6	BOSCH	D281022093	On the injection rail
Fuel tank	15			Capacity = 68 litres. Composition : Polyethylene.
Fuel pump	16	VDO		Electric pump immersed in the tank. Voltage 12V. Pressure : 7 Bars.
Fuel filter	17	BOSCH	0450907	Fixing : on the engine.
Low pressure regulator				Adjustment : 2,5 bars.
Fuel cooler	18	LON		Fixed under the bodyshell.
Fuel heater	19			Integral with the coolant outlet housing.
Fuel high pressure pump	20	BOSCH	CP	The fuel high pressure pump is driven by the timing belt
Fuel high pressure injection common rail	21	BOSCH	86313	On the engine (18 cc).

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Fuel circuit (continued)

INJECTION

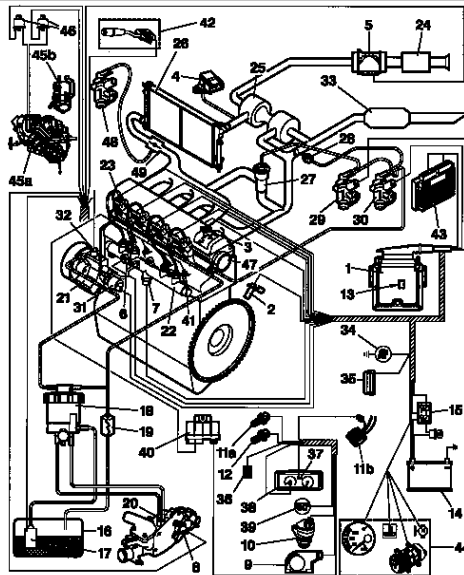
Component	(diagr.)	Supplier	Reference	Observations
Diesel injectors	22	BOSCH	9625542580	Reference 1 –Blue marking : injector Class 1. Reference 2 – Green marking : injector Class 2. If changing a diesel injector-carrier, order a component of the same class.
Fuel high pressure regulator	27	BOSCH		Fixed on the fuel high pressure pump.
Fuel high pressure pump 3rd piston deactivator	28	BOSCH		Fixed on the fuel high pressure pump.

Air circuit

Component	(diagr.)	Supplier	Reference	Observations
Air flowmeter	4	SIEMENS		
Air filter	23		PSA 7899	
Turbocompressor	24	KKK /		
Exhaust gas recycling valve (EGR)	25	PIERBURG		Shim reference: violet.
Recycling regulation electrovalve (EGR)	26	BOSCH		
Exhaust line	29			
Vacuum pump	44			
EGR butterfly housing	46	MARK IV		
EGR butterfly housing electrovalve	45	BOSCH		

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Summary



B1HP1BUP

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit

Component	(diag.)	Supplier	Reference	Observations
Ignition injection ECU	1	BOSCH	EDC 15C2	88 way connector. Flash eprom type sequential injection (reprogrammable eprom). Installed in the ECU compartment.
Inertia switch	34	FIRST INERTIA SWITCH	Type 505	3 way black connector. Installed in the front RH wheelarch, fixed on the suspension mounting. Manual rearming in the event of the cut-out system being activated.
Injection double relay	15	BITRON	240 109	15 way black connector. Installed in the ECU compartment.
Battery	14	VARTA	L2 – 12 volts 400 amps	Engine compartment..
Atmospheric pressure sensor	13	BOSCH		Incorporated in the injection ECU.
Central diagnostic socket	36			In the passenger compartment.
Diagnostic warning lamp	35			Incorporated in the dashboard instrument panel.
Vehicle speed sensor	10	EATON		On the gearbox.
Preheater warning lamp	40			Incorporated in the dashboard instrument panel.
Rev counter	39			Incorporated in the dashboard instrument panel.
Consumption information	38			Incorporated in the dashboard instrument panel.
Engine speed sensor	2	ELECTRIFIL		
Camshaft position sensor	3	ELECTRIFIL		Airgap value : 1,2 mm.

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit (continued)

Component	(diagr.)	Supplier	Reference	Observations
Preheater unit	41	NAGARES	960411P	
		CARTIER	735068	
Preheater plugs	42	CHAMPION	CH170	
		BOSCH	0250202032	
Coolant temperature sensor	8	ELECTRIFIL		Fixed on the coolant outlet housing
Electronic immobiliser	37			
Accelerator pedal sensor	9	PHILIPS		
Brake pedal switch	11 a			Open at rest
	11 b			Closed at rest
Clutch pedal switch	12			
Additional heating control relay	47			
Additional heating	46 a			
Boiler heater elements	46 b			
Air conditioning compressor	45			
Automatic gearbox ECU	44			
Cruise control switch	43			

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Fuel circuit

INJECTION

Component	(diagr.)	Supplier	Reference	Observations
Recommended fuel				Diesel
Fuel tank	16			Capacity = 65 Litres – Polyethylene.
Fuel tank	17	VDO		Electric pump immersed in the tank. Voltage: 12 volts – Pressure : 2 Bars
Fuel filter	18	BOSCH	0450907	Fixing : on the engine.
Low pressure regulator				Adjustment : 2,5 Bars
Fuel cooler	19	NOBEL PLASTIQUE		Fixed under the bodyshell.
Fuel high pressure pump	21	BOSCH	CP1	The high pressure pump is driven by the timing belt.
Diesel injectors	23	BOSCH	9625542580	
Fuel high pressure regulator	31	BOSCH		Fixed on the fuel high pressure pump.
Fuel high pressure pump 3rd piston deactivator	32	BOSCH		Fixed on the fuel high pressure pump.
Fuel high pressure injection common rail	22	BOSCH	86313	On the engine (18 cc)
Fuel high pressure sensor	7	BOSCH	D281022093	On the injection rail
Fuel temperature sensor	6	ELTH		On the injection rail
Fuel heater	20			Integral with the coolant outlet housing.

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

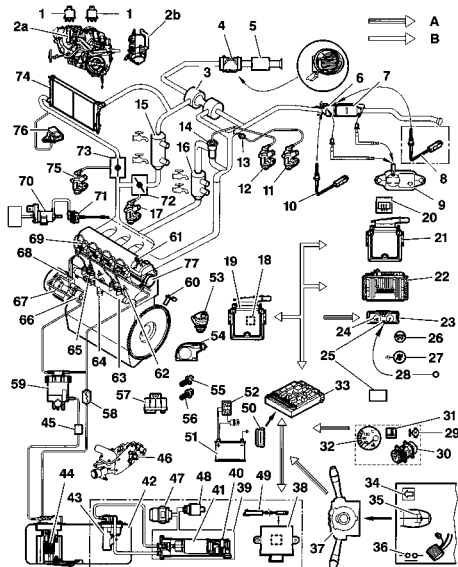
Air circuit

Component	(diagr.)	Supplier	Reference	Observations
Air filter	24	SIEMENS		
Air flowmeter	5			
Turbocompressor	25		KKK	
Inlet manifold pressure sensor	4	NIPPON DENSON		
Air/air heat exchanger	26			
EGR exhaust gas recycling valve	27	PIERBORG		Shim reference: violet
Turbo valve adjustment control capsule	28			Integral with the turbocompressor
EGR recycling regulation electrovalve	29	BOSCH		
Turbo pressure regulation electrovalve	30	BOSCH		
Exhaust line	33			
Vacuum pump	48			
EGR butterfly housing electrovalve	49			
EGR butterfly housing	50	MAGNETI MARELLI		

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Summary



B1HP1BXP

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit

Component	(diagr.)	Supplier	Reference	Observations
Ignition injection ECU	19	BOSCH	EDC 15C2	88 way connector. Flash eprom type sequential injection (reprogrammable eprom). Installed in the electronic ECUs compartment.
Injection double relay	52	BITRON	240 109	15 way black connector. Installed in the electronic ECUs compartment.
Battery	51	VARTA	L2 – 12 volts 400 amps	Engine compartment.
Atmospheric pressure sensor	18	BOSCH		Incorporated in the injection ECU.
Central diagnostic socket	50			In the passenger compartment.
Diagnostic warning lamp	27			Incorporated in the dashboard instrument panel.
Vehicle speed sensor	53	EATON		On the gearbox.
Preheater warning lamp	26			Incorporated in the dashboard instrument panel.
Rev counter	24			Incorporated in the dashboard instrument panel.
Trip computer	23			Incorporated in the dashboard instrument panel.
Engine speed sensor	60	ELECTRIFIL		
Camshaft position sensor	61	ELECTRIFIL		Airgap value : 1,2 mm.
Preheater unit	57	NAGARES CARTIER	960411P 51299011	
Preheater plug	62	CHAMPION BERU	CH170 0100226344	

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Electrical circuit (continued)

INJECTION

Component	(diag.)	Supplier	Reference	Observations
Coolant temperature sensor	46	ELECTRIFIL	962859028A	Fixed on the coolant outlet housing
Accelerator pedal sensor	54			
Brake pedal switch	36	PHILIPS		
	56			
Clutch pedal switch	55			
Additional heating control relay	1			
Additional heating	2 a			Open at rest
Boiler elements	2 b			Closed at rest
Air conditioning compressor	30			
Automatic gearbox ECU	22			
Cruise control switch	34			
Heated rear screen	20			
ESP ECU	21			
«Service» warning lamp	25			
Cooling fan	29			
Fuel cap warning lamp	28			
Coolant temperature alert warning lamp	31			
Coolant temperature indicator	32			

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM				
Electrical circuit (continued)				
Component	(diagr.)	Supplier	Reference	Observations
Built-in systems interface (BSI)	33			
Cruise control safety switch	35			
Switching module (under the steering wheel)	37			
Fuel cap presence sensor	49			
FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM				
Fuel circuit				
Component	(diagr.)	Supplier	Reference	Observations
Recommended fuel				Diesel
Fuel temperature sensor	65	MAGNETI MARELLI		On the injection rail
Fuel high pressure sensor	64	BOSCH		On the injection rail
Fuel tank	42			Capacity = 68 Litres – Polyethylene
Fuel pump	44	VDO		Electric pump immersed in the tank Voltage : 12 V – Pressure : 2 Bars
Fuel filter	59	BOSCH		Fixing on the engine
Low pressure regulator				Adjustment : 2,5 Bars
Fuel cooler	58	NOBEL PLASTIQUE		Fixed under the boyshell

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Fuel circuit (continued)

Component	(diagr.)	Supplier	Reference	Observations
Fuel heater	45			Integral with the coolant outlet housing.
Fuel high pressure pump	67	BOSCH		The fuel high pressure pump is driven by the timing belt
Fuel high pressure common injection rail	63	BOSCH		On the engine (18 cc).
Diesel injector	69	BOSCH	963727798	Reference 1 on injector-carrier (Class 1 injector) Reference 2 on injector-carrier (Class 2 injector) Reference 3 on injector-carrier (Class 3 injector) When changing a diesel injector-carrier, order a component of the same class.
Fuel high pressure regulator	66	BOSCH		Fixed on the fuel high pressure pump.
Fuel high pressure pump 3rd piston deactivator	68	BOSCH		Fixed on the fuel high pressure pump.

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Air circuit

Component	(diagr.)	Supplier	Reference	Observations
Air filter	5		PSA 7895	
Air flowmeter	4	SIEMENS		
Turbocompressor	3	ALLIED SIGNAL		
Inlet manifold pressure sensor	76	NIPPON DENSEN		
Air/air heat exchanger	74			
EGR exhaust gas recycling valve	14	PIERBURG		Shim reference: violet
Turbo valve adjustment control capsule	13			Integral with the turbocompressor
EGR recycling regulation electrovalve	12	BOSCH		
Turbo pressure regulation electrovalve	11	BOSCH		
Catalytic converter	6			
Vacuum pump	48	PIERBURG		
EGR butterfly housing	73			
Butterfly housing electrovalve	75	BOSCH		
«SWIRL» electrovalve	70	EATON		
«SWIRL» control diaphragm	71	MECAPLAST		
EGR exhaust gas/coolant exchanger	16			

INJECTION

FEATURES OF BOSCH HDi DIRECT INJECTION SYSTEM

Particle filter circuit

Component	(diagr.)	Supplier	Reference	Observations
Particle filter	7	WIMETAL TR PSA F002		
Catalyser downstream temperature sensor	8			
Differential pressure sensor	9	KAVLICO		
Catalyser upstream temperature sensor	10			
Additive ECU	38	MARWAL		
Additive reservoir	39			
Additive minimum level sensor	40			
Additive injection pump	41	MARWAL		
Cap (too full)	47			
Additive injector	43	MARWAL		
Safety valve	48			
Inlet air heater butterfly	72			

SPARKING PLUGS

Vehicles - Models		Engine type	BOSCH	CHAMPION	EYQUEM	Electrode gap	Tightening torque
C5	1.8i 16v	6FZ	FR8ME		RFN52HZ	1 mm	2.5 m.daN
	2.0i 16v	RFN	FR8ME		RFN52HZ		
	2.0i HPi	RLZ	ZR8TPP15				

IGNITION

SPEEDOMETER

An E.E.C. decree of **25 June 1976**, regulates the speed displayed by the speedometer 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 :

$$VR < VL < 1.10 VR + 4 \text{ Km/h}$$

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.

