PRIVATE CARS

C5 and C8

2004

«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 050014
Volume 2

IMPORTANT

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

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

CORRESPONDENCE TABLE FOR PETROL ENGINES						
Engine families	EW				ES	
	7	10		12	9	
	J4		D	J4	J4S	
Engine types	**6FZ**	**RFN**	**RLZ**	**3FZ**	**XFX**	**XFW**
C5	1.8i 16V	2.0i 16V	2.0 16V HPi		3.0i 24V	
C8		2.0i 16V		2.2 16V HPi		3.0i 24V

CORRESPONDENCE TABLE FOR DIESEL ENGINES								
Engine families	DW							
	10						12	
	TD	ATED		ATED4			TED	TED4
Engine types	**RHY**	**RHS**	**RHZ**	**RHW**	**RHT**	**RHM**	**4HX**	**4HW**
C5	2.0 HDi	2.0 HDi	2.0 HDi				2.2 HDi	
C8				2.0 16V HDi	2.0 16V HDi	2.0 16V HDi		2.0 HDi

PRESENTATION

THIS HANDBOOK summarises the specifications, adjustments, checks and special features of **CITROEN** private vehicles, not including UTILITY 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 - C8
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:

CITROEN U.K. Ltd.
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SLOUGH,
SL1 4BA.
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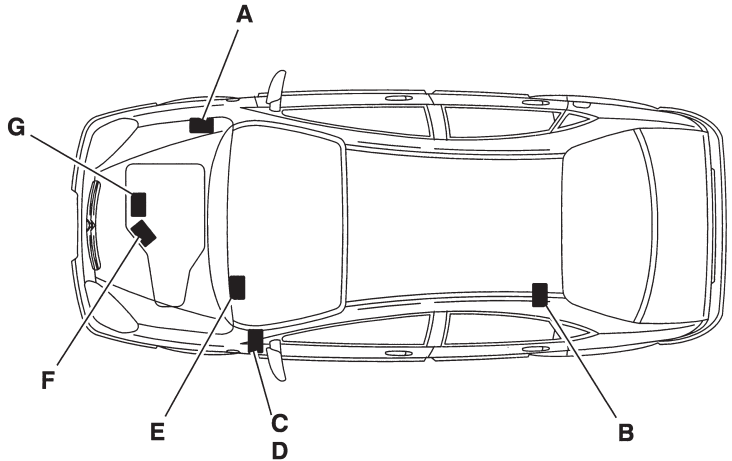


E1APO8RD

(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	IDENTIFICATION OF VEHICLES						
	Petrol saloons						
	1.8i 16V			2.0i 16V			
			Auto.			Auto.	
	Pack			Pack - Ambiance pack - Exclusive			
Emission standard	**L4**	**L5**	**L4**	**L5**		**L4**	**L5**
Type code	**DC 6FZB**	**DC 6FZC/IF**	**DC 6FZE**	**DC RFNB**	**DC RFNC/IF**	**DC RFNE**	**DC RFNF/IF**
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 95	20 DL 30	20 TP 93		

IDENTIFICATION OF VEHICLES			C5
	Petrol saloons		
	2.0 16V HPi	3.0i 24V Exclusive	3.0i 24V Auto.
Emission standard	L4	IF/L5	
Type code	DC RLZB	DC XFXC/IF	DC XFXF/IF
Engine type	RLZ	XFX	
Cubic capacity (cc)	1997	2946	
Fiscal rating (hp)	9	13	14
Gearbox type	BE4/5	ML/5C	4 HP 20
Gearbox ident. plate	20 DL31	20 LM 21	20 HZ 26

C5	IDENTIFICATION OF VEHICLES				
	Diesel saloons				
	2.0 HDi				
				Auto.	
	Leader	Pack- Leader pack - Ambiance pack - Exclusive		Pack- Ambiance pack Exclusive	
Emission standard	L4				
Type code	**DC RHYB**	**DC RHSB**	**DC RHZB**	**DC RHSE**	**DC RHZE**
Engine type	RHY	RHS	RHZ	RHS	RHZ
Cubic capacity (cc)	1997				
Fiscal rating (hp)	6			7	
Gearbox type	BE4/5	ML/5C		AL4	
Gearbox ident. plate	20 DL 32	20 LM 23		20 TP 94	

