PRIVATE CARS

C5-SYNERGIE

2002

«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 050011
Volume 2

PRESENTATION

THIS HANDBOOK summarises the characteristics, adjustments, checks and special features of CITROEN vehicles, not including COMMERCIAL vehicles for which there exists a separate handbook.

The handbook is divided into nine groups representing the main functions :

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

In each section, the vehicles are dealt with in the following order : C5 - SYNERGIE and all models where applicable.

The information given in this handbook is based on vehicles marketed in **EUROPE.**

IMPORTANT

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

– INSUFFICIENT INFORMATION
– SUPERFLUOUS INFORMATION
– NEED FOR MORE DETAILS

Please send your comments and suggestions to :

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SLOUGH,
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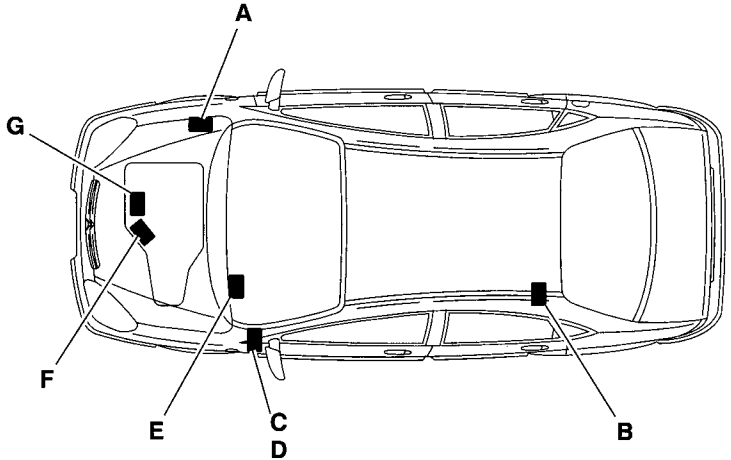
IDENTIFICATION OF VEHICLES



E1APO8RD

(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

C5 - All Types	IDENTIFICATION OF VEHICLES					
	Petrol saloons					
	1.8i 16V			2.0i 16V		
			Automatic		Automatic	
	X-SX			X-SX-Exclusive		
Emission standard	**L4**	**L5**	**L4**	**L5**	**L4**	**L5**
Type code	**DC 6FZB**	**DC 6FZC/IF**	**DC 6FZE**	**DC RFNC/IF**	**DC RFNB**	**DC RFNE**
Engine type	6FZ			RFN		
Cubic capacity (cc)	1749			1997		
Fiscal rating (hp)	7		8	9		
Gearbox type	BE4/5		AL4	BE4/5	AL4	
Gearbox ident. plate	20 DL 29		20 TP 44	20 BL 30	20 TP 42	

IDENTIFICATION OF VEHICLES				C5 - All Types
	Petrol saloons			
	2.0 HPi	30.i 24V V6		
				Automatic
	Exclusive			
Emission standard	**L4**	**L5**		
Type code	**DC RLZB**	**DC XFXC/IF**		**DC XFXF/IF**
Engine type	RLZ	XFX		
Cubic capacity (cc)	1997	2946		
Fiscal rating (hp)	8	13		14
Gearbox type	BE4/5	ML/5C	ML/5T	4 HP 20
Gearbox ident. plate	20 DL31	20 LM 21	20 LE 95	20 HZ 13

	Diesel saloons						
	2.0 HDi						
				Automatic			Automatic
	X	X-Exclusive					
Emission standard	L4						
Type code	**DC RHYB**	**DC RHSB**		**DC RHSE**	**DC RHZB**		**DC RHZE**
Engine type	RHY	RHS			RHZ		
Cubic capacity (cc)	1997						
Fiscal rating (hp)	6			7	6		7
Gearbox type	BE4/5	ML/5C	ML/5T (*)	AL4	ML/5C	ML/5T	AL4
Gearbox ident. plate	20 DL 32	20 LM 18	20 LE 94	20 TP 43	20 LM 18	20 LE 94	20 TP 43

(*) FAP = Particle filter

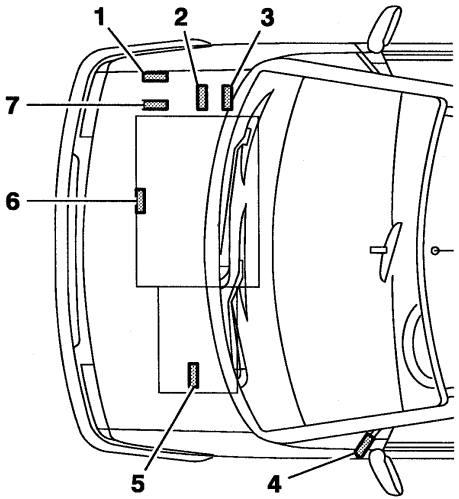
IDENTIFICATION OF VEHICLES			C5 - All Types
	Diesel saloons		
	2.2 HDi		
			Automatic
	SX-Exclusive		
Emission standard	L4		
Type code	DC 4HXB		DC 4HXE
Engine type	4HX		
Cubic capacity (cc)	2179		
Fiscal rating (hp)	8		
Gearbox type	ML/5C	ML/5T	4 HP 20
Gearbox ident. plate	20 LM 17	20 LE 96	20 HZ 20

C5 - All Types	IDENTIFICATION OF VEHICLES							
	Petrol estates							
	1.8i 16V		2.0i 16V		2.0 HPi	3.0i 24V V6		
				Automatic				Automatic
	X-SX			SX Exclusive		Exclusive		
Emission standard	L4	L5		L4		L5		
Type code	DE 6FZC/IF	DE 6FZB	DE RFNC/IF	DE RFNE	DE RLZB	DE XFX/IF		DE XFXF/IF
Engine type	6FZ		RFN		RLZ	XFX		
Cubic capacity (cc)	1749		1997			2946		
Fiscal rating (hp)	7		9		8	13		14
Gearbox type	BE4/5			AL4	BE4/5	ML/5C	ML/5T	4 HP 20
Gearbox ident. plate	20 DL 29		20 DL 30	?	20 DL 31	20 LM 21	20 LE 95	20 HZ 13

IDENTIFICATION OF VEHICLES							C5 - All Types
	Diesel estates						
	2.0 HDi						
				Automatic			Automatic
	X	X-Exclusive					
Emission standard	L4						
Type code	**DE RHYB**	**DE RHSB**		**DE RHSE**	**DE RHZB**		**DE RHZE**
Engine type	RHY	RHS			RHZ		
Cubic capacity (cc)	1997						
Fiscal rating (hp)	6			7	6		7
Gearbox type	BE4/5	ML/5C	ML/5T	AL4	ML/5C	ML/5T	AL4
Gearbox ident. plate	20 DL 32	20 LM 18	20 LE 94 (*)	20 TP 43 (*)	20 LM 18	20 LE 94	20 TP 48 (*)

(*) FAP = Particle filter

C5 - All Types	IDENTIFICATION OF VEHICLES		
	Diesel estates		
	2.2 HDi		
			Automatic
	SX-Exclusive		
Emission standard	L4		
Type code	DE 4HXB		DE 4HXE
Engine type	4HX		
Cubic capacity (cc)	2179		
Fiscal rating (hp)	8		
Gearbox type	ML/5C	ML/5T	4 HP 20
Gearbox ident. plate	20 LM 17	20 LE 96	20 HZ 20



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(1) Manufacturer's cold stamp

(2) R.P. organisation No.

(3) Paint code

(4) 01/02/99 ➔ Label :
- Tyre pressures.
- R.P. Organisation No.
- Paint code.

(5) Gearbox ident.

(6) Engine plate

(7) Manufacturer's plate

IDENTIFICATION OF VEHICLES					SYNERGIE - All Types
	Petrol		Diesel		
	2.0i 16 V		2.0 HDi		2.0 16 V HDi
	Automatic				
	X – SX Exclusive		X – SX	X Taxi – SX Exclusive	
Emission standard	IF L5 (*)		L3		L4
Type code	AF RFNC/IF	AF RFNF/IF	AF RHZA/T	AF RHZA	AF RHWB
Engine type	RFN		RHZ		RHW
Cubic capacity (cc)	1997				
Fiscal rating (hp)	9	10	6		
Gearbox type	BE4/5	AL4	ML5		
Gearbox ident. plate	DL26 - DL27	20 TP 31	20 LE 91		

(*) IF = Fiscal incentive L5 (EURO4).

Draining method.

The oil capacities are defined according to the following methods.

1) - Vehicle on level surface (in high position, if equipped with hydropneumatic suspension).

2) - Engine warm (oil temperature **80°C**).

3) - Draining of the oil sump + removal of the cartridge (duration of draining + dripping = **15 mm**).

4) - Refit plug + cartridge.

5) - Engine filling.

6) - Engine starting (allowing the cartridge to be filled).

7) - Engine stopped (stationary for **5 mm**).

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

C5 - All Types	CAPACITIES (in litres)						
	C5						
	Petrol						
	1.8i 16V		2.0i 16V		2.0 HPi	3.0i V6	
		Automatic		Automatic			Automatic
Engine type	6FZ		RFN		RLZ	XFX	
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 : <u>Systematically check the oil level using the oil dipstick</u>

CAPACITIES (in litres)							C5 - All Types
	C5						
	Diesel						
	2.0 HDi					2.2 HDi	
			Automatic		Automatic		Automatic
Engine type	RHY	RHS		RHZ		4HX	
Engine with filter change	4.75 4.5 (1)					4.75	
Between Min. and Max.	1.5 1.7 (1)					1.5	
5-speed gearbox	1.8			1.8		1.8	
Automatic gearbox			8.3 - 6 (1)		8.3 - 6 (1)		8.3
After oil change			5.3 – 3 (1)		5.3 – 3 (1)		5.3
Braking circuit							
Hydraulic circuit	4.3						
Cooling system	10.7 – 11.7 *(With additional heating)*						
Fuel tank capacity	68						

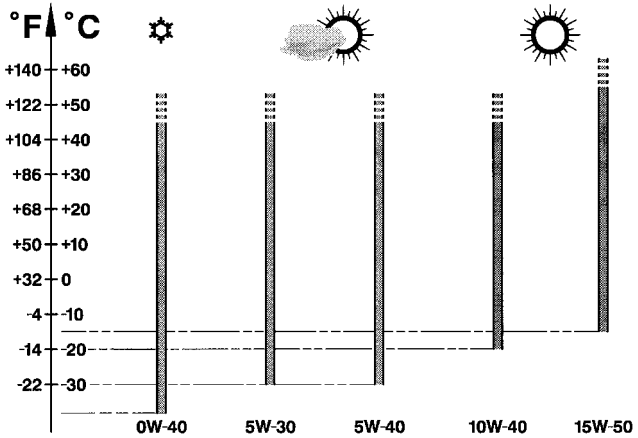
(1) = With air conditioning.

ESSENTIAL : <u>Systematically check the oil level using the oil dipstick.</u>

SYNERGIE - All Types	CAPACITIES (in litres)			
	Synergie			
	Petrol		Diesel	
	2.0i 16V	Automatic	2.0 HDi	2.0 HDi 16V
Engine type	RFN		RHZ	RHW
Engine angle			21°	
Engine with filter change	4.25		4.5	4.75
Between Min. and Max.	1.7		1.4	1.9
5-speed gearbox	1.8		1.8	
Automatic gearbox		8		
After oil change		3		
Hydraulic or brake circuit	Without ABS : 0.47 - With ABS : 0.52			
Cooling system	7		8.5	
Fuel tank capacity	80		80	

(1) With air conditioning. - **ESSENTIAL : <u>Systematically check the oil level using the oil dipstick.</u>**

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



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ALL TYPES	LUBRICANTS - TOTAL recommended oils

Factory evolutions in 2001 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%**).

Features of CITROËN C5 :
2.0 and **2.2 HDi** engines have a particle filter.
The maintenance interval for normal operation is **30,000 k**m **(20,000 miles)** for petrol engines.

WARNING : HDi engines are high technology engines which imperatively require use of quality SYNTHETIC OILS : TOTAL ACTIVA or TOTAL QUARTZ 5W40.
To maintain engine performances, all countries in Europe should observe this requirement.

NOTE : Only **PORTUGAL** and **GREECE** may use **10W40** semi-synthetic oil.

ESSENTIAL : For all vehicles with a 30,000 km (20,000 miles) maintenance interval, use exclusively TOTAL ACTIVA/QUARTZ 7000 or 9000 or any other oils offering identical specifications to these.
These oils offer specifications that are superior to those defined by norms ACEA A3/98 or API SJ.
Failing this, it is essential to adhere to the maintenance programmes covering severe operating conditions.

5W30 cannot be used in the following engines:
XU10J4RS : XSARA VTS 2.0i 16V (3 doors).
SOFIM : RELAY 2.8 D and 2.8 TD.
1580 SPI : DISPATCH 1.6i.
2.0 and 2.2 HDi engines equipped with particle filter.

WARNING : CITROËN engines prior to model year 2000 do not have to be lubricated with oils adhering to the norms ACEA A1-98/B1-98 and API SJ/CF EC.

LUBRICANTS - TOTAL recommended oils | ALL TYPES

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, permetting 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, permetting fuel economy.

Engine oil norms.

Norms in force.

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

S.A.E. : Society of Automotive Engineers.

API : American Petroleum Institute.

ACEA : Association des Constructeurs Européens d'Automobiles.

Recommendations.

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

TOTAL ACTIVA (France only).

TOTAL QUARTZ (Outside France).

ESSENTIAL : To preserve engine performances, all engines fitted in CITROEN vehicles must be lubricated with high quality oils (synthetic or semi-synthetic)

Summary

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

Model year	Types of engine	ACEA norms	API norms
AM 2001	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 et SOFIM 2.8 TD.

LUBRICANTS - TOTAL recommended oils			ALL TYPES
	S.A.E. grades	SPI norms	ACEA norms
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	**15W-50**		
TOTAL ACTIVA DIESEL 9000	**5W-40**		

ALL TYPES	LUBRICANTS - TOTAL recommended oils		
	FRANCE		
	Blended oils for all engines, supplied in bulk		
Metropolitan FRANCE	TOTAL ACTIVRAC	S.A.E : 10W-40 Norms	
	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	900 5W-40 (*) 9000 5W-30 (**)	7000 10 W-40	7000 10 W-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

(*) = HDi FAP (Particle filter) **- (**) =** Blended oils for all engines, permitting fuel economy.

LUBRICANTS - TOTAL recommended oils			ALL TYPES
	EUROPE		
	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
(*) = Blended oils for all engines, permitting fuel economy	**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 15W50**	
Cyprus			
Croatia		**7000 10W-40**	
Denmark		**7000 10W-40 9000 0W-40**	
Spain		**7000 10W-40 7000 15W-50**	
Finland		**7000 10W-40**	
Great Britain		**7000 10W-40 9000 0W-40**	
		7000 10W-40	

ALL TYPES	LUBRICANTS - TOTAL recommended oils		
	EUROPE (continued)		
	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
(*) = Blended oils for all engines, permitting fuel economy	**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-50**	**7000 10W-40**
Holland		**7000 10W-40 9000 0W-40**	
Hungary			
Italy		**7000 10W-40**	
Ireland			
Iceland			
Latvia		**7000 10W-40 9000 0W-40**	
Lithuania			
Macedonia		**7000 10W-40**	
Malta		**7000 10W-40 7000 15W-50**	
Moldova		**7000 10W-40**	
Norway		**7000 10W-40 9000 0W-40**	
Poland		**7000 10W-40**	
Portugal			
Slovak Republic			

LUBRICANTS - TOTAL recommended oils			ALL TYPES
	EUROPE (continued)		
	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
(*) = Blended oils for all engines, permitting fuel economy	**Blended oils for all engines**	**Oils specifically for petrol and dual-fuel petrol / LPG engines**	**Oils specifically for diesel engines**
Czech Republic	**9000 5W-40 9000 5W-30 (*)**	**7000 10W-40 9000 0W-40**	
Romania		**7000 10W-40 7000 15W-50**	**7000 10W-40**
Russia		**7000 10W-40 9000 0W-40**	
Slovenia		**7000 10W-40**	
Sweden		**7000 10W-40 9000 0W-40**	
Switzerland		**7000 10W-40**	
Turkey		**7000 10W-40 7000 15W-50 9000 0W-40**	
Ukraine		**7000 10W-40 9000 0W-40**	
Yugoslavia		**7000 10W-40**	

ALL TYPES	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
Ivory Coast Egypt Gabon Madagascar Morocco Senegal Tunisia	**AFRICA**		7000 15W-50	
Argentina Brazil, Chile Cuba Mexico Paraguay Uruguay	**CENTRAL AND SOUTH AMERICA**			

LUBRICANTS - TOTAL recommended oils				ALL TYPES
(*) = 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**
China	**SOUTH EAST ASIA**	9000 5W-40	**7000 10W-40** **7000 15W-50**	7000 10W-40
South Korea			**7000 10W-40**	
Hong Kong India Indonesia			**7000 15W-50**	
Japan		9000 5W-40 9000 5W-30	**7000 10W-40** **7000 15W-50**	
Malaysia Pakistan Philippines Singapore		9000 5W-40	**7000 15W-50**	
Taïwan			**7000 10W-40** **7000 15W-50**	
Thaïland			**7000 15W-50**	
Vietnam				

ALL TYPES		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 Iran Israel Jordan Kuwait Lebanon Oman Qatar Yemen	**MIDDLE EAST**	9000 5W-40	7000 15W-50	7000 10W-50

LUBRICANTS - TOTAL recommended oils		ALL TYPES
Gearbox oils		
Manual gearbox	All countries	TOTAL TRANSMISSION BV Norms S.A.E 75W-80 Special oil distributed by CITROËN (Part No. 9730 A2)
MB3 automatic gearbox		TOTAL FLUIDE ATX or TOTAL FLUIDE AT 42. Special oil distributed by CITROËN (Part No. 9730 A3).
4 HP 20 and AL4 automatic gearboxes		Special oil distributed by CITROËN (Part No. 9736 22).
Transfer box and rear axle		TOATAL TRANSMISSION X 4
Power steering oils		
Power- assisted steering	All countries	TOTAL FLUIDE ATX
	Very cold countries	TOTAL FLUIDE DA Special oil distributed by CITROËN (Part No. 9730 A1)

ALL TYPES	LUBRICANTS - TOTAL recommended oils			
Engine coolant fluid				
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	**Pack**	**CITROEN reference**	
		0.5 litre	**9979 05**	
		1 litre	**9979 06**	
		5litres	**9979 07**	
CITROEN hydraulic circuit fluid				
All countries		**Norm**	**Pack**	**CITROEN reference**
	TOTAL LHM PLUS	**ISO 7308-7309 Green in colour**	**1 litre**	**ZCP 830 095 9979.20 (Scandinavia)**
	TOTAL FLUIDE LDS	**Orange in colour**		**9979.69**

LUBRICANTS - TOTAL recommended oils				ALL TYPES
All countries	**WARNING: TOTAL LDS** fluid cannot be blended with **TOTAL LHM PLUS.**			
	WARNING: CITROËN C5 : Use only **TOTAL FLUIDE LDS** suspension fluid.			
Hydraulic circuit rinsing fluid- green in colour				
All countries	**TOTAL HYDRAURINCAGE**			
Wash/wipe fluid				
All countries	Packs	**CITROEN reference**		
	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				
All countries		**Norms NLGI (1)**		
	TOTAL MULTIS EP2 **TOTAL MULTIS COMPLEX EP2** **TOTAL MULTIS N4128**	**2** **2** **1**		
	TOTAL SMALL MECHANISMS			
(1) NLGI = National Lubricating Grease Institute.				

ALL TYPES	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				ALL TYPES
	Engines : 6FZ - RFN - RLZ - XFX			
	Petrol			
	1.8i 16V	2.0i 16V	2.0 HPi	3.0i-V6
Engine type	6FZ	RFN	RLZ	XFZ
Cubic capacity (cc)	1749	1997		2946
Bore / Stroke	82.7/81.4	85/88		87/82.6
Compression ratio	10.8/1		11.4/1	10.9/1
Power ISO or EEC KW - rpm	85-5500	100-6000	103-6000	152-6000
Power DIN (HP - rpm)	117-5500	136-6000	143-6000	210-6000
Torque ISO or EEC (m.daN - rpm)	16-4000	19-4600	19.2-4100	28.5-3750

ALL TYPES	ENGINE SPECIFICATIONS				
	Engines : RHS - RHZ - RHY - RHW - 4HX				
	Diesel				
	2.0 HDi			2.0 HDi 16V	2.2 HDi
Engine type	**RHS**	**RHZ**	**RHY**	**RHW**	**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	79-4000	80-4000	66-4000	80-4000	98-4000
Power DIN (HP - rpm)	107-4000	110-4000	90-4000	110-4000	13.6-4000
Torque ISO or EEC (m.daN - rpm)	25-1750		20.5-1750	27-1750	31.7-2000

COMPRESSION RATIO - DIESEL ENGINES — ALL TYPES

ENGINE		COMPRESSION RATIO	MAX. SPACING BETWEEN CYLINDERS
		In bars	
RHY RHS RHZ RHW	DW10	30 ± 5	5
4HX	DW12	20 ± 5	

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

	Engines : 6FZ - RFN - RLZ - RHY - RHS - RHZ - 4HX						
Crankshaft	**Petrol**			**Diesel**			
	6FZ	**RFN**	**RLZ**	**RHY**	**RHS**	**RHZ**	**4HX**
Bearing cap screws. - Pre-tightening - Angular tightening	**2 ± 0.1** **60° ± 6°**			**2.5 ± 0.2** **60°**			
Con-rod cap screws. - Tightening - Slackening - Tightening - Angular tightening	**2.3 ± 0.2** **46° + 2° - 4°**						**1** **180°** **2.3 ± 0.1** **46° ± 5**
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 *(Sintered washer)* - Angular tightening *(Steel washer)*	**4 ± 0.4** **40° ± 4°** **53° ± 5°**						

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

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

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

	Engines : 6FZ - RFN - RLZ - RHY - RHS - RHZ - 4HX						
Cylinder head	**Petrol**			**Diesel**			
	6FZ	**RFN**	**RLZ**	**RHY**	**RHS**	**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**	**RLZ**	**RHY**	**RHS**	**RHZ**	**4HX**
Oil pump - Pre-tightening - Tightening	**0.9 ± 0.1**			**1.3 ± 0.1**			**0.7** **0.9 ± 0.1**
Coolant / oil heat exhanger				**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**			**0.4 ± 0.03** **45° ± 5°**
Union on injection rail				**2 ± 0.2**			
Injection pump			**0.5 ± 0.1**	**2.25 ±0.3**			
Union on injector				**2 ± 0.2**			
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							
Coolant pump	**1.4 ± 0.1**						**1.6 ± 0.3**
Coolant inlet housing	**0.9 ± 0.1**						**2 ± .02**

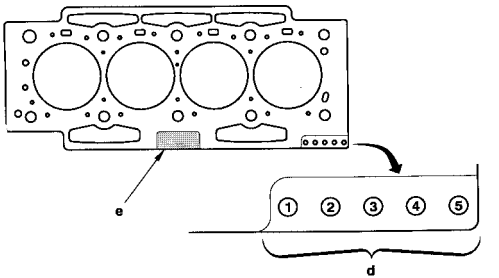
C5 - All Types	CYLINDER HEAD

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 (mm)	0.8		1.1	1.4
Supplier	MEILLOR			

Multilayer metallic cylinder head gasket.



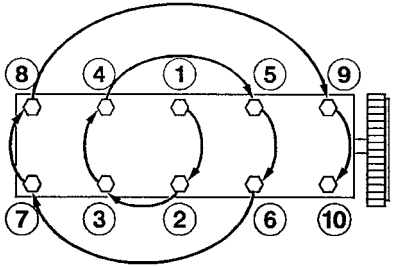
(d) Marking zone
(e) Marking zone

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.

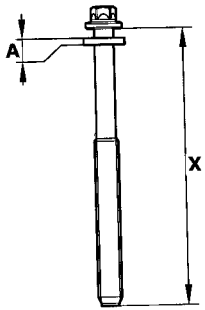
B1DP05BC

6FZ - RFN - RLZ	
Pre-tightening	**1.5 ± 0.1**
Tightening	**5 ± 0.1**
Slackening	**360°± 2°**
Tightening	**2 ± 0.2**
Angular tightening	**285° ± 5°**

(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

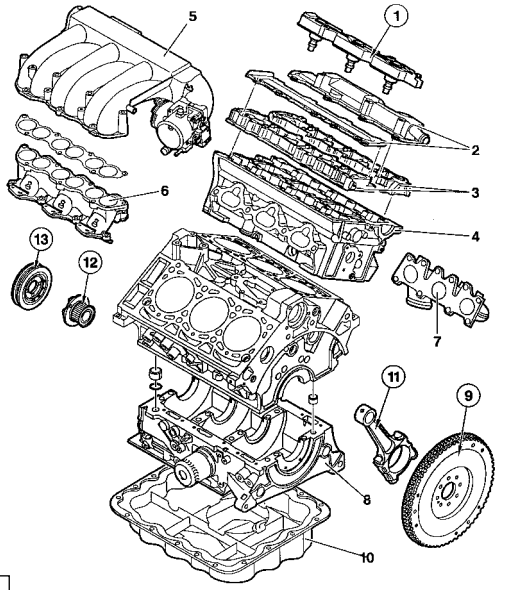


B1DP16FC

A = Washer thickness : **4 ± 0.2 mm**.
X = Length under heads of the new bolts = **144.5 ± 0.5 mm**.