CLUTCH SPECIFICATION				
	Petrol			
	1.8i 16V	2.0i 16V	2.0 HPi	3.0i V6
Engine type	6FZ	RFN	RLZ	RHY
Gearbox type	BE4/5			ML/5
Supplier	VALEO			
Mechanism / type	230 DNG 4700		230 DNG 4700 R	242 T 6500
Clutch disc	11 R 10X	12 R 14X	11 R 14X	11 A 14X
Identification of springs	4 Outer 4 Inner	4 Red 4 Grey / Blue	4 Blue	4 Blue 4 Green
No. of splines	18			
Ø of lining. Ext/Int	228/155			242/162
Quality of lining	F 410	F 808 DS	F 410	F 808

CLUTCH SPECIFICATION			
	Diesel		
	2.0 HDi		2.2 HDi
Engine type	RHY	RHZ	4HX
Gearbox type	BE4/5	ML/5	
Supplier	LUK		
Mechanism / type	230 P 4700	225 T 5700	242 T 6500
Clutch disc		Damping performed by engine flywheel	
Identification of springs	4 outer 2 Inner	Damping performed by engine flywheel	
No. of splines	18		
Ø of lining. Ext/Int	228/155	225/150	242/162
Quality of lining	F 408	F 808	

GEARBOX AND TYRE SPECIFICATIONS					
	Petrol				
	18i 16V		2.0i 16V		2.0 HPi
		Automatic		Automatic	
Engine type	6FZ		RFN		RLZ
Tyres-Rolling circumference	195/65 R15 – 1.93 m		195/65 R15 – 1.93 m		
Gearbox type	BE4/5	AL4	BE4/5	AL4	BE4/5
Gearbox ident. plate	20 DL 29	20 TP 44	20 DL 30	20 TP 42	20 DL 31
Reduction box torque	19x79	21x73	19x79	23x73	19x77
Speedometer ratio	22x18	52x67	22x18	52x67	None
	Petrol				
	3.0i V6				
		Automatic			
Engine type	XFX				
Tyres-Rolling circumference	215/55 R16 – 1.96 m.				
Gearbox type	ML/5	4 HP 20			
Gearbox ident. plate	20 LE 95	20 HZ 13			
Reduction box torque	16x65	20x69			
Speedometer ratio	None	59x68			

CLUTCH
GEARBOX
DRIVESHAFTS

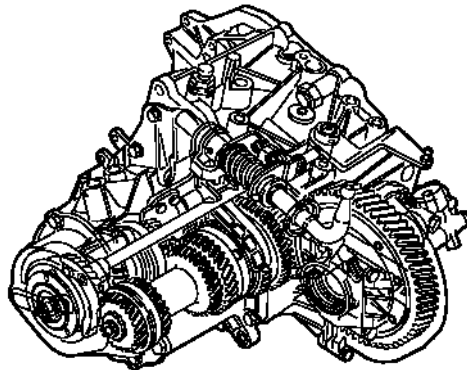
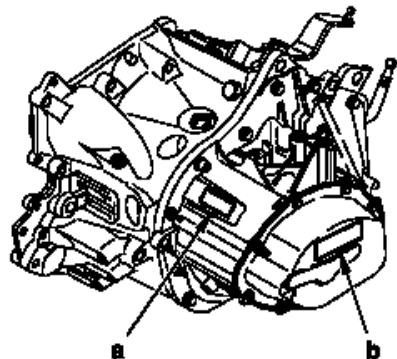
GEARBOX AND TYRE SPECIFICATIONS

	Diesel				
	2.0 HDi			2.2 HDi	
			Automatic		Automatic
Engine type	RHY	RHZ		4HX	
Tyres-Rolling circumference	195/65 R15 – 1.93 m			215/65 R16 – 1.96 m.	
Gearbox type	BE4/5	ML/5	AL4	ML/5	4 HP 20
Gearbox ident. plate	20 DL 32	20 LE 94	20 TP 43	20 LE 96	20 HZ 20
Reduction box torque	19x75	16x65	25x68	17x67	23x66
Speedometer ratio	None	None	52x67	None	59x68

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ-RFN-RLZ-RHY

Identification.



Identification.

- (a) Marking zone
(Sequence and serial no.).
- (b) Location of identification label.

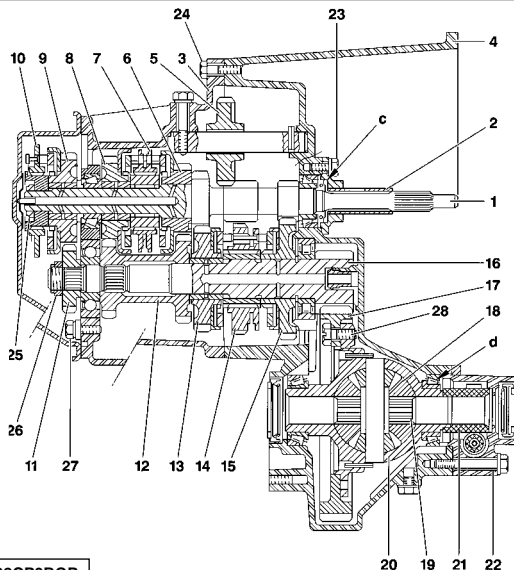
B2CP3BNC

B2CP3BPD

CLUTCH
GEARBOX
DRIVESHAFTS

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ - RFN - RLZ - RHY



B2CP3BQP

Identification (continued)

- (1) Primary shaft.
- (2) Clutch bearing guide.
- (3) Gearbox casing.
- (4) Clutch housing.
- (5) Reverse idle.
- (6) Drive gear (3rd gear).
- (7) 3rd /4th gear synchroniser
- (8) Drive gear (4th gear).
- (9) Drive gear (5th gear).
- (10) 5th gear synchroniser.
- (11) Driven gear (5th gear).
- (12) Driven gear (3rd / 4th gear)
- (13) Driven gear (2nd gear).
- (14) 1st / 2nd gear synchroniser
- (15) Driven gear (1st gear).
- (16) Secondary shaft.
- (17) Differential gear.
- (18) Satellite gears.
- (19) Planet gears.
- (20) Differential housing.

- (21) Speedometer drive.
- (22) Extension.

«c» Adjusting shims : 0,7 to 2,4 mm.
(From 0,10 to 0,10 mm)

«d» Adjusting shims: 1,4 à 1,6 mm.
(From 0,10 to 0,10 mm)

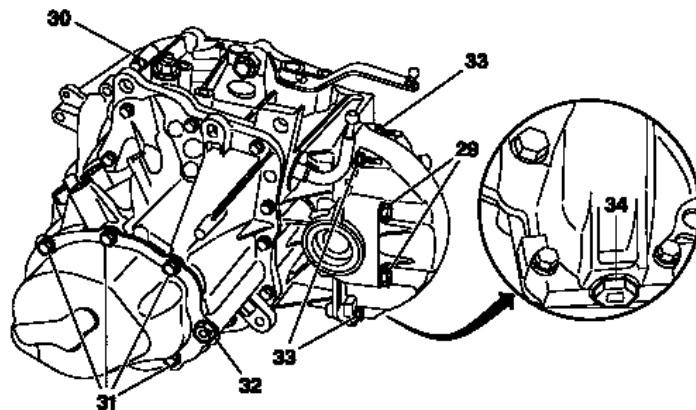
Tightening torques m.daN.

- | | |
|---------------------------|------|
| (23) Clutch bearing guide | 1.25 |
| (24) Clutch housing | 1.3 |
| (25) Secondary shaft nut | 7.25 |
| (26) Yoke retaining screw | 6.5 |
| (27) Reverse gear screw | 1.5 |
| (28) Reverse gear switch | 6.5 |
| Reverse gear switch | 2.5 |

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ - RFN - RLZ - RHY

Identification (continued)

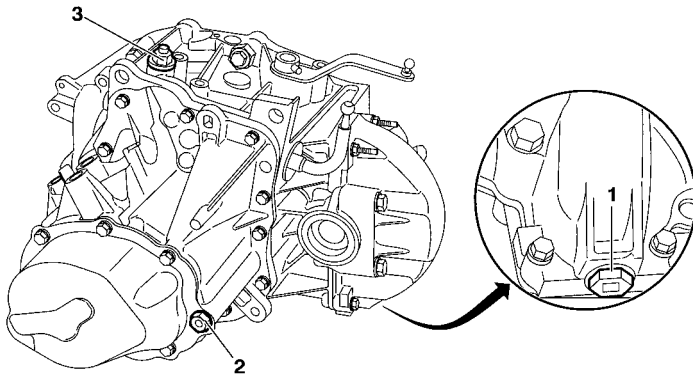


Tightening torques m.daN.

(29) Differential housing	5
(30) Breather pipe	1.7
(31) Rear housing cover screws	1.25
(32) Top-up plug	2.2
(33) Differential housing screws	1.25
(34) Drain plug screw	3.5

B2CP3BRD

CLUTCH
GEARBOX
DRIVESHAFTS

BE4/5 GEARBOX SPECIFICATION**Engines : 6FZ - RFN - RLZ - RHY****Recommendations - Precautions**

- (1) Drain plug.
- (2) Filling and top-up plug.
- (3) Air vent.

NOTE : The air vent aperture can be used for filling.

Quality of oil.

- See chapter on lubrication page 19.

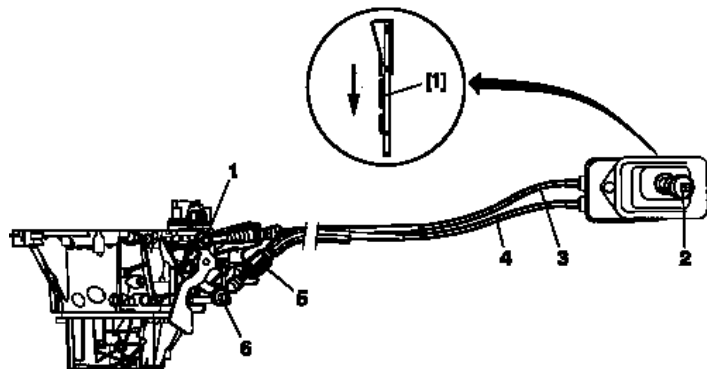
Quantity of oil.

- Gearbox empty = 1.9 litres.
- After draining = 1.8 litres.

B2CP3BLD

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ - RFN - RLZ - RHY



Gear controls

[1] Gear lever positioning tool **8605-T**.

- (1) Gear engagement ball-joint \varnothing 10 mm.
- (2) Gear control lever
- (3) Gear engagement control cable.
- (4) Gear selection control cable.
- (5) Cable selection locking key.
- (6) Gear selection ball-joint \varnothing 10 mm.

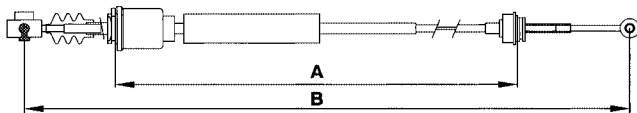
B2CP3CJD

CLUTCH
GEARBOX
DRIVESHAFTS

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ - RFN - RLZ - RHY

Gear selection control cable.



B2CP3CKD

Left hand drive

Right hand drive

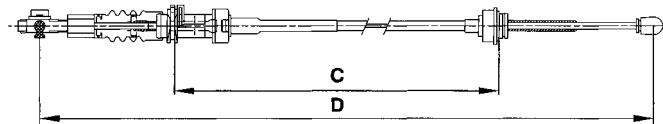
Length A

 $730 \pm 3 \text{ mm}$

Length B

 $937.5 \pm 7.5 \text{ mm}$

Gear engagement control cable.



B2CP3CLD

Left hand drive

Right hand drive

Length G

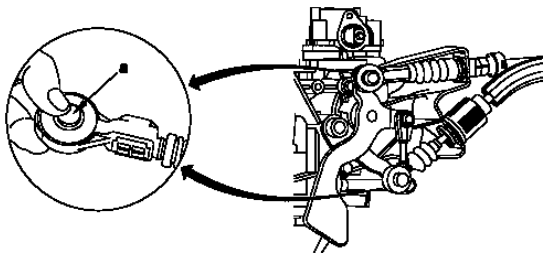
 $700 \pm 3 \text{ mm}$

Length H

 $983 \pm 7.5 \text{ mm}$ **Note :** See adjustments: page 181

BE4/5 GEARBOX SPECIFICATION

Engines : 6FZ - RFN - RLZ - RHY



Adjustments.

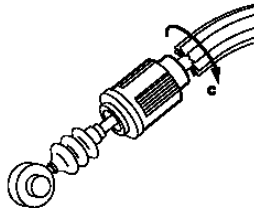
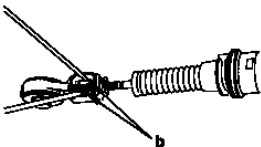
WARNING : Control cables should be adjusted each time the gearbox is removed or cables changed.

WARNING : Do not use oil to detach the ball-joints.

To release the ball-joint, press at the centre «a» then pull the ball-joint upwards.

Ball-joints alone can be changed by removing the unlocking key with the aid of two thin screwdrivers, unclip at «b».

To unlock the ball-joint, turn in the direction of the arrow «c».



B2CP3CVD

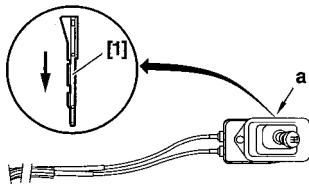
B2CP3CWC

B2CP3CXC

CLUTCH
GEARBOX
DRIVESHAFTS

BE4/5 GEARBOX CONTROLS

Engines : 6FZ - RFN - RLZ - RHY



B2CP3E7C

Tools.**[1]** Tool for positioning the gearbox control lever**8605-T Tool kit 9040-T****Adjustments.**

Cables should be adjusted each time the gearbox, gear controls or power unit are removed.

Adjustment principles :

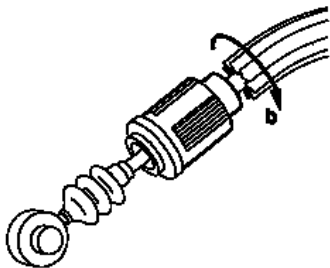
- Lock the gear lever in neutral position, using tool **[1]**.
- Position the gearbox in neutral.
- Anchor the ball-joints on the gearbox levers.
- Lock the cable lengths with the ball-joint locking keys.

Inside the vehicle.

- Remove the central console (*See corresponding operation*).
- Remove the plastic blank at **(a)**.
- Insert tool **[1]** fully and rotate a quarter turn to lock the gear control lever.
- At neutral.

BE4/5 GEARBOX CONTROLS

Engines : 6FZ - RFN - RLZ - RHY



Adjustments (continued)

Under the bonnet.

- Remove the air filter assembly.
- Unlock the gear engagement cable ball-joint **(b)**.
- Unlock the gear selection cable ball-joint **(c)**.
- Make sure the gear levers (*engagement and selection*) are in neutral position.
- Lock the cable lengths with the ball-joint locking keys.
- Remove the tool **[1]**.



Checks.

- Remove the tool **[1]**.
- Check that all the gears engage without «**tightness**».
- Check that the gear lever moves identically forwards and backwards and to right and left. If not :
- Repeat the adjustment.
- Refit the console and the air filter assembly.

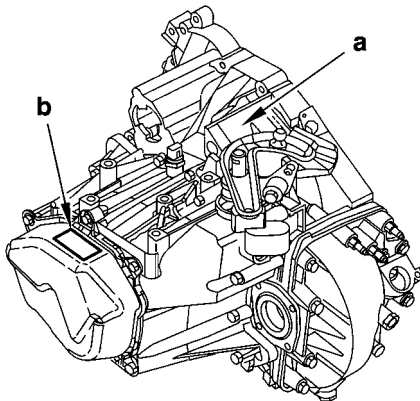
B2CP3E8C

B2CP3E9C

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX

Identification.



Identification.

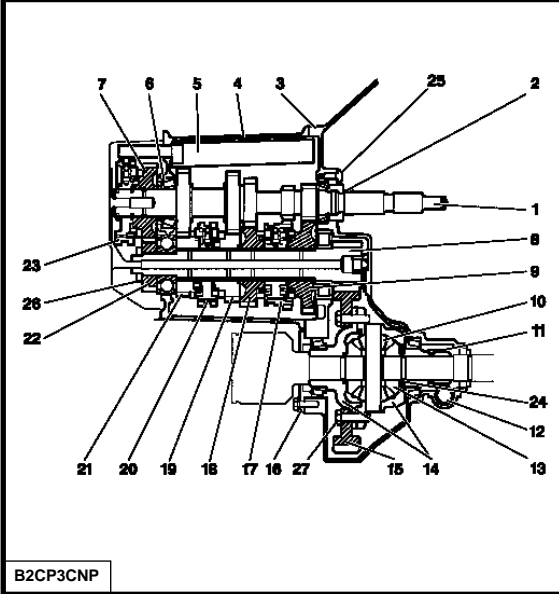
(a) Marking zone
(Sequence and serial no.).

(b) Location of identification label.