(*) FAP = Particle filter

IDENTIFICATION OF VEHICLES			C5
	Diesel saloons		
	2.2 HDi		
	Pack - Leader pack - Ambiance pack - Exclusive		Auto. Ambiance pack- Exclusive
Emission standard	L4		
Type code	**DC 4HXB**	**DC 4HXG**	**DC 4HXE**
Engine type	4HX		
Cubic capacity (cc)	2179		
Fiscal rating (hp)	8		
Gearbox type	ML5C	ML/6C	4 HP 20
Gearbox ident. plate	20 LM 17	20 MB 04	20 HZ 20

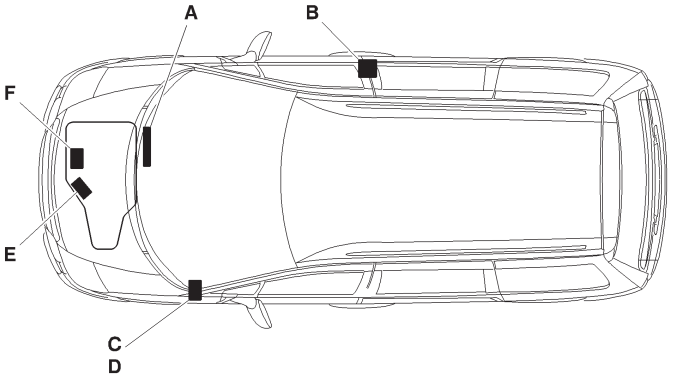
C5	IDENTIFICATION OF VEHICLES					
	Petrol estates					
	1.8i 16V		2.0i 16V			
					Auto.	
	Pack		Pack- Exclusive			
Emission standard	L4 / IFL5					
Type code	DE 6FZC/IF	DE 6FZB	DE RFNC/IF	DE RFNB	DE RFNE	DE RFNF/IF
Engine type	6FZ		RFN			
Cubic capacity (cc)	1749		1997			
Fiscal rating (hp)	7		9			
Gearbox type	BE4/5				AL4	
Gearbox ident. plate	20 DL 29		20 DL 30		20 TP 93	

IDENTIFICATION OF VEHICLES			C5
	Petrol estates		
	2.0 HPi	3.0i 24V	
			Auto.
	Pack	Exclusive	
Emission standard	L4/IFL5		
Type code	**DE RLZB**	**DE XFXC / IF**	**DE XFXF / IF**
Engine type	RLZ	XFX	
Cubic capacity (cc)	1997	2946	
Fiscal rating (hp)	9	14	
Gearbox type	BE4/5	ML/5C	4 HP 20
Gearbox ident. plate	20 DL 31	20 LM 21	20 HZ 26

	Diesel estates				
	2.0 HDi				
			Auto.		Auto.
		Pack - Ambiance pack			
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	AL4	ML/5C	AL4
Gearbox ident. plate	20 DL 32	20 LM 23	20 TP 94	20 LM 23	20 TP 94

	Diesel estates		
	2.2 HDi		
			Auto.
	Ambiance pack		
Emission standard	L4		
Type code	DE 4HXB	DE 4HXG	DE 4HXE
Engine type	4HX		
Cubic capacity (cc)	2179		
Fiscal rating (hp)	8		
Gearbox type	ML5C	ML/6C	4 HP 20
Gearbox ident. plate	20 LM 17	20 MB 04	20 HZ 20

C8	IDENTIFICATION OF VEHICLES



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(A) Chassis stamp (cold stamp on bodywork).

(B) Manufacturer's data plate (under RH centre pillar).

(C) A-S / RP No. and RP paint code
(label on front pillar).

(D) Inflation pressures and tyre references.
(label on front pillar)

(E) Gearbox reference – Factory serial no.

(F) Engine legislation type – Factory serial no.

IDENTIFICATION OF VEHICLES					C8	
	Petrol					
	2.0i 16V				2.2i 16V	
			Auto.			
	Pack				Pack Exclusive	
Emission standard	IFL5					
Type code	**EA RFNC/IF**	**EB RFNC/IF**	**EA RFNE**	**EB RFNE**	**EB 3FZC/IF**	**EA 3FZC/IF**
Engine type	RFN				3FZ	
Cubic capacity (cc)	1997				2230	
Fiscal rating (hp)	9				11	
Gearbox type	BE4/5		AL4		ML5C	
Gearbox ident. plate	20 DM 01 **(1)** 20 DM 00 **(2)**		20 TP 74		20 LM 25	