X = MAX. re-usable length
6FZ - RFN - RLZ
X= 147 mm

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)



B1BP1HAP

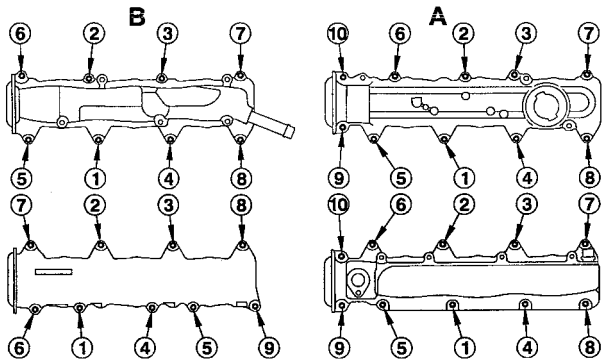
Engine : XFZ

(1) Compact coil unit	**1 ± 0.1**
(**9**) Flywheel	
- Tightening	**1**
- Angular tightening	**60°± 6°**
(11) Connecting rod caps	
- Tightening	**2 ±**
- Angular tightening	**74° ± 7**
(12) Crankshaft hub	
- Tightening	**4 ± 0.4**
- Angular tightening	**80° ± 8°**
(13) Crankshaft pulley	**2.5 ± 0.2**

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFZ

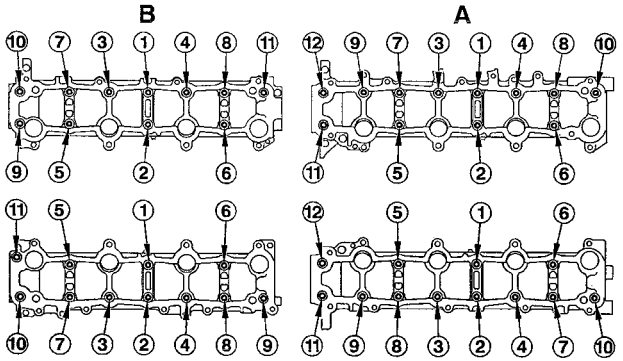
- 2 Cylinder head cover (A) Front cyl. head - (B) Rear cyl. head



B1DP08UD

- Pre-tighten :	**0.5**
- Tighten :	**1 ± 0.1**

- 3 Bearing caps housing (A) Front cyl. head - (B) Rear cyl. head



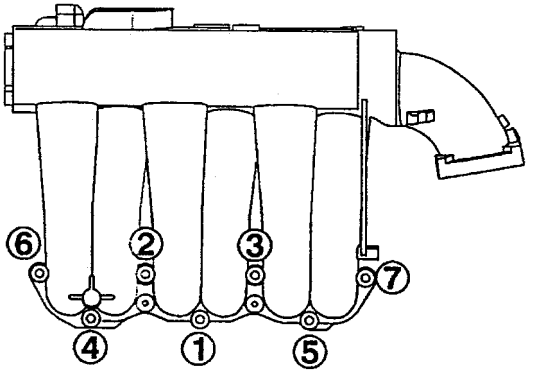
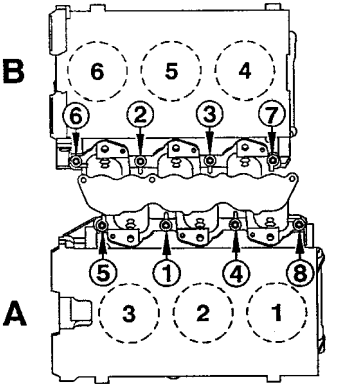
B1DP08TD

- Pre-tighten :	**0.2**
- Tighten :	**0.8**

WARNING : Tighten screw by screw in the order shown.

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFZ

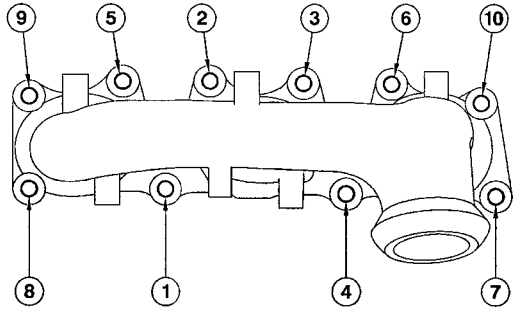
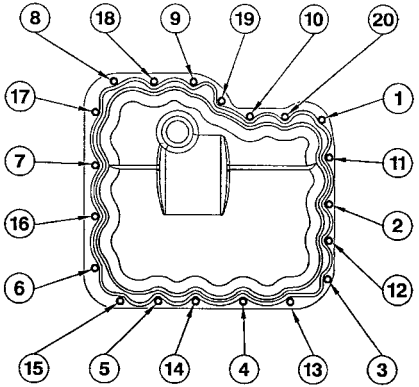
- 5 Air inlet manifold	- 6 Lower manifold (A) Front cyl. head - (B) Rear cyl. head
 B1HPOLJC	 B1DP097C

WARNING : Tighten screw by screw in the order shown.

- Pre-tighten :	**1 ± 0.1**	- Pre-tighten :	**1 ± 0.1**
- Tighten :	**2 ± 0.2**	- Tighten :	**2.5 ± 0.2**

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

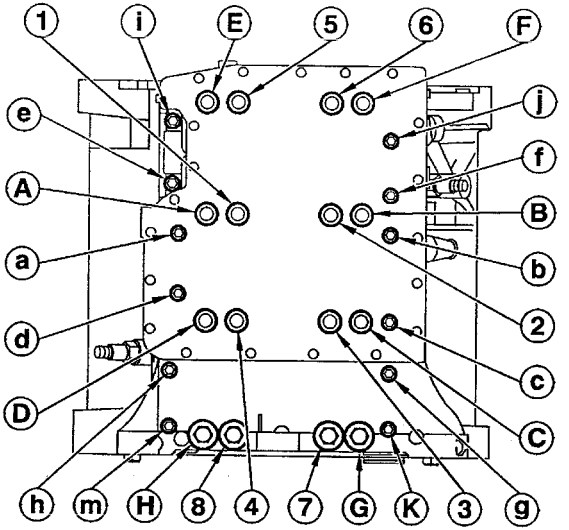
Engine : XFZ

- 7 Exhaust manifold (NEW seal)	- 10 Oil sump
 B1BP1GXD	 B1BP1GZD

WARNING : Tighten screw by screw in the order shown.

- Pre-tighten :	**1 ± 0.1**	- Pre-tighten :	**0.5 ±**
- Tighten :	**3 ± 0.3**	- Tighten :	**0.8 ±**

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)



B1BP1GYD

Engine : XFZ

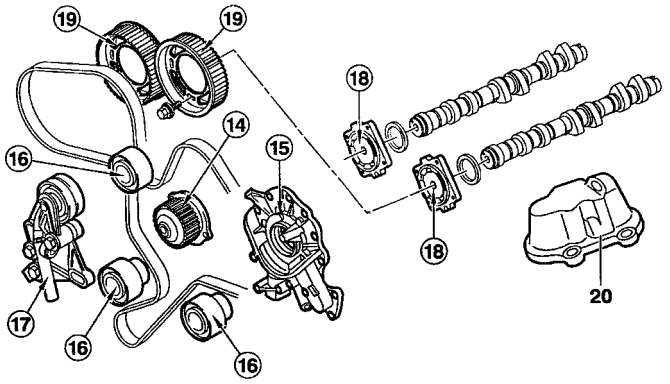
- 8 Crankshaft bearing

- Clean the threads of the screws with a brush.
- Refit the screws with a coating of grease (MOLYKOTE G RAPID PLUS).
- Check that the 8 centring pins are in place.

Maximum length under the heads of the screws :
- M11 = 131.5 mm.
- M8 = 119 mm.

- Pre-tighten the M11 screws to **3 m.daN ± 0.3** (1 to 8).
- Pre-tighten the M8 screws to **1 m.daN ± 0.1** (A to H).
- Tighten the M6 screws to **1 m.daN± 0.1** (a to m).
- Slacken the M11 and M8 screws (screw by screw).
- Tighten the M11 screws to **3 m.daN ± 0.3** (1 to 8).
- Tighten the M8 screws to **1 m.daN ± 0.1** (A to H).

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)



B1BP1HBD

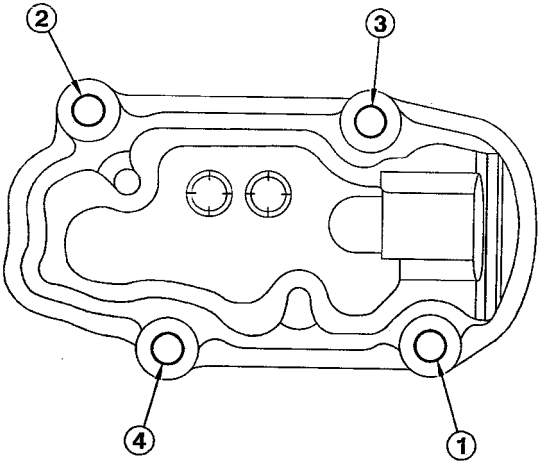
Engine : XFZ

(14)	Water pump	
	- Pre-tighten	**0.5**
	- Tighten	**0.8**
(15)	Oil pump	
	- Pre-tighten	**0.5**
	- Tighten	**0.8**
(16)	Guide roller	**8 ± 0.8**
(17)	Tensioner roller	**8 ± 0.8**
(18)	Camshaft hubs	
	- Pre-tighten	**2 ± 0.2**
	- Tighten	**57° ± 5°**
(19)	Camshaft pulley	**1 ± 0.1**

SPECIAL FEATURES : TIGHTENING TORQUES (m.daN)

Engine : XFZ

- 20 Oil vapour recovery housing.



B1BP1H1D

WARNING : Tighten screw by screw in the order shown.

- Pre-tighten **0.5 ±**
- Tighten **1 ± 0.1**

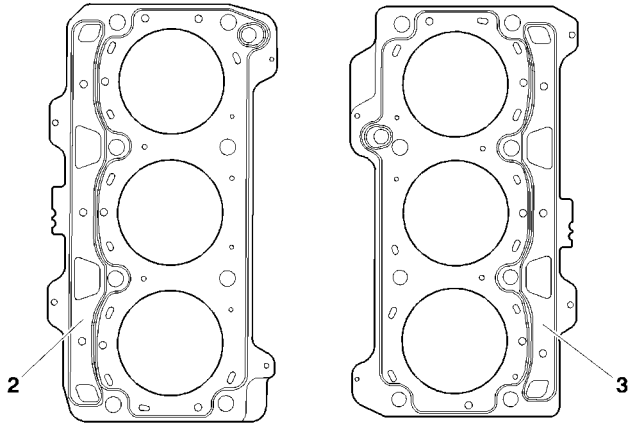
CYLINDER HEAD

Engine : XFZ

Cylinder head gasket identification

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

Multilayer metallic cylinder head seal.



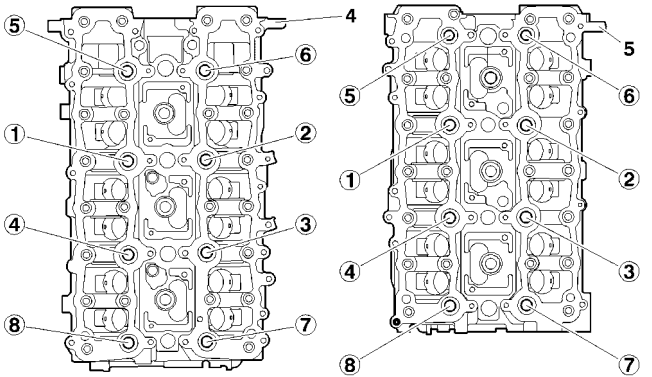
(1) LH cylinder head gasket.
(2) RH cylinder head gasket.

B1DP18YD

CYLINDER HEAD

Engine : XFX

Cylinder head tightening (m.daN)

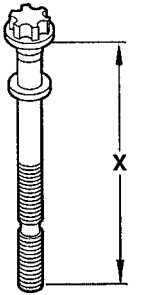


In the order indicated.

- Pre-tightening	**2 ± 0.2**
- Slackening	**YES**
- Pre-tightening	**1.5 ± 0.2**
- Angular tightening	**225°**

B1DP18ZD | B1DP09VC

Cylinder head bolts



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

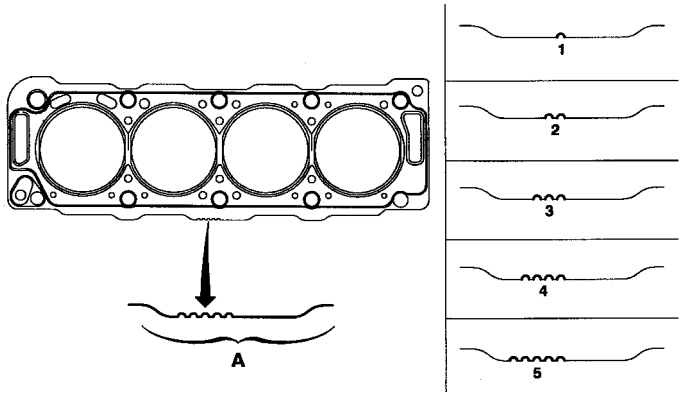
X = MAX. re-usable length
XFX
149.5 mm

CYLINDER HEAD

Engines : RHY - RHS - RHZ

Cylinder head gasket identification

Engine plate	Piston stand-proud (mm)	Thickness (mm)	Number of notches at A
RHZ RHY	0.47 to 0.605	1.30 ± 0.06	1
	0.605 to 0.655	1.35 ± 0.06	2
	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



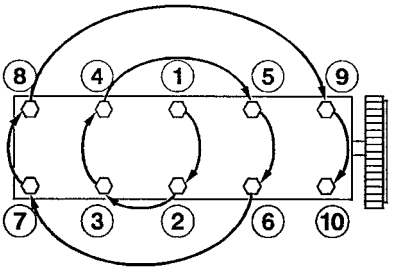
B1DP15AD

CYLINDER HEAD

Engines : RHY - RHS - RHZ

Cylinder head gasket identification

Cylinder head tightening (m.daN)



B1DP05BC

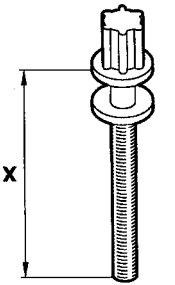
RHY - RHS - RHZ

- Pre-tightening	**2**
- Tightening	**6**
- Angular tightening	**220°**

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

Cylinder head bolts

RHY - RHS - RHZ



B1DP15EC

X = MAX. re-usable length

RHY - RHS - RHZ
133.3 mm

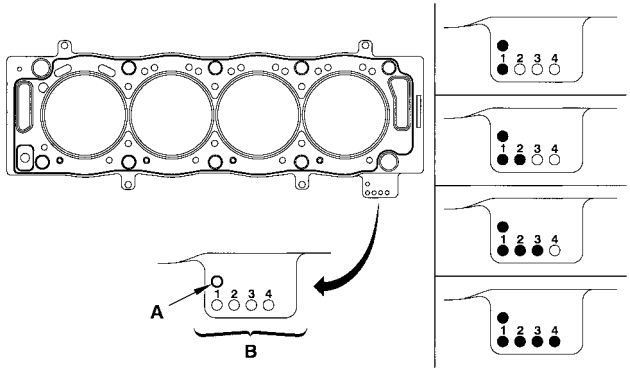
CYLINDER HEAD

Engine : 4HX

Cylinder head gasket identification

Engine plate	Piston stand-proud (mm)	Thickness (mm)	Number of notches	
			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 gasket.
Multilayer cylinder head gasket.
Select seal thickness as a function of the piston stand-proud.

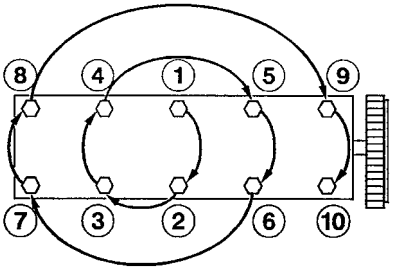


B1DP18XD

CYLINDER HEAD (continued)

Engine : 4HX

Cylinder head tightening (m.daN)

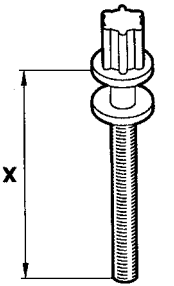


B1DP05BC

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)*
- Slackening	**360°** *(Order 10 to 1)*
- Pre-tightening	**2 ± 0.2** *(Order 1 to10)*
- Tightening	**6 ± 0.6** *(Order 1 to10)*
- Angular tightening *(in 2 attempts max.)*	**220° ± 5°** *(Order 1 to10)*

Cylinder head bolts

4HX



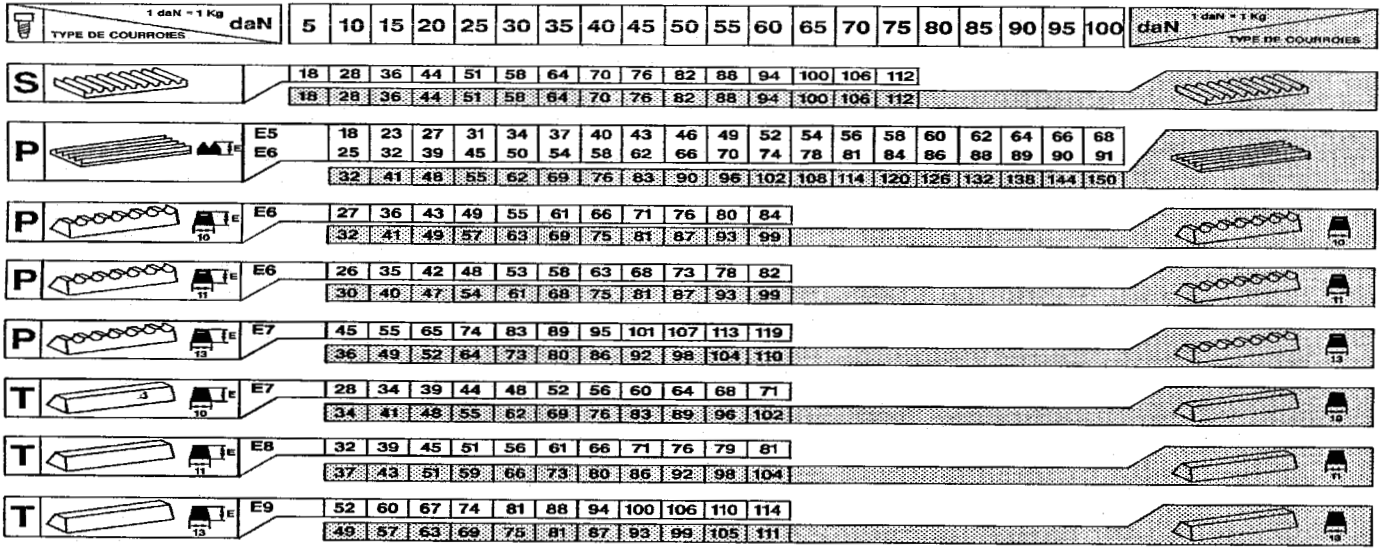
NOTE : Oil the threads and under the heads of the bolts. *(Use engine oil or Molykote G Rapid Plus).*

B1DP15EC

X = MAX. re-usable length
4HX
X = 134.5 MM

BELT TENSION/SEEM UNITS CORRESPONDENCE TABLE — ALL TYPES

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



B1EP135D

C5 - SYNERGIE	AUXILIARY EQUIPMENT DRIVE BELT								
	EW			ES	DW				
	7	10		9	10				12
	J4		D	J4	TD	ATED		ATED4	TED
Engine type	**6FZ**	**RFN**	**RLZ**	**XFX**	**RHY**	**RHS**	**RHZ**	**RHW**	**4HX**
C5	X	X	X	X	X	X	X		X
SYNERGIE		X					X	X	
See pages :	56			57	58 to 61				62 to 63

AUXILIARY EQUIPMENT DRIVE BELT

ALL TYPES

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 53.

ESSENTIAL

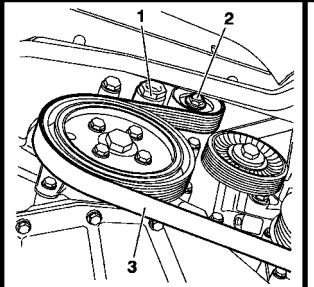
- Before refitting the auxiliary equipment drive belt, check that :

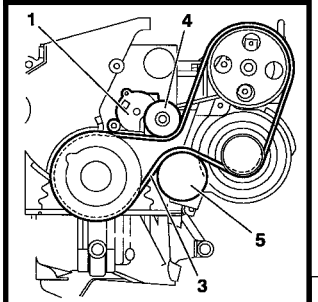
1) The roller(s) rotate freely (no play or stiffness)

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

SYNERGIE — AUXILIARY EQUIPMENT DRIVE BELT

Without aircon | **Engines : 6FZ - RFN - RLZ** | **With aircon**





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.

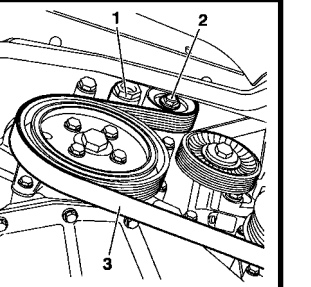
Refit the belt.

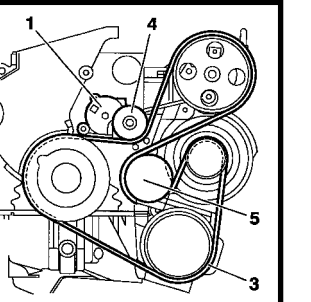
- Compress the tensioner roller **(1).**
- Fit the belt **(3).**
- Release the tensioner roller **(1).**

Tightening torques m.daN.

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

B1BP23PC | B1BP23QC



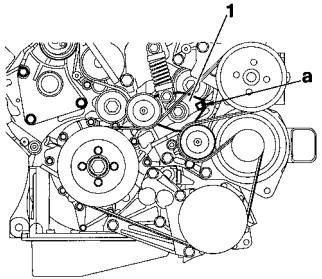


B1BP23PC | B1BP23RC

AUXILIARY EQUIPMENT DRIVE BELT

C5 - All Types

Engine : XFX



B1BP27EC

Tools

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

Remove.

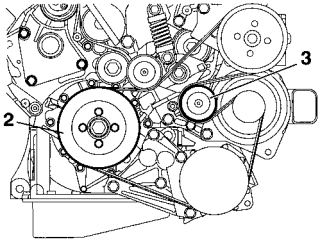
Remove the engine cover.
Pivot the tensioner roller bracket **(1)** clockwise, until it locks, using tools **[1]** and **[2]** at **«a»**.
Remove the auxiliary equipment drive belt.
ESSENTIAL : Check that the guide rollers are turning freely. ***(No play and no tightness).***

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]**.

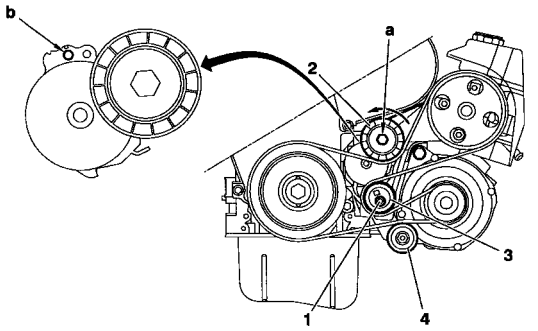
ESSENTIAL : Make sure that the belt is correctly positioned in the grooves of the various pulleys.



B1BP27FC

SYNERGIE	AUXILIARY EQUIPMENT DRIVE BELT

Engines : RHY - RHS - 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.

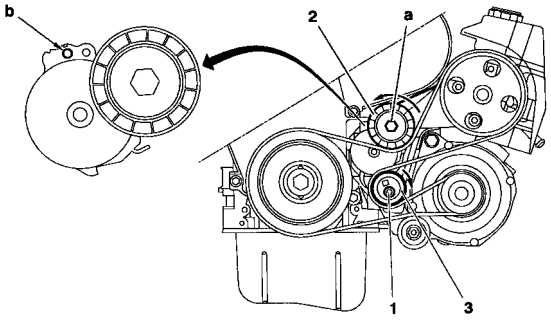
No re-use of belt.
- Compress the dynamic tensioner roller **(2)** by action at **« a »** *(anti-clockwise*), using too**l [4]**.
- Peg using too**l [2]**, at **« b »**.
- Hold the dynamic tensioner roller **(2)** compressed and remove the belt.
- Loosen the screw **(1)**.

B1BP1YKD

AUXILIARY EQUIPMENT DRIVE BELT

SYNERGIE

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 ± 0.5 m.daN**.

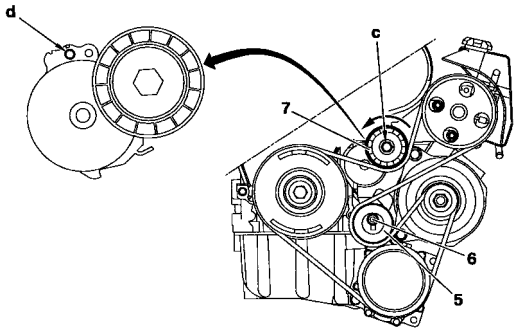
Remove the tool **[2]**.

- 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

SYNERGIE	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.

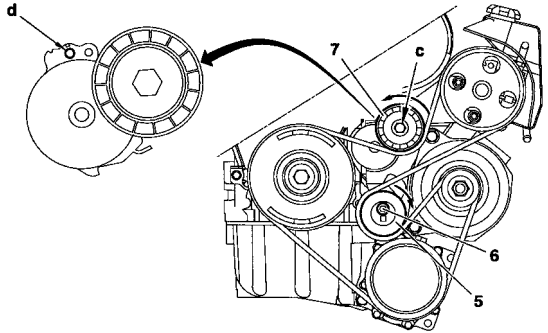
- Compress the tensioner roller **(7)** by moving it at **« c »** *(in anti-clockwise direction)*, tool **[4]**.
- Peg using tool **[2]**, at **« d »**.
- Loosen the screw **(6)**.
- Bring the eccentric roller **(5)** towards the rear.
- Tighten the screw **(6)** by hand.
- Remove the belt.

B1BP1YLD

AUXILIARY EQUIPMENT DRIVE BELT

SYNERGIE

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.

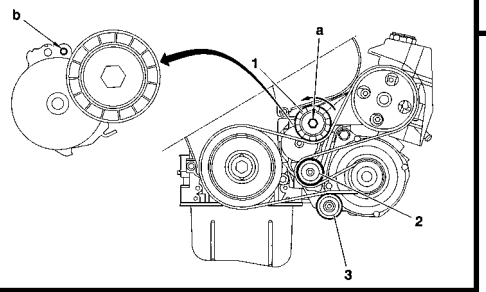
WARNING : Respect the direction in which the belt is fitted.
- Remove the tool **[4]**.

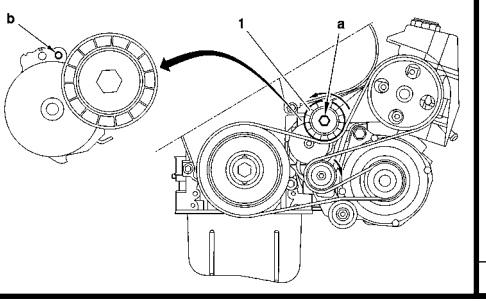
New belt.
Refit the belt.
- Turn the eccentric roller **(5)**, tool **[1]** *(clockwise)* to free the tool **[2]** from its pegging at **« d »**.
- Hold the eccentric roller **(5)**, tool **[1]**, and tighten the screw **(6)** to **4.3 ± 0.5 m.daN**.
- Remove the tool **[2]**.
- Rotate the crankshaft **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

C5 - All Types	AUXILIARY EQUIPMENT DRIVE BELT

Engine : 4HX





Without air conditioning

TOOLS

[1] Dynamic tensioner compression lever **: (-).0188.Z**
[2] Peg **Ø 4 mm** **: (-).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.