B2CP3CMC

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX



Identification (continued)	
----------------------------	--

- (1)** Primary shaft.
- (2)** Clutch bearing guide.
- (3)** Clutch housing
- (4)** Gearbox casing.
- (5)** Oil channel
- (6)** Primary shaft bearing adjustment shim.
- (7)** Drive gear (5th)
- (8)** Secondary shaft.
- (9)** Driven gear (1st)
- (10)** Satellite gears.
- (11)** Speedometer screw.
- (12)** Speedometer drive.
- (13)** Planet gears.
- (14)** Differential housing
- (15)** Differential gearwheel.
- (16)** Differential bearing stop plate.
- (17)** 1st/2nd gear synchroniser and reverse gear driven gear.

- (18)** Driven gear (2nd)
- (19)** Driven gears (3rd)
- (20)** 3rd/4th gear synchroniser.
- (21)** Driven gears (4th)
- (22)** Driven gears (5th)
- (23)** 5th gear synchroniser.
- (24)** Planet gear adjustment shim.

Tightening torques m.daN.

(25) Clutch bearing guide	2 ± 0,2
(26) Secondary shaft nut	17 ± 1,5
(27) Differential screw	7,5 ± 0,5

- | |
|--|
| |
|--|

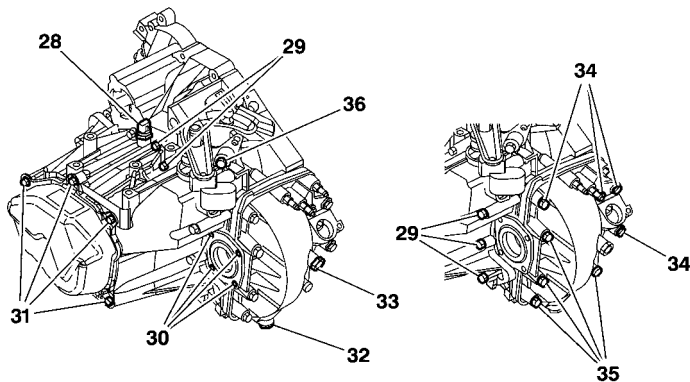
B2CP3CNP

CLUTCH
GEARBOX
DRIVESHAFTS

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX

Identification (continued)

**Tightening torques m.daN.**

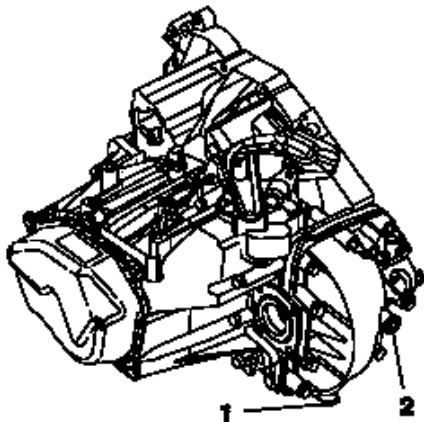
(28) Reverse lamp switch	$2,5 \pm 0,2$
(29) Gearbox casing /clutch housing fixing screws	$2 \pm 0,2$
(30) Differential bearing stop plate screws	$2 \pm 0,2$
(31) Gearbox rear casing screws	$2 \pm 0,2$
(32) Drain plug	$3 \pm 0,3$
(33) Filling / top-up plug	$3 \pm 0,3$
(34) M8 screw (Differential housing fixing)	$2 \pm 0,2$
(35) M10 screw (Differential housing fixing)	$4 \pm 0,5$
(36) Selector guide screw	$4 \pm 0,5$

B2CP3CPD

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX

Recommendations - Precautions



(1) Drain plug.

(2) Filler and top-up plug.

Oil quality.

- See chapter on lubricants: page 19.

Oil quantity.

- After draining

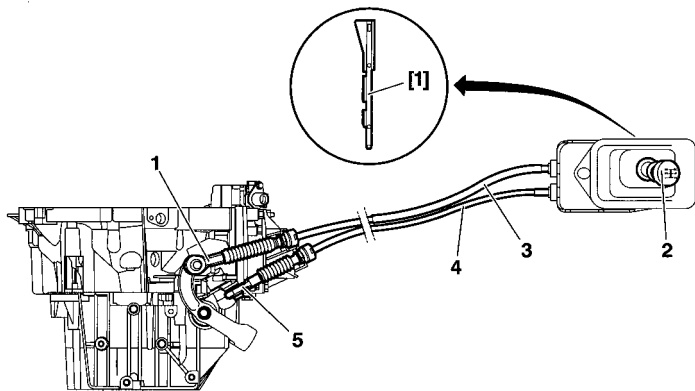
= 1.8 litres

B2CP3CUC

CLUTCH
GEARBOX
DRIVESHAFTS

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX



[1] Gear lever positioning tool

8605-T.

(1) Gear engagement ball-joint Ø 10 mm.

(2) Gear control lever

(3) Gear engagement control cable.

(4) Gear selection control cable.

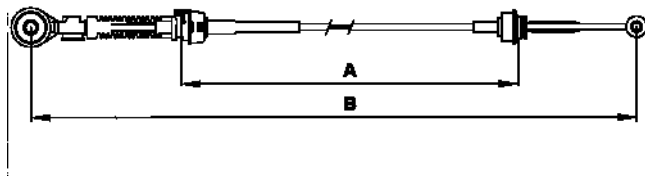
(5) Gear selection ball-joint Ø 10 mm.

B2CP3CQD

ML/5 GEARBOX SPECIFICATION

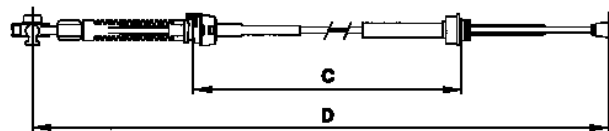
Engines : XFX – RHZ – 4HX

Gear selection control cable.



B2CP3CRD

Gear engagement control cable.



B2CP3CSD

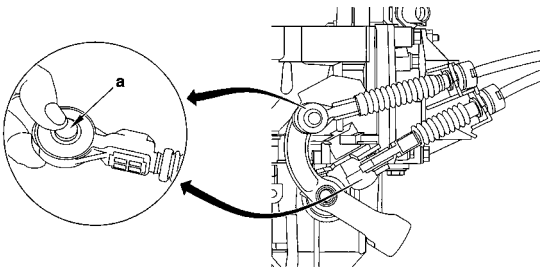
	Left hand drive	Right hand drive		Left hand drive	Right hand drive
Length A	750 ± 3 mm		Length C	771 ± 3 mm	
Length B	1012 ± 7.5 mm		Length D	1094 ± 7.5 mm	

Note : See adjustment page 190.

CLUTCH
GEARBOX
DRIVESHAFTS

ML/5 GEARBOX SPECIFICATION

Engines : XFX – RHZ – 4HX



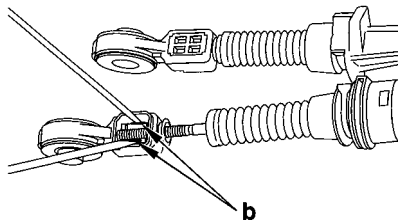
Adjustments.

WARNING : Control cables should be adjusted each time the gearbox is removed or cables changed.

WARNING : Do not use oil to detach the ball-joints.

To release the ball-joint, press at the centre «a» then pull the ball-joint upwards.

Ball-joints alone can be changed by removing the unlocking key with the aid of two thin screwdrivers, unclip at «b».



B2CP3CTD

B2CP3BYC

ML/5 GEARBOX CONTROLS

Engines : XFX – RHZ – 4HX

Tools.

[1] Tool for positioning the gearbox control lever

8605-T Tool kit 9040-T

Adjustments.

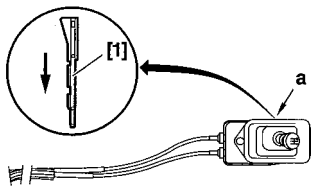
Cables should be adjusted each time the gearbox, gear controls or power unit are removed.

Adjustment principles :

- Lock the gear lever in neutral position, using tool [1].
- Position the gearbox in neutral.
- Anchor the ball-joints on the gearbox levers.
- Lock the cable lengths with the ball-joint locking keys.

Inside the vehicle.

- Remove the central console (*See corresponding operation*).
- Remove the plastic blank at (a).
- Insert tool [1] fully and rotate a quarter turn to lock the gear control lever.
- At neutral.

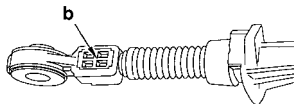


B2CP3E7C

CLUTCH
GEARBOX
DRIVESHAFTS

ML/5 GEARBOX CONTROLS

Engines : XFX – RHZ – 4HX

**Adjustments (continued)****Under the bonnet.**

- Remove the air filter assembly.
- Unlock the gear engagement and selection cable ball-joint **(b)**.
- Make sure the gear levers (*engagement and selection*) are in neutral position.
- Lock the cable lengths with the ball-joint locking keys.
- Remove the tool **[1]**.

Checks.

- Remove the tool **[1]**.
- Check that all the gears engage without «**tightness**».
- Check that the gear lever moves identically forwards and backwards and to right and left. If not :
- Repeat the adjustment.
- Refit the console and the air filter assembly.

B2CP3EBC

4 HP 20 AUTOACTIVE GEARBOX SPECIFICATION

Engines : XFX - 4HX

Identification.

(1) Identification plate
(riveted on the casing).

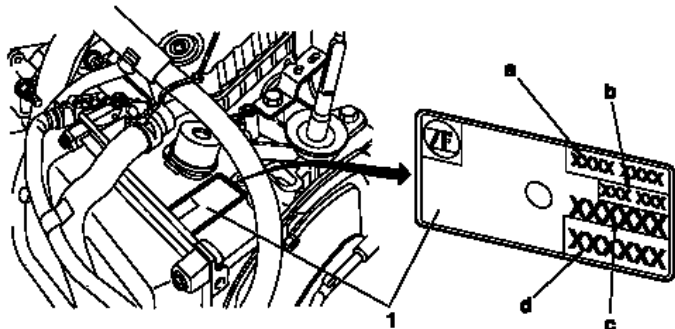
(a) Serial no.

(b) ZF number.
(last digits taken into account)

(c) Type of automatic gearbox.

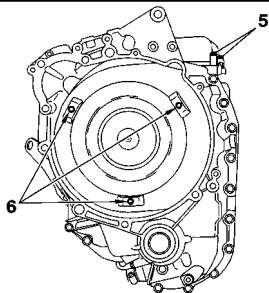
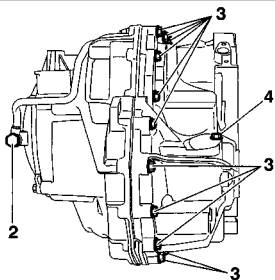
(d) Component reference.

Oil quality and quantity
(See chapter, page 19).



4 HP 20 AUTOACTIVE GEARBOX SPECIFICATION

Engines : XFX - 4HX



Tightening torques m.daN.

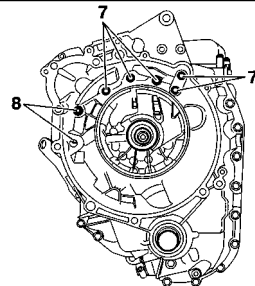
Gearbox exterior.

(2) Oil channel union fixing Exterior fixing of	2.5 ± 0.5
(3) Exterior fixing of converter cover on clutch housing	2.3 ± 0.5
(4) Speedometer take-off aperture plug	1 ± 0.1
(5) Steel casing fixing	0.6 ± 0.1
(6) Converter fixing on engine	6 ± 1
(7) Interior fixing of converter cover on clutch housing	2.3 ± 0.5
(8) Torx fixing of converter cover on clutch housing	2.3 ± 0.5
Drain plug	4.5 ± 0.8
Heat exchanger fixing	3.5 ± 0.5
Selector lever position switch fixing	1 ± 0.2
Converter cover fixing on engine cover (XFX engine)	6.5 ± 1
Converter cover fixing on engine cover (4HX engine)	5.8 ± 1

B2CP3CZC

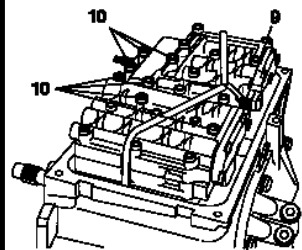
B2CP24BC

B2CP24CC



4 HP 20 AUTOACTIVE GEARBOX SPECIFICATION

Engines : XFX - 4HX



Tightening torques m.daN.

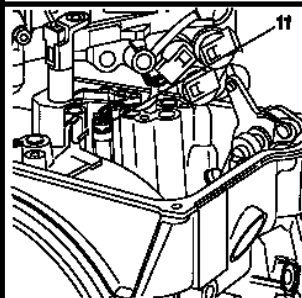
Gearbox interior.

- (9) Input speed sensor fixing
- (10) Hydraulic block fixing (*Large head*)
- (11) Output speed sensor fixing

0.8 ± 0.1

0.8 ± 0.1

1 ± 0.2



B2CP24DC

B2CP24EC

CLUTCH
GEARBOX
DRIVESHAFTS

RECOMMENDATIONS - PRECAUTIONS (AL 4 and 4 HP 20 AUTOMATIC GEARBOXES)

Engines : 6FZ - RFN - RHZ - XFX - 4HX

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.

AL4 gearbox

- Do not exceed 50 km/h (30mph) over a distance of 50 km (30 m).

4 HP 20 gearbox

- Do not exceed 70 km/h (45mph) over a distance of 100 km (60 m).

Driving.

Never drive with the ignition switched off.

Never push the vehicle to try to start it;
(impossible with an automatic gearbox).

Lubrication

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

Removing - refitting. *(Automatic gearbox).*

WARNING : Never place the gearbox on its lower casing
(risk of deforming the tray and damaging the hydraulic valve block).
Never use the connections as handles for raising, turning, holding or pushing the gearbox.

ESSENTIAL :

- Fit the converter retaining peg while the gearbox is removed.
- Fit the centring peg to locate the gearbox on the engine:
(remove the converter retaining peg just before locating)

WARNING : With the emergency programme selected, an impact is felt when changing from “P” → “R” or “N” → “R”.

RECOMMENDATIONS - PRECAUTIONS (AL 4 AUTOMATIC GEARBOX)

Engines : 6FZ - RFN - RHZ

Procedure to be followed prior to carrying out repairs on AL4 autoactive gearbox

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**, **N/R** and **N/D**.

Réception client.

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

Oil quality – Oil level.

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 quality.

See corresponding operation.

An excessive oil level can result in the following consequences :

- Excessive heating of the oil.
- Oil leaks.

An insufficient level causes the destruction of the gearbox.

Top up the level of oil in the gearbox *(if necessary)*.

Check using a diagnostic tool.

Read the fault codes *(engine and gearbox)*.

Absence de codes défauts.

Carry out parameter measures, actuator tests and a road test.

Presence of fault codes.

Carry out the necessary repairs.

Delete the fault codes.

Carry out a road test to check the repair and, if need be, modify the gearbox ECU parameters *(this is essential after an initialisation of the ECU)*.