(1) = Right hand drive
(2) = Left hand drive

C8	IDENTIFICATION OF VEHICLES	
	Petrol	
	3.0i 24V	
	Auto.	
	Exclusive	
Emission standard	IFL5	
Type code	EA XFWF/IF	EB XFWF/IF
Engine type	XFW	
Cubic capacity (cc)	2946	
Fiscal rating (hp)	14	
Gearbox type	4 HP 20	
Gearbox ident. plate	20 HZ 27	

	Diesel					
	2.0 HDi (*)		2.0 HDi (**)			
					Auto.	
	Pack - Exclusive					
Emission standard	L4					
Type code	EA RHWB	EB RHWB	EA RHTB	EB RHTB	EA RHME	EB RHME
Engine type	RHW		RHT		RHM	
Cubic capacity (cc)	1997					
Fiscal rating (hp)	7				8	
Gearbox type	ML5C				AL4	
Gearbox ident. plate	20 LM 24				20 TS 04	

(*) = **Without FAP** (Particle filter)
(**) = **With FAP** (Particle filter)

C8	IDENTIFICATION OF VEHICLES	
	Diesel	
	2.2 HDi (*)	
	Pack - Exclusive	
Emission standard	L4	
Type code	EA 4HWB	EB 4HWB
Engine type	4HW	
Cubic capacity (cc)	2179	
Fiscal rating (hp)	8	
Gearbox type	ML5C	ML6C
Gearbox ident. plate	20 LM 01	20 MB 05

(*) = **With FAP** (Particle filter).

LUBRICATION CIRCUIT

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 min**).

4) - Refit plug + cartridge.

5) - Engine filling.

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

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

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

C5	CAPACITIES (in litres)						
	C5						
	Petrol						
	1.8i 16V		2.0i 16V		2.0i HPi	3.0i V6	
		Auto.		Auto.			Auto.
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	65						

(*) = With automatic gearbox
ESSENTIAL: Systematically check the oil level using the oil dipstick.

CAPACITIES (in litres)							C5
	C5						
	Diesel						
	2.0 HDi					2.2 HDi	
			Auto.		Auto.		Auto.
Engine type	RHY	RHS		RHZ		4HX	
Engine with filter change	4,5					4,75	
Between Min. and Max.	1,4					1,5	
5-speed gearbox	1,8			1,8		1,8	
Automatic gearbox			8,3 - 6		8,3 - 6		8,3
After oil change			5,3 – 3		5,3 – 3		5,3
Braking circuit							
Hydraulic circuit	4,3						
Cooling system	10,7 – 11,7 *(With additional heating)*						
Fuel tank capacity	65						

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

C8	CAPACITIES (in litres)								
	Petrol				Diesel				
	2.0i 16V		2.2i 16V HPi	3.0i 24V	2.0 16V HDi				2.2 HDi
		Auto.		Auto.				Auto.	
Engine type	RFN		3FZ	XFW	RHW	RHT	RHM		4HW
Engine with filter change	4,25			5,25	4,75				
Between Min. and Max.	1,7			2	1,9				1,5
5-speed gearbox	1,8		2		2				2
Automatic gearbox		6		8,3				6	
After oil change		3		5,3				3	
Hydraulic or brake circuit	0,66								
Cooling system	7		7,2	10,5	10			10,2	11,3
Fuel tank capacity	80								

LUBRICANTS - TOTAL recommended oils

Evolutions (year 2004).

CITROËN C2, C3 PLURIEL, DISPATCH and DV6 engines.

Only petrol versions are available.

Normal maintenance interval **: 30 000 km (20 000 miles)**
Severe maintenance interval **: 20 000 km (12 000 miles).**

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 OR API SJ/CF.
Failing this, it is essential to adhere to the maintenance programmes covering severe operating conditions.

Use of oil grade 10W 40.
It is possible to use semi-synthetic oil **7000 10W40** on **PETROL** and **DIESEL** vehicles.

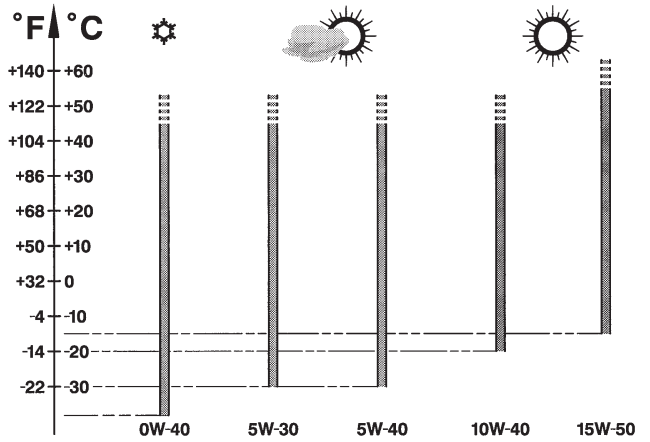
WARNING: To avoid problems with starting from cold, use this oil as allowed by the climatic conditions in the country concerned (see table).