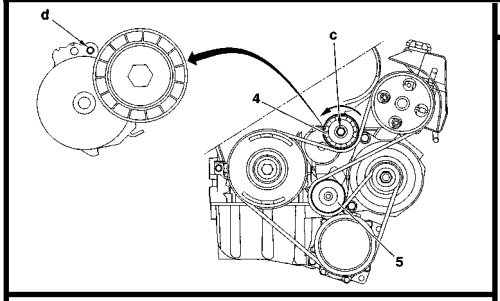
- Refit the auxiliaries drive belt.
- Compress the tensioner roller **(1)** by action at **«a»** *(anti-clockwise)*, using tool **[1]**.
- Remove the tool **[2]** at **«b»**.

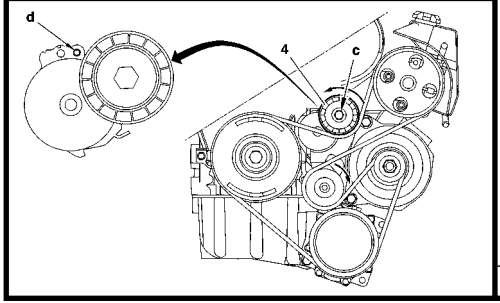
B1BP270D	B1BP272D

AUXILIARY EQUIPMENT DRIVE BELT

C5 - All Types

Engine : 4HX





With air conditioning

TOOLS

[1] Dynamic tensioner compression lever **: (-).0188.Z**
[2] Peg **Ø 4 mm** **: (-).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»**.

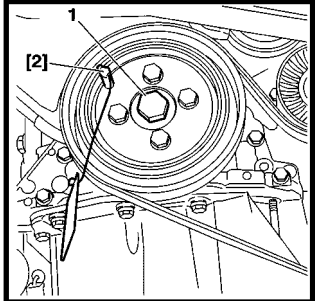
B1BP271D **B1BP273D**

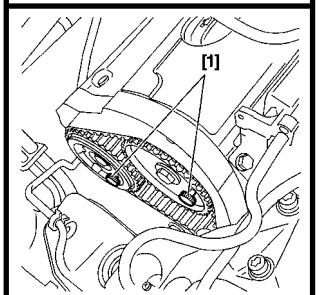
C5 - All Types	CHECKING AND SETTING THE VALVE TIMING								
	EW			ES	DW				
	7	10		9	10				12
	J4		D	J4	TD	ATED		ATED4	TED
Engine type	**6FZ**	**RFN**	**RLZ**	**XFX**	**RHY**	**RHS**	**RHZ**	**RHW**	**4HX**
C5	X	X	X	X	X	X	X		X
SYNERGIE		X					X	X	
See pages :	65 to 68			69 to 74	75 to 79				80 to 85

CHECKING AND SETTING THE VALVE TIMING

C5 - All Types

Engines : 6FZ - RFN - RLZ





TOOLS

[1] Camshaft setting pegs : **(-).0189.A**
[2] Crankshaft setting peg : **(-).0189.B** **Toolkit C.0189.**
[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]**.

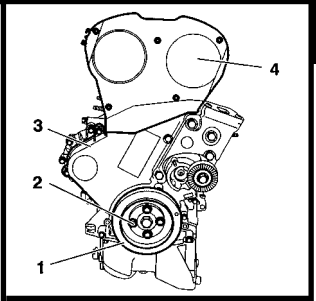
NOTE : The pegs **[1]** should engage without effort.

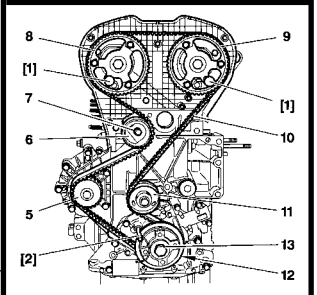
WARNING : if the pegs do not engage without effort, restart the fitting and tensioning of the timing belt (see below).

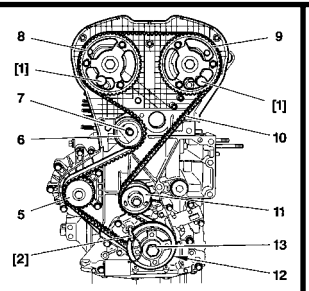
Setting the valve timing.

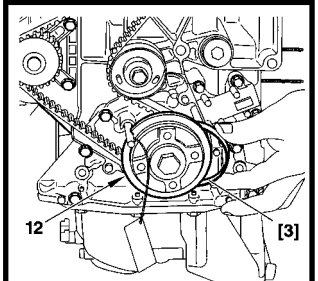
Remove.

- 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)**.









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 possilble 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»**

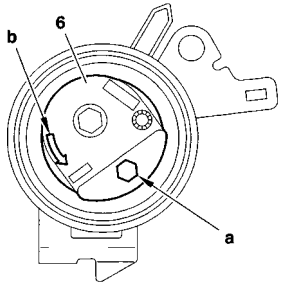
WARNING: The index **«c»** must not stand proud of the notch **«f»** : if it does, restart the timing belt tensioning operation.

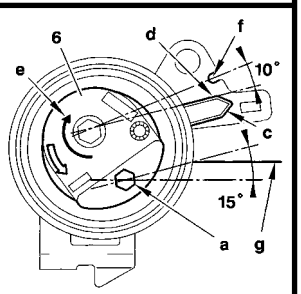
IMPERATIVE : The tensioner roller (6) must not turn while its fixing is being tightened up. If it does, recommence the adjusting operation.

CHECKING AND SETTING THE VALVE TIMING

C5 - All Types

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]** and **[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.

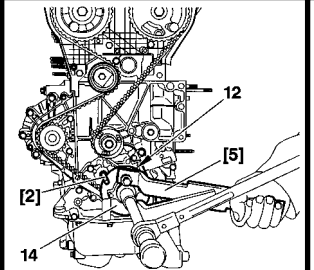
Positioning of the crankshaft.

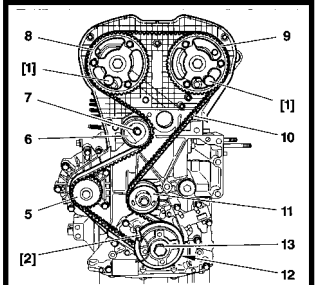
- Fit tool **[2]**.
- As long as it is possible to fit tool **[2]**, continue with the refit operations.

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 ± 0.4 m.daN**, then angular tighten to :

53° ± 4° *(Assembly with steel washer, gold in colour)*

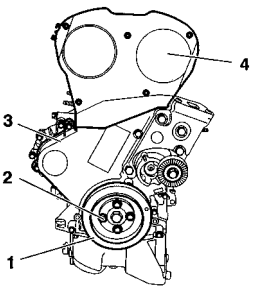
40° ± 4° *(Assembly with sintered washer, metallic in colour)*

using the tool **[4]**.
Remove tools **[1]. [2]** and **[5].**

Refit :

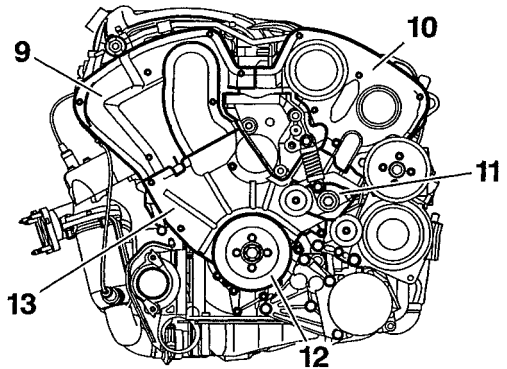
- The lower valve cover **(3)**.
-The upper valve cover **(4)**.
-The crankshaft pulley **(1)**.
-The screws **(2)**.
-Pretighten the screws **(2)** to **1.5 m.daN**.
-Tighten the screws **(2)** to **2.1 ± 0.5 m.daN**.

B1EP14PC | B1EP14JD



B1BP23XC

CHECKING AND SETTING THE VALVE TIMING



B1BP2BKC

Engine : XFX

OUTILLAGES

[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).*

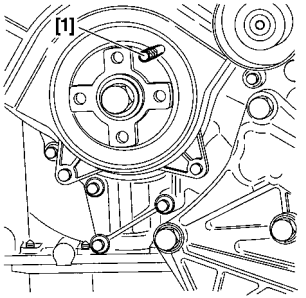
Checking the valve timing setting.

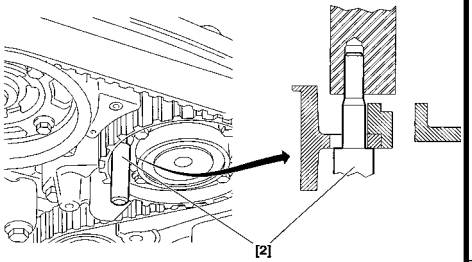
Remove :

- 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)**.

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 :

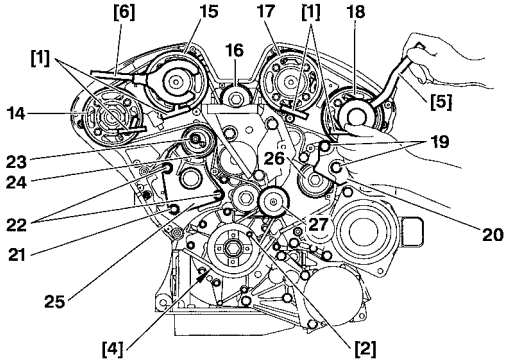
- The lower timing cover **(13)**.
- The upper timing covers **(9)** and **(10)**.
- The crankshaft pulley **(12)**.
- The roller / dynamic tensioner assembly **(11)**.
- The power steering pulley.

- Complete the refitting of components.

- Initialise the ignition injection ECU.

B1EP08TC | B1EP15UD

CHECKING AND SETTING THE VALVE TIMING



B1EP15VD

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)**.

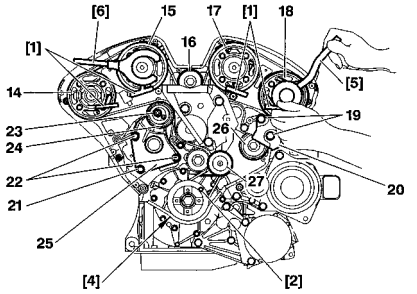
Untighten the screws **(22)** of the panel **(25)**.

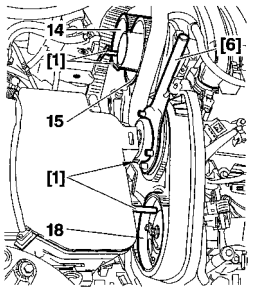
Remove the guide roller **(16)**.

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

- Remove the timing belt.

CHECKING AND SETTING THE VALVE TIMING





Engine : XFX

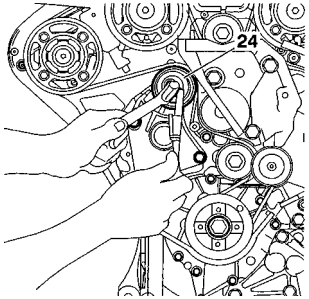
Setting the valve timing (continued)
Refit.
- Check that the camshafts and the crankshaft are correctly pegged.
- Check that the rollers and the water pump pulley are turning freely. *(No tightness).*
- Loosen the camshaft pulley screws by a **1/4 turn**.
- Make sure that the pulleys are turning freely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

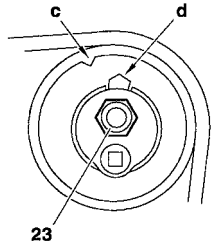
WARNING : Respect the direction of fitting of the belt : facing the timing, the inscriptions on the belt should be readable the correct way up.
- Fit the timing belt on the crankshaft pinion.
- Position the too**l [6].**
- Position the timing belt in the following sequence : *(Belt well tensioned).*
- 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.

CHECKING AND SETTING THE VALVE TIMING

C5 - All Types





Engine : XFX

Setting the valve timing (continued)

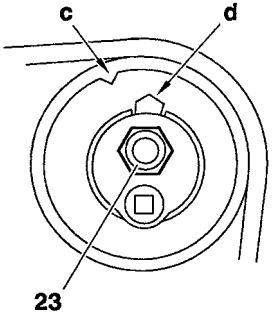
Adjusting the timing belt tension.

- 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 ± 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 ± 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 ± 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).*

C5 - All Types	CHECKING AND SETTING THE VALVE TIMING



B1EP15XC

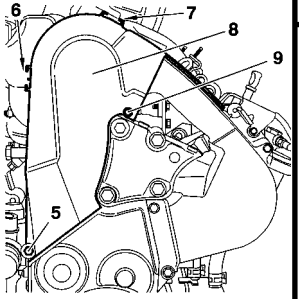
Engine : XFX

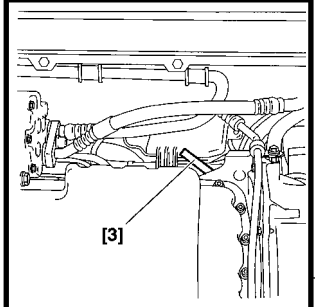
Setting the valve timing (continued)
- Align the marks **«c»** and **«d»**, without detensioning the timing belt.
(Failing this, restart the operation of adjusting the belt tension).
- Hold the tensioner roller **(24)**.
- Tighten the nut **(23)**, **tighten to 1 ± 0,1 m.daN**.
- Check the position of 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 ± 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 - RHS - 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.

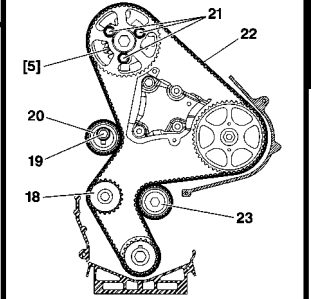
Peg :

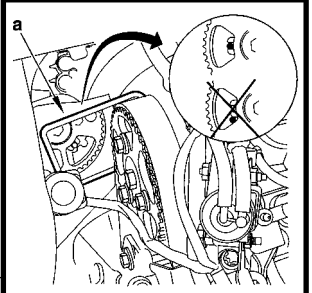
- The engine flywheel, using tool **[3]**. *(From under the vehicle).*
- The camshaft, using tool **[5]**.

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 ± 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 Ø 7 mm screw.

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

B1EP14AC | B1BP282C

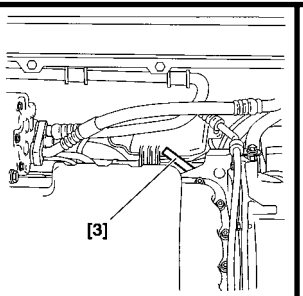


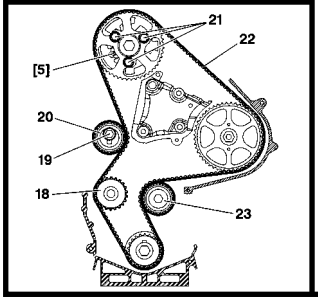


B1EP152D | B1BP1YSC

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY-RHS-RHZ





Setting the valve timing.

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

Loosen :
- The three screws **(9).**
- The screw **(7)** of the tensioner roller **(6).**
- Remove the timing belt.

Checks.

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

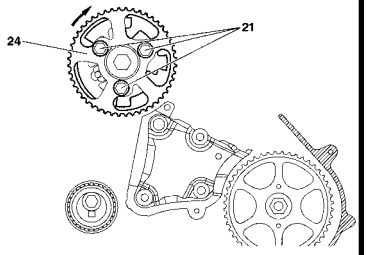
Check that :
- The rollers **(20)**, **(23)** and the water pump turn freely *(without play or tightness).*
- There are no traces of oil *(on camshaft or crankshaft).*
- There are no leaks of coolant fluid (from water pump).
- Replace defective components *(if necessary).*

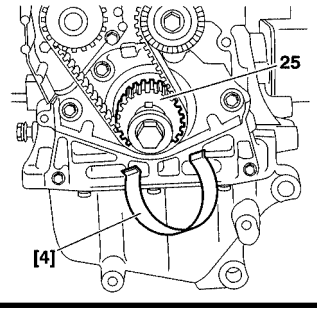
B1BP282C | B1EP152D

CHECKING AND SETTING THE VALVE TIMING

C5 - All Types

Engines : RHY - RHS - RHZ





B1EP153D | B1EP154C

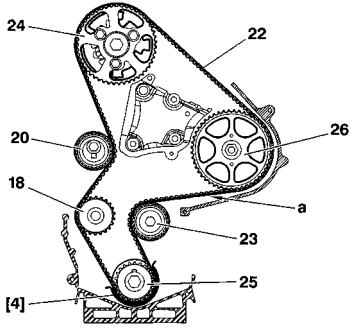
Setting the valve timing (continued).

- 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)**.

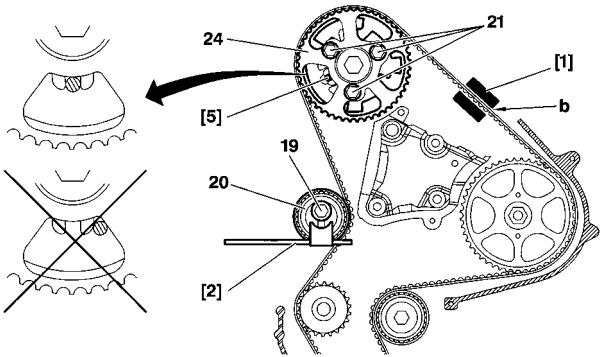
NOTE : If needed, slightly turn the pinion **(24)** anti-clockwise *(not by more than one tooth).*

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



B1EP155D

CHECKING AND SETTING THE VALVE TIMING



B1EP156D

Engines : RHY - RHS - 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 :

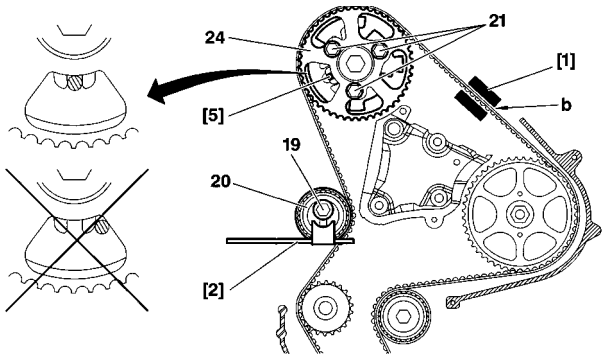
98 ± 2 SEEM units.

- 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.

CHECKING AND SETTING THE VALVE TIMING

C5 - All Types



B1EP156D

Engines : RHY - RHS - 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 ± 0.2 m.daN**.
- Remove the tool **[1]**.
- Refit the tool **[1]**.
- Tension value should be :

54 ± 3 SEEM units.

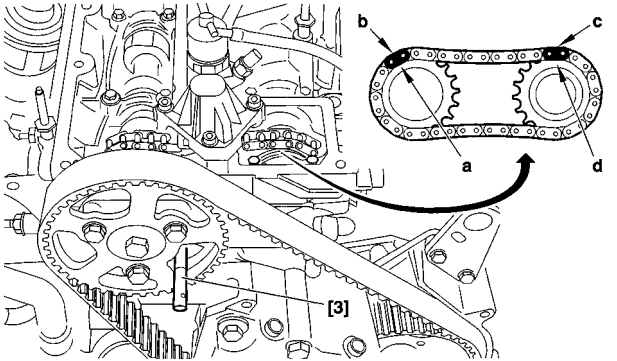
IMPERATIVE : If value is incorrect, restart the operation.

- 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.

CHECKING AND SETTING THE VALVE TIMING



B1EP159D

Engine : 4HX

Tools

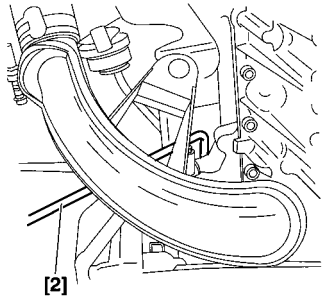
[1] Belt tension measuring instrument	**: 4122-T**
[2] Engine flywheel peg	**: (-).0188.X.**
[3] Tension lever	**: (-).0188.Y.**
[4] Belt compression spring	**: (-).0188.K.**
[5] Camshaft pinion peg	**: (-).0188.M.**
[6] Engine flywheel lock	**: (-).0188.F.**
[7] Set of blocking plugs	**: (-).0188.T.**

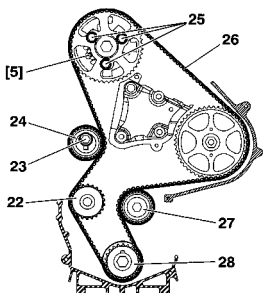
IMPERATIVE : Respect the safety and cleanliness recommendations specific to high pressure diesel injection (HDi) engines.

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 **[2]**.
- The camshaft pinion, using tool **[5]**.

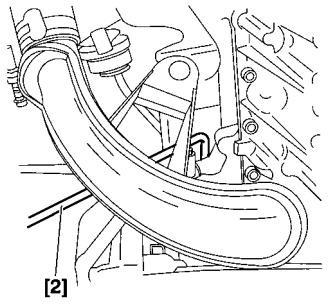
IMPERATIVE : Should it be impossible to peg the camshaft, check that the offset between the camshaft pinion hole and the pegging hole is not more than 1 mm *(use a screw 7 mm in dia.).*

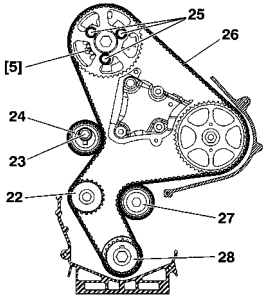
If the offset is more than 1 mm, restart the setting of the valve timing
(See corresponding operation).
- Remove the tools **[2]** and **[5]**.

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:

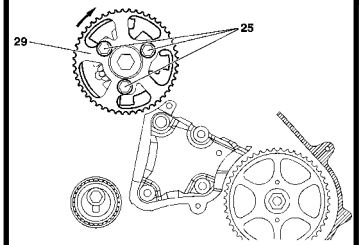
Check :
- That the rollers **(24)** and **(27)** and the water pump **(22)** are turning freely. *(Without play and without tightness).*
- Absence of traces of oil leaks *(Crankshaft and camshaft sealing rings).*
- Absence of leaks of coolant fluid *(Water pump).*

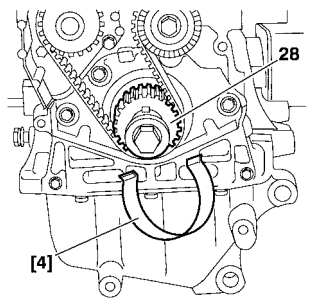
NOTE : Replace defective components *(If necessary).*

B1BP298C | **B1EP15AD**

CHECKING AND SETTING THE VALVE TIMING

Engine : 4HX





Setting the valve timing (continued).

Refit

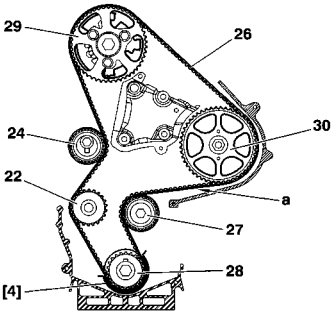
- Retighten the screws **(25)** by hand.
- Turn the pinion **(29)** *(clockwise)* to the bottom of the buttonhole.
- Refit the belt on the crankshaft **(28)**.
- Hold the belt, using tool **[4]**.

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).*

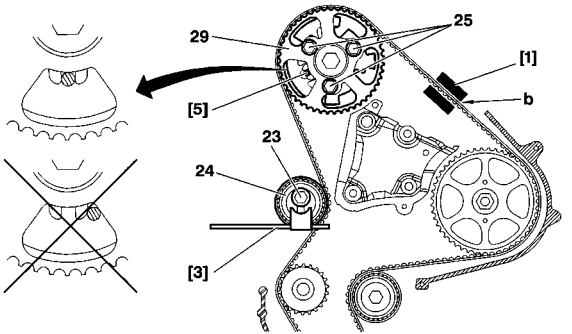
- Remove the tool **[4]**.



B1EP15BD | B1EP15CC | B1EP15DD

C5 - All Types

CHECKING AND SETTING THE VALVE TIMING



B1EP15ED

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 ± 2 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).

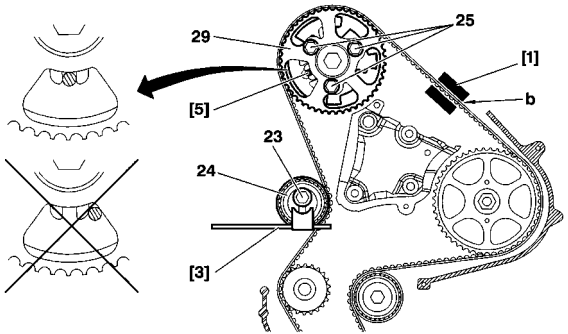
- Tighten the screws **(25)** to **2 m daN**.
- Remove tools **[1]**, **[2]**, **[3]** and **[5]**.
- Rotate the crankshaft **8 times** *(normal direction of rotation).*
- Fit the tool **[3]**.
- Loosen screws **(25)**.
- Fit tool **[5]**.
- Loosen screw **(23)** (to free the tensioner roller **(24)**.
- Fit tool **[1]**.
- Turn the tensioner roller **(24)** *(anti-clockwise)*,using tool **[3]**, to attain a tension of :

51 ± 3 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

C5 - All Types



B1EP15ED

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.

ALL TYPES — VALVE CLEARANCES

The valve clearances must be checked with the engine cold

	● Inlet	⊗ Exhaust
All Types	Hydraulic adjustment	

POSSIBLE PROCEDURES
For engines with 4 cylinders in a line (1-3-4-2)

Rocking

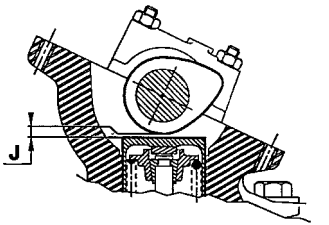
Rocking	Adjust
1 ● ⊗ 1	4 ● ⊗ 4
3 ● ⊗ 3	2 ● ⊗ 2
4 ● ⊗ 4	1 ● ⊗ 1
2 ● ⊗ 2	3 ● ⊗ 3

⊗ Inlet

● Exhaust

Fully open (Exhaust)

Valves fully open	Adjust
⊗ 1	3 ● ⊗ 4
⊗ 3	4 ● ⊗ 2
⊗ 4	2 ● ⊗ 1
⊗ 2	1 ● ⊗ 3



Engines without hydraulic adjustment : the clearance **(J)** should be checked opposite the cam.