RECOMMENDATIONS - PRECAUTIONS (AL 4 and 4 HP 20 AUTOMATIC GEARBOXES)

Engines : 6FZ - RFN - RHZ - XFX - 4HX

Procedure prior to carrying out repairs (continued)

When the ECU detects an erroneous or non-existent value on input or output :

- It writes the fault in memory.
- For each associated context, it writes the context of the oldest fault in memory.
- It initiates a back-up mode strategy.

There are two types of back-up modes :

- The ECU makes replacement values available (*relating to comfort, gear selection quality, loss of functions*).
- Access to emergency programme (*only 3rd ratio and reverse are available*)

NOTE : 4 HP 20 : A snatching may be felt when changing : **P/R - N/R - N/D.**

Reading the fault codes.

Read the fault codes.

No fault codes present :

Carry out a measure of parameters.

Anomalies present :

- **YES** : Carry out the necessary repairs.
- **NO** : Read the fault codes – engine ECU.
- Carry out a road test.

Following an initialisation of the ECU, for a certain period of time there may be an inconsistent gear selection quality (*while ECU parameters are adapted to the gearbox*).

To achieve a consistent standard, it is necessary to carry out a road test taking in frequent gear changes (*auto-adaptive laws*).

RECOMMENDATIONS - PRECAUTIONS (AL 4 and 4 HP 20 AUTOMATIC GEARBOXES)

Engines : 6FZ - RFN - RHZ - XFX - 4HX

ECU : Downloading, Configuration, Initialisation (*Pedal*).

Downloading. (AL 4 and 4 HP 20)

Updating the gearbox ECU by downloading :

- Follow the procedure using the diagnostic equipment.

The operation of downloading is used to update the automatic gearbox ECU or to adapt it to evolutions of the engine ECU.

After downloading, carry out the following :

- Note down the value in the oil usage counter present in the automatic gearbox ECU.
- Delete the fault codes.
- Again note down the value in the oil usage counter and compare it with the value previously read.
- Pedal initialisation (**AL 4**)
- Configuration (if needed) (**AL 4**)
- A reinitialisation of the autoadaptives (**AL4 - 4 HP 20**).
- A road test (**AL 4 - 4 HP 20**).

Following the diagnostic tool procedure.

IMPERATIVE : Every update of the automatic gearbox ECU must be accompanied by an update of the engine ECU.

RECOMMENDATIONS - PRECAUTIONS (AL 4 AUTOMATIC GEARBOX)**Engine : 6FZ-RFN-RHZ****ECU : Downloading, Configuration, Initialisation (Pedal) (continued)****Downloading (AL 4 only).**

ECU downloading procedure :

- Follow the diagnostic tooling procedure.

A new ECU or downloaded update is always configured with the following options :

- SHIFT LOCK gear selection lever position.
- OBD outlet (*emission standard L4*).

If the ECU is to be fitted to a vehicle without one or both of these options:

- Carry out a configuration which inhibits the diagnosis of the option(s) concerned.

Pedal initialisation. (AL 4 only).

A pedal initialisation must be carried out in the following cases :

- Replacement of the automatic gearbox ECU.
- Replacement of the automatic gearbox.
- Downloading of the ECU configuration.
- Adjustment or replacement of the accelerator cable.
- Replacement of the throttle potentiometer.

-IMPERATIVE : For a certain period of time, while the ECU parameters are adapted to the gearbox, there may be an inconsistent gear selection quality. To achieve a consistent standard, it will be necessary to carry out a road test taking in frequent gear changes (*auto adaptive laws*).

RECOMMENDATIONS - PRECAUTIONS (4 HP 20 AUTOMATIC GEARBOX)

Engines : XFX - 4HX

SHIFT LOCK

The **shift lock** is a system which locks the gear selection lever in the park position "P".

Unlocking the «shift lock» (normal operation).

Switch on the ignition.

Apply the brake pedal and keep it pressed.

Using the selection lever, disengage from position «P».

Unlocking the «shift lock» (with a fault).

NOTE : It is impossible to unlock the **«shift lock»** with the **«normal operation»** method.

The causes of the fault may arise from the following components :

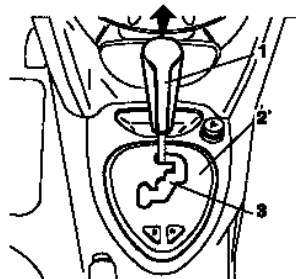
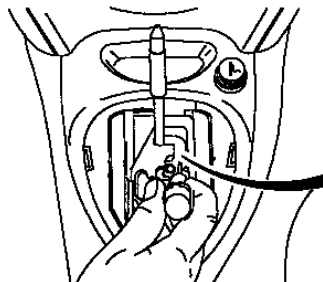
- **«Shift lock».**
- Gear lever position switch.
- Automatic gearbox ECU.
- Electrical harnesses.
- Battery voltage.

Remove :

- The gear lever knob **(1)** by pulling upwards.
- The cover **(2)** (unclip).
- The shutter.

Unlock the **«shift lock» (4)** using a screwdriver.

Using the selection lever, disengage from position «P».

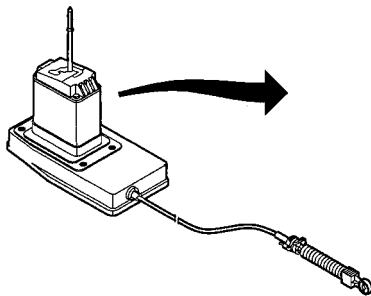


C5FPOCUD

C5FPOCTC

4 HP 20 GEARBOX CONTROLS

Engines : XFX - 4HX



Selection control.

The gear selection control has **5 positions**.

The selection lever is guided by the shape of the stepped gate and by a retaining spring which holds it towards the left.

The gear selection control is equipped with the «**shift lock**», so you have to switch on the ignition and apply the brake pedal to unlock the selection lever from the park position.

Selection (P) : Park (*locking and immobilisation of the vehicle*).

Selection (R) : Reverse gear.

Selection (N) : Neutral.

Selection (D) : Drive (*Use of the four gears in their autoadaptive automatic function*).

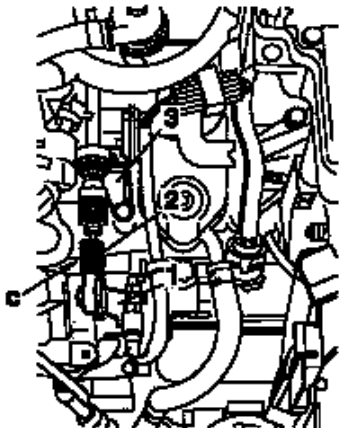
Selection (M) : **Manual (M + M -)** allowing the driver to select gears by pulling and pushing the gear lever. In position **M**, selection is by an electronic sensor located close to the gear lever.

The variation of flux necessary to the movement of the sensor cells is obtained by a magnet located on the lever itself. This enables the change of status.

B2CP3DKD

4 HP 20 GEARBOX CONTROLS

Engines : XFX - 4HX



Selection control (continued).

In position **M**, selection is by an electronic sensor located close to the gear lever.

The variation of flux necessary to the movement of the sensor cells is obtained by a magnet located on the lever itself. This enables the change of status. The information is transmitted to the gearbox ECU.

Two switches placed on the gear control gate permit the driver to choose one of the following three driving programmes:

- **Normal** : The normal programme operates in the absence of the other two (*Eco law, autoadaptive mode*).
- **Sport** : Permits a more dynamic, sporty performance.
- **Snow** : Facilitates starting and adhesion on slippery surfaces.

To return to the normal programme, press a second time on the sport switch or snow switch.

Only when the selector is in position **(P)** or **(N)** can the engine be started.

(1) Control linkage with ball-joint.

(2) Automatic adjustment (*Push-button pressed in to lock the control adjustment, springs out for the adjustment to be made*) «**C**» Push-button locking clip in pressed-in position.

(3) Cable sleeve stop.

The automatic gearbox is controlled by cable.

B3CP3DLC

DRIVESHAFTS - GEARBOX

			Tightening torques (m.daN)		Gearbox oil seal mandrels		
Vehicles	Gearbox	Engines	Driveshaft bearing	Driveshaft nut	Right	Left	Tool kit
CITROËN C5	BE4/5	6FZ - RFN - RLZ RHY	2 ± 0.2	32.5 ± 1.5	7114-T.X	7114-T.W	7116-T
	ML/5	XFX RHZ - 4HX			9017-T.C	5701-T.A	9017-T
	AL4	6FZ - RFN - RHZ			0338 J1 0338 J3	0338 H1 0338 H2	0338
	4 HP20	XFX - 4HX			8010-T.D 8010-T.K1	8010-T.J 8010-T.K2	8010-T

Tightening torques (m.daN) of the wheel bolts

CITROËN C5	Steel Alloy	9 ± 0.5
------------	-------------	---------

WHEELS AND TYRES					
			1.8i 16 V (With or without Auto. gearbox) X-SX	2.0i 16V (With or without Auto. gearbox)	
				X-SX	Exclusive
Engine type			6FZ	RFN	
Tyre Circumference		S	195/65 R15-HX1 ENERGY-1.920 m		
		O	195/65 R15-HX1 ENERGY-1.920 m		
Wheel		T	6 JX 15 H2-4.18		(A) 6JX15H2-4.18 SYLVESTONE
		A	6 JX 15 H264.18 SYLVESTONE		
Pressure (Bars)	Front/ Rear	(1)	2.3/2.3		
	Front/ Rear	(2)	2.3/2.7		
Spare wheel	Tyre Circumference	S	195/65 R15-HX1 ENERGY-1.920 m		
		O	195/65 R15-HX1 ENERGY-1.920 m		
	Wheel	T	6 JX 15 H2-4.18		
		T	6 JX 15 H2-4.18		
	Pressure (Bars)		2.7		
Electronic under-inflation detection					
			No (*)		
Symbols and abbreviations used S = Standard fitting T = Steel wheel O = Option fitting A = Alloy wheel (1) = Normal operating pressure (Max. 4 persons and 40 kg in the boot). (2) = Pressure under load (More than 4 persons and «MAXI» load in the boot). (*) = Possibility of «space saver» type spare wheel option.					

WHEELS AND TYRES

		2.0 HPi (Without Auto. gearbox)		3.0i V6 (With or without Auto. gearbox)
		X-SX	Exclusive	Exclusive
Engine type		RLZ		XFX
Tyre	S	195/65 R15 H XH1 ENERGY 1.920 m		215/55 R16W-PILOT PRIMACY 1.953 m
Circumference	O	195/65 R15 H XH1 ENERGY 1.920 m		
Wheel	T	6 JX 15 H2-4.18	(A) 6 JX 15-4.18 SYLVESTONE	(A) 6 JX 15-4.18 MONZA
	A	6 JX 15 H2-4.18 SYLVESTONE		
Pressure (Bars)	Front/ Rear	(1)	2.3/2.3	2.5/2.3
	Front/ Rear	(2)	2.3/2.7	2.5/2.7
Spare wheel	Tyre	S	195/65 R15 XH1 ENERGY 1.920 m	215/55 R16W-PILOT PRIMACY 1.953 m
	Circumference	O	195/65 R15 XH1 ENERGY 1.920 m	
	Wheel	T	6 JX 15 H2-4.18	(A) 6.5 JX 16-4.26 MONZA
		T	6 JX 15 H2-4.18	
	Pressure (Bars)		2.7	2.6
Electronic under-inflation detection				Yes (except spare wheel) - (**)
			No (*)	
Symbols and abbreviations used		S = Standard fitting T = Steel wheel. O = Option fitting A = Alloy wheel		
(1) = Normal operating pressure		(Max. 4 persons and 40 kg in the boot).		
(2) = Pressure under load		(More than 4 persons and «MAXI» load in the boot).		
(*) = Possibility of «space saver» type spare wheel option.		(**) = Fitting of tyre «not suitable for chains».		

WHEELS AND TYRES					
			2.0 HDi (Without Auto. gearbox) X	2.0 HDi (With or without Auto. gearbox)	
				X-SX	Exclusive
Engine type			RHY	RHZ	
Tyre		S	195/65 R15H XH1 ENERGY 1.920 m		
Circumference		O	195/65 R15H XH1 ENERGY 1.920 m		
Wheel		T	6 JX 15 H2-4.18		(A) 6JX 15-4.18 SYLVESTONE
		A	6 JX 15 H2-4.18 SYLVESTONE		
Pressure (Bars)	Front/ Rear	(1)	2.3/2.3		
	Front/ Rear	(2)	2.3/2.3		
Spare wheel	Tyre circumference	S	195/65 R15H XH1 ENERGY 1.920 m		
		O	195/65 R15H XH1 ENERGY 1.920 m		
	Wheel	T	6 JX 15 H2-4.18		
		T	6 JX 15 H2-4.18		
	Pressure (Bars)		2.7		
Electronic under-inflation detection					
			No (*)		
Symbols and abbreviations used S = Standard fitting T = Steel wheel. O = Option fitting A = Alloy wheel (1) = Normal operating pressure (Max. 4 persons and 40 kg in the boot). (2) = Pressure under load (More than 4 persons and «MAXI» load in the boot). (*) = Possibility of «space saver» type spare wheel option.					

WHEELS AND TYRES

			2.2 HDi (With or without Auto. gearbox)	
			SX	Exclusive
Engine type			4HX	
Tyre Circumference		S	205/65 R15H XH1 ENERGY-1.959m	215/55 R16W PILOT PRIMACY-1.953m
		O	215/55 R16W PILOT PRIMACY-1.953m	205/65 R15H XH1 ENERGY 1.959m
Wheel		T	6.5 JX 15 CH-4.25-IMOLA	6.5 JX 16-4.26-MONZA
		A	6.5 JX 16-4.26-MONZA	6.5 JX 15 CH-4.25-IMOLA
Pressure (Bars)	Front/ Rear	(1)	205/65-2.3/2.1 – 215/55-2.5/2.3	
	Front/ Rear	(2)	205/65-2.3/2.5 – 215/55-2.5/2.3	
Spare wheel	Tyre circumference	S	205/65 R15H XH1 ENERGY-1.959m	215/55 R16W PILOT PRIMACY-1.953m
		O	215/55 R16W PILOT PRIMACY-1.953m	205/65 R15H XH1 ENERGY-1.959m
	Wheel	T	6.5 JX 15 CH-4.25-IMOLA	6.5 JX 16-4.26-MONZA
		T	6.5 JX 16-4.26-MONZA	6.5 JX 15 CH-4.25-IMOLA
	Pressure (Bars)		205/65-2.5 – 215/22-2.6	
Electronic under-inflation detection			Yes (except spare wheel) (O) = (**)	
Symbols and abbreviations used			S = Standard fitting	T = Steel wheel.
(1) = Normal operating pressure			(Max. 4 persons and 40 kg in the boot).	
(2) = Pressure under load			(More than 4 persons and «MAXI» load in the boot).	
(**) = Fitting of tyre «not suitable for chains».				
			O = Option fitting	A = Alloy wheel

WHEELS AND TYRES

Inflation pressures

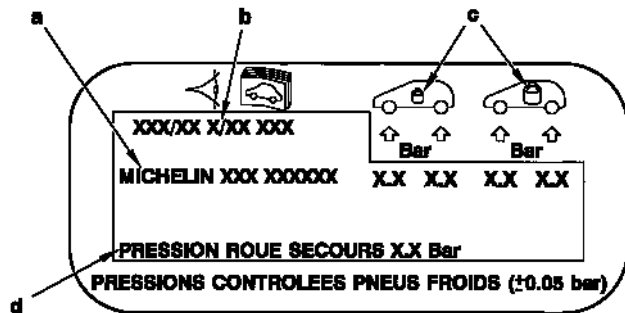
The label giving the recommended inflation pressures is affixed to the front left hand door pillar.

a - Type of tyre.

b - Tyre specifications.

c - Recommended tyre inflation pressures (*unladen and laden*)

d - Recommended tyre inflation pressures for the spare wheel.