For more details see the oil usage table.

New commercial designation for energy economy oil.
The oil **TOTAL ACTIVA/QUARTZ 9000 5W30** becomes **TOTAL ACTIVA FUTUR 9000** (for France),
QUARTZ FUTURE 9000 5W30 (outside France).
The usage exclusions for this oil are the same as before:

- **XSARA VTS 2.0i 16V** (XU10J4RS).
- **RELAY 2.8 TDi; 2.8 HDi** (SOFIM engine).
- **HDi FAP** vehicles.
- **C3 1.4i 16V HDi** (DV4TED4).
- **C8 2.2i** (EW12J4)

LUBRICANTS - TOTAL recommended oils



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Engine oil norms.

Current norms.

The classification of these engine oils is established by the following recognised organisations:

- **S.A.E** : Society of Automotive Engineers.
- **API** : American Petroleum Institute.
- **ACEA** : Association des Constructeurs Européens d'Automobiles

LUBRICANTS - TOTAL recommended oils

S.A.E. Norms - Table for selection of engine oil grade
Selection of engine oil grades recommended for climatic conditions in countries of distribution

Evolution of the norms as at 01/01/2003

ACEA 2003 norms

The meaning of the first letter has not changed, it still corresponds to the type of engine:

A: petrol and **dual fuel petrol / LPG** engines.
B: diesel engines.

The figure following the first letter corresponds to the type of oil: .
3: high performance oils.
4: oils specifically for direct injection diesel engines.
5: very high performance oils permitting lower fuel consumption
Example:
ACEA A3: high performance oils specifically for petrol and dual fuel petrol / LPG engines
ACEA A/B: blended oils giving very high performance for all engines, also permitting better fuel economy, specifically for direct injection diesel engines
NOTE: From **01/01/2003** there is no longer any reference to the year of creation of the norm, (Example: **ACEA A3/B3 98** becomes **ACEA A3/B3.**

API norms

The meaning of the first letter has not changed, it still corresponds to the type of engine:

S: petrol and **dual fuel petrol / LPG** engines.
C: diesel engines.

The second letter corresponds to the degree of evolution of the oil (ascending order).

Example: Norm **SL** is more severe than norm **SJ**, corresponding to a higher level of performance.

LUBRICANTS - TOTAL recommended oils

Recommendations.

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

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%)**.

The oil **5W30** is used only for the following engines (Year 2003):

- **XU10 J4RS** : XSARA VTS 2.0i 16V (3-door)
- **SOFIM** : RELAY 2.8 TDi and 2.8 HDi.
- **HDi** : With particle filter (FAP).
- **DV4 TED4** : CITROËN C3 1.4 16V HDi.
- **EW 12J4** : CITROËN C8 2.2i16V HPi.

WARNING: CITROËN engines prior to model year 2000 do not have to be lubricated with oils adhering to the norms: ACEA AI-98 and API SJ/CF EC or current norms **ACEA A5/B5**

Denomination of **TOTAL** oils according to country of marketing:
TOTAL ACTIVA (France only).
TOTAL QUARTZ (outside France).

LUBRICANTS - TOTAL recommended oils

Recapitulation

Norms to be observed for engine oils (year 2003)			
Year	**Types of engine concerned**	**ACEA norms**	**API norms**
2003	Petrol and dual fuel petrol/ LPG engines	**A3 or A5 5 (*)**	**SJ or SL**
	Diesel engines	**B3 or B5 (*)**	**CF**

(*) It is essential not to use engine oils respecting these norms for the following engine-types: XU10 J4RS , SOFIM 2.8 TDi and SOFIM 2.8 HDi , HDi with particle filter (FAP), EW 12 J4, DV4 TED4.

Classes and grades of TOTAL recommended engine oils.
Oils marketed in each country are adapted to the local climatic conditions.