B1DP13QC

CHECKING THE OIL PRESSURE								C5 - All Types
Tools Toolkit 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 - RHS -RHZ					4HX		
Temperature (C°)	90°							
Pressure (Bars)	2	4	2	4	2	4		
Rpm	1000	2000	1000	2000	1000	2000		

ESSENTIAL : Respect the safety and cleanliness recommendations.

C5 - All Types	OIL FILTERS

To be read together with the petrol and diesel correspondence tables

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

		Ø (mm)	Height (mm)
Specifications	LS 304	76	89
	LS 880	86	97

FILLING AND BLEEDING THE COOLING CIRCUIT

C5 - All Types

TOOLS

[1] Filling cylinder **: 4520-T**
[2] Adaptor for filling cylinder **: 4222-T.**

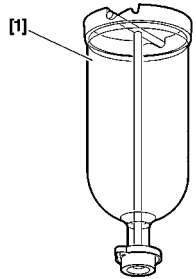
ESSENTIAL : Respect the safety and cleanliness recommendations.

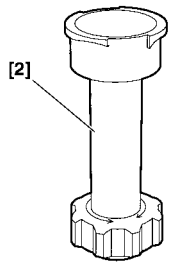
- The draining and refilling operations can be carried out by means of a WINN'S coolant replacement apparatus or similar; **it is essential to follow the instructions when using this apparatus.**

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

C5 - All Types		IDLING - ANTIPOLLUTION						
Vehicles		Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content	
					Manual gearbox	Auto. gearbox: N 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 HPi	RLZ	L4	SIEMENS SIRIUS 81	900			
	3.0 i V6	XFZ	IF/L5	BOSCH ME 7.4.6.	650	600		
SYNERGIE	2.0 i 16V	RFN	IF L5	M. MARELLI 48P2	800		< 0.5	> 9

PETROL INJECTION					C5 - All Types
	C5				SYNERGIE
	1.8I 16V	2.0I 16V	2.0 HPi	3.0I 24S V6	2.0 i 16 V
Engine type	**6FZ**	**R6F**	**RLZ**	**XFX**	**RFN**
Emission standard	L4 - IF/L5	L4 - IF/L5	L4	IF/L5	IF L5
Make Injection type	SAGEM S2000	MAGNETTI MARELLI MM. 48P	SIEMENS SIRIUS 81	BOSCH ME 7.4.6.	M. MARELLI 48P2
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	

ALL TYPES	ANTI-POLLUTION TECHNICAL CHECKS (FRANCE)

All Types Petrol CO Corrected (In %)	All Types Diesel (m -1)
Conditions : At idle, engine warm. **→ 01/96** Less than **4.5 %** for vehicles registered before **10/86**. Less than **3.5 %** for vehicles registered after **10/86**. **With catalytic converter** Greater than 2.0i 89 M.Y. All Types 93 M.Y. **CO less than 0.5 % at idle speed.** **CO** less than **0.3 % at fast idle speed** between **2500** and **3000 rpm (*)** Lambda Probe value **0.97** to **1.03**.	**01/96 →** **Atmospheric engine.** **Less than 2.5 m -1** **Turbocharged engine.** **Less than 3.0 m -1**

EMISSION STANDARDS							ALL TYPES
STANDARD				APPLICATIONS		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 imminent	→ 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	

ALL TYPES			EMISSION STANDARDS				
STANDARD				APPLICATIONS		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 • 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 : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of the U.S.	With oxygen sensor and catalytic converter for petrol vehicles

EMISSION STANDARDS						ALL TYPES
STANDARD				APPLICATIONS		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 the U.S. standard	With catalytic converter and EGR
US 93	Y2	US 93	Petrol Diesel	Private vehicles : • certain Export countries	Current	→ Adoption of the U.S. standard	
US 84 LDT	X1	US 84	Petrol Diesel	Utility vehicles : • certain non-EEC European countries • certain Export countries	Current	→ Adoption of the U.S. 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 the U.S. standard for light utility vehicles	

ALL TYPES	EMISSION STANDARDS						
STANDARD				APPLICATIONS		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.

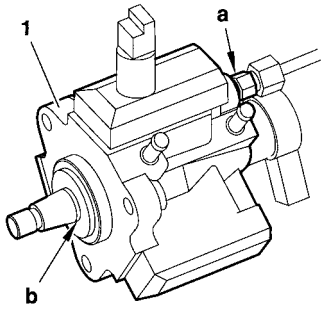
EMISSION STANDARDS							ALL TYPES
STANDARD				APPLICATIONS		NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 1 **(EURO 93)**	W2	CEE W2	Petrol Diesel	Utility vehicles : < 3.5 tonnes • new models • existing models Class 1 : • new models • existing models Class 2/3 : • 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
EURO2 **(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.

ALL TYPES	EMISSION STANDARDS						
STANDARD				APPLICATIONS		NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 2 **(EURO 96)**	W3	CEE 95	Petrol Diesel Gas	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 2 : 1 700 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 Gas	Private vehicles : All Types • nouveaux modèles • modèles existants	→ 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						ALL TYPES
STANDARD			APPLICATIONS		NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 3 **(EURO 2000)**	W3		Petrol Diesel Gas	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 2 : 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.

ALL TYPES			EMISSION STANDARDS				
STANDARD				APPLICATIONS		NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 4	IF / L5		Petrol Diesel Gas	Private vehicles : All types • new models • existing models	→ 01/2005 → 01/2006	Brussels Directive: 2001/1 → EURO 3 standard (L4) made stricter → Fiscal incentives	With 2 oxygen sensors and catalytic converter for petrol vehicles. With EOBD on-board diagnosis.
EURO 4	IF / L5		Petrol Gas	Utility vehicles : < 3.5 tonnes Class 1 : • new models • existing models Class 2/3 : • new models • existing models	→ 01/2005 → 01/2006 → 01/2006 → 01/2007	Brussels Directives: 99/102 et 2001/1 (Gas) → EURO 3 standard (L4) 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 EOBD on-board diagnosis.

Engines : RHY - RHS - RHZ - 4HX



B1HP19LC

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

Fuel supply circuit.
- Required fuel : diesel.

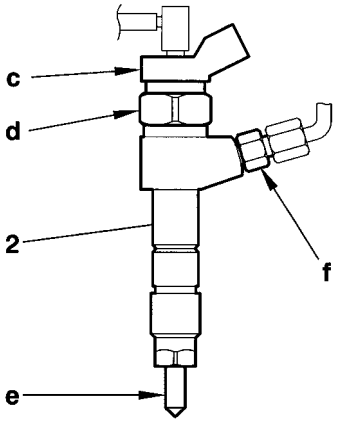
Electric circuit.
- Swapping injection ECUs between two vehicles will render it impossible to start either vehicle.
- It is forbidden to supply a diesel injector with 12 volts.

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).

HDi = High pressure Diesel injection

PROHIBITED OPERATIONS: HDi DIRECT INJECTION SYSTEM

Engines : RHY - RHS - RHZ - 4HX



B1HP19NC

Diesel injectors.

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

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.

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.

CLEANLINESS REQUIREMENTS.
Preliminary operations

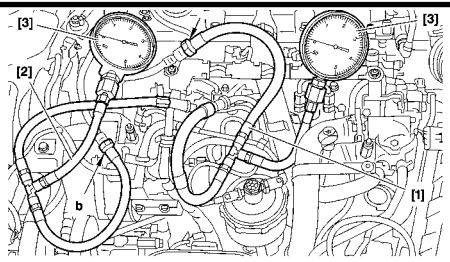
IMPERATIVE : The technician should wear clean overalls.
Before working on the injection system, it may be necessary to clean the apertures of the following sensitive components :
(refer to corresponding procedures).
- Fuel filter.
- High pressure fuel pump.
- Third piston deactivator.
- High pressure 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.

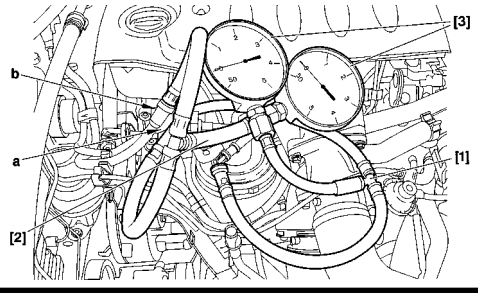
CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

C5 - All Types

Engines : RHY - RHS - RHZ



Engine : 4HX



Engines : RHY - RHS - 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**	**Kit 4073-T**
[4] Prolongateur	**: 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**

C5 - All Types	CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

Engines : RHY - RHS - 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 and 4 Bar	**0.8 ± 0.4 Bar**	Check the condition of the diesel filter
More than 4 Bar	Less than **0.8 Bar**	Check the low pressure regulator incorporated in the filter *(locked shut)* : replace.
More than 4 Bar	More than **0.8 Bar**	Check the fuel return circuit *(pipe pinched or trapped.....).*
Between 0.8 and 1.5 Bar	Less than **0.8 Bar**	Check the fuel suppy circuit : - Booster pump (low pressure), piping.

Impossible to start the engine :
Fuel supply pressure less than **0.8 Bar :**
- Check the low pressure regulator incorporated in the filter *(locked open)*
- Check the high pressure pump distribution valve *(locked shut)*

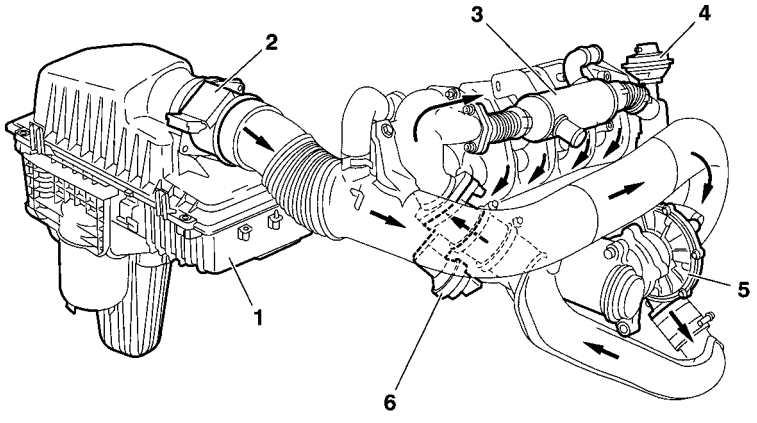
Check : diesel injector return flow. (Table below)

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

C5 - All Types

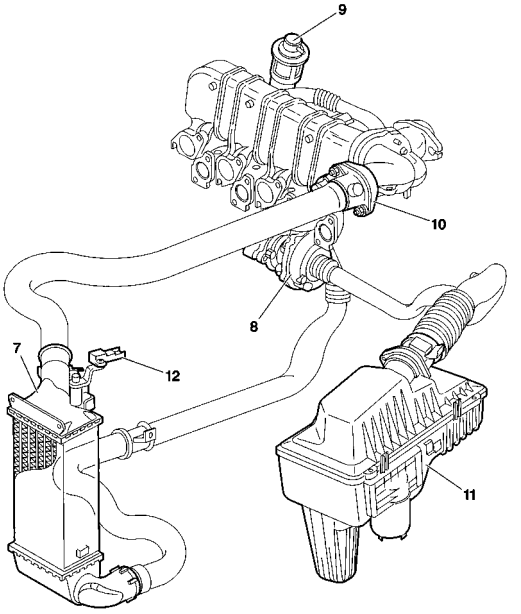


B1HP1A6D

Engine : RHY

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

C5 - All Types	AIR SUPPLY CIRCUIT SPECIFICATION



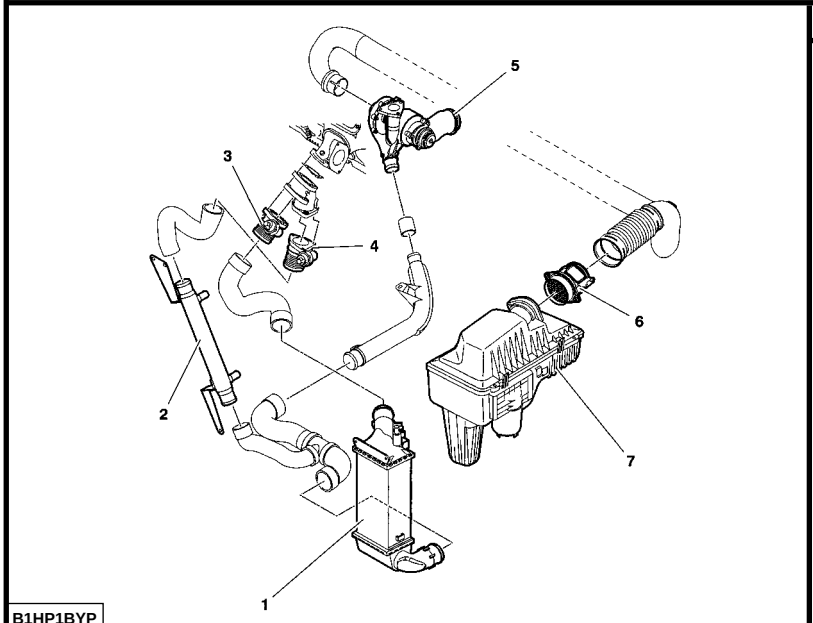
B1HP1A7P

Engines : RHS - 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.**

AIR SUPPLY CIRCUIT SPECIFICATION

C5 - All Types

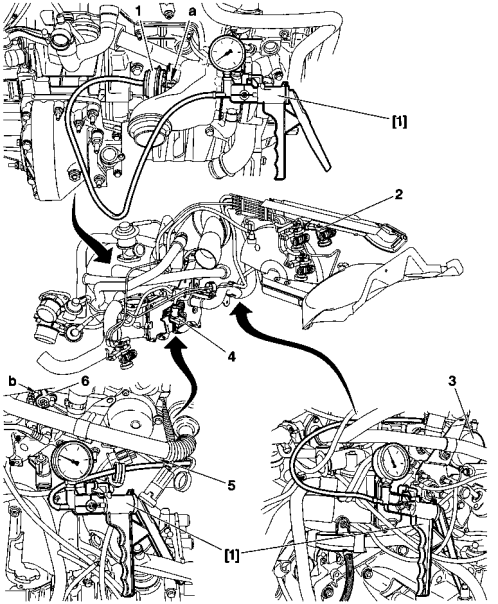


B1HP1BYP

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.**

CHECKS : AIR SUPPLY CIRCUIT



B1HP1ARP

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.

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).*

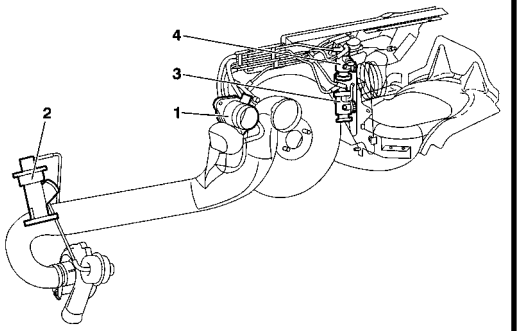
- Appy a vacuum of 0.8 bar. The rod "a" should move 12 ± 2 mm.
- Rod **"a"** should be moved **12 mm.**

«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 GAS RECYCLING CIRCUIT



B1HP1BVD

Engines : RHY - RHS - RHZ

(1) Butterfly housing
(2) EGR valve *(tube with blue marking)*
(3) Electrovalve *(black connector)*
(4) Electrovalve *(blue connector)*

Tools

[1] Manual vacuum pump : FACOM DA 16.

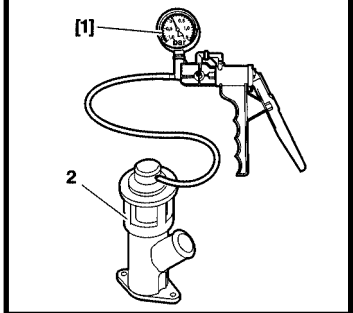
ESSENTIAL : Respect the safety and cleanliness requirements specific to high pressure diesel injection (HDi) engines.

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.

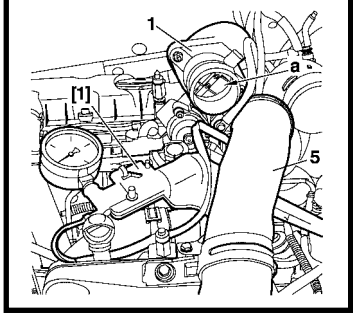
Engine speed (rpm)	Vacuum value (bar)
780	**0.5 Bar**
2500	**0 Bar**

Engines : RHY - RHS - RHZ



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.

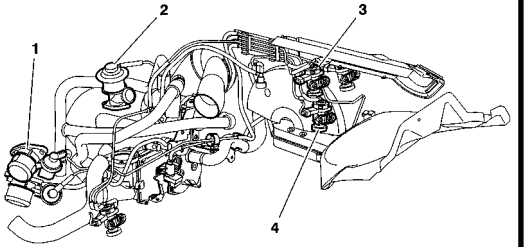


Butterfly housing

- 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 GAS RECYCLING CIRCUIT



B1HP1B8D

Engine : 4HX

TOOLS

[1] Manual vacuum pump : FACOM DA 16.

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

Electrovanne (EGR).

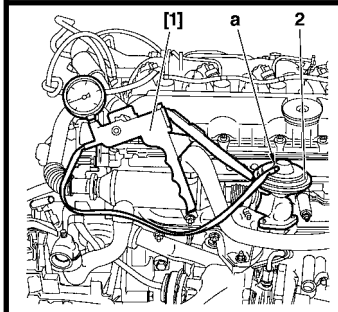
- Check, not under load, between the electrovalve **(3)** *(blue connector)* and the **EGR** valve **(2)** *(tube with blue marking)*.
- Connect the tool **[1]** between the electrovalve **(3)** and the **EGR** valve **(2)**.
- Compare readings with the values in the table below.

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.

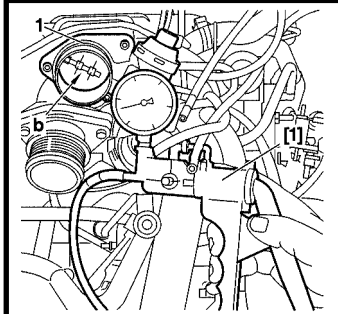
Engine speed (rpm)	Vacuum value (bar)
780	**0.5 Bar**
2500	**0 Bar**

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 ba**r 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.



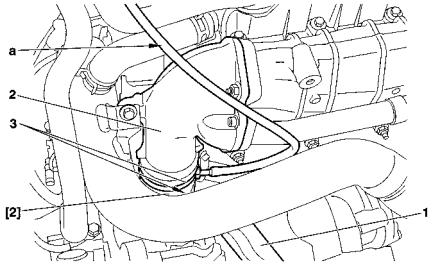
Butterfly housing

- 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.

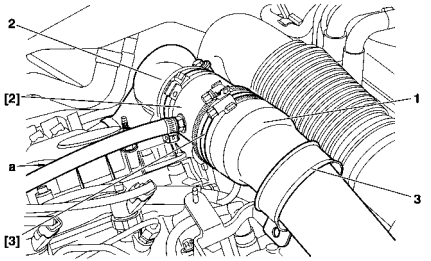
B1BP29NC | B1BP29PC

C5 - All Types	CHECKS : TURBO PRESSURE

Engine : RHY



Engines : RHS - RHZ



Engines : RHY - RHS - RHZ

TOOLS.

[1] Pressure gauge for checking boost pressure **: 4073-T.A Kit 4073-T**
[2] Sleeve for checking boost pressure **: 4185-T**
[3] Adaptor sleeve **: 4219-T**

Checks.

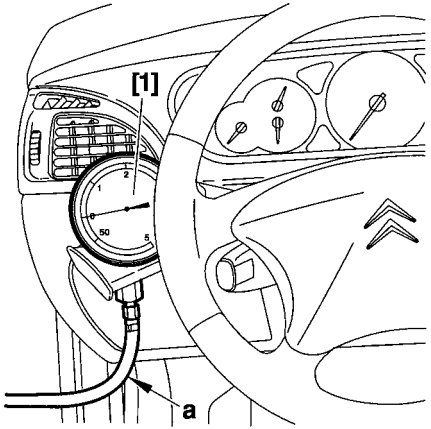
Preparation for RHY engine

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)**.



C5FP0ACC

Engines : RHY - RHS - RHZ

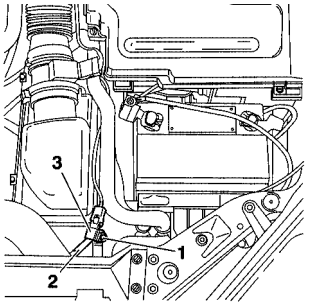
Procedure.

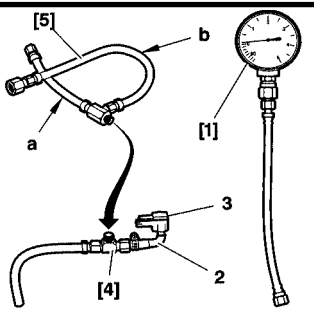
ESSENTIAL : Observe the following checking requirements :
- Engine at running temperature.
- Vehicle in running order.
- Engine at full load.

- 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

TOOLS.

[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.

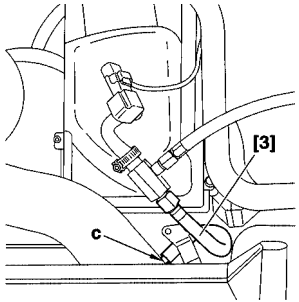
ESSENTIAL : Respect the safety and cleanliness requirements specific to high pressure diesel injection (HDi) engines.

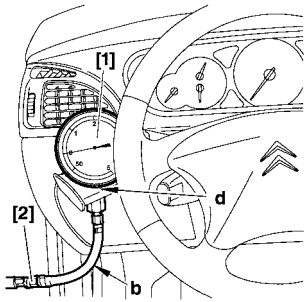
Preliminary operations.

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.





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 ± 0.05 b at 2000 rpm
1.2 ± 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)**.

C5 - All Types			SPECIFICATIONS OF THE SIEMENS INJECTION PUMP	
				PUMP -TYPE - REFERENCE
Emission standard				L3 / L4
Equipment				Transponder
C5	DW	10	RHY	SIEMENS 5WS 40001
			RHS	
			RHZ	

SPECIFICATIONS OF THE SIEMENS INJECTION PUMP				SYNERGIE
				PUMP -TYPE - REFERENCE
Emission standard				L3 / L4
Equipment				Transponder
SYNERGIE	DW	10	RHZ	CP1 (*)

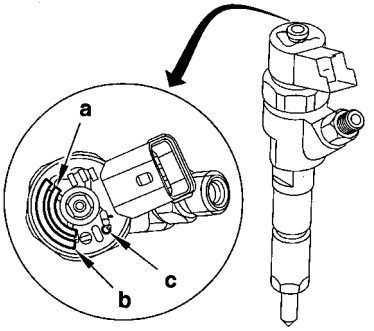
(*) = The fuel high pressure pump is driven by the timing belt.

SYNERGIE	FITTING BOSCH INJECTORS

Engines : RHY - RHZ

Evolution : Classification of diesel injector carriers

16/11/98 →



B1HP16PC

Reminder : RHY and RHZ are equipped with **4** diesel injector carriers marked according to their injection duct diameters *(flow of diesel fuel).*

Identification.
The injector carriers have an engraving or paint mark on the upper part of the coil, close to the diesel fuel return aperture :

Mark **1 = BLUE** paint mark = Injector class **1.**
Mark **2 = GREEN** paint mark = Injector class **2.**

Identification marking:
a : Supplier identification.
b : PSA identification no.
c : Identification of class.

After Sales operations.

ESSENTIAL : When changing a diesel injector carrier, order a component of the same class.

→ **15/11/98** (RPO No.) *(injector carrier without marking),* **always order a class 2 injector carrier.**

SPARKING PLUGS						SYNERGIE - C5	
Vehicles - Models		Engine type	BOSCH	CHAMPION	EYQUEM	Electrode gap	Tightening torque (m.daN)
C5	1.8I 16V	6FZ	FR8ME	REC94CL	RFN52HZ	1 mm	2.75 ± 0.2
	2.0i 16v	RFN					
	2.0i HPi	RLZ	ZR8TPP15				
	3.0i 24S	XFX	FGR8MQPE				2.25 ± 0.2
SYNERGIE	2.0i 16v	RFN	FR8ME	REC9YCL	RFN52H2		2.75 ± 0.2

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

This decree stipulates :

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

VR < VL < 1.10 VR + 4 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.

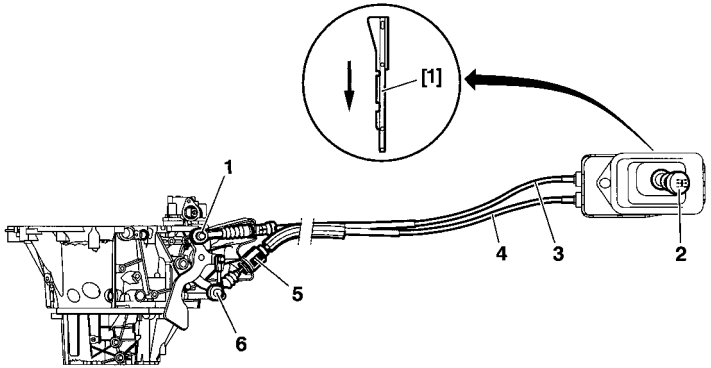
CLUTCH SPECIFICATIONS

	Petrol				
	1.8i 16V	**2.0i 16V**		**2.0 HPi**	**3.0i V6**
Engine type	**6FZ**	**RFN**		**RLZ**	**XFX**
Gearbox type	BE4/5			ML/5	
Supplier	VALEO				
Mechanism / type	230 DNG 4700		230 DING 4700	230 DNG 4700 R	242 T 6500
Clutch disc	11 R 10X	12 R 14X	228 D 73 12 R 14 X	11 R 14X	11 A 14X
Ø of lining. Ext/Int	228/155				242/162
Quality of lining	F 808	F 410	F 808 DS		F 410

CLUTCH SPECIFICATIONS

	Diesel			
	2.0 HDi			2.2 HDi
Engine type	**RHY**	**RHS**	**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		
Ø of lining. Ext/Int	228/155	225/150	242/162	
Quality of lining	F 408	F 808		

Engines : 6FZ - RFN - RLZ - RHY



B2CP3CJD

Gear controls

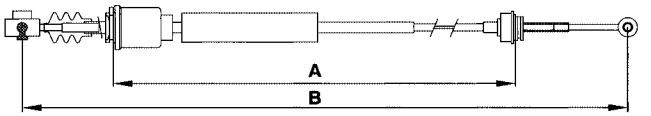
[1] Gear lever positioning tool **8605-T**.

(1) Gear engagement ball-joint **Ø 10 mm**.
(2) Gear control lever
(3) Gear engagement control cable.
(4) Gear selection control cable.
(5) Cable selection locking ley.
(6) Gear selection ball-joint **Ø 10 mm**.