B2GPOOND

Wheel bolts

(1) Wheel bolt

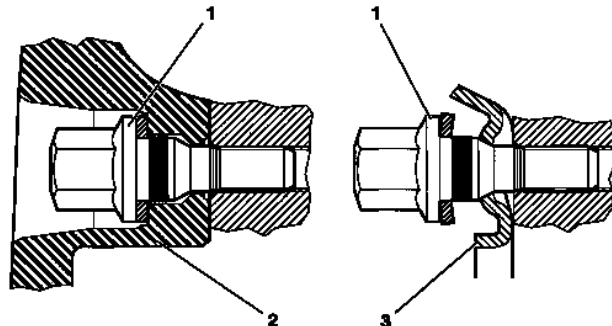
(For all rim types).

(2) Wheel in light alloy or steel alloy

(3) Spare wheel («**Space-saver**» type).

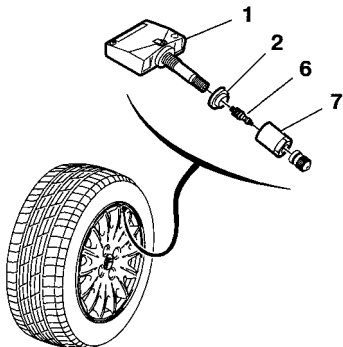
Tightening torque

$9 \pm 0.5 \text{ m.daN.}$



B2GPOOJD

WHEELS AND TYRES



B2GPOOUC

Special features.

- The contact faces of the fixing bolts on «**steel alloy**» wheels are flat.
- **Silverstone, Imola, and Monza** alloy wheels can be equipped with an under-inflation detection device.
- «**Space-saver**» type spare wheels are composed of :
- **4 JX 15 4,0** red-coloured rim on which is affixed a label indicating a speed limit of **80 km/h (50 mph)**.
- A **MICHELIN 125/90 R15 TEX** tyre: pressure **3,5 ± 0,5 Bars**.

NOTE : These wheels are available only to replace the **195/65 R15 H** tyre fitting.

- For **2,2 HDi (4HX)** Exclusive, there is a special option called chain option for non-chainable versions.
- The vehicle therefore has identical **205/65 R 15** tyres, four **IMOLA** type rims and a steel alloy spare wheel.
- The bolts for fixing **SILVERSTONE** and **IMOLA** type alloy rims have chrome caps.

WHEELS AND TYRES

Special features (continued)

Under-inflation detection device.

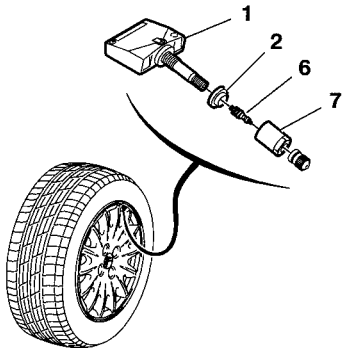
- Vehicles equipped with the under-inflation detection system are identifiable by the presence of aluminium valves.
- The under-inflation detection option is possible only on vehicles equipped with aluminium rims.

Composition :

- Four **HF** transmitter modules **(4)** incorporated in the wheels in place of the valves, each including a lithium battery with **10 years** guaranteed life.
- A **HF** receiver incorporated in the communication module under the steering wheel (*COM 2000*).
- The tightening torque for the nut **(5)** is **0.6 ± 0.1 m.daN**.

WARNING :

- Each time a tyre is replaced, the valve **(6)** must be replaced.
- Each time a rim is replaced, the seal **(7)** must be replaced.
- Each time a valve is replaced, it is necessary to have the transmitter recognised by the BSI, with the aid of a diagnostic tool.



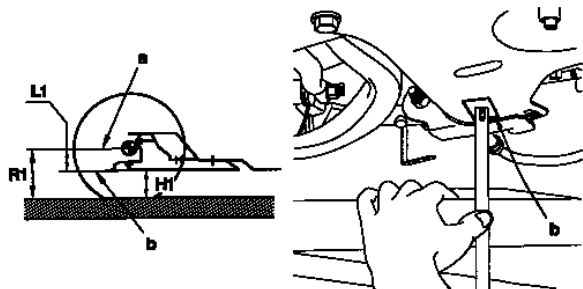
B2GPOOUC

AXLE GEOMETRY	
General adjustment conditions	
<ul style="list-style-type: none"> - Check the tyre pressures. - Release the handbrake. - Place the manual height control in the «NORMAL» position. - Engine running. 	NOTE : After each movement of the vehicle body, and before each measurement : <ul style="list-style-type: none"> - Move the vehicle slightly forwards and backwards, by turning the road wheel by hand.
Front height	Rear height
L1	L2
The dimension «L1» for checking front height is between the level of the front subframe «b» and the wheel axis «a».	The dimension «L2» for checking rear height is between the measuring zone «b» and the wheel axis «a».
<p>This method eliminates all the variations in measurement due to :</p> <p>Different wheel fittings.</p> <p>Vehicle loading.</p> <p>Wear or incorrect inflation of tyres.</p>	
(Measuring from the wheel axis : tool 8006-T)	
$H1 = R1 - L1$	$H2 = R2 + L2$
<p>H1 = Front height (± 6 mm).</p> <p>R1 = Wheel radius (mm).</p> <p>L1 = Theoretical dimension between the level of the front subframe and the wheel axis.</p>	<p>H2 = Rear height (± 6 mm).</p> <p>R2 = Wheel radius (mm).</p> <p>L2 = Theoretical dimension between the measuring zone on the cross-member support and the wheel axis.</p>

AXLE GEOMETRY

Measuring front height

The measurement of the front dimension «H1» is between ground level and the measuring zone on the front subframe
(to the rear of the front yokes fixing the suspension arm).



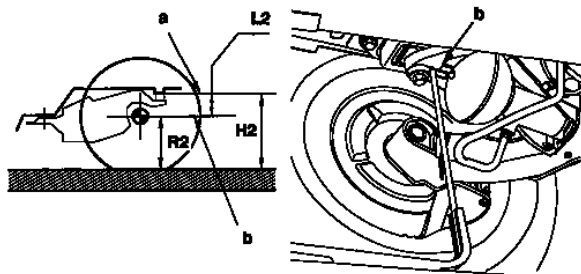
B3BP166D

L1 (mm)

Theoretical dimension between the level of the front subframe and the wheel axis.

140

Measuring rear height



B3BP168D

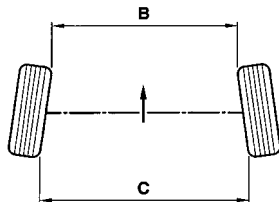
L1 (mm)

Theoretical dimension between the measuring zone on the cross-member support and the wheel axis.

140

AXLE GEOMETRY

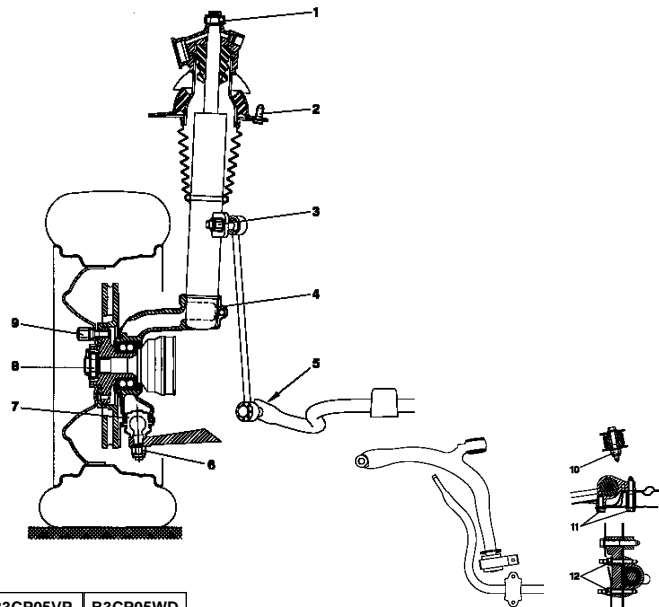
Front axle					Rear axle	
Vehicle	Tracking	Castor	Camber	King pin inclination	Tracking	Camber
	(Adjustable)	(Non adjustable)			(Adjustable)	(Non adjustable)
All types	0 to - 3 mm 0° to - 0° 27'	3° 03' ± 30'	0° ± 30'	12° 56' ± 30'	5,4 ± 1,3 mm 0° 49' ± 0° 12'	- 1° ± 20'



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

B3CP02UC

FRONT AXLE



Tightening torques m.daN.

(1) Suspension leg upper fixing	7 ± 0.7
(2) Suspension leg fixing on bodyshell	4.3 ± 0.6
(3) Anti-roll bar link rod upper fixing	6.4 ± 0.6
(4) Anti-roll bar link rod upper fixing	6.4 ± 0.6
(5) Ball-joint fixing	4.5 ± 0.4
(6) Ball-joint fixing on pivot	25 ± 2.5
(7) Suspension leg upper fixing on pivot	5.4 ± 0.5
(8) Hub nut	32.5 ± 2.6
(9) Wheel fixing	9 ± 1
(10) Arm front fixing	13 ± 1.3
(11) Arm rear fixing	8 ± 0.8
(12) Anti-roll bar bearing fixing on subframe	4.2 ± 0.6
Stabiliser bar fixing on subframe	6.6 ± 0.6

Anti-roll bar

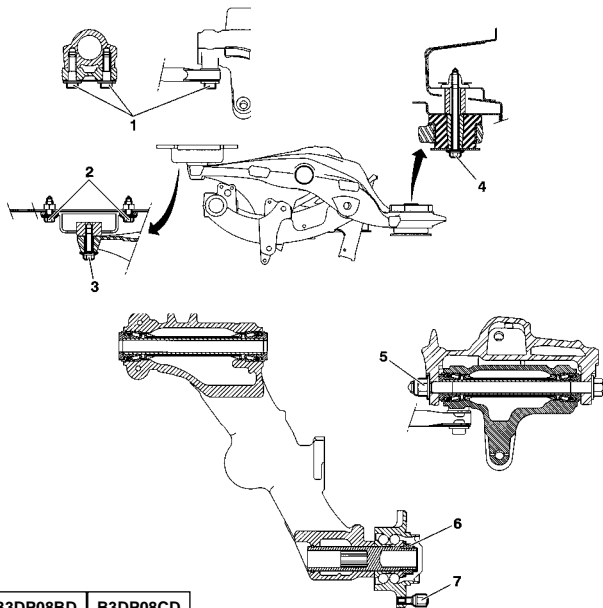
Engines	Diameter (mm)	Colour ref.
All types (exc. ES9J4)	23.5	Yellow
ES9J4	24.5	White

NOTE : The geometry specifications are given with the suspension specifications.

B3CP05VP

B3CP05WD

REAR AXLE



B3DP08BD

B3DP08CD

Tightening torques m.daN.

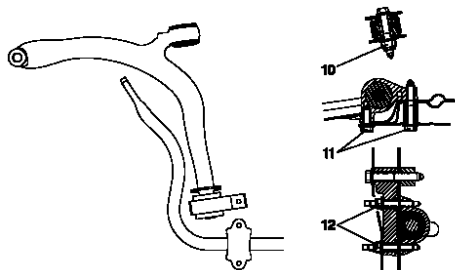
(1) Anti-roll bar fixing	13.1 ± 1.4
(2) Rear rubber mounting fixing on bodyshell	8 ± 1.2
(3) Rear subframe fixing	11.5 ± 1.1
(4) Front subframe fixing on bodyshell	11.5 ± 1.1
(5) Suspension shaft fixing	14.9 ± 1.3
(6) Hub nut	25 ± 2.5
(7) Wheel fixing	9 ± 1

NOTE : (3) and (4) Face and threads not greased.

Engines	Anti-roll bar	
	Diameter (mm)	Colour ref.
All Types (exc. ES9J4)	21.5	Blue
ES9J4	22	Yellow
All Types Estates		

NOTE : The geometry specifications are given with the suspension specifications.

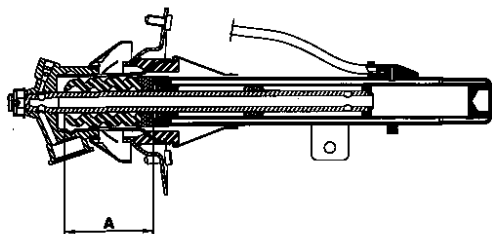
SUSPENSION



Front suspension

Tightening torques m.daN.

(10) Arm front fixing	13 ± 1.3
(11) Arm rear fixing	8 ± 0.8
(12) Anti-roll bar bearing fixing on subframe	4.2 ± 0.6



Hydractive 3+ hydraulic suspension (*Power steering*)

Suspension piston diameter	= 35 mm.
Anti-roll bar diameter	= 23.5 mm.
Anti-roll bar colour reference	= Yellow.

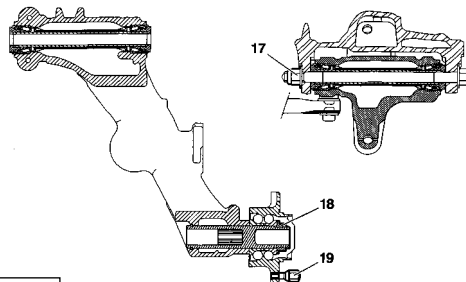
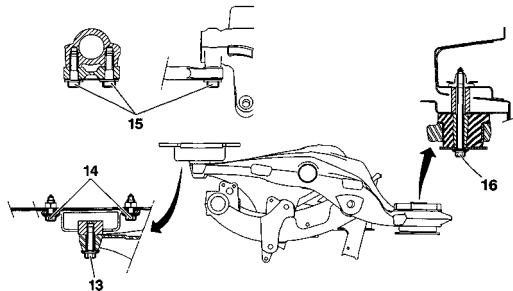
Suspension leg.

Bump stop, height	"A" = 97 mm.
-------------------	--------------

B3CP05WD

B3BP167D

SUSPENSION



Rear suspension

Tightening torques m.daN.