Blended oils for all engines (petrol, diesel and dual fuel petrol / LPG engines).			
	S.A.E. norms	**ACEA norms**	**API norms**
TOTAL ACTIVA 9000 **TOTAL QUARTZ 9000**	**5W40**	**A3 / B3**	**SL / CF**
TOTAL ACTIVA FUTUR 9000 (*)	**5W30**	**A5 / B5**	
TOTAL QUARTZ FUTUR 9000 (*)			
TOTAL ACTIVATRAC	**10W40**	**A3 / B3**	**SJ / CF**

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

LUBRICANTS - TOTAL recommended oils

Oils specifically for petrol and dual fuel petrol / LPG engines

	S.A.E. norms	ACEA norms	API norms
TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	10W40	A3	SJ
TOTAL QUARTZ 9000	0W40		
TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	15W50		

Oils specifically for diesel engines

	S.A.E. norms	ACEA norms	API norms
TOTAL ACTIVA DIESEL 7000 TOTAL QUARTZ DIESEL 7000	10W40	B3	CF
TOTAL ACTIVA DIESEL 7000	15W50		

LUBRICANTS - TOTAL recommended oils

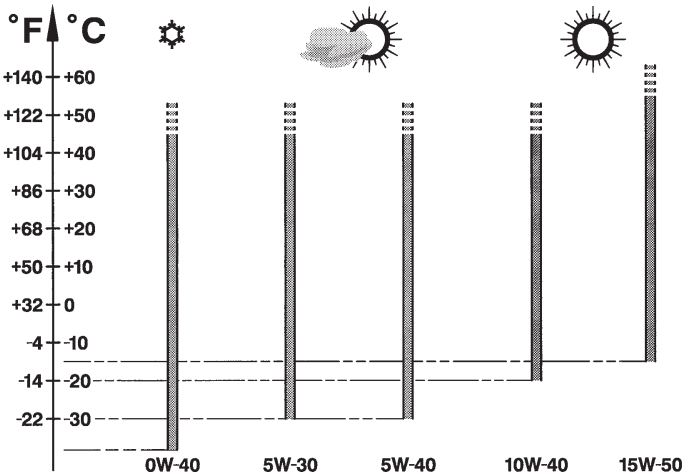
Oil usage table

Engine types		TOTAL ACTIVA QUARTZ				
		Synthetic 9000			Semi-synthetic 7000	
		0W40 cold countries	5W30	5W40	10W40	15W50 hot countries
Petrol engines	XU10 J4RS (Xsara VTS 2.0i 16V)	X		X	X	X
	EW 12 J4 (C8 2.2i 16V)	X		X	X	X
	Other petrol engines	X	X	X	X	X
Diesel engines	HDi engines with FAP (*)			X	X	X
	Other HDi engines		X	X	X	X
	SOFIM 2.8 TDi and 2.8 HDi (RELAY)			X	X	X
	DV4 TED4 (C3 1.4 16V HDi)			X	X	X
	Indirect injection diesel engines		X	X	X	X

(*) = **Particle filter**

LUBRICANTS - TOTAL recommended oils

Selection of TOTAL engine oils, to be used according to the climatic conditions in the country where the vehicle is marketed.



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LUBRICANTS - TOTAL recommended oils

FRANCE	ENGINE OILS		
	Blended oils for all engines, supplied in bulk		
Metropolitan FRANCE	TOTAL ACTIVRAC	S.A.E. norms: 10W40	
	TOTAL ACTIVA		TOTAL ACTIVA DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Metropolitan FRANCE	9000 5W40 9000 5W30 (*)	7000 10W40	7000 10 W40 9000 5W40
New Caledonia Guadeloupe Saint-martin Reunion Martinique Guyana Tahiti Mauritius Mayotte	9000 5W40	7000 15W50	7000 15W50

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Germany	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 9000 0W40	7000 10W40
Austria		7000 10W40	
Belgium		7000 10W40 9000 0W40	
Bosnia		7000 10W40 9000 0W40	
Bulgaria		7000 10W40	
Cyprus		7000 10W40 9000 15W40	
Croatia		7000 10W40	

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Denmark	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 9000 0W40	7000 10W40
Spain		7000 10W40 7000 15W40	
Estonia		7000 10W40 9000 0W40	
Finland			
Great Britain		7000 10W40	
Greece		7000 10W40 7000 15W40	
Holland		7000 10W40 9000 0W40	