BE4/5 GEARBOX CONTROL SPECIFICATIONS

Engines : 6FZ - RFN - RLZ - RHY

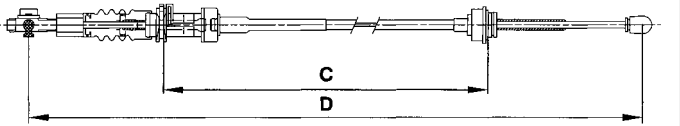
Gear selection control cable.



B2CP3CKD

	Left hand drive	Right hand drive
Length A	730 ± 3mm	
Length B	937.5 ± 7.5mm	

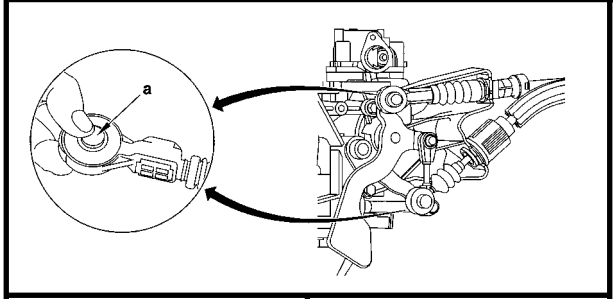
Gear engagement control cable.

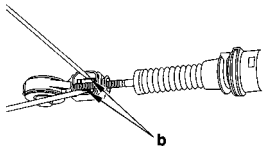


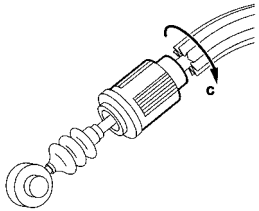
B2CP3CLD

	Left hand drive	Right hand drive
Length G	700 ± 3 mm	
Length H	983 ± 7.5 mm	

Note : See adjustment - **page 129.**







Adjustments.

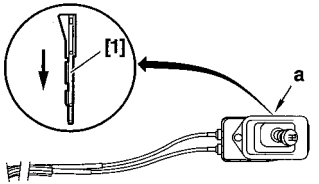
WARNING : Control cables should be adjusted each time the gearbox is removed or cables changed.

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»**.



B2CP3E7C

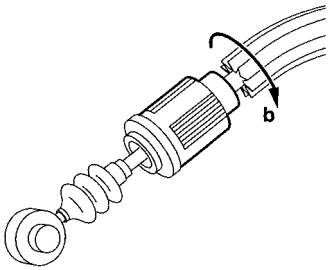
Tools.

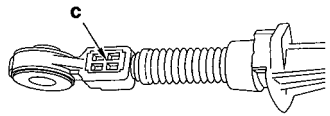
[1] Tool for positioning the gearbox control lever **8605-T** **Toolkit 9040-T**

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.





B2CP3E8C | B2CP3E9C

Adjustments (continued)

Under the bonnet.

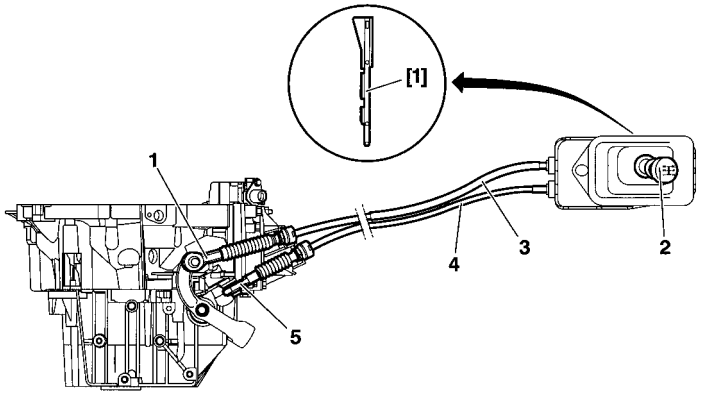
- Remove the air filter assembly.
- Unlock the gear engagement cable ball-joint **(b)**.
- Unlock the gear selection cable ball-joint **(c)**.
- Make sure the gear levers *(engagement and selection)* are in neutral position.
- Lock the cable lengths with the ball-joint locking keys.
- Remove the tool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

Engines : XFX - RHZ - RHS - 4HX



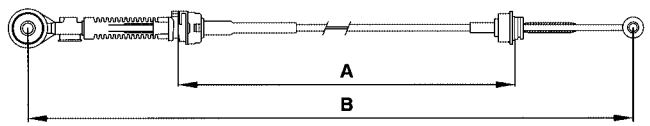
B2CP3CQD

[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.**

Engines : XFX - RHZ - RHS - 4HX

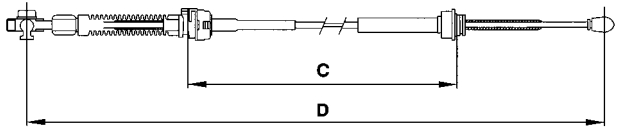
Gear selection control cable.



B2CP3CRD

	Left hand drive	Right hand drive
Length A	750 ± 3mm	
Length B	1012 ± 7.5mm	

Gear engagement control cable.

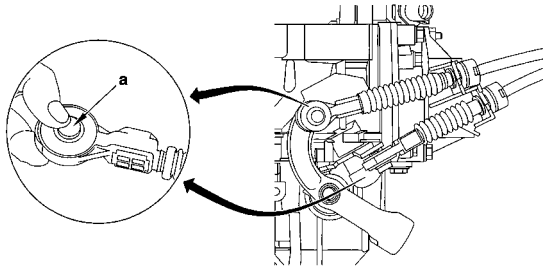


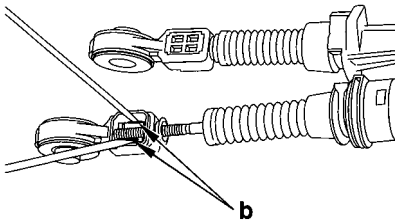
B2CP3CSD

	Left hand drive	Right hand drive
Length C	771 ± 3 mm	
Length D	1094 ± 7.5 mm	

Note : See adjustment - **page 134.**

Engines : XFX - RHZ - RHS - 4HX





Adjustments.

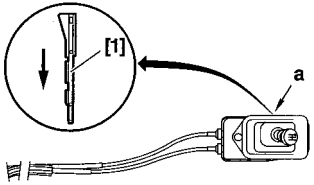
WARNING : Control cables should be adjusted each time the gearbox is removed or cables changed.

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



B2CP3E7C

Tools

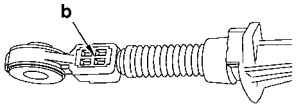
[1] Tool for positioning the gearbox control lever **8605-T** **Toolkit 9040-T**

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.



B2CP3EBC

Adjustments (continued)

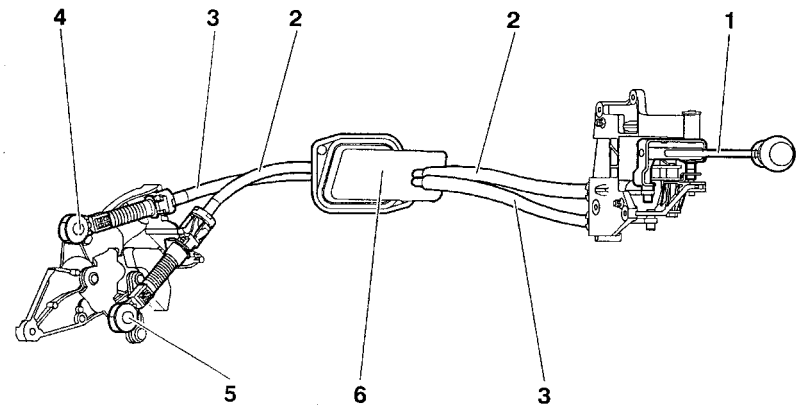
Under the bonnet.

- 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.

Engines : RFN



(1) Gear control lever

(2) Gear engagement control cable **(*)**

(3) Gear selection control cable **(*)**

(4) Gear selection ball-joint **Ø 10 mm.**

(5) Gear engagement ball-joint **Ø 10 mm.**

(6) Flexible insulating grommet through the bulkhead.

(*) = These two cables cannot be separated.

Principles of adjusting the gear controls.

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

Principles.

Lock the gear lever in neutral position, using tool: **9607-T.**

Place the gearbox in neutral.

Couple the cables on the lever.

Fit the ball-joints on the gearbox lever.

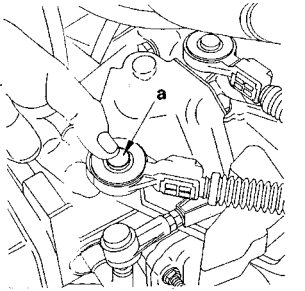
Lock the cable lengths with the ball-joint locking keys.

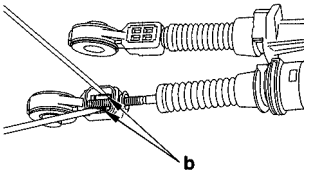
WARNING : Do not use any tool to unclip the ball-joints.

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

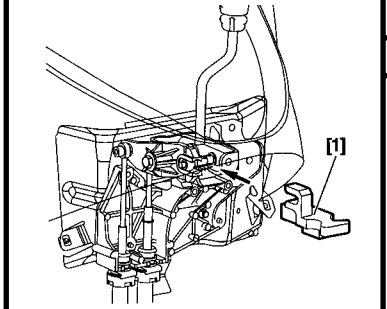
NOTE : Changing an individual ball-joint is possible as long as the locking key is removed.

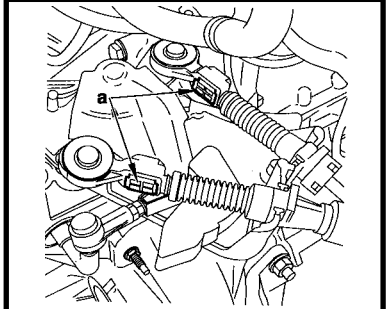
Unclip at **«b»**, using two small screwdrivers.





B2CP3BXC | B2CP3BYC





Engines : RFN

Adjusting the gear controls.

TOOLS :

[1] Tool for positioning the gear lever **: 9607-T.**

ADJUSTMENTS.

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

Inside the vehicle.
- Remove the trim under the gear lever.
- Lock the gear lever in neutral position, using tool **[1]**.

Under the bonnet.
- Remove the air filter assembly.
- Unlock the ball-joint keys at **«a»**.
- Place the gear selection and control levers neutral.
- Lock the cable lengths with the ball-joint locking keys.

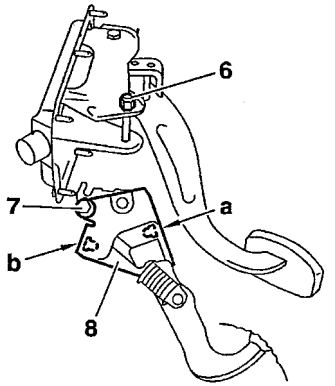
CHECKS.

- 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 it does not, repeat the adjustment.

- Refit the trim under the gear lever.
- Refit the air filter assembly.

CLUTCH : CHECKS AND ADJUSTMENTS

Adjustment of push and pull action clutch with automatic compensation (adjustment of compensation system)



B2BP03EC

Engines : RFN - RHZ

WARNING : If a system blockage is detected when checking, or if the pedal has been removed, the pedal position must be adjusted. This position is obtained by the angular displacement of the stop supports **"a"** and **"b".**

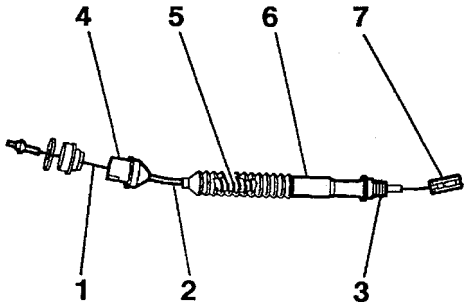
Procedure.

- Loosen the nut **(6)** and the screw **(7)**.
- Using a lever, raise the stop support **(8)** to its highest position.
- In this position, there must be a substantial free play in the pedal.
- Lower the support until there is a free play of **2 ± 1 mm**.
- Tighten the screw **(7)** and the nut **(6)**.
- Check that the outer cable slides freely *(at rest, the pedal is against its upper stop **«A»**, the outer cable length should be variable).*

Characteristics

- The automatic adjusting device requires no manual adjustment.
- Pedal travel remains constant for all models **145 ± 5 mm**.
- Automatic adjustment is achieved by modifying the curvature of the outer cable.
- Take extra care with the routing of the outer cable, and do not add any supplementary fixing points.

Engines : RFN - RHZ



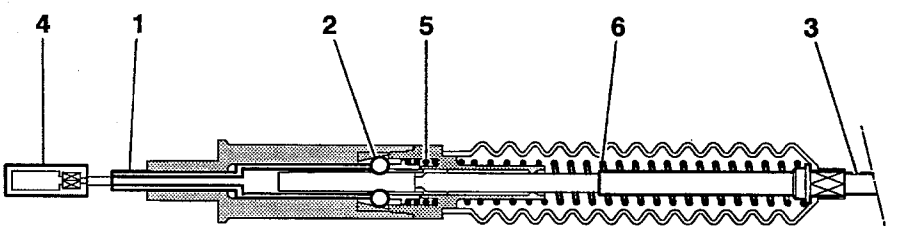
B2BP02SC

NOTE : This cable has an automatic adjusting device which takes up the clutch disc wear and makes up for the compression of the outer cable.

DESCRIPTION

1 - Metallic cable, crimped on both ends.
2 - Outer cable or telescopic duct.
3 - Outer cable stop, bulkhead side *(fixed point on the bodyshell).*
4 - Outer cable stop, gearbox side *(fixed point on the gearbox).*
5 - Tensioning spring ensuring the maximum length of the outer cable.
6 - Wear take up device.
7 - Attaching end-piece.

Engines : RFN - RHZ (continued)



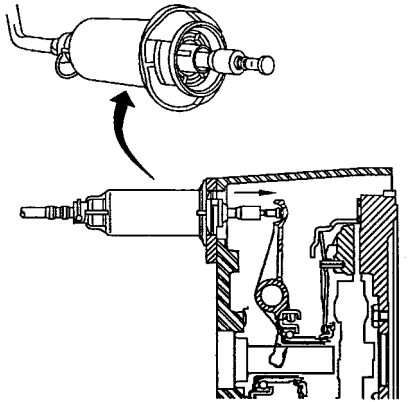
B2BP03QD

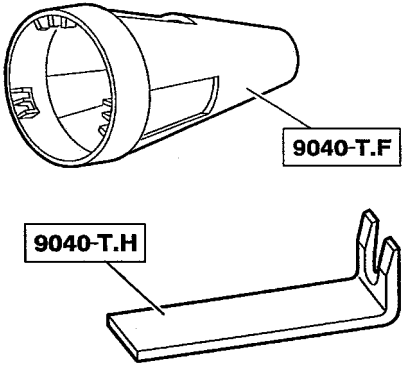
Operation	Clutch disengagement phase	Engagement / adjustment phase
For the adjusting device to operate correctly, it is necessary that : The pedal is at rest (against its upper stop) The locking sleeve **(1)** is slightly compressed, the rollers **(2)** are free, the outer cable **(3)** length may vary.	As soon as the pedal is applied, the attaching end-piece **(4)** leaves the sleeve **(1)** which moves back. The rollers, pushed by spring **(5)** jam the system. The cable behaves like a conventional cable.	The pedal returns to rest on its upper stop. Attaching end-piece **(4)** pushes sleeve **(1)** which frees the rollers. Outer cable **(3)**, kept extended by the spring **(6)** becomes : - Shorter if the clutch disc is worn. - Longer if the outer cable has been compressed.

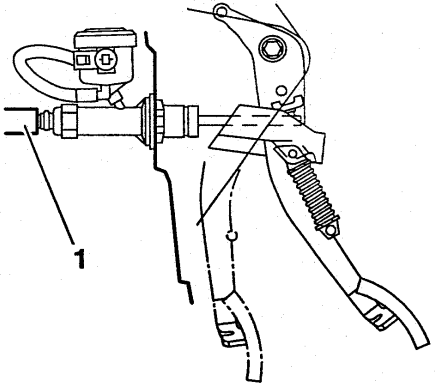
NOTE : The pedal gear has a non-adjustable assisting device.

Hydraulically operated pull-action clutch (Non-adjustable)

Engine	**Synergie : RHZ**	Gearbox	**ML/5**





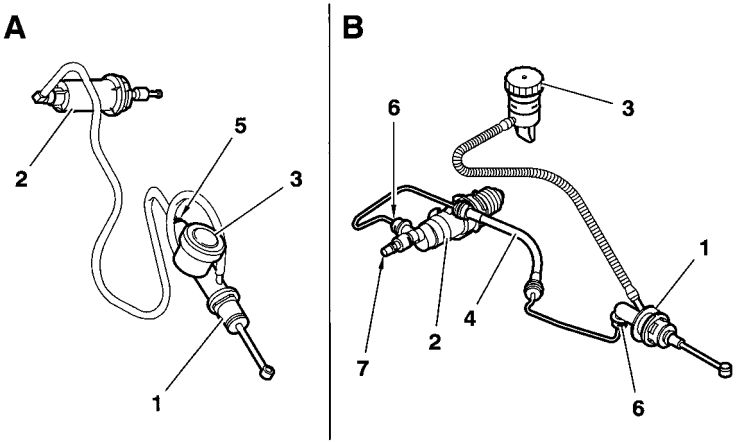


(1) Quick-fit union: Tool **9040-T.H.**

B2BP03RC | **E5AP14VC** | **B2BP03SC**

Hydraulically operated pull-action clutch (Non-adjustable)

Engine : RHZ



B2BP03ZD

A Old assembly, supplied complete and filled with hydraulic fluid.

B New assembly :

- The components supplied separately.
- The circuit is filled with fluid after being fitted to the vehicle.

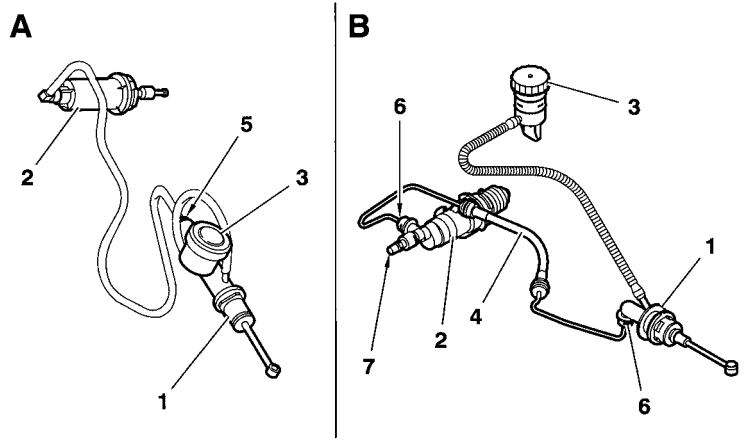
(1) Clutch master cylinder.
(2) Clutch slave cylinder.
(3) Hydraulic clutch control reservoir.
(4) Link pipe.
(5) Click-fit union, sealed *(after dismantling).*
(6) Click-fit union, non-sealed *(after dismantling).*
(7) Bleed screw.

The new assembly consists of the the following parts :

- Clutch master cylinder, anchored in place after a 1/4 turn.
- Clutch slave cylinder, with push-rod.
- Hydraulic clutch control reservoir, with feed pipe.
- Link pipe, between master cylinder and slave cylinder.

Hydraulically operated pull-action clutch (Non-adjustable)

Engines : RHZ



B2BP03ZD

After fitting on the vehicle, the circuit should be filled with a **«DOT 4»** type brake fluid.

Clutch control reservoir capacity **120 cc.**

(Bleeding is carried out not under pressure).

Repair.

The new clutch control components are not compatible with the old parts.

Both the old and the new components are marketed by **«Replacement Parts ».**

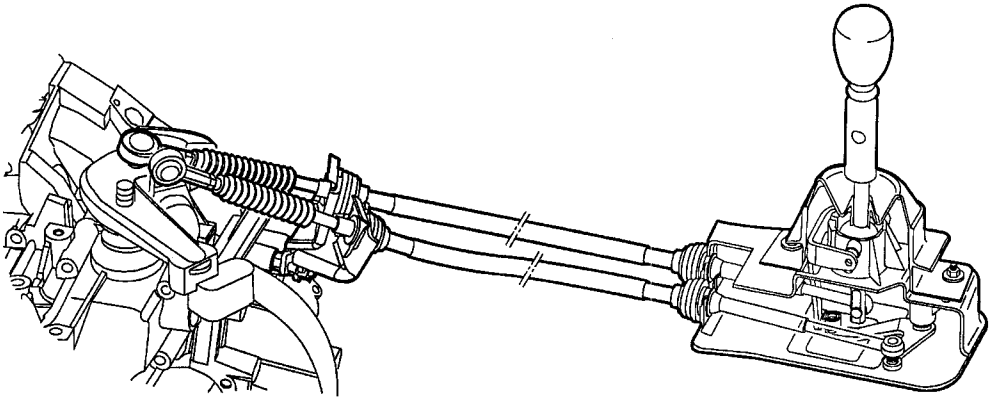
Draining – Filling - Top-up.

- Check the level after each repair visit.

- Fill the circuit *(after drainage)*, using a filling cylinder specifically designed for this operation.
- Use the circuit's bleed screw **(7).**
- The level of fluid inside the clutch control reservoir should be between the min. and max. marks.

NOTE : Wear on the clutch causes a slight increase in the level of fluid inside the control reservoir.

Engine : RHZ



B2CP16FP

GEARBOX AND TYRE SPECIFICATIONS					C5 - All Types
	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

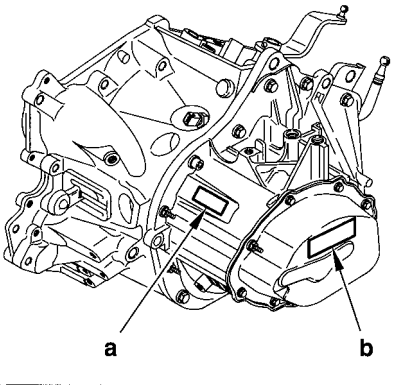
	Petrol		
	3.0i V6		
			Automatic
Engine type	XFX		
Tyres-Rolling circumference	215/55 R16 – 1.96 m		
Gearbox type	ML/5C	ML/5T	4 HP 20
Gearbox ident. plate	20 LE 95	20 LE 95	20 HZ 13
Reduction box torque	16x65		20x69
Speedometer ratio	None		59x68

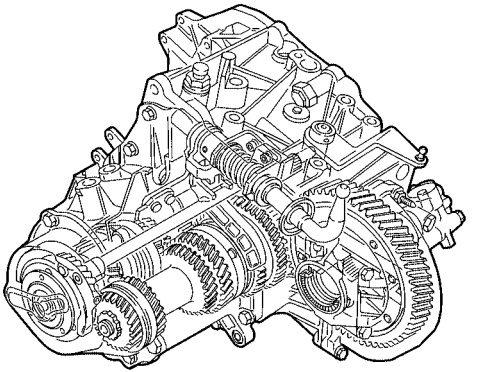
C5 - All Types	GEARBOX AND TYRE SPECIFICATIONS				
	Diesel				
	2.0 HDi			Automatic	2.2 HDi
Engine type	**RHY**	**RHS - RHZ**			**4HX**
Tyres-Rolling circumference	195/65 R15 – 1.93 m				215/65 R16-1.96 m
Gearbox type	BE4/5	ML/5C	ML/5T	AL4	ML/5C
Gearbox ident. plate	20 DL 32	20 LM 18	20 LE 94	20 TP 43	20 LM 17
Reduction box torque	19x75	16x65		25x68	17x67
Speedometer ratio	None	None		52x67	None

	Diesel	
	2.2 HDi	Automatic
Engine type	**4HX**	
Tyres-Rolling circumference	215/65 R16-1.96 m	
Gearbox type	ML/5T	4 HP 20
Gearbox ident. plate	20 LE 96	20 HZ 20
Reduction box torque	17x67	23x66
Speedometer ratio	None	59x68

GEARBOX AND TYRE SPECIFICATIONS				SYNERGIE
	Petrol			Diesel
	2.0i 16V		Automatic	2.0 HDi
Engine type	RFN			RHY
Tyres-Rolling circumference	205/65 R15 - 1.97 m			
Gearbox type	BE4/5		AL4	ML/5
Gearbox ident. plate	20 DL 26	20 DL 27	20 TP 31	20 LE 91 **(*)**
Reduction box torque	14x62		21x73	15x67
Speedometer ratio	18x14		20x16	25x20

(*) DVA = Double Damped Flywheel

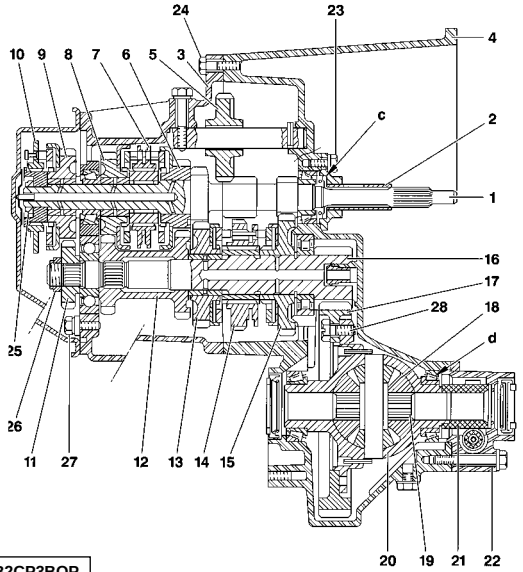




(a) Marking zone (sequence and serial no.).
(b) Location of identification label.

B2CP3BNC | B2CP3BPD

Engine : RFN



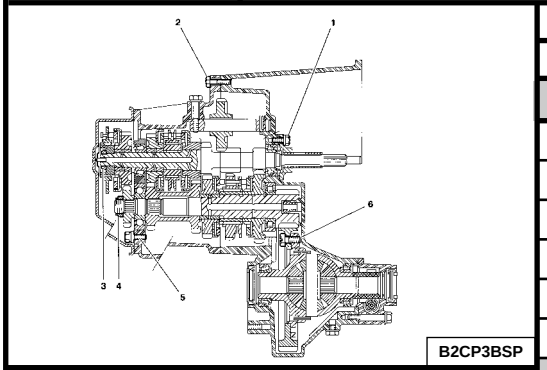
B2CP3BQP

Description

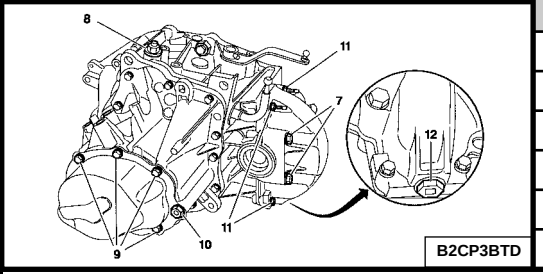
(1) Primary shaft.
(2) Clutch bearing guide.
(3) Gearbox casing.
(4) Clutch housing.
(5) Reverse idle.
(6) Drive gear (3rd gear).
(7) 3rd /4th gear synchroniser
(8) Drive gear (4th gear).
(9) Drive gear (5th gear).
(10) 5th gear synchroniser.
(11) Driven gear (5th gear).
(12) Driven gear (2nd / 4th gear)
(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.