(13) Subframe rear fixing	11.5 ± 1.1
(14) Rear rubber mounting fixing on bodyshell	8 ± 1.2
(15) Anti-roll bar fixing	13.1 ± 1.4
(16) Front fixing of subframe on bodyshell	11.5 ± 1.1
NOTE : (13) and (16) Face and threads greased.	
(17) Arm shaft fixing	14.9 ± 1.3
(18) Hub nut	25 ± 2.5
(19) Wheel fixing	9 ± 1

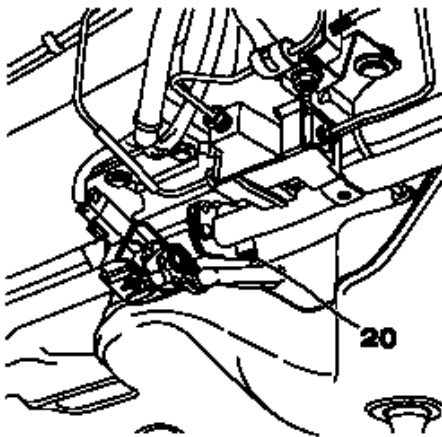
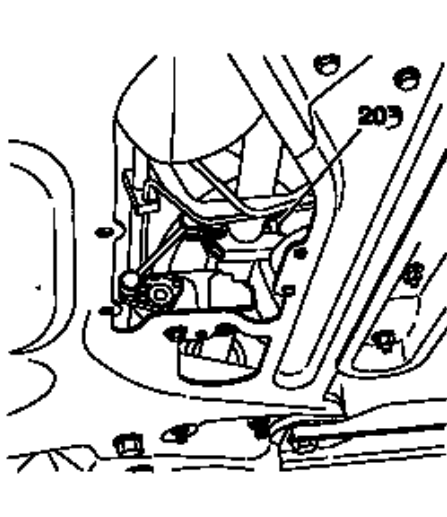
Hydractive 3+ hydraulic suspension (Power steering)

Suspension piston diameter	= 37 mm.
Anti-roll bar diameter	
- Saloon	= 21.5 mm
- Estate	= 22 mm.
Anti-roll bar colour reference	
- Saloon	= Blue
- Estate	= Green

B3DP08ND

B3DP08PD

SUSPENSION



Height control

Tightening torques m.daN.

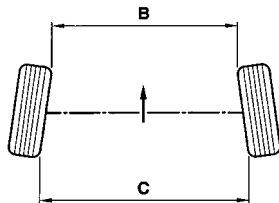
(20) Collars

0.6

B3CP06TD

AXLE GEOMETRY

Front axle					Rear axle	
Vehicle	Tracking	Castor	Camber	King pin inclination	Tracking	Camber
	(Adjustable)	(Non adjustable)			(Adjustable)	(Non adjustable)
All types	0 to - 3 mm 0° to - 0° 27'	3° 03' ± 30'	0° ± 30'	12° 56' ± 30'	4 ± 1.5 mm 0° 41' ± 0° 13'	- 1° ± 20'

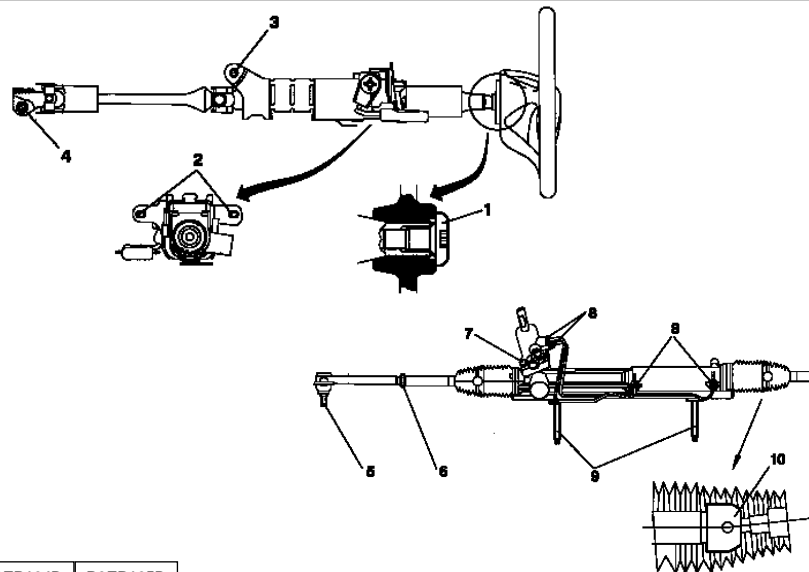


NOTE		
A < B = Positive figure :	+ =	TOE-IN
A > B = Negative figure :	- =	TOE-OUT

B3CP02UC

SPECIFICATIONS OF POWER-ASSISTED STEERING

Engines : 6FZ-RFN-RLZ-XFX-RHY-RHZ-4HX



Tightening torques m.daN.

(1) Steering wheel fixing	2 ± 0.3
(2) Column fixing on mounting	2.3 ± 0.4
(3) Column fixing on mounting	2.3 ± 0.2
(4) Cardan fixing	2.3 ± 0.3
(5) Ball-joint fixing on pivot	3.5 ± 0.6
(6) Link rod lock nut	6 ± 0.4
(7) Valve fixing on cover	2.3 ± 0.1
(8) Piping fixing on ram	0.8 ± 0.8
(9) Mechanism fixing on subframe	8 ± 0.9
(10) Steering rack ball-joint	9 ± 0.9

Quantity of oil = **4,3 litres**

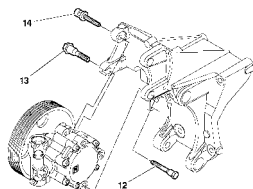
Quality of oil = **TOTAL FLUIDE LDS**

B3EP124D

B3EP125D

SPECIFICATIONS OF POWER-ASSISTED STEERING

Engines : 6FZ - RFN - RLZ - XFX - RHY - RHZ - 4HX



Engines	Steering rack travel (mm)	Number of teeth		Number of turns of the wheel	Steering ratio	Angle of lock	
		Pinion	Rack			Inner	Outer
6FZ RFR RJX RHY RHZ	2x83	9	33	3.3	50.4/1	39.74°	35.65°
XFX 4HX	2x74			3		34.29°	31.58°

Engines	Supplier	Flow type	Adjustment pressure	Pulley diameter
6FZ RFR RJX RHY RHZ 4HX	ZF	Falling	100 bars	129 mm
XFX	SAGINAW	Constant		

Tightening torques m.daN		
Engines	EW-DW	ES9J4
(12) Vis (13) Vis (14) Vis	2.2 ± 0.3	2.5 ± 0.6

Petrol engine : A power-assisted steering pressure switch is installed on the hydraulic piping, between the high pressure pump and the steering valve.

Engine XFX : A converter, integral with the valve, modulates the assistance according to the vehicle speed.

Length of steering rods (*Adjustment*) between ball-joints = **362 mm**.

Power-assisted steering hydraulic circuit.

The oil supplies both the steering circuit and the suspension circuit.

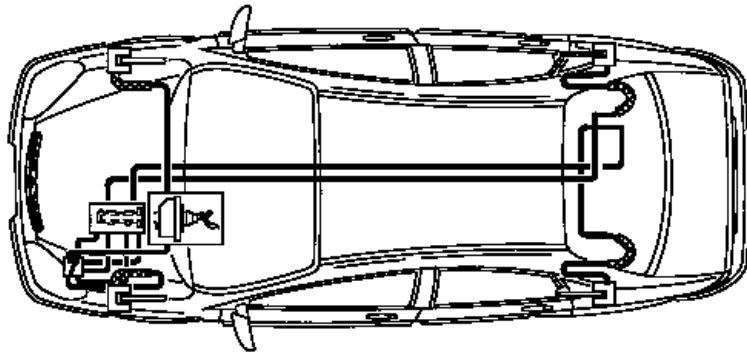
B3EP127D

BRAKE SPECIFICATIONS						
			1.8i 16V	2.0i 16V	2.0 HPi	3.0i V6
Engine type			6FZ	RFN	RLZ	AFX
FR	Ø mm	Master cylinder		22.2 (Valve type)		
		Master-vac		254		
		Caliper/piston makes		BOSCH ZO 54/55 BIR 54	BOSCH ZO 57/56 BIR 57	BOSCH ZO 57/28BIR 57
		Brake disc	Non-ventilated			
			Ventilated	266	283	288
	Disc thickness/min. thickness		22/20	26/24	28/26	
	Brake pad grade		ABEX 949/1	ABEX 949/1	TEXTAR T 4110	
RR	Ø mm	Cylinder or caliper		PSA - 32 (Double piston)		
		Drum / Ø max.				
		Brake disc	Non-ventilated	276		
	Disc thickness/min. thickness		14/12			
	Make		ABEX or TEXTAR			
	Brake lining grade		949/1 or T 4110			

BRAKE SPECIFICATIONS						
				2.0 HDi	2.2 HDi	
Engine type				RHY	RHZ	4HX
FR	Ø mm	Master cylinder		22.2 (Valve type)		
		Master-vac		254		
		Caliper/piston makes		BOSCH ZO 57/26 BIR 57	BOSCH ZO 57/28 BIR 57	
		Brake disc	Non-ventilated			
	Ventilated		283	288		
	Disc thickness/min. thickness		26/24	28/26		
	Brake pad grade		TEXTAR T 4110			
RR	Ø mm	Cylinder or caliper		PSA - 32 (Double Piston)		
		Drum / Ø max.				
		Brake disc	Non-ventilated	276		
	Disc thickness/min. thickness		14/12			
	Make		TEXTAR or ABEX			
	Brake lining grade		T 4110 or 949/1			

BRAKE SPECIFICATIONS

Braking circuit



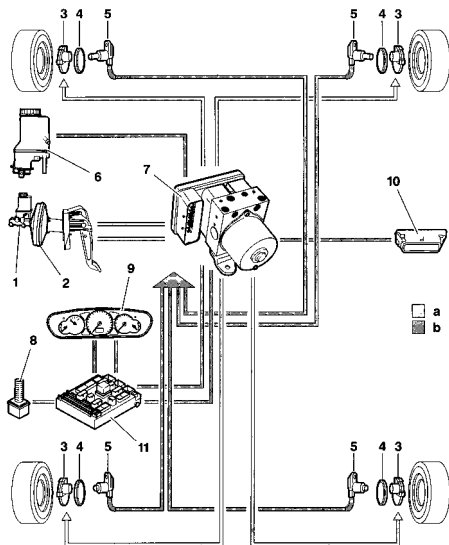
Braking system specifications

- Braking circuit at «X».
- Front brakes with ventilated discs.
- Rear brakes with non-ventilated discs.
- Handbrake lever controlling cables acting on the front wheels.
- The compensator and main brake limiter functions are assured by the ABS EBD system fitted as standard at the factory on all versions.

NOTE : EBD = Electronic Brakeforce Distribution

BRAKE SPECIFICATIONS

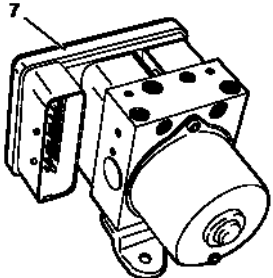
Braking circuit diagram



- (a) Hydraulic circuit.
- (b) Electrical circuit.
- (1) Master cylinder in tandem.
- (2) Braking servo.
- (3) Brake caliper.
- (4) Hub equipped with a bearing with an integral magnetic wheel (**48 pairs of poles**).
- (5) Wheel sensor.
- (6) Brake fluid level sensor.
- (7) Hydraulic block plus ECU.
- (8) Stoplamp switch.
- (9) Instrument panel.
- (10) Diagnostic socket.
- (11) Built-in systems interface (**BSI**).

B3GP02HP

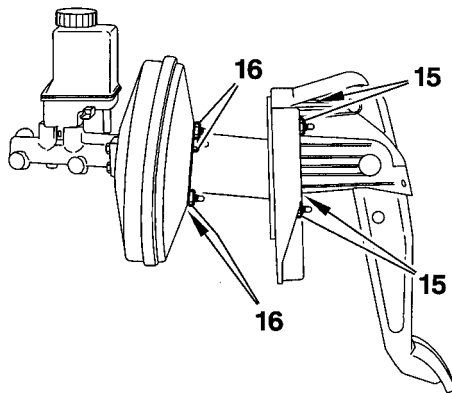
BRAKE SPECIFICATIONS

(7) Hydraulic block					
	Elements	Ref.	Supplier	Part No.	Observations
	Electronic ECU	7	ITT - A	ABS MK.60	47 way connector. Alone on the hydraulic block. Changing only the ECU is prohibited.
				BASR MK.60	
	Front wheel sensor	5	ITT - A	96 332 952 80	2 way black connector. The sensors are inductive-type. Mounted on the pivot. Non-adjustable airgap : 0.2 à 1.5 mm. Tightening torque : 0.8 ± 0.2 m.daN
	Rear wheel sensor			96 332 954 80	2 way black connector. The sensors are inductive-type. Mounted on the brake caliper support. Non-adjustable airgap : 0.15 à 1.6 mm. Tightening torque : 0.8 ± 0.2 m.daN
	Hub bearing	4	SNR		Hub equipped with a bearing with an integral magnetic wheel (48 pairs of poles).
	Hydraulic block	7	TEVES	ABS MK.60 96 371 711 80	Installed on the front LH wheelarch. 4 adjustment channels.
				BASK MK.60 96 371 712 80	

B3FP12XC

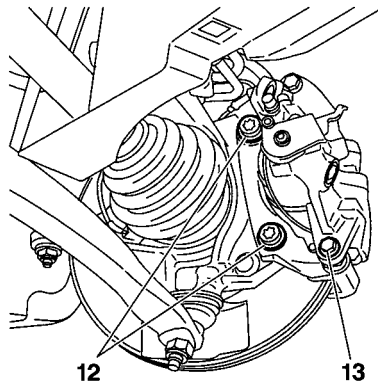
BRAKE SPECIFICATIONS

Brake pedal carriage



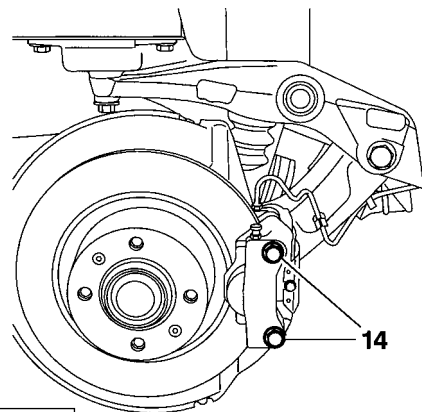
B3FP130C

Front brake



B3FP12YC

Rear brake



B3FP12ZC

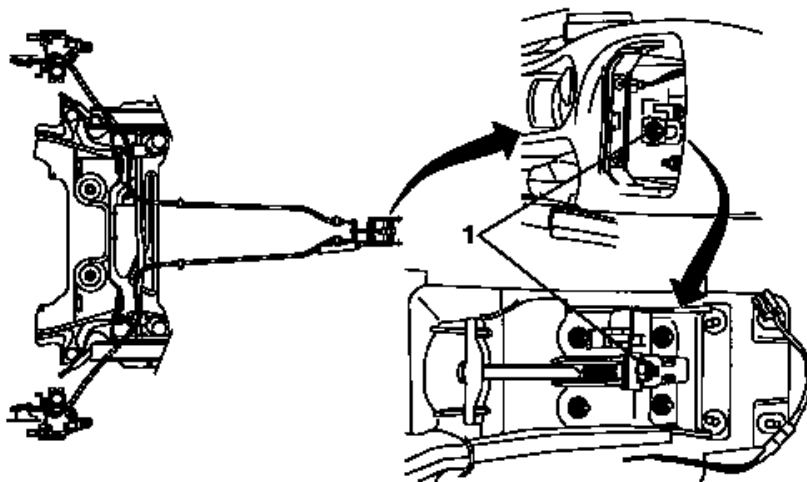
Tightening torques (m.daN).