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Hungary	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 9000 0W40	7000 10W40
Italy		7000 10W40	
Ireland			
Iceland			
Latvia		7000 10W40 9000 0W40	
Lithuania			
Macedonia		7000 10W40	

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Malta	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 7000 15W50	7000 10W40
Moldavia		7000 10W40	
Norway		7000 10W40 9000 0W40	
Poland		7000 10W40	
Portugal			
Slovakia			
Czech Republic		7000 10W40 9000 0W40	

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Romania	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 7000 15W50 9000 0W40	7000 10W40
Russia		7000 10W40 9000 0W40	
Slovenia			
Sweden			
Switzerland		7000 10W40	
Turkey		7000 10W40 9000 15W50 9000 0W40	

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

LUBRICANTS - TOTAL recommended oils

EUROPE	ENGINE OILS		
	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
Ukraine Yugoslavia	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 9000 0W40	7000 10W40

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

LUBRICANTS - TOTAL recommended oils

OCEANIA	ENGINE OILS		
	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
Australia New Zealand	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40	7000 10W40

AFRICA			
	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
Algeria, South Africa, Ivory Coast, Egypt, Gabon, Ghana, Kenya, Madagascar, Morocco, Nigeria, Senegal, Tunisia	9000 5W40	7000 15W50	7000 10W40

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

LUBRICANTS - TOTAL recommended oils

CENTRAL AND SOUTH AMERICA	ENGINE OILS		
	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
Argentina	9000 5W40	7000 10W40 7000 15W50	7000 10W40
Brazil			
Chile			
Cuba			
Mexico			
Paraguay			
Uruguay			

LUBRICANTS - TOTAL recommended oils

SOUTH-EAST ASIA	ENGINE OILS		
	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
China	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W50 7000 15W50	7000 10W40
South Korea		7000 10W40	
Hong Kong		7000 15W50	
India – Indonesia	9000 5W40		
Japan	9000 5W40 FUTURE 9000 5W30 (*)	7000 10W40 7000 15W50	
Malaysia	9000 5W40	7000 15W50	
Pakistan			

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

LUBRICANTS - TOTAL recommended oils

SOUTH-EAST ASIA	ENGINE OILS		
	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
Philippines	9000 5W40	7000 15W50	7000 10W40
Singapore			
Taiwan		7000 10W40 7000 15W50	
Thailand		7000 15W50	
Vietnam			

LUBRICANTS - TOTAL recommended oils

MIDDLE EAST	ENGINE OILS		
	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
Saudi Arabia – Bahrain Dubai United Arab Emirates	9000 5W40	7000 15W50	7000 10W40
Iran		7000 10W40 7000 15W50	
Israel – Jordan – Kowait Lebanon – Oman – Qatar Syria - Yemen		7000 15W50	

LUBRICANTS - TOTAL recommended oils

GEARBOX OILS

Manual gearbox and SensoDrive	All countries	TOTAL TRANSMISSION BV Norms S.A.E.: 75W80 **Part No.: 9730 A2.**
MB3 automatic gearbox		TOTAL FLUIDE ATX
		TOTAL FLUIDE AT 42 Special oil distributed by CITROËN **Part No .: 9730 A3**
4HP20 and AL4 autoactive automatic gearboxes		Special oil distributed by CITROËN **Part No.: 9736 22**
Transfer box and rear axle		TOTAL TRANSMISSION X4 **Part No.: 9730 A4**

LUBRICANTS - TOTAL recommended oils

POWER STEERING OILS

Power steering	All countries	TOTAL FLUIDE ATX
	Very cold countries	TOTAL FLUIDE DAS Special oil distributed by CITROËN **Part No.: 9730 A1**

ENGINE COOLANT FLUID

		Pack	CITROËN Part No.	
			GLYSANTIN G33	REVKOGEL 2000
All countries	CITROËN fluid Protection: - 35C°	**2** Litres	**9979 70**	**9979 72**
		5 Litres	**9979 71**	**9979 73**
		20 Litres	**9979 76**	**9979 74**
		210 Litres	**9979 77**	**9979 75**

LUBRICANTS - TOTAL recommended oils

BRAKE FLUID
Synthetic brake fluid

		Pack	CITROËN Part No.
All countries	CITROËN fluid	**0,5** Litre	**9979 05**
		1 Litre	**9979 06**
		5 Litres	**9979 07**

HYDRAULIC CIRCUIT

All countries	Norm		Pack	CITROËN Part No.
TOTAL FLUIDE LDS	Colour	**Orange**	**1** Litre	**9979 69**
TOTAL LHM PLUS		**Green**		**ZCP 830095**
TOTAL LHM PLUS Very cold countries				**9979 20**

WARNING: TOTAL FLUIDE LDS fluid cannot be blended with **TOTAL LHM**

WARNING: CITROËN C5: Use exclusively TOTAL FLUIDE LDS suspension fluid.