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

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



B2CP3BSP



B2CP3BTD

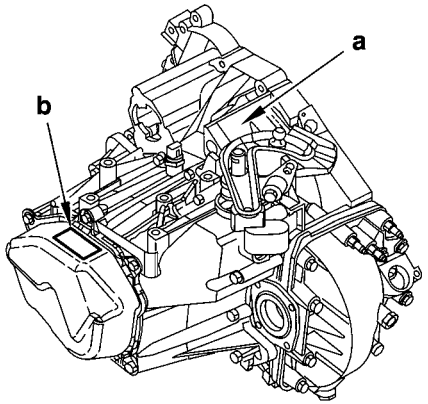
Engine : RFN

Tightening torques

Ref.	Description	Number of screws	m.daN
1	End guide	3	1.2 ± 0.1
2	Clutch housing	13	1.3 ± 0.1
3	Primary shaft nut	1	7.2 ± 0.7
4	Secondary shaft nut	1	6.5 ± 0.7
5	Yoke holding screw	2	1.5 ± 0.1
6	Differential gearwheel screw	2	6.5 ± 0.7
	Reverse gear contact	1	2.5 ± 0.3
7	Differential housing	4	5 ± 0.5
8	Breather pipe	1	1.7 ± 0.2
9	Rear housing cover screw	7	1.2 ± 0.1
10	Top-up plug	1	2.2 ± 0.2
11	Differential housing screw	4	1.2 ± 0.1
12	Drain plug screw	1	3.5 ± 0.4

Engines : XFX - RHZ - RHS - 4HX

Identification.



B2CP3CMC

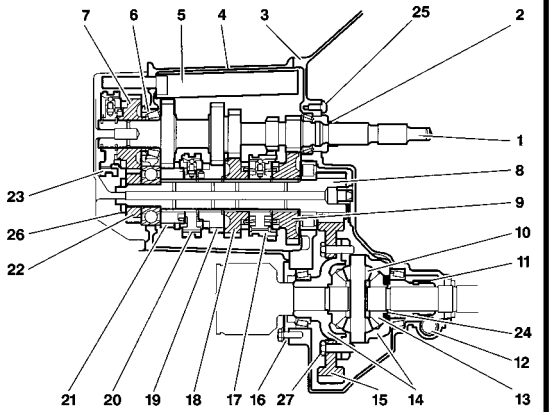
Identification

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

(b) Location of identification label.

ML/5 GEARBOX SPECIFICATION

Engines : XFX - RHZ - RHS - 4HX



B2CP3CNP

Identification (continued)

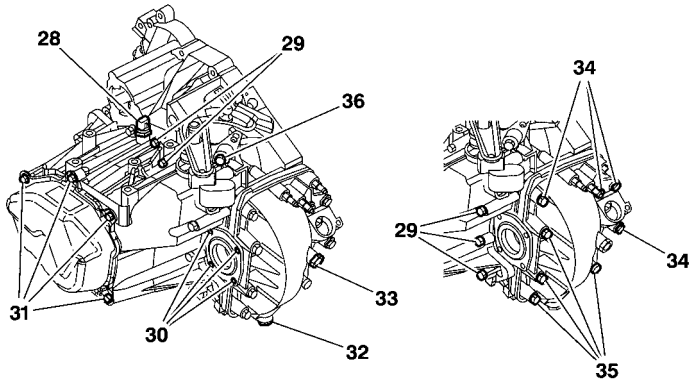
(1) Primary shaft.
(2) Clutch bearing guide.
(3) Clutch housing
(4) Gearbox casing.
(5) Oil channel
(6) Primary shaft bearing adjustment shim.
(7) Drive gear (5th)
(8) Secondary shaft.
(9) Driven gear (1st)
(10) Satellite gears.
(11) Speedometer screw.
(12) Speedometer drive.
(13) Planet gears.
(14) 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**

Engines : XFX - RHZ - RHS - 4HX

Identification (continued)



B2CP3CPD

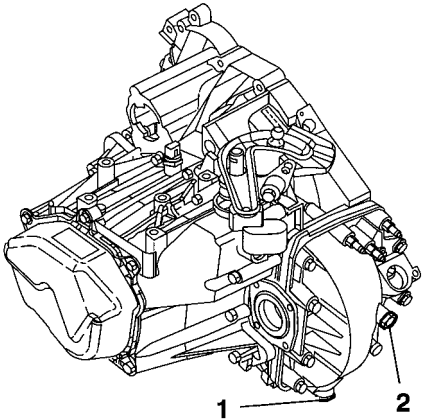
Tightening torques m.daN.

(28)	Reverse lamp switch	**2,5 ± 0,2**
(29)	Gearbox casing /clutch housing fixing screws	**2 ± 0,2**
(30)	Differential bearing stop plate screws	**2 ± 0,2**
(31)	Gearbox rear casing screws	**2 ± 0,2**
(32)	Drain plug	**3 ± 0,3**
(33)	Filling / top-up plug	**3 ± 0,3**
(34)	M8 screw (Differential housing fixing)	**2 ± 0,2**
(35)	M10 screw (Differential housing fixing)	**4 ± 0,5**
(36)	Selector guide screw	**4 ± 0.5**

ML/5 GEARBOX SPECIFICATION

Engines : XFX - RHZ - RHS - 4HX

Recommendations - Precautions



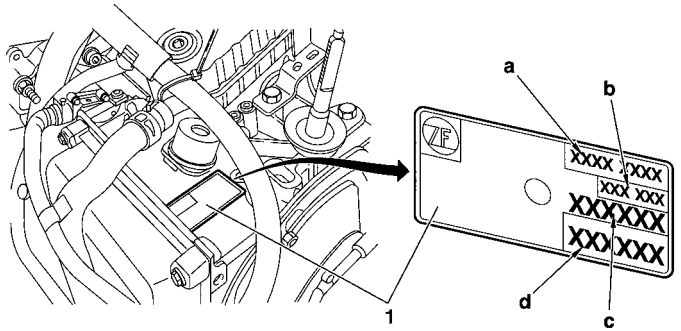
B2CP3CUC

(1) Drain plug.
(2) Filler and top-up plug.

Oil quality.
- See chapter on lubricants: page **19**.

Oil quantity.
- After draining = **1.8 litres**

Engines : XFX - 4HX



B2CP3CYD

Identification.

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

(a) Serial no.

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

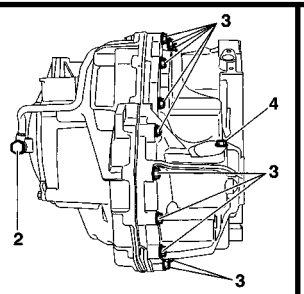
(c) Type of automatic gearbox.

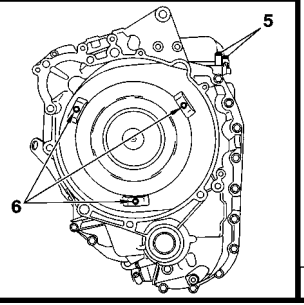
(d) Component reference

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

4 HP 20 AUTOACTIVE GEARBOX SPECIFICATION

Engines : XFX - 4HX



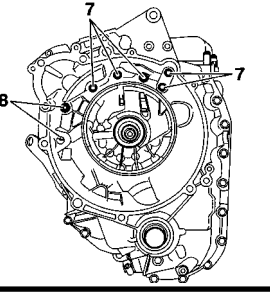


Tightening torques m.daN.

Gearbox exterior.

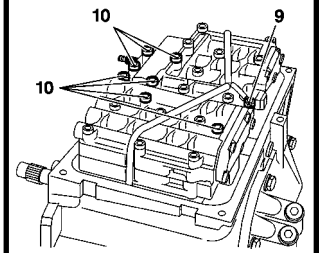
(2) Oil channel union fixing Exteror fixing of	**2.5 ± 0.5**
(3) Exterior fixing of converter cover on clutch housing	**2.3 ± 0.5**
(4) Speedometer take-off aperture plug	**1 ± 0.1**
(5) Steel casing fixing	**0.6 ± 0.1**
(6) Converter fixing on engine	**6 ± 1**
(7) Interior fixing of converter cover 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**

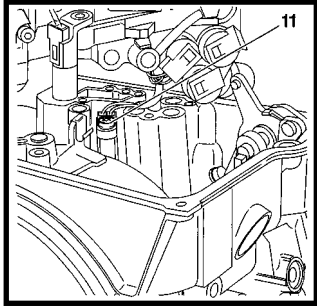
B2CP3CZC | B2CP24BC



B2CP24CC

Engines : XFX - 4HX





Tightening torques m.daN.

Gearbox interior.

(9) Input speed sensor fixing	**0.8 ± 0.1**
(10) Hydraulic block fixing (Large head)	**0.8 ± 0.1**
(11) Output speed sensor fixing	**1 ± 0.2**

B2CP24DC | B2CP24EC

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 (30m).
4 HP 20 gearbox
- Do not exceed 70 km/h (45mph) over a distance of 100 km (60m).

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"** ou **"N"** → **"R"**.

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.

Oil quality.

If the gearbox has suffered a serious fault resulting in a malfunction or the destruction of a clutch, the oil will overheat and become contaminated with impurities : the oil is said to be **«burnt»**.

This is characterised by a black colour and the presence of an unpleasant smell.

ESSENTIAL : The gearbox must be replaced.

Oil level.

See corresponding operation.

An excessive oil level can result in the following consequences :
- Excessive heating of the oil.
- Oil leaks.

An insufficent 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 of fault codes.

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).*

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).

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)** **Following the diagnostic tool procedure.**
- A reinitialisation of the autoadaptives (AL4 and 4 HP 20).
- A road test **(AL 4 and 4 HP 20).**

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

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.

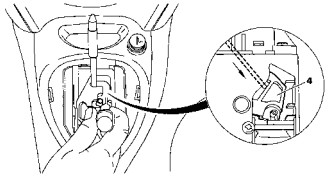
- Replacement of the automatic gearbox.

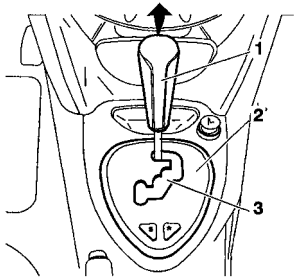
- Downloading of the ECU configuration.

- 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).





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.

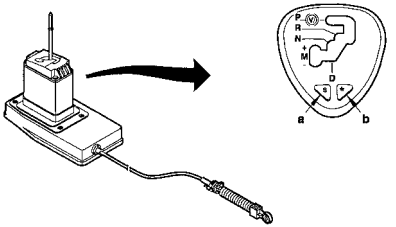
Remove :
- The gear lever knob **(1)** by pulling upwards.
- The cover **(2)** *(unclip).*
- The shutter.

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

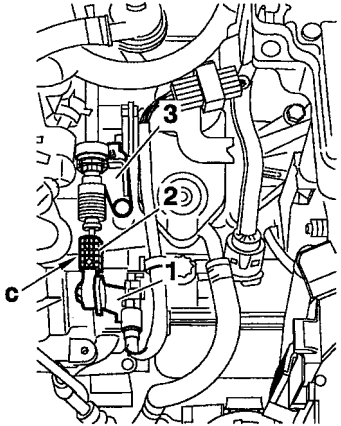


Selection control.

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



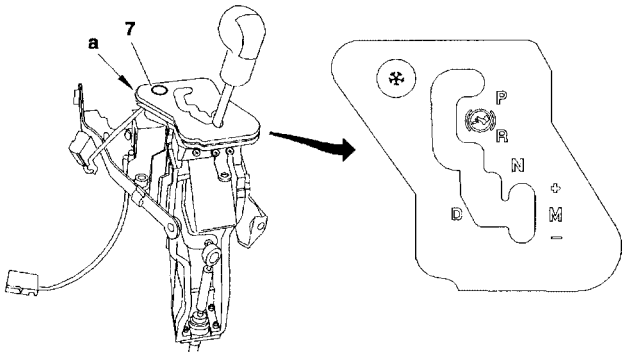
Selection control (continued).

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, autoadaptative 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 **« c »**, pressed in to lock the control adjustment, springs out for the adjustment to be made).*
- **(3)** Cable sleeve stop.
The automatic gearbox is controlled by cable.

B3CP3DLC

Engine : RFN (Synergie)



B2CP3CFD

Gear control is by a cable linked to the selection lever located on the dashboard.
The gear selection control has 5 positions :

«P» Park *(immobilisation of the vehicle, whatever the slope).*
«R» Reverse gear.
«N» Neutral.
«D» Drive *(autoadaptative mode, eco-law)*
«M» Manual mode **(M+, M-)**.
The vehicle can only be started when the selection lever is in position **«P»** or **«N»**.

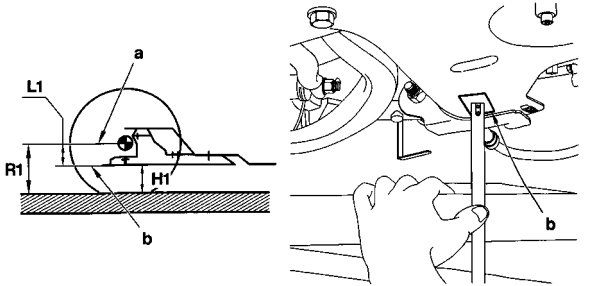
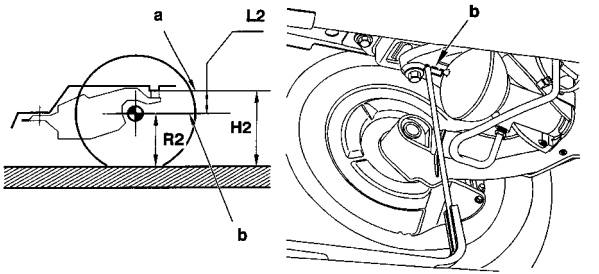
Shift-Lock
The **«shift-lock»** is a system which locks the gear selection lever in position **«P»**.
To unlock the gear selection lever from position **«P»**, switch on the ignition and press the brake pedal.
During a repair, the shift-lock can be unlocked by pressing the locking finger **«a»** *(see corresponding operation).*

			Tightening torques (m.daN)		Gearbox oil seal mandrels		
Vehicles	Gearbox	Engines	Driveshaft bearing	Driveshaft nut	Right	Left	Tool kit
C5 SYNERGIE	BE4/5	6FZ - RFN - RLZ RHY	2 ± 0.2	32.5 ± 1.5	7114-T.W	7114-T.X	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

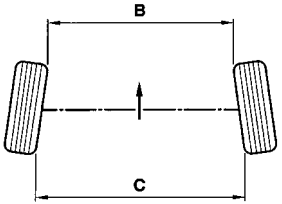
CITROËN	C5	Steel Aluminium	9 ± 0.5
	SYNERGIE		10 ± 0.5

C5 - All Types	AXLE GEOMETRY

Measuring front height	Measuring rear 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	 B3BP168D
L1 (mm) **Theoretical dimension between the level of the front subframe and the wheel axis.**	**L2 (mm)** **Theoretical dimension between the measuring zone on the cross-member support and the wheel axis.**
140	**73**

AXLE GEOMETRY — C5 - All Types

	Front axle				Rear axle	
Véhicle	**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'**

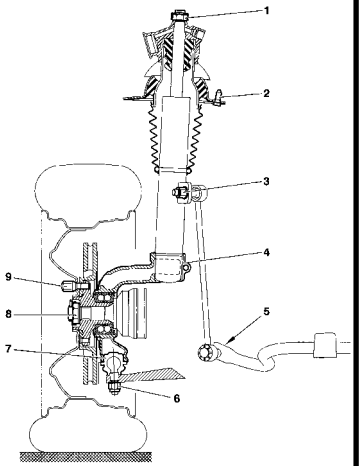


	NOTE	
A < B = Positive figure :	+ =	TOE-IN
A > B = Negative figure :	– =	TOE-OUT

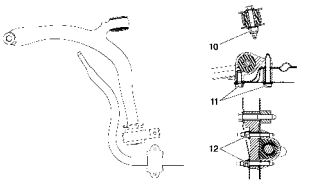
B3CP02UC

C5 - All Types

FRONT AXLE



B3CP05VP | B3CP05WD



Tightening torques m.daN.

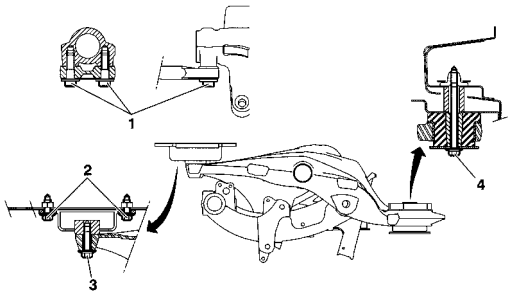
(1) Suspension leg upper fixing	**7 ± 0.7**
(2) Suspension leg fixing on bodyshell	**4.3 ± 0.6**
(3) Anti-roll bar link rod upper fixing	**6.4 ± 0.6**
(4) Anti-roll bar link rod upper fixing	**6.4 ± 0.6**
(5) Ball-joint fixing	**4.5 ± 0.4**
(6) Ball-joint fixing on pivot	**25 ± 2.5**
(7) Suspension leg 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**

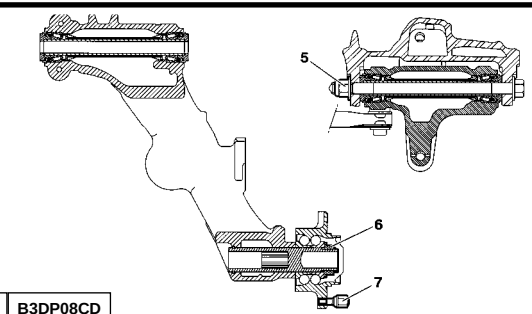
	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
All types (except ES9J4)	**23.5**	**Yellow**
ES9J4	**24.5**	**White**

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

REAR AXLE

C5 - All Types





B3DP08BD | B3DP08CD

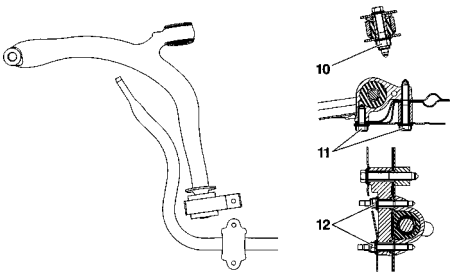
Tightening torques m.daN.

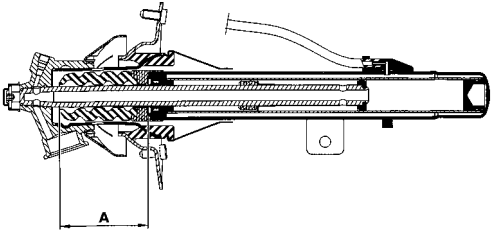
(1) Anti-roll bar fixing	**13.1± 1.4**
(2) Rear rubber mounting fixing on bodyshell	**8 ± 1.2**
(3) Rear subframe fixing	**11.5 ± 1.1**
(4) Front subframe fixing on bodyshell	**11.5 ± 1.1**
(5) Suspension shaft fixing	**14.9 ± 1.3**
(6) Hub nut	**25 ± 2.5**
(7) Wheel fixing	**9 ± 1**

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

	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
All types (except ES9J4)	**21.5**	**Blue**
ES9J4	**22**	**Yellow**
All types estates		

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





B3CP05WD | B3BP167D

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**

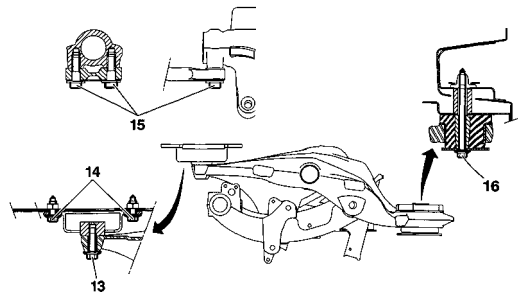
Hydractive 3+ hydraulic suspension *(power steering)*

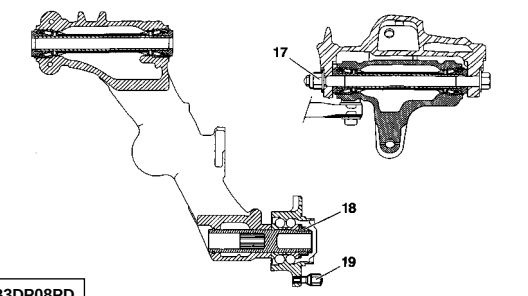
Suspension piston diameter	= **35 mm**.
Anti-roll bar diameter	= **23,5 mm**.
Anti-roll bar colour reference	= **Yellow**.

Suspension leg.

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

SUSPENSION





B3DP08ND | B3DP08PD

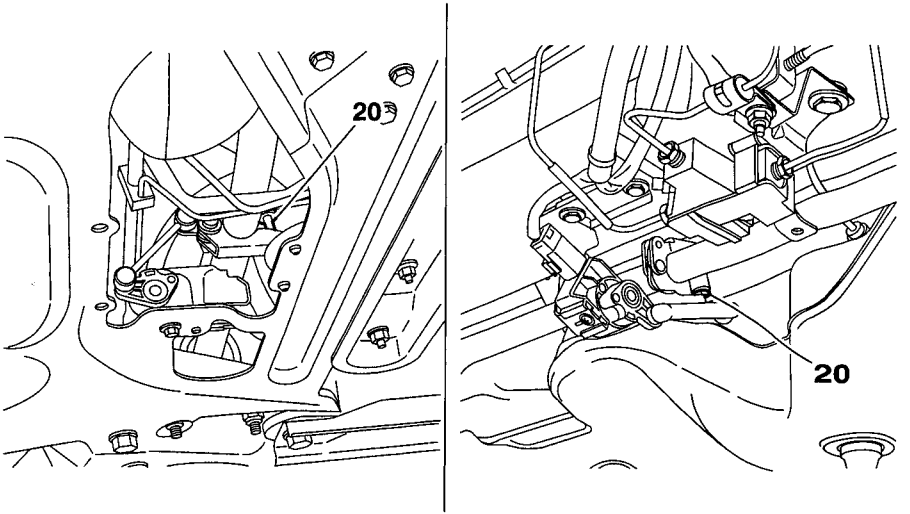
Rear suspension

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**
Stabiliser bar fixing on subframe	**6.6 ± 0.6**

Hydractive 3+ hydraulic suspension (power steering)

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



B3CP06TD

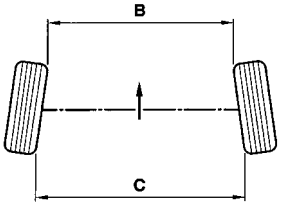
Height control

Tightening torques m.daN.

(20) Collars	**0.6**

AXLE GEOMETRY — C5 - All Types

	Front axle				Rear axle	
Véhicle	**Tracking**	**Castor**	**Camber**	**King pin inclination**	**Tracking**	**Camber**
	(Adjustable)	**(Non adjustable)**			**(Non 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'**



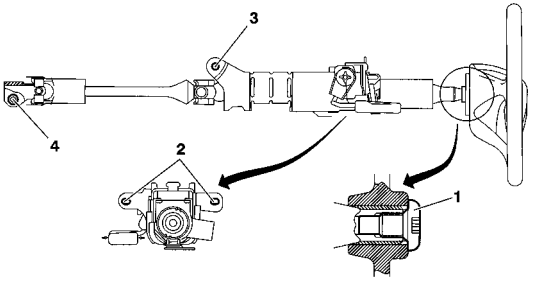
	NOTE	
A < B = Positive figure :	+ =	TOE-IN
A > B = Negative figure :	– =	TOE-OUT

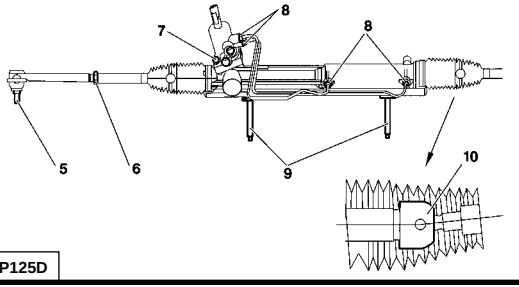
B3CP02UC

C5 - All Types

SPECIFICATIONS OF POWER-ASSISTED STEERING

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





B3EP124D | B3EP125D

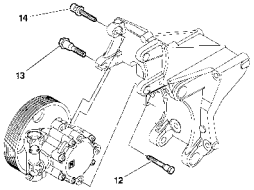
Tightening torques m.daN.

(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**

SPECIFICATIONS OF POWER-ASSISTED STEERING — C5 - All Types

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



B3EP127D

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

Engine	Supplier	Flow type	Regulation pressure	Pulley diameter
6FZ-RFN RHY-RHS-RHZ-4HX	ZF	Falling	100 bars	129 mm
XFX	SAGINAW	Constant		

Tightening torques m.daN		
Engine types	EW-DW	ES9J4
(12) Screw **(13)** Screw **(14)** Screw	**2.2 ± 0.3**	**2.5 ± 0.6**

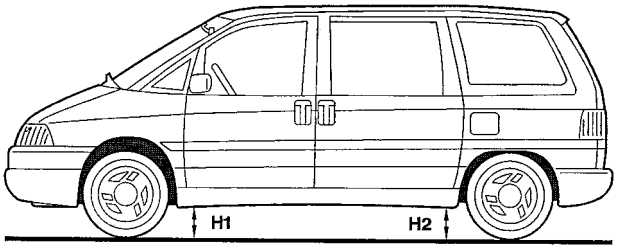
Petrol engine : A power-assisted steering pressure switch is installed on the hydraulic piping, between the high pressure pump and the steering valve.

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.

SYNERGIE — AXLE GEOMETRIES

Reference height

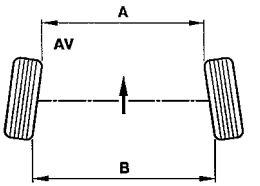


Conditions for adjusting the heights
(Tyre pressures correctly set)

Frontt	Heights (mm)	Rear
H1	**Tyres**	**H2**
158	195/70R 14	163
161	195/65R 15	166
166	205/65R 15	171

The reference heights must be checked between the jacking points and the ground.