(15) Fixing on bodyshell 1.8 ± 0.25
 (16) Servo fixing 2.1 ± 0.1

(12) Caliper fixing on pivot 12 ± 1.8
 (13) Yoke fixing on caliper 3.1 ± 0.1

(14) Rear caliper fixing on suspension arm 7 ± 0.7

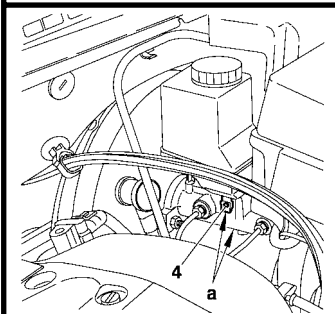
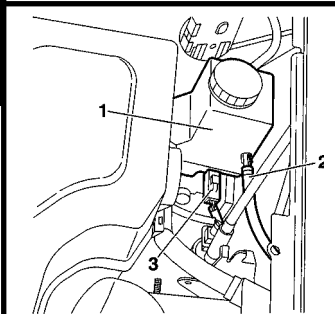
HANDBRAKE (Adjustment)



Adjustment

- Remove the rear ashtray from the handbrake console.
- **(1)** Nut for adjusting the tension of the handbrake cables.
- Raise and support the vehicle with the front wheels hanging free.
- Check the correct routing of the brake cables under the vehicle.
- Apply and release the handbrake **10 times**.
- Set the handbrake to the **5th notch**.
- Tighten the nut **(1)** until the front brakes are applied.
- Pull the handbrake lever vigorously **4 to 5 times**.
- Set the handbrake to the **5th notch**.
- Check that the front brakes are applied.
- With the handbrake released, check that the wheels can be turned freely by hand.
- Lower the vehicle.
- Refit the rear ashtray to the handbrake console.

BLEEDING AND FILLING THE BRAKING SYSTEM



- [1] Generic bleeding apparatus
[2] PROXIA station
[3] LEXIA station

Tools.

- : "LURO" or similar.
: 4165-T.
: 4171-T.

Bleeding, filling.

Draining the brake fluid reservoir.

- Drain the brake fluid reservoir (1) to the maximum (*if necessary, use a clean syringe*).
- Disconnect the connector (3).
- Uncouple the pipe (2).
- Remove the reservoir (1) by separating the lugs «a» from the shaft (4).
- Empty the brake fluid reservoir (1).
- Clean the brake fluid reservoir (1).

Remove :

- The brake fluid reservoir (1).
- The shaft (4).
- Couple the pipe (2).
- Reconnect the connector (3).

B3FP139C

B3FP13AC

BLEEDING AND FILLING THE BRAKING SYSTEM

Bleeding, filling (continued).

Filling the braking system.

WARNING : Use only those hydraulic fluids that are approved and recommended.

- Fill the brake fluid reservoir (1).

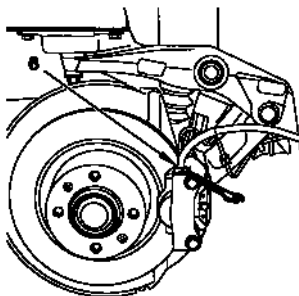
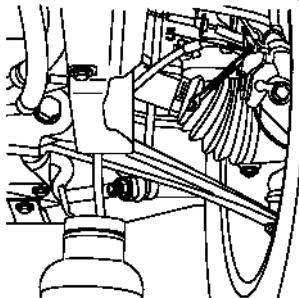
Bleeding the braking system.

WARNING: During the bleeding operation, take care to maintain the level of brake fluid in the reservoir and to top it up, using only brake fluid that is clean and clear.

Bleeding the primary circuit.

WARNING: The ABS should not be active during the bleeding operation.

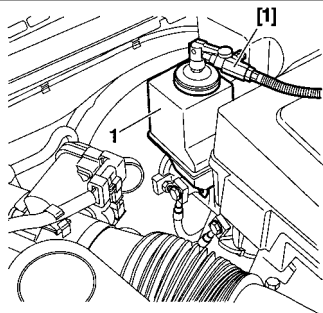
- Front brake caliper: Bleed screw (5).
- Rear brake caliper: Bleed screw (6).
- Bleed each wheel cylinder, proceeding in the following order :
 - Front LH wheel.
 - Front RH wheel.
 - Rear LH wheel.
 - Rear RH wheel.



B3FP13BC

AB3FP13CC

BLEEDING AND FILLING THE BRAKING SYSTEM



Bleeding, filling (continued).

With the bleeding apparatus

- Connect the bleeding apparatus [1] on the brake fluid reservoir (1).
- Adjust the apparatus pressure to **2 Bars**.

For each 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 [1].
- 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 the bleeding apparatus.

NOTE : Two operators are necessary.

For each 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.
- Remove the tool [1].

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.

B3FP13DC

BLEEDING AND FILLING THE BRAKING SYSTEM

Bleeding, filling (continued).

Bleeding the secondary circuit.

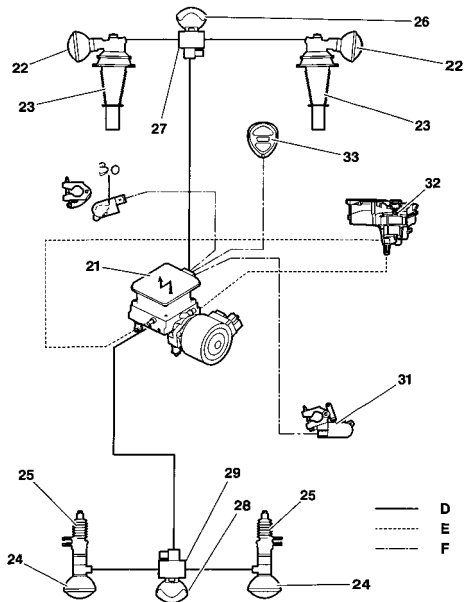
NOTE : The bleeding apparatus is connected on the brake reservoir.

- Use **LEXIA** or **PROXIA** diagnostic tools.

Select the menu corresponding to the vehicle :

- ABS menu.
- ESP menu.
- Follow the instructions on the diagnostic tool.
- At the end of the bleeding process, check and top up, if necessary, the brake fluid level.
- Check that the brake pedal travel has not been lengthened, otherwise repeat the bleeding procedure.
- Remove the tools.

HYDRAULIC SPECIFICATIONS

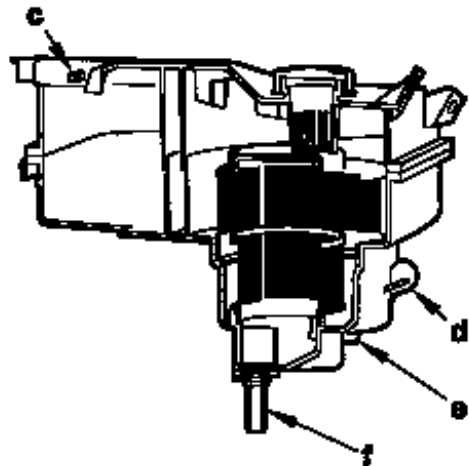


Location of components

- (A) High pressure hydraulic circuit.
- (B) Low pressure hydraulic circuit.
- (C) Electric circuit.
- (21) Built-in Hydro-electronic Interface (BHI).
- (22) Front slimline sphere.
- (23) Front suspension cylinder.
- (24) Rear slimline sphere.
- (25) Rear suspension cylinder.
- (26) Front hydractive 3+ regulator accumulator.
- (27) Front hydractive 3+ regulator.
- (28) Rear hydractive 3+ regulator accumulator.
- (29) Rear hydractive 3+ regulator.
- (30) Front height sensor.
- (31) Rear height sensor.
- (32) LDS fluid reservoir.
- (33) Suspension switch.

B4CP01FP

HYDRAULIC SPECIFICATIONS



Reservoir

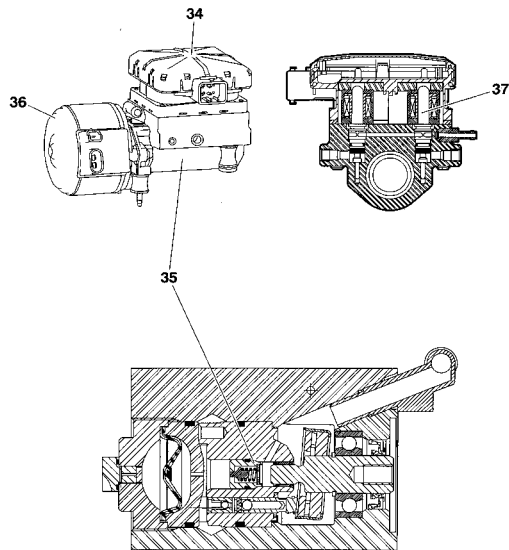
Reference	Function	Component
"d"	Induction	Built-in Hydro-electronic. Interface (BHI). Power steering pump
"e"	Return	Built-in Hydro-electronic. Interface (BHI).
"f"		Power steering pump
"c"		Suspension cylinders

Synthetic fluid **TOTAL FLUIDE LDS.**
Capacity of the circuit **4.3 litres.**

HYDRAULIC
SYSTEM

B4BP01BC

HYDRAULIC SPECIFICATIONS



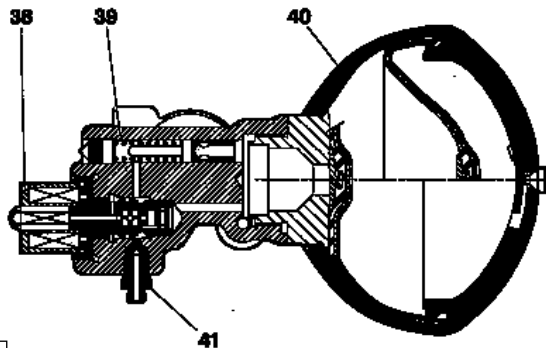
Built-in Hydro-electronic Interface (BHI).

Ref.	Component	Specifications
(36)	Electric motor	2350 ± 150 rpm
(35)	Hydraulic unit comprising : Pump with 5 axial pistons - Anti-pulse hydropneumatic accumulator A safety valve	Throughput = 0.7 l/min at 2300 rpm Diameters of the pistons = 6.35 mm Safety valve rating = 180 Bars
(34)	Electronic control unit	
(37)	4 electrovalves: Front suspension inlet Rear suspension inlet Front suspension exhaust Rear suspension exhaust	The vehicle's anti-sink function is assured by the exhaust electrovalves

B3BP169P

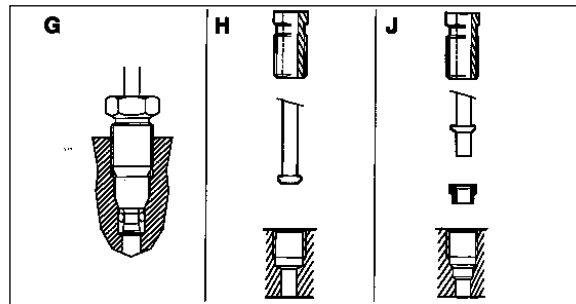
HYDRAULIC SPECIFICATIONS

Hydractive 3+ regulator



B4BP01CD

Hydraulic unions



B4DP003D

- (40) Slimline sphere.
 (39) Hydractive regulator.
 (38) Electrovalve.
 (41) Depressurisation screw.

Reference	Tube diameter (mm)	Tightening torque m.daN
G	3.5	1.5 ± 0.3
H	6.35	
J	10	2.5 ± 0.5

SPECIFICATION - IDENTIFICATION : SUSPENSION SPHERES**Special features****Identification.**

- Fitting of new slimline spheres with multilayer membranes, stone grey in colour.
- It is forbidden to recharge or overhaul this type of sphere.
- The number marked on the suspension sphere is the reference no. of the component and not the Part No.
- The two-figure number marked on the suspension sphere indicates the initial inflation pressure value.

Example :

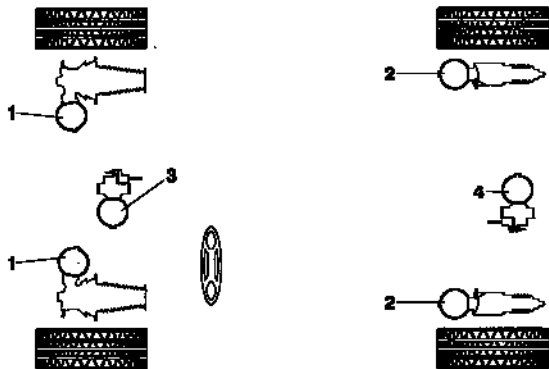
Suspension sphere marking	Batch of steel	Day of manufacture	Year of manufacture	Time of manufacture	Pressure rating (Bars)
96 420 906 80	AG2	066	0	13h59	57

- The pressure value of this type of suspension sphere is given merely as a guide.
- When checking, the value read could be higher than the nominal value.

NOTE : Suspension cylinders on the same axle should be equipped with the same type of membranes.

Tightening torques for these spheres : $2,7 \pm 0,5$ m.daN.

SPECIFICATION - IDENTIFICATION : SUSPENSION SPHERES



- (1) Front suspension sphere.
- (2) Rear suspension sphere.
- (3) Front hydractive 3+ regulator accumulator.
- (4) Rear hydractive 3+ regulator accumulator.

SPECIFICATION - IDENTIFICATION : SUSPENSION SPHERES

Hydractive 3 suspension

Front suspension sphere (1)

WARNING : The number marked on the suspension sphere is the reference no. of the component and not the Part No.