All countries	**TOTAL HYDRAURINCAGE**

LUBRICANTS - TOTAL recommended oils

SCREEN WASH FLUID

	Pack		CITROËN Part No.		
All countries	Concentrated: **250** ml		**9980 33**	**ZC 9875 953U**	**9980 56**
	Fluid ready for use	**1** Litre	**9980 06**	**ZC 9875 784U**	
		5 Litres	**9980 05**	**ZC 9885 077U**	**ZC 9875 279U**

GREASE
General use

		Norms NLGI
All countries	**TOTAL MULTIS 2**	**2**
	TOTAL SMALL MECHANISMS	

Note: **NLGI** = National Lubricating Grease Institute.

ENGINE OIL CONSUMPTION

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

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

III - MAXIMUM PERMISSIBLE oil consumption for a **RUN-IN** engine.
- **0.5 litres** per **600 miles** (1,000 km) for a **PETROL** engine.
- **1 litre** per **600 miles** (1,000 km) for a **DIESEL** engine.

DO NOT INTERVENE BELOW THESE VALUES.

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

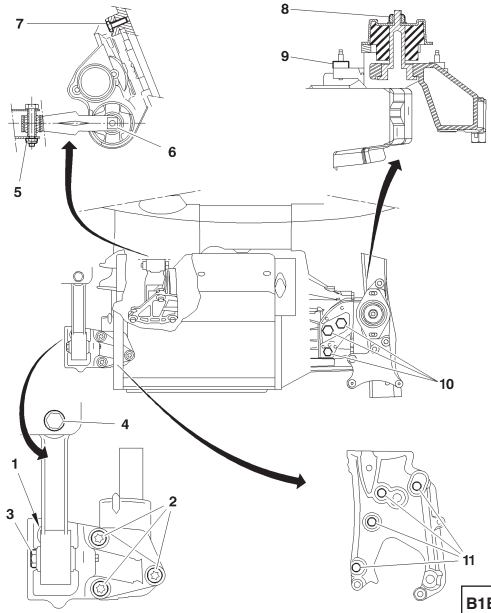
C5 - C8	ENGINE SPECIFICATIONS						
	Engines: 6FZ-RFN-RLZ-3FZ-XFX XFW						
	Petrol						
		C5	C8			C5	C8
	1.8i 16V	2.0i 16V		2.0 Hpi	2.2i 16V	3.0i 24V	
Engine type	6FZ	RFN		RLZ	3FZ	XFX	XFW
Cubic capacity (cc)	1749	1997			2230	2946	
Bore / Stroke	82,7/81,4	85/88			86/96	87/82,6	
Compression ratio	10,8/1			11,5/1	10,8/1	10,9/1	
Power ISO or EEC KW - rpm	85-5500	100-6000		103-6000	116-5650	152-6000	150-6000
Power DIN (HP - rpm)	117-5500	136-6000	138-6000	143-6000	160-5650	210-6000	204-6000
Torque ISO or EEC (m.daN - rpm)	16-4000	19-4100		19,2-4100	21,7-3900	28,5-3750	

ENGINE SPECIFICATIONS								C5 - C8
	Engines: RHY-RHS-RHZ-RHT-RHM-RHW-4HX-4HW							
	Diesel							
	2.0 HDi			2.0 16V HDi			2.2 HDi	
Engine type	**RHY**	**RHS**	**RHZ**	**RHT**	**RHM**	**RHW**	**4HX**	**4HW**
Cubic capacity (cc)	1997						2179	
Bore / Stroke	85/88						86/96	
Compression ratio	17,6/1			17,3/1			17,6/1	
Power ISO or EEC KW - rpm	66-4000	79-4000	80-4000	79-4000		80-4000	98-4000	94-4000
Power DIN (HP - rpm)	90-4000	107-4000	110-4000	110-4000			136-4000	130-4000
Torque ISO or EEC (m.daN - rpm)	20,5-1900	25-1750		27-1750			31,4-2000	