B3BP051D



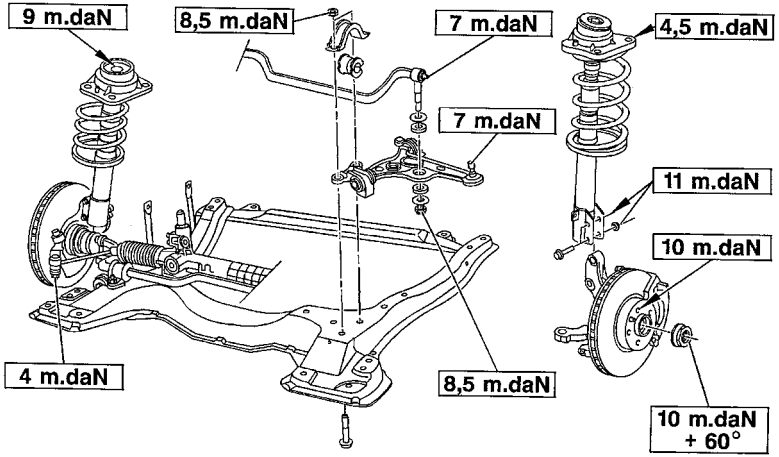
	NOTE	
A < B = Positive figure :	+ =	TOE-IN
A > B = Negative figure :	- =	TOE-OUT

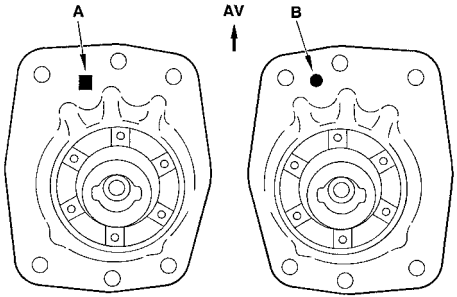
B3BP051D

		Front	Rear
Tracking *(Toe-in/toe-out)*	0°	+0°8' to +0°25'	
	mm	+1 to +3	
Castor angle max. *(left-right difference : 30')*		3°30' to ± 30'	
Camber		0° ± 30'	-1° ± 30'
King pin inclination		11°28' ± 40'	

FRONT AXLE

SYNERGIE

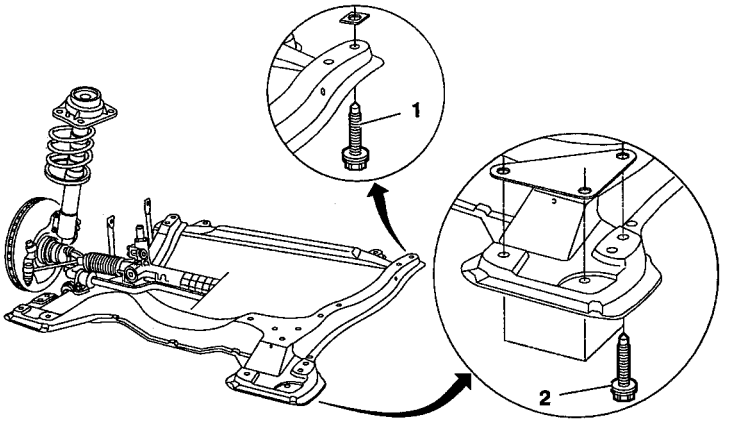




B3CP04PD | B3CP04QD

Evolution : Tightening torques on front subframe

28/05/1999 →



B3CP055D

(1) Fixing screw *(front).*
(2) Fixing screw *(rear).*

Tightening torque.

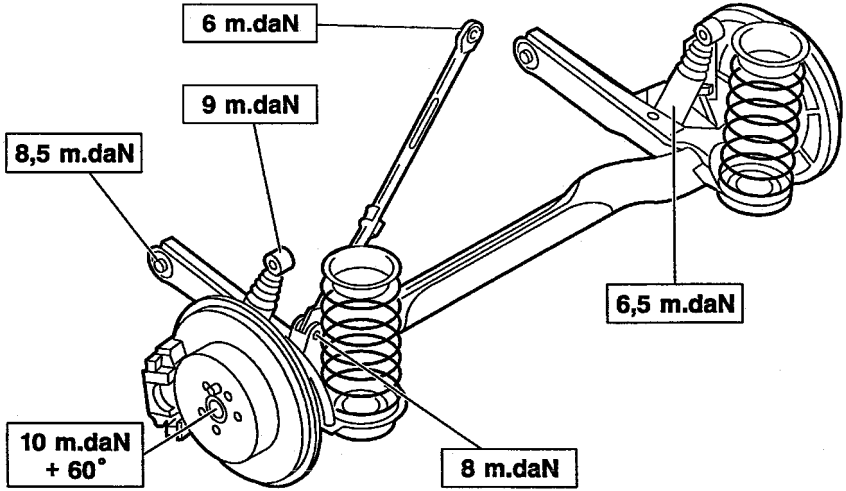
Old fitting.

Tighten the screw **(1)** to **13.5 m.daN.**
Tighten the screw **(2)** to **13.5 m.daN.**

New fitting.

Tighten the screw **(1)** to **10.7 m.daN.**
Tighten the screw **(2)** to **10.7 m.daN.**

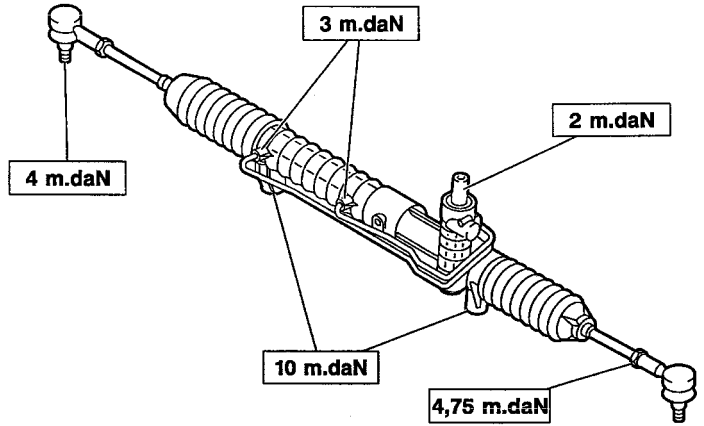
NOTE : Replacement Parts markets the old as well as the new components.



B3DP06QD

SYNERGIE			SUSPENSION
			All Types
Shock absorber (ref.)		Ft	F 23
		Rr	F 254
Anti-roll bar Ø (mm)		Ft	25
		Rr	30
Spring (ref.)	Without air-con	Ft	1 Grey + 1 Yellow
	With air-con		2 Grey = 1 Yellow
		Rr	3 Yellow

STEERING						SYNERGIE
	Steering	Steering rack travel (mm)	Number of teeth		Number of turns of the steering wheel	Steering ratio
			Pinion	Steering rack		
All Types	Power-assisted	152	9	33	2.98	15.75



B3EP09ZD

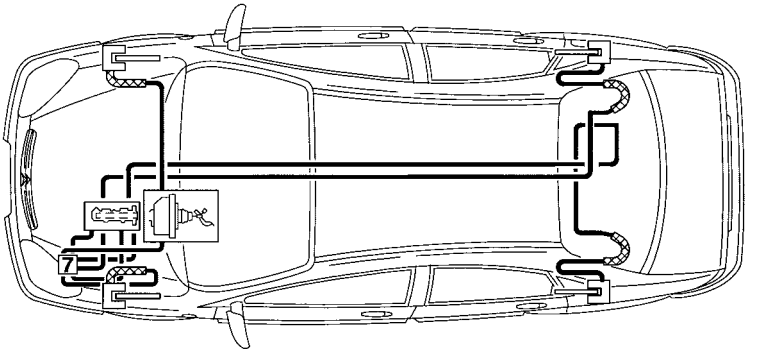
C5 - All Types			BRAKE SPECIFICATIONS			
			1.8i 16V	2.0i 16V	2.0 HPi	3.0i V6
Engine type			6FZ	RFN	RLZ	XFX
Ft	Ø mm	Master cylinder	22.2 (Valve type)			
		Master-vac	254			
		Caliper/piston makes	BOSCH ZO 54/55 BIR 54	BOSCH ZO 57/56 BIR 57		BOSCH ZO 57/28BIR 57
		Brake disc – Non-ventilated				
		Brake disc – 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**	**RHS**	**RHZ**	**4HX**
Ft	**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			

C5 - All Types	BRAKE SPECIFICATIONS

Braking circuit



B3FP12WD

Braking system specifications

- Braking circuit at **«X»**.

- Front brakes with ventilated discs.

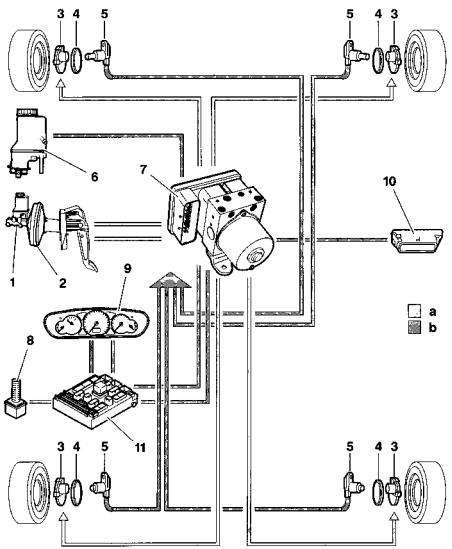
- Rear brakes with non-ventilated discs.

- 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

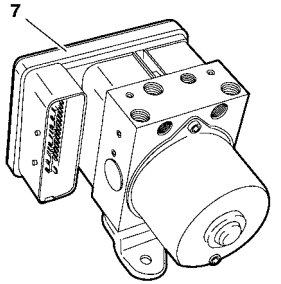
Braking circuit diagram



(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

C5 - All Types	BRAKE SPECIFICATIONS
(7) Hydraulic block	



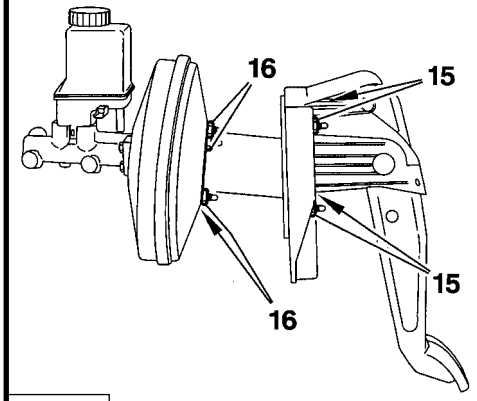
B3FP12XC

Elements	Ref.	Supplier	Part No.	Observations
Electronic ECU.	7	ITT - A	ABS MK.60 BASR MK.60	**47** way connector Alone on the hydraulic block.
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 to 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 to 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 BASK MK.60 96 371 712 80	Installed on the front LH wheelarch. **4** adjustment channels.

BRAKE SPECIFICATIONS

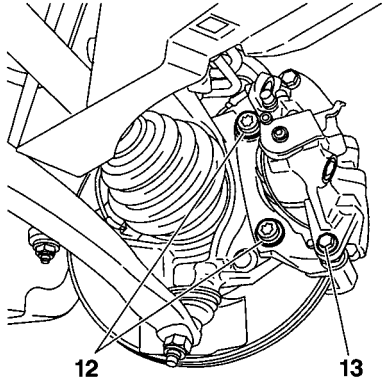
C5 - All Types

Brake pedal carriage



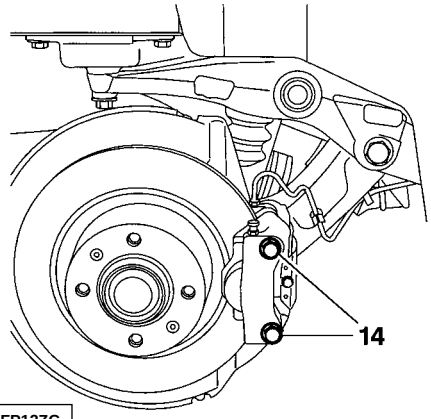
B3FP130C

Front brake



B3FP12YC

Rear brake



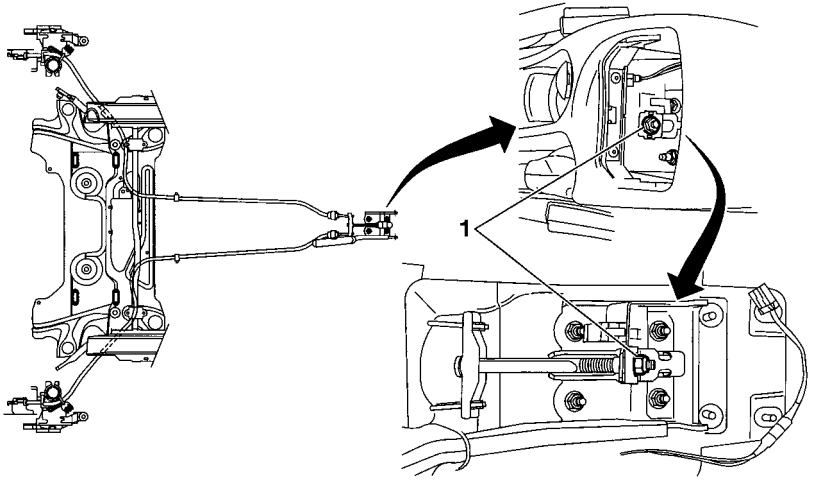
B3FP12ZC

Tightening torques (m.daN).

(15) Fixing on bodyshell	**1.8 ± 0.25.**	**(12)** Caliper fixing on pivot	**12± 1.8**
(16) Servo fixing	**2.1 ± 0.1.**	**(13)** Yoke fixing on caliper	**3.1± 0.1**

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

C5 - All Types	HANDBRAKE (Adjustment)

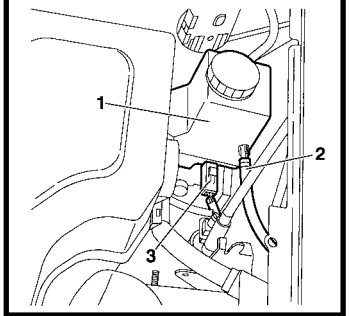


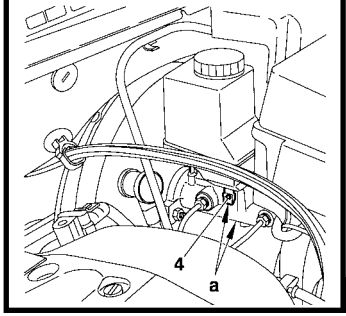
B3FP12JD

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





Tools.

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

Bleeding, filling.

Draining the brake fluid reservoir.

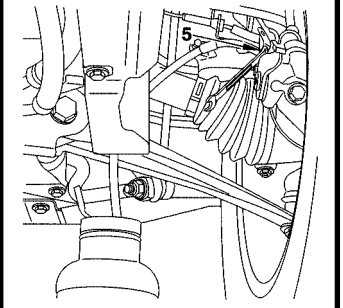
- Drain the brake fluid reservoir **(1)** to the maximum *(if necessary, use a clean syringe).*
- Disconnect the connector **(3)**.
- Uncouple the pipe **(2)**.
- Remove the reservoir **(1)** by separating the lugs «a» from the shaft **(4)**.
- Empty the brake fluid reservoir **(1)**.
- Clean the brake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

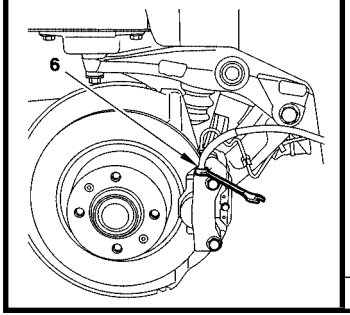
Remove :

- 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.

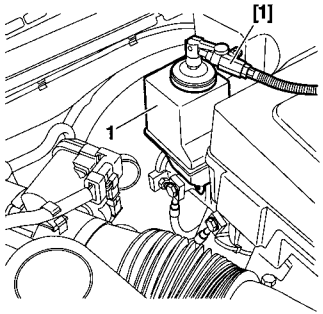
WARNING : Use only those hydraulic fluids that are approved and recommended.
- Fill the brake fluid reservoir **(1).**

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



B3FP13DC

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.

BLEEDING AND FILLING THE BRAKING SYSTEM

Bleeding, filling (continued).

Bleeding the secondary circuit.

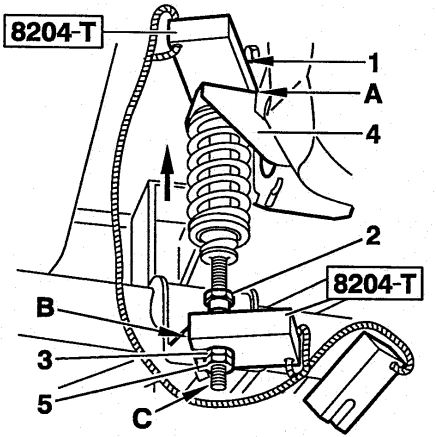
NOTE : The bleeding apparatus is connected on the brake reservoir.
- Use **LEXIA** or **PROXIA** diagnostic tools.

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.

BRAKE SPECIFICATIONS				SYNERGIE
			2 0 HDi	2.0i 16V
Ft	Ø mm	Master cylinder	23.8	
		Master-vac	279	203 + 230 (Tandem)
		Caliper/piston makes	GIRLING C57 57	
		Disc	281 (Ventilated)	
	Disc thickness		26	
	Minimum disc thickness		24	
	Brake pad grade		GALFER 3314	
Rr	Ø mm	Cylinder or caliper	20.6	36
		Drum	255	
		Disc		295
	Max./ min. thickness			10/8
	Make		BENDIX FN 36	
	Brake lining grade		DON 7124	GALFER 36212
	Compensator cut-off in Bars		**Front** brake 65 – **Rear** brake 65	**Front** brake 85 - **Rear** brake 85



B3FP10TC

Manual adjustment of the compensator

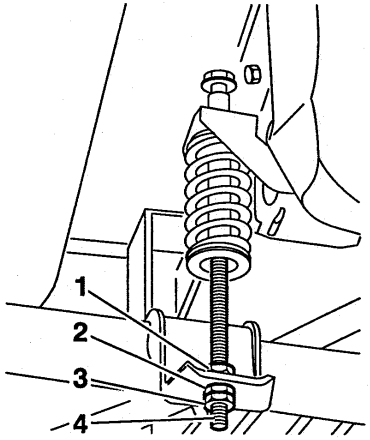
- Set the vehicle at reference height (see page **180**).

ESSENTIAL : Never alter the position of the upper nut (1).

- Refit the flanged nut **(2)**.
- Fit the tool **8204-T**.

	Drum	Disc
At shim A	Yellow	Blue
At shim B	Red	

- Adjust the nut **(3)** to allow the free passage, without play, of the red shim **(B)**, without moving the lever **(4)** downwards.
- Tighten the lock nut **(5)** without modifying the adjustment.
- Remove the threaded rod at **C**.
- Tighten the flanged nut **(2)** over the nut **(3)**.



B3FP10UC

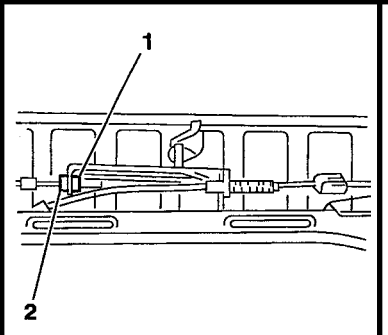
Checks and hydraulic adjustment of the compensator

- Use the brake pressure checking equipment **4104-T**, connect diagonally and bleed: **Ø bleed screw** : Caliper **8x125** - Wheel cylinder **7x100**.
- Set the vehicle at setting height.
- Pressure chart :

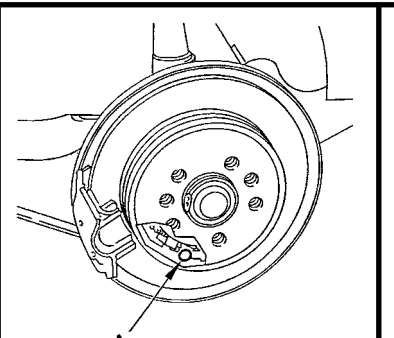
Engine : 2 0 HDi		Engine : 2.0i 16V	
Disc	Drum	Disc	
Front	Rear	Front	Rear
40	40	50	50
65	65	85	85
135	86	135	100

- If the pressures are not correct, adjust as follows :
- Refit the nut **(1)**.
- Adjust using the nut **(2)** to obtain the braking pressure.
- Tighten the lock nut **(3)**.
- Hold the threaded rod **(4)**.
- Tighten the flanged nut **(1)** over the nut **(2)**.

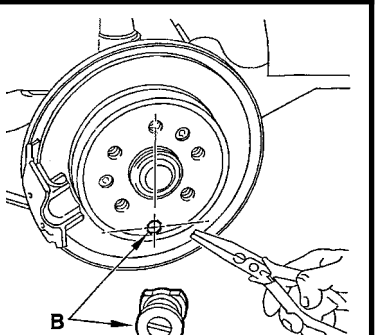
SYNERGIE	HANDBRAKE



B3FP10VC

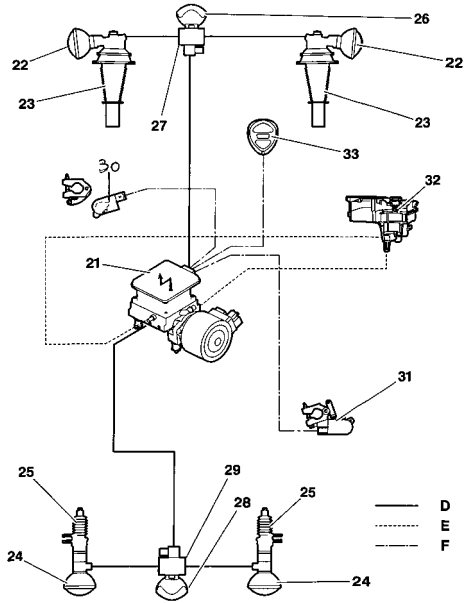


B3FP10WC



B3FP10XC

Slacken the cables using the nut **(1)**.
- Remove the blanking plug from hole **A**.
- Position hole A opposite the toothed wheel *(adjusting mechanism)*.
- Turn the toothed wheel using a flat screwdriver until the disc locks.
- LH side upwards.
- RH side downwards.
- Unlock the disc by turning in the opposite direction by **6 notches**.
- Position the blade **B** of the blanking plug perpendicular to the line passing through the centre of the disc and the centre of the hole.
- Tighten nut **(1)** to obtain a handbrake lever travel of **4** to **5 notches**.
- Tighten the lock nut **(2)**.

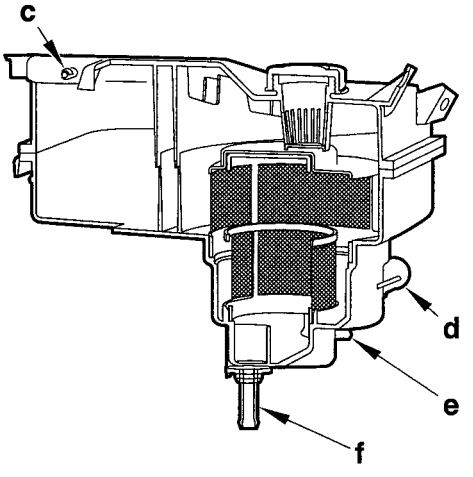


Location of components

(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

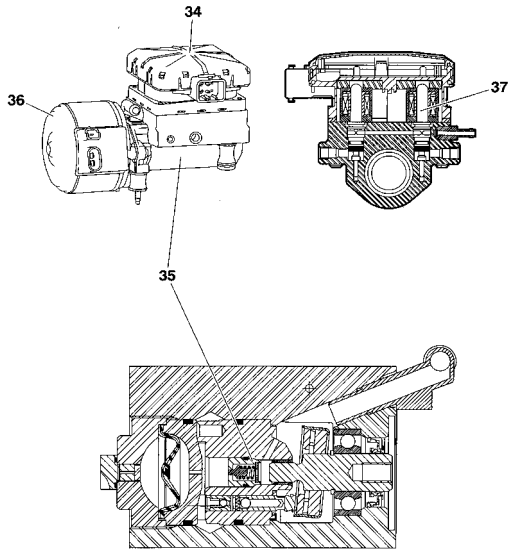


B4BP01BC

Reservoir

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

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

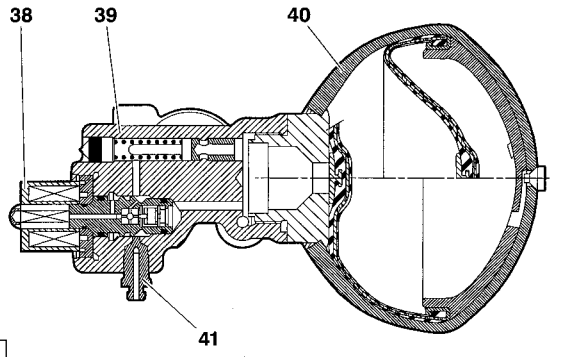


Built-in Hydro-electronic Interface (BHI).

Reference	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

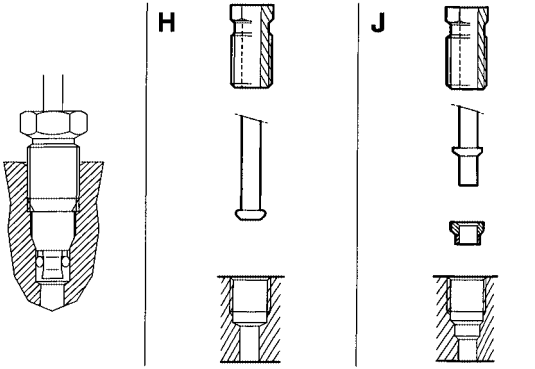
Hydractive 3+ regulator



B4BP01CD

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

Hydraulic unions



B4DP003D

Reference	Tube diameter (mm)	Tightening torque m.daN
G	3,5	1,5 ± 0,3
H	6,35	
J	10	2,5 ± 0,5

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 :

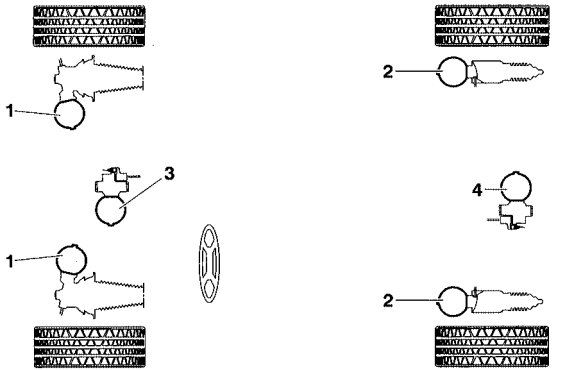
Suspension sphere marking	Batch of steel	Day of manufacture	Year of manufacture	Time of manufacture	Pressure rating (Bars)
96 420 906 80	AG2	066	0	13h59	57

- 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 ± 0,5 m.daN.