Engines	Suspension sphere marking	Volume (cc)	Pressure (Bars)	Diameter of damper hole (mm)
6FZ	96 420 906 80	385	57	1.9/1.3
RHY-RHZ	96 420 907 80			1.75/1.3
Rear suspension sphere (2)				
All Types	96 420 905 80	385	25	0.7/0.48
Hydractive 3+ suspension				
Front suspension sphere (1)				
RFN-RLZ	96 420 908 80	385	44	0.9/0.48
XFX-4HX	96 420 909 80		52	
Rear suspension sphere (2)				
All Types	96 422 091 80	385	31	1.4/0.94
Hydractive regulator accumulator				
Hydractive regulator	Suspension sphere marking	Volume (cc)	Pressure (Bars)	
Front (3)	96 420 898 80	385	62	
Rear (4)	96 373 373 80		45	

STARTER MOTORS

Vehicles / models		Types of starter motor	Class	Climate
CITROËN C5	1.6i 16v	VALEO D6RA74	3	H,T,C
		MELCO M002T13081		
		MELCO 9625169680	4	VC
	1.6i 16v (Auto)	VALEO D6RA74	3	H,T
	2.0i 16v	MELCO M002T13081		
	2.0i HPi	MELCO 9625169680	4	VC
	3.0i V6	MELCO 9625169680	4	H,T,C,VC
	2.0 HDi	VALEO D7R26	5	H,T
		MELCO M001T80481		
		BOSCH 1236080	6	C,VC
		VALEO D7R27		
	2.2 HDi	BOSCH 1236080	6	H,T,C,VC

ELECTRICAL
SYSTEM

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold)

ALTERNATORS

		Classes and types						
Engine	Gbox	Without aircon		Climate	Without aircon		Climate	
1.8i 16v 2.0i 16v 2.0i 16v HPi Level 1	M	9	VALEO A13 VI 204+	H,T C,VC	15	BOSCH A12051611	H	
			MELCO A002TB2291			VALEO A14 VI 27+		
						MELCO A004TF0091		
		A	12	MELCO A003TA6491	VC	12	MELCO A003TA6491	T
				MELCO A003TA0891			MELCO A003TA0891	
							VALEO A13 VI 204+	C,VC
						MELCO A002TB2291		
	9		VALEO A13 VI 204+	H,T C	15	BOSCH A12051611	H	
			MELCO A002TB2291			VALEO A14 VI 27+		
						MELCO A004TF0091		
					9	MELCO A003TA6491	T	
						MELCO A003TA0891		
							VALEO A13 VI 204+	C,VC
			MELCO A002TB2291					

CLIMATE : H (Hot), T (Temperate), C (Cold), VC (Very cold)

PRE-HEATING AND STARTING CIRCUITS			
Vehicles / models	Pre-heater plugs	Pre-heater control unit	Pre-post-heating (Pre-heating time at 20°C)
CITROËN C5	2.0 HDi	CHAMPION CH170	Managed by the diesel injection ECU
		BOSCH 0250202032	
	2.2 HDi	CHAMPION CH170	
		BERU 0100226344	

AIR CONDITIONING R 134 a (HFC)							
Vehicle	Engines	Date	Refrigerant refill	Compressor			
				Variable capacity	Number of valves	Oil quantity cc	Oil reference
CITROËN C5	6FZ	11/2000 →	650 +0 -50 gr	SD 7 V16	6	135	SP 10
	RFN						
	RLZ						
	XFX						
	4HX						
	RHY			DELPHI V5		265 ± 15	PLANETELF
	RHZ			(1)			
(1) HARRISON Division.							

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

Tightening torques (m.daN).

Ø Pipes	Unions	
	Steel / Steel	Aluminium / Steel
M 06	1.7 ± 3	1.3 ± 3
M 08	3.8 ± 3	2 ± 2
M 10	4 ± 3	2.5 ± 3

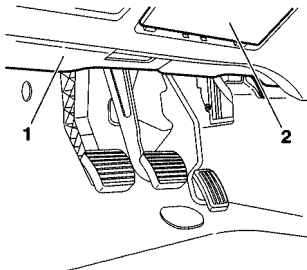
NOTE : Tighten the unions to the recommended torques using a retaining spanner whenever possible

NOTE : For operations concerning draining, drying (empty), checking and refilling of a system: refer to BRE 0290.

WARNING : For R 134.a quantities : (see table on page: 250).

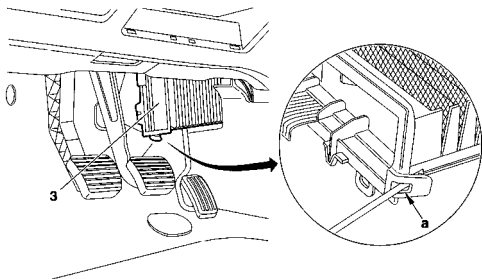
SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)

Pollen filter



Remove :

- The trim **(1)** under the dashboard (*driver's side*).
- The cover **(2)**.
- Unclip at «a» and pull out the pollen filter **(3)**.
- Remove the pollen filter **(3)**.

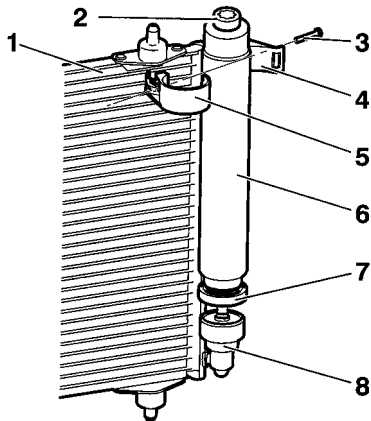


C5FPOC5C

C5FPOC6D

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

Drying cartridge



Tools

[1] Filling and recycling station

MULLER - ECOTECHNICS

[2] TORX adaptor

70 FACOM

[3] After Sales kit

(Bottle /skirt / bottle nozzle /grease / compressor oil)

Reminder : All repairs on an aircon circuit require the aircon circuit to be drained.

After carrying out the dismantling operations necessary to gain access to the condenser, proceed to clean the area of the skirt (8) of the reservoir (6) using a cloth, then replace the dryer reservoir (6).

Removing the plastic bracket holding the reservoir (6) :

- Remove the screw (3) (*Torx 20*), from the bracket assembly/plastic counter-bracket (4) and (5).
- Remove the counter-bracket (5). (*Rotate it round the hinge in a clockwise direction*).
- Disengage the bracket from the harness (1) (*Rotate it round the reservoir (6) anti-clockwise*).
- Remove the bracket (5) from the reservoir body (6).

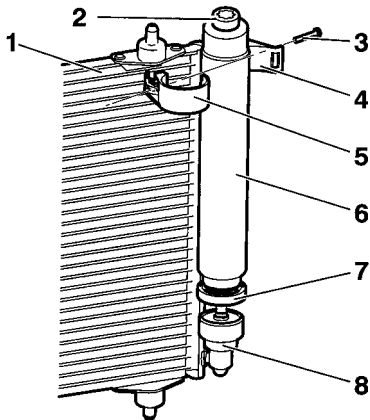
Unscrewing the reservoir (6).

- Unscrew the reservoir (6) using the tool [2].

C5HP16EC

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

Condenser with integral reservoir (continued)



Removing the reservoir (6) from the base (8).

WARNING : This operation requires the greatest care, the base (8) should be kept clean prior to fitting the new reservoir.

- Remove the reservoir (6) and the protection skirt (7), avoiding **WITHOUT FAIL** any contact or collision with other items under the bonnet (*Risk of impurities entering the base (8)*).
- Check before refitting the reservoir (6) that the base (8) is clean.
(If it is not, clean in and around the base (8) with a paper cloth.)

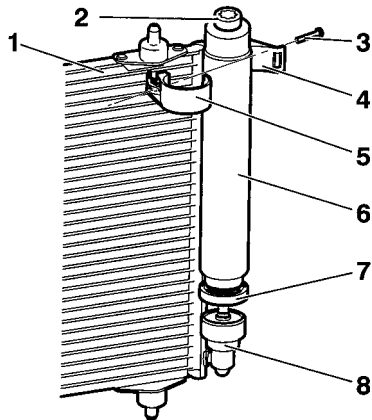
Preparing the new dryer reservoir

- Remove the black plastic protection cap from the reservoir neck (6), leaving in place the green protection at the other end, in order to keep the new reservoir (6) sealed when mounting it in the base (8) of the condenser.
- Use the grease sachet in the replacement kit, to lubricate the threads of the reservoir.
- Use the oil sachet in the replacement kit, to lubricate the two O-ring seals of the reservoir (6).
- Position the reservoir (6), with its new protection skirt (7) from the replacement kit, and engage the threads of the reservoir (6) in the base (8).
- Check that the downward edge of the skirt (7), covers the base (8) all around it.

C5HP16EC

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

Condenser with integral reservoir (continued)



WARNING : The reservoir (6) contains a drying agent. As soon as the black protection is removed, the reservoir must be mounted in the base (8), otherwise there is a risk of damaging the air conditioning circuit.

Screwing the reservoir (6) into the base (8).

- Screw the reservoir (6) manually, until the neck of the reservoir (6) is in contact with the bottom of the base (8).
- Tighten with a torque spanner and tool [2] at (2) to 1.3 ± 0.1 m.daN.

Fitting the plastic bracket. (New, from the replacement parts kit).

Proceed in the opposite order to removal, tighten the screw (3) to **0.15 m.daN.**

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.

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

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.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

CHECKING PRESSURES (continued)

	Low pressure too low	Low pressure normal	Low pressure too high
High pressure too low	<ul style="list-style-type: none"> - Insufficient fluid charge. - Constriction of the HP system. - Dirty pressure control valve. 	<ul style="list-style-type: none"> - Cooling fan speed unsuitable. - Faulty compressor. 	<ul style="list-style-type: none"> - Faulty pressure control valve. - Faulty compressor.
High pressure normal	<ul style="list-style-type: none"> - Faulty compressor. - Dirty evaporator. 	<ul style="list-style-type: none"> - Circuit normal. 	<ul style="list-style-type: none"> - Cooling fan speed unsuitable.
High pressure too high	<ul style="list-style-type: none"> - Faulty pressure control valve. - System blocked. - Water in the system. 	<ul style="list-style-type: none"> - Presence of solid matter in the system. - Dirty condenser. 	<ul style="list-style-type: none"> - Excessive fluid charge. - Dirty condenser. - Faulty pressure control valve. - Cooling fan speed unsuitable.

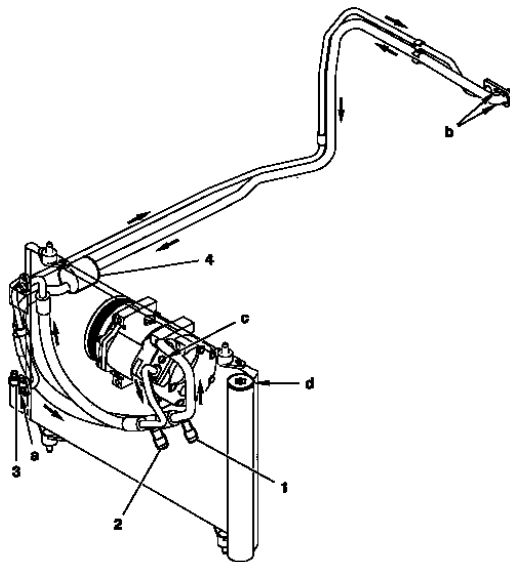
Checking the pressure at temperatures between 15°C and 35°C for information only.

In general, the pressure should be approximately :

- for **R134.a** fluid, less than **2 Bars** (*Low pressure*), and between **13** and **24 Bars** (*High pressure*).

AIR CONDITIONING SYSTEM R 134.a

Engines : 6FZ - RFN - RLZ



(1) High pressure valve.

(2) Low pressure valve.

(3) Pressostat.

(4) Capacity.

(a) Condenser bracket
Tighten to **0,8 m.daN**

(b) Pressure control valve
Tighten to **0,8 m.daN**

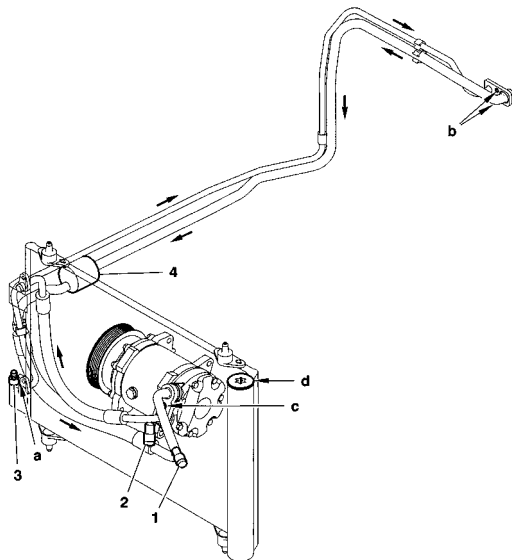
(c) Compressor bracket
Tighten to **2,5 ± 0,1 m.daN**

(d) Condenser dryer reservoir
Tighten to **1,4 ± 0,2 m.daN.**

C5HP15QP

AIR CONDITIONING SYSTEM R 134.a

Engine : XFX



(1) High pressure valve.

(2) Low pressure valve.

(3) Pressostat.

(4) Capacity.

(a) Condenser bracket

Tighten to **0,8 m.daN**

(b) Pressure control valve

Tighten to **0,8 m.daN**

(c) Compressor bracket

Tighten to **2,5 ± 0,1 m.daN**

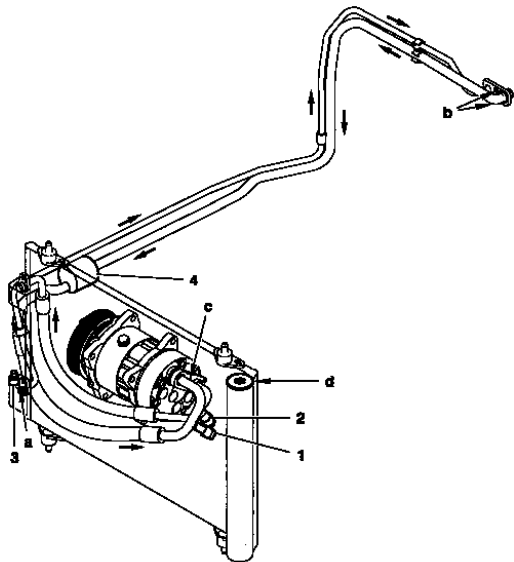
(d) Condenser dryer reservoir

Tighten to **1,4 ± 0,2 m.daN.**

C5HP15RP

AIR CONDITIONING SYSTEM R 134.a

Engines : RHY - RHZ



(1) High pressure valve.

(2) Low pressure valve.

(3) Pressostat.

(4) Capacity.

(a) Condenser bracket
Tighten to **0,8 m.daN**

(b) Pressure control valve
Tighten to **0,8 m.daN**

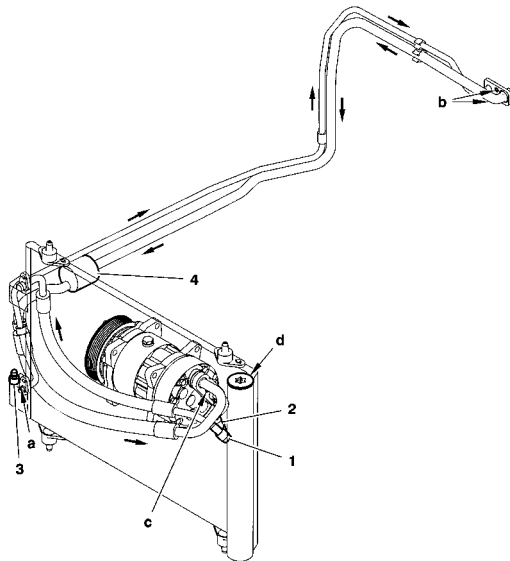
(c) Compressor bracket
Tighten to **2,5 ± 0,1 m.daN**

(d) Condenser dryer reservoir
Tighten to **1,4 ± 0,2 m.daN.**

C5HP15SP

AIR CONDITIONING SYSTEM R 134.a

Engine : 4HX



(1) High pressure valve.

(2) Low pressure valve.

(3) Pressostat.

(4) Capacity.

(a) Condenser bracket
Tighten to **0,8 m.daN**

(b) Pressure control valve
Tighten to **0,8 m.daN**

(c) Compressor bracket
Tighten to **2,5 ± 0,1 m.daN**

(d) Condenser dryer reservoir
Tighten to **1,4 ± 0,2 m.daN.**

C5HP15TP