SPECIFICATION - IDENTIFICATION : SUSPENSION SPHERES



B4BP01DD

(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-RHS-RHZ	96 420 907 80			1.75/1.3
	Rear suspension sphere (2)			
All types	96 420 905 80	385	31	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	25	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	

C5	STARTER MOTORS				
Petrol engines					
Vehicle	**Engine**	**Gearbox**	**Reference**	**Class**	**Climate**
C5	1.8i 16V	Manual	U	3	H
					T
					C
			V	4	VC
		Automatic	U	3	H
					T
			V	4	C
					VC
	2.0HPi	Manual	U	3	H
					T
			V	4	C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **212**

STARTER MOTORS					C5
Petrol engines					
Vehicle	**Engine**	**Gearbox**	**Reference**	**Class**	**Climate**
C5	2.0i 16V	Manual	U	3	H
					T
			V	4	C
					VC
		Automatic	U	3	H
					T
			V	4	C
					VC
	2.0i 24S	All Types	R2	4	H
					T
					C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **212**

C5	STARTER MOTORS				
Diesel engines					
Vehicle	**Engine**	**Gearbox**	**Reference**	**Class**	**Climate**
C5	2.0 HDi (RHY)	Manual	Y	5	H
					T
			Z1	6	C
					VC
	2.0 HDi (RHS-RHZ)		Y	5	H
					T
			Z1	6	C
					VC
		Automatic			H
					T
			Z3	6+	C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **212**

STARTER MOTORS					C5
Diesel engines					
Vehicle	**Engine**	**Gearbox**	**Reference**	**Class**	**Climate**
C5	2.2 HDi	Manual	Y	6+	H
					T
			Z2		C
					VC
		Automatic	Y		H
					T
			Z2		C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **212**

C5	STARTER MOTORS				
Vehicle	Engine	Reference	Alternator reference		
			Make		
			VALEO	MELCO	BOSCH
C5	Petrol				
	1.8i 16V 2.0i 16V 2.0 Hpi	U	D6 RA 72	M000T 82 081	EOAL 098390
		V	M000T 85 381		
	3.0i 24S	R2	D6 RA 661		
	Diesel				
	2.0 HDi 2.2 HDi	X	D6 RA 109	M001 T8 0381	A001 111 562F
		Y	D7 R 26	M001 T8 0481	
		Z1	D7 R 27		
		Z2			A001 236 080
		Z3	D8 R 27		

Table of classes of starter motors					
CLASS	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6
Torque C	5.5 Nm	6 Nm	10 Nm	11.5 Nm	11.5 Nm
Maximum current for a speed of 1200 rpm	I ≤ 275 A	I ≤ 300 A	I ≤ 430 A	I ≤ 470 A	I ≤ 500 A

Vehicle	Engine	Gearbox	Reference	Class	Climate
Petrol engines					
SYNERGIE	2.0i 16V	Manual	U	3	H
					T
			V	4	C
					VC
		Automatic	U	3	H
					T
			V	4	C
					VC
	Diesel engines				
	2.0 Hdi 2.0 16V HDi	Manual	Y	5	H
					T
			Z1	6	C
					VC
			Y	5	H
					T
			Z1	6	C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **214**

SYNERGIE	STARTER MOTORS				
Vehicle	Engine	Reference	Alternator reference		
			Make		
			VALEO	MELCO	BOSCH
SYNERGIE	Petrol				
	2.0l 16V	U	D6 RA 72	M000T8 2081	E0AL 098 390
		V		M000 T8 2081	
	Diesel				
	2.0 HDi 2.0 16V HDi	Y	D7 R 26	M001 T8 5381	
		Z1	D7 R 27		

Table of classes of starter motors

CLASS	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6
Torque C	5.5 Nm	6 Nm	10 Nm	11.5 Nm	11.5 Nm
Maximum current for a speed of 1200 rpm	I ≤ 275 A	I ≤ 300 A	I ≤ 430 A	I ≤ 470 A	I ≤ 500 A

ALTERNATORS

C5

Vehicle	Model	Gearbox	Class of alternator								Climate
			Without aircon				With aircon				
			Without Cold Pack		With Cold Pack		Without Cold Pack		With Cold Pack		
			Base	With GPS	Base	With GPS	Base	With GPS	Base	With GPS	
C5	1.8i 16V	Manual	9		9		12		12		H
				9		9		12		12	T
							9		9		C
								9		9	VC
		Automatic	9		9		12		12		H
				9		9		12		12	T
							9				C
											VC
	2.0i 16V	Manual					12		12		H
							9	12	9	12	T
								9		9	C
											VC
		Automatic					12		12		H
								12		12	T
							9				C
											VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE** : See alternator references by class, table on page **217**

C5	ALTERNATORS									
Vehicle	Model	Gearbox	Class of alternator								Climate
			Without aircon				With aircon				
			Without Cold Pack		With Cold Pack		Without Cold Pack		With Cold Pack		
			Base	With GPS	Base	With GPS	Base	With GPS	Base	With GPS	
C5	3.0i 24V	Manual Automatic					15	15	15	15	H
											T
											C
											VC
	2.0HDi 2.2 HDi	Manual	15	15	15	15	15	15	15	15	H
											T
											C
											VC
	2.0 HDi	Automatic	15	15	15	15	15	15	15	15	H
											T
											C
											VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE :** See alternator references by class, table on page **217**

ALTERNATORS						C5
Vehicle	Engine	Gearbox	Class	Alternator reference		
				Make		
				VALEO	MELCO	BOSCH
C5	1.8i 16V 2.0i 16V 2.0 HPi	All types	9	A 13 VI 204+	A002 TB 4891	
				SG 10 B0 21		
			12		A003 TA 0891	
	3.0i 24S		15	A14 VI 25+		
	2.0 HDi			SG 15 S0 16	A004 TF 0091	A 120 51 611
				SG 15 S0 21		
				A14 VI 27+		
	2.0 HDi (1) 2.2.HDi			SG 15 S0 18		
				SG 15 S0 22		
				A14 VI 41+		

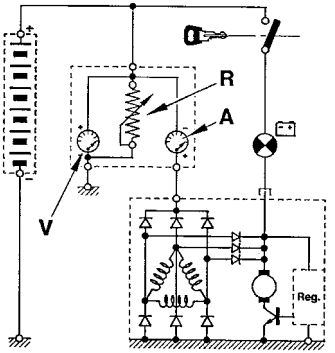
(1) = With particle filter **(FAP)**

SYNERGIE		ALTERNATORS			
Vehicle	Model	Gearbox	Class of alternator		Climate
			Without aircon	With aircon	
Synergie	2.0i 16V	Manual	8	12	H
					T
			9		C
					VC
		Automatic	8	15	H
			9	12	T
					C
					VC
	2.0 HDi 2.0 HDi 16V	Manual	15		H
					T
					C
					VC

CLIMATE : H (Hot), **T** (Temperate), **C** (Cold), **VC** (Very cold) **- NOTE** : See alternator references by class, table on page **: 219**

ALTERNATORS						SYNERGIE
Vehicle	Model	Gearbox	Class	Alternator reference / Make		
				VALEO	MELCO	BOSCH
Synergie	2.0i 16V	All types	8	A13 VI 2A6	A005 TA 6391	
				SG 8 B0 21		
			9	A13 VI 277+		
				SG 10 B0 22		
			12		A003 TB 2691	
			15	A14 VI 40+		
				SG 15 S0 17		
	2.0 HDi 2.0 16V HDi			SG 15 S0 18		
				SG 15 S0 22		
				A14 VI 41+		

CHARGING CIRCUIT - ALTERNATOR WITH MONO-FUNCTION REGULATOR



D1AP01SC

CHECKING THE ALTERNATOR OUTPUT

Connect as shown in the diagram opposite, using an ammeter **(A)**, a voltmeter **(V)**, and a rheostat **(R)** or a Volt/Ammeter/Rheostat combination.
Referring to the vehicle's equipment specification (see table opposite), adjust the engine speed and rheostat charge to obtain **U=13.5V.** Read the voltage.

Reminder : The excitation energising current will flow through the warning lamp; check that the warning lamp comes on when the ignition is switched on. It should go out when the engine has started (accelerate slightly).

CHECKING THE VOLTAGE REGULATOR

Set the rheostat to zero and disconnect all the electrical consumers. Display 5000 alternator rpm. If **U** alternator is > 14.7 V, the regulator is faulty.
Note : These tests should be performed with the engine hot and the battery fully charged.

Output under 13.5 V
Intensity (A) / Alternator speed

Speed / Class	2000 rpm	3000 rpm	4000 rpm
5	29 A	39 A	43 A
7	42 A	54 A	59 A
8	49 A	62 A	68 A
9	62 A	76 A	83 A
12	72 A	90 A	100 A
15	99 A	128 A	140 A

Vehicles	Engines	Pre-heater plugs	Pre-heater control unit	Pre-post-heating (Pre-heating time at 20°C)
C5 Synergie	2.0 HDI 2.0 16V HDI	CHAMPION CH 170	CARTIER 51299011A NAGARES 960411-P	Piloted by the diesel injection ECU
	2.2 HDI	BERU A0100 226 344	CARTIER 51299011A NAGARES 960411-P	

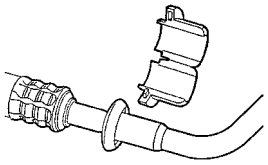
Preheater plug resistance : 0.4 Ω ≤ R ≤ 0.6 Ω

C5 - SYNERGIE	AIR CONDITIONING R 134 a (HFC)					
Vehicle	Engine version	Date	Refrigerant refill (± 25 gr)	Compressor		
				Variable capacity	Oil quantity cc	Oil reference
C5	1.8i 16V-2.0i 16V 2.0 HPi 3.0i 24S 16V 2.2 HDi	11/2000 →	650 + 0 - 50 gr	SD 7 V16	SD 7 V16	SP 10
	2.0 HPi			DELPHI V5 (1)	265 ± 15	PLANETELF 488
SYNERGIE	All Types	06/94 >	1000 ± 50 gr	SD 7 V16	135	SP 10

(1) HARRISON Division.

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

SYNERGIE



C5HP073C

Vehicle		Click-fit union removal/fitting tool		
		Ø Inch	Ring colour	Tool kit 4164-T
SYNERGIE	All Types	5/8	Black	8005-T.A.

Aircon compressor fixings.

IMPERATIVE : Tighten the front part of the compressor (timing belt end), before tightening the rear part of the compressor.

	Tightening torques (m.daN).	
	Unions	
Ø Pipes	Steel/Steel	Aluminium/Steel
M 06	1.7 ± 0.3	1.3 ± 0.3
M 08	3.8 ± 0.3	2 ± 0.2
M 10	4 ± 0.3	2.5 ± 0.3

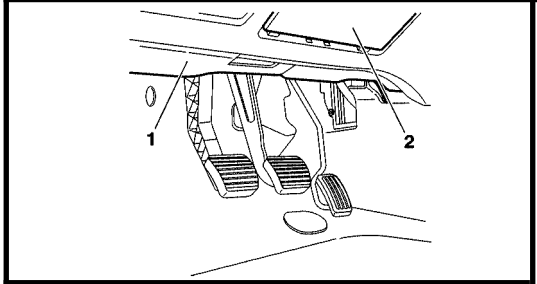
REMINDER : Refilling the air conditioning system should be done through the **LOW PRESSURE** valve whenever possible.
NOTE : The diameters of the High Pressure and Low Pressure valves are different, to avoid mixing them up.

C5 - SYNERGIE	SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)			
Summary table for presence of pollen filter				
Vehicle	**Equipment**	**RPO no.**	**Presence of filter**	**Observations**
C5	Aircon all types		**YES**	
SYNERGIE (*)	Without aircon		**NO**	
	Base aircon		**NO**	
	Automatic aircon	→ 8148	**Do not fit**	Water ingress
		8148 → 8421	**YES** (Behr)	Body modification
		8421 →	**YES** if Exclusive	2 blowers
			NO if X and SX	1 blower

(*) = The (three) pollen filters on SYNERGIE are located at the base of the windscreen.

SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a) — C5

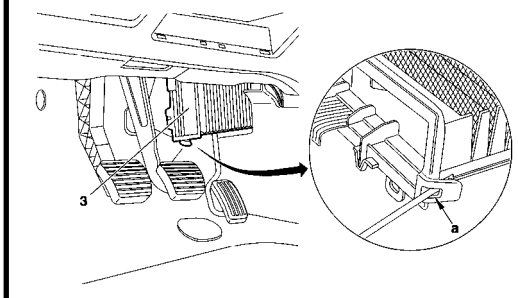
Pollen filter



Remove :

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

- The cover **(2).**



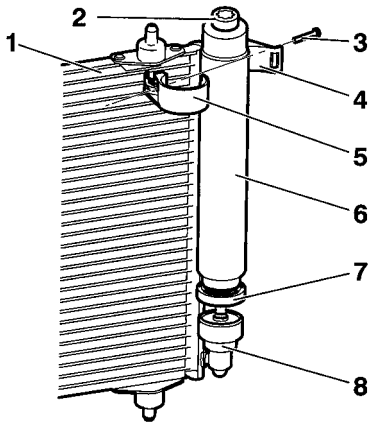
Unclip at **« a »** and pull out the pollen filter **(3).**

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

C5FP0C5C | C5FP0C6D

C5	SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)

Drying cartridge



C5HP16EC

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 skir**t (8)** of the reservoir **(6)** using a cloth, then replace the dryer reservoir **(6).**

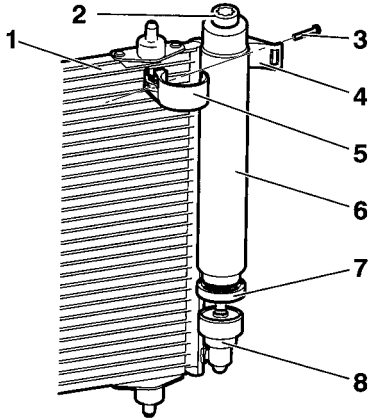
Removing the plastic bracket holding the reservoir (6) :
- Remove the screw **(3)** *(Torx 20)*, from the bracket assembly/plastic counter-bracket **(4)** and **(5).**
- Remove the counter-bracket **(5)**.*(Rotate it round the hinge in a clockwise direction).*
- Disengage the bracket from the harness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

SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a) — C5

Condenser with integral reservoir (continued)



C5HP16EC

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

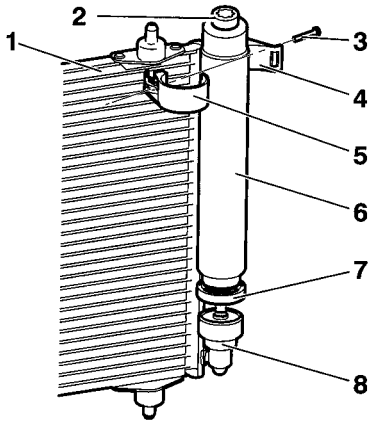
WARNING : This operation requires the greatest care, the base **(8)** should be kept clean prior to fitting the new reservoir.
- Remove the reservoir **(6)** and the protection skirt **(7)**, avoiding **WITHOUT FAIL** any contact or collision with other items under the bonnet *(Risk of impurities entering 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.

C5	SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)

Condenser with integral reservoir (continued)



C5HP16EC

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)	ALL TYPES

Compressor lubricant.

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

Checking the compressor oil level.

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

1/ Repairing a system without leaks.

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

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

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

Checking the compressor oil level (continued)

2) Slow leak.

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

3/ Fast leak.

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

It is therefore necessary to :

- Replace the dryer.
- Drain as much oil as possible *(when replacing the faulty component).*

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

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM — ALL TYPES

CHECKING TEMPERATURES.

TOOLS

Two thermometers.

Preliminary conditions.

Position of the air conditioning controls :
- Maximum cold air.
- Air blower in maximum position.
- Air distributor in "ventilation" position, with the dashboard vents open.
- Air intake flap in "exterior air" position.

Conditions and vehicle equipment.

- Bonnet closed.
- Doors and windows shut.
- Ensure the vehicle is in a sheltered area (away from wind, sun, etc..).

CHECKS.

If all these conditions are met, take the following action :

- Start the engine, with the air conditioning off, and wait for the cooling fan first speed to cut in.
- Operate the air conditioning and set the engine speed to **2500 rpm**.

NOTE : If the exterior temperature reaches **40 °C**, the engine speed will return to **2000 rpm** in order to prevent the compressor from being cut off by the High Pressure safety device (Pressostat).

After the air conditioning has been on for three minutes, measure **:**
- the exterior temperature in the workshop,
- the temperature of the air coming out of the central vents.

Compare the two values using the table overleaf.

CHECKING TEMPERATURES. (continued)

		Vehicle using R134.a fluid (Compressor with variable capacity)					
Exterior temperature in °C		40	35	30	25	20	15
Temperature in °C at the central vents	Vehicles						
	SYNERGIE				12 ± 3	8 ± 3	

(*) At exterior temperature **20°C**, air temperature from the central vents is for second speed of the ventilator fan.
If fan operates at first speed, then air temperature from the central vents becomes **8.4 ± 3 °C**.
NOTE : In general, the temperature of the air being blown from the central vents should be around **5°C** to **8°C**.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

ALL TYPES

CHECKING PRESSURES

TOOLS : 1 Charging station and **2** Thermometers.
Observing the preliminary conditions, as well as vehicle equipment and checks (see page **231**) :
After the air conditioning has been operating for three minutes, record the following parameters :

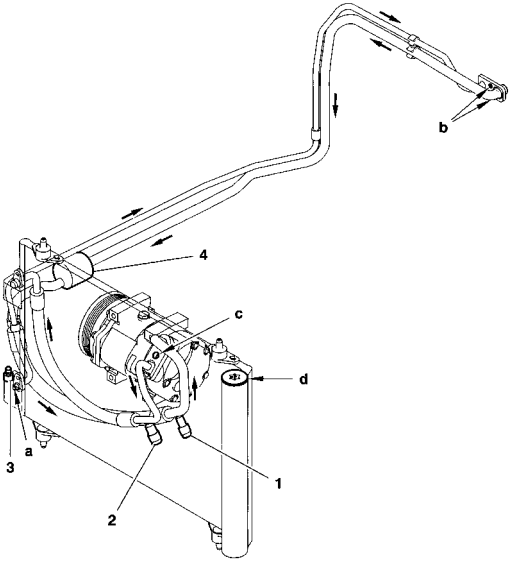
- The temperature of the air coming out of the central vents (See the table on page **288**).
- The High Pressure.
- The Low Pressure.

Compare the values recorded with the table below, or the graphs.

		Vehicle using R134.a fluid (Compressor with variable capacity)					
Exterior temperature in °C		**40**	**35**	**30**	**25**	**20**	**15**
	Vehicles						
High pressure (Bars)	**SYNERGIE**				16 ± 3	13 ± 3	
Low pressure (Bars)					2.1 ± 0.3		1.8 ± 0.3

C5	AIR CONDITIONING SYSTEM R 134.a

Engines : 6FZ - RFN - RLZ



C5HP15QP

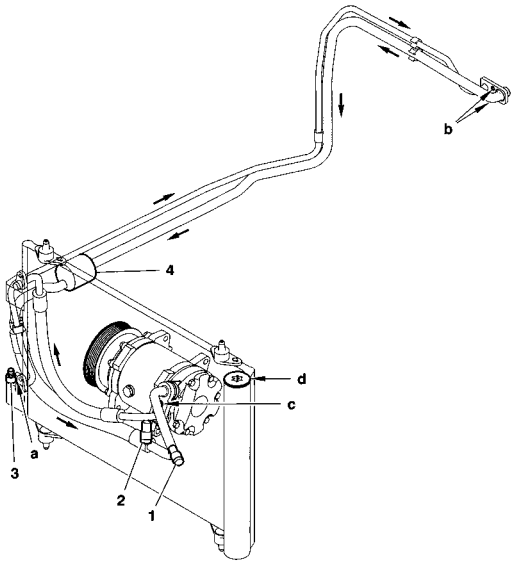
(1) High pressure valve.
(2) Low pressure valve.
(3) Pressostat.
(4) Capacity.

(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.**

AIR CONDITIONING SYSTEM R 134.a

C5

Engine : XFX



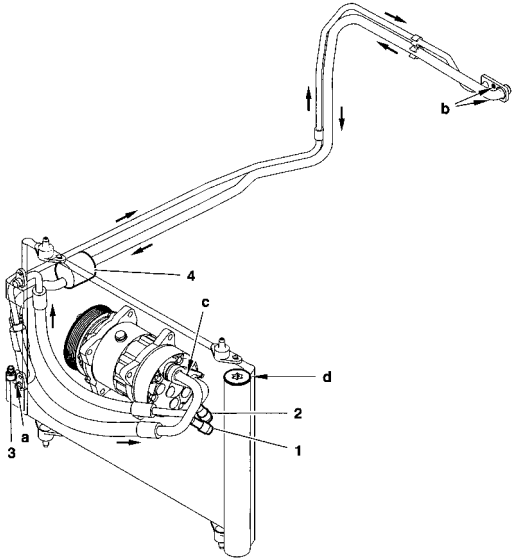
C5HP15RP

(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.**

C5	AIR CONDITIONING SYSTEM R 134.a

Engines : RHY - RHZ



C5HP15SP

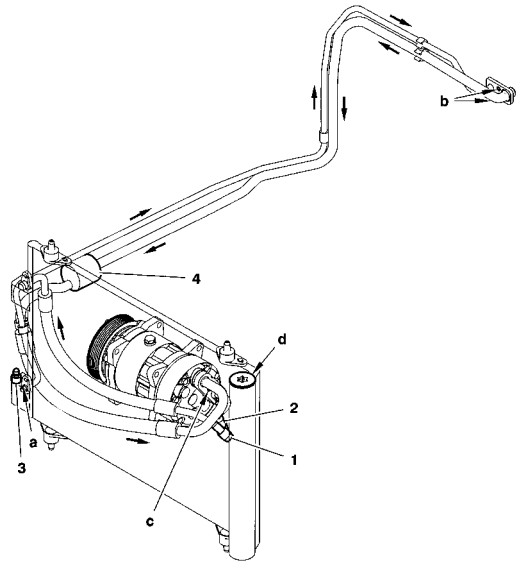
(1) High pressure valve.
(2) Low pressure valve.
(3) Pressostat.
(4) Capacity.

(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.**

AIR CONDITIONING SYSTEM R 134.a

C5

Engine : 4HX



C5HP15TP

(1) High pressure valve.

(2) Low pressure valve.

(3) Pressostat.

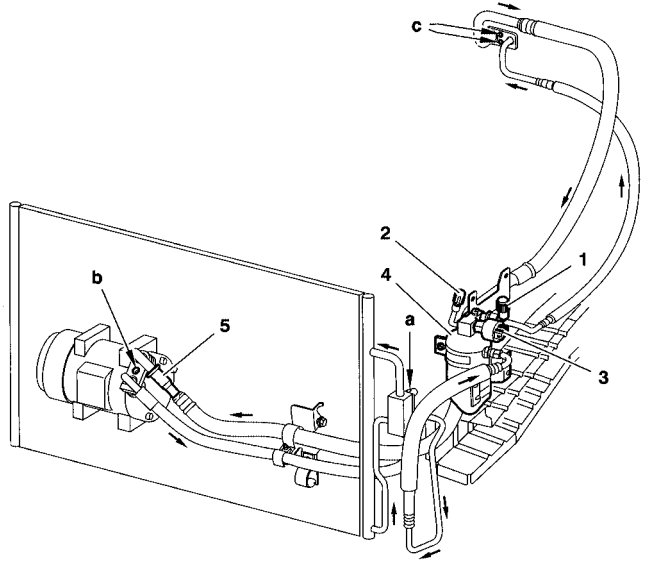
(4) Capacity.

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

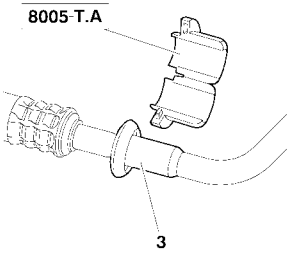
(b) Pressure control valve
Tighten to **0,8 m.daN**

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

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



C5HP15PP

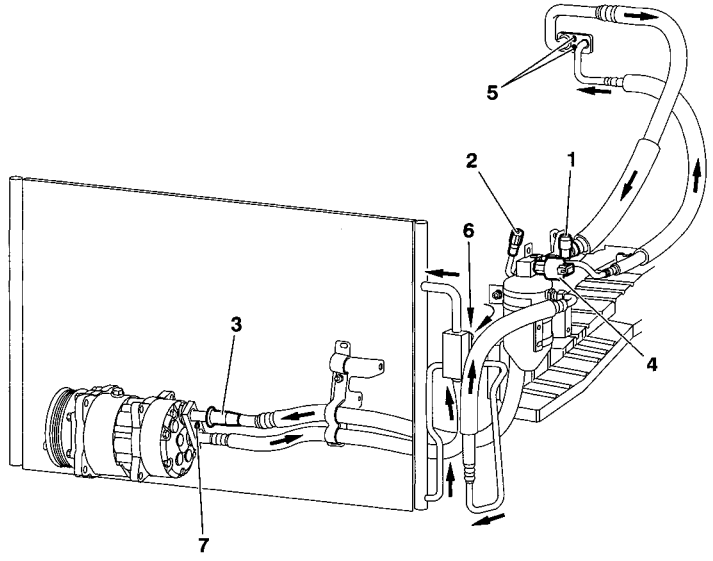


C5HP12EC

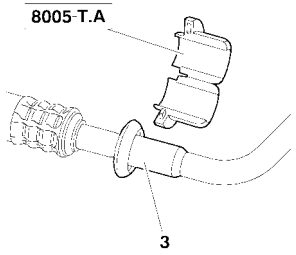
Tightening torques.

(1) High pressure valve
(2) Low pressure valve
(3) Pressostat, tighten to **1,8 m.daN**
(4) Dryer
(5) Clickfit union.

a) 0,8 m.daN
b) 4 m.daN
c) 0,8 m.daN



C5HP15EP



C5HP12EC

Tightening torques.

(1) High pressure valve
(2) Low pressure valve
(3) Clickfit union.
(4) Pressostat, tighten to 1,8 m.daN
(5) Flange fixing, tighten to 0,8 m.daN.
(6) Flange fixing, tighten to 0,8 m.daN.
(7) Flange fixing, tighten to 4 m.daN.