C5	COMPRESSION RATIO - DIESEL ENGINES

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

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C5



Engines: 6FZ RFN RLZ	
(1)	: 4,5 ± 0,5
(2)	: 6,1 ± 0,6
(3)	: 5 ± 0,5
(4)	: 5 ± 0,5
(5)	: 5 ± 0,5
(6)	: 5 ± 0,5
(7)	: 4,5 ± 0,5
(8)	: 6,5 ± 0,6
(9)	: 2,7 ± 0,3
(10)	: 4,5 ± 0,5
(11)	: 4,5 ± 0,5

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engines: 6FZ RFN RLZ

	Crankshaft
Accessories drive pulley	**2,1 ± 0,1**
(1st solution) Fitting with washer in sintered steel (*)	
Accessories drive pulley hub	
Pre-tightening	**4**
Angular tightening	**40° ± 4°**
(2nd solution) Fitting with washer in steel.(*)	
Accessories drive pulley hub	
Pre-tightening	**4**
Angular tightening	**53°± 5°**
Con rod cap screws	
Pre-tightening	**2,3 ± 0,2**
Tightening	**46° ± 0,3°**
Bearing cap screws	
Pre-tightening	**2 ± 0,1**
Tightening	**60° ± 0,5°**

(*) = The washer in sintered steel is of metallic appearance, whereas the washer in steel is of golden appearance.

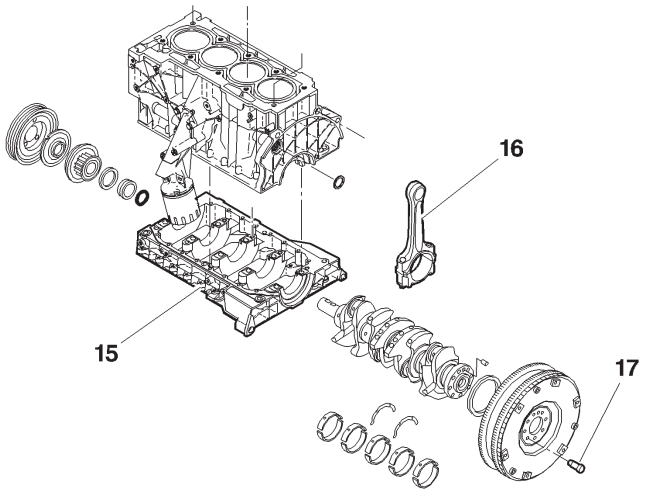
SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)		C5
Engines: 6FZ RFN RLZ		
	6FZ - RFN	RLZ
	Cylinder block	
Sump	0,8 ± 0,2	
Timing belt tensioner roller	3,7 ± 0,3	
Timing belt tensioner roller	2,1 ± 0,2	
Accessories belt guide roller	3,5 ± 0,3	
Accessories belt tensioner roller	2 ± 0,2	
	Cylinder head	
Camshaft bearing covers	0,9 ± 0,1	
Exhaust manifold	3,5 ± 0,3	
Valve cover	1,1 ± 0,1	
Magnesium valve cover		0,9 ± 0,1
Camshaft pulley hub	7,5 ± 0,7	
Hollow screw for camshaft dephaser (VTC)		5,5 ± 0,5
Exhaust camshaft pulley screw		7,5 ± 0,7

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	
Engines: 6FZ RFN RLZ		
	6FZ - RFN	RLZ
	Flywheel - Clutch	
Flywheel		
Tightening	2 ± 0,2	
Angular tightening	21° ± 3°	
Clutch mechanism	2 ± 0,2	
	Lubrication circuit	
Oil pump	0,9 ± 0,1	
	Diesel injection circuit	
Common injection rail fixing screw	0,9 ± 0,1	0,8 ± 0,1
Pressure sensor on common injection rail		2 ± 0,2
Regulation electrovalve on common injection rail		0,7 ± 0,1
High pressure petrol injection pump		0,5 ± 0,1
High pressure link pipe		2,6 ± 0,3
	Cooling circuit	
Coolant pump	1,4 ± 0,1	
Coolant outlet housing	0,9 ± 0,1	

SPECIAL FEATURES: TIGHTENING TORQUES

C8

Engines: RFN – 3FZ



B1BK1X8D

Crankshaft bearing cap cover (15)

Description	M11	M6
Pre-tightening	1 ± 0,1	0,5
Slackening	Yes	No
Re-tightening	1 ± 0,1 then 2 ± 0,2	1 ± 0,1
Angular tightening	70° ± 5°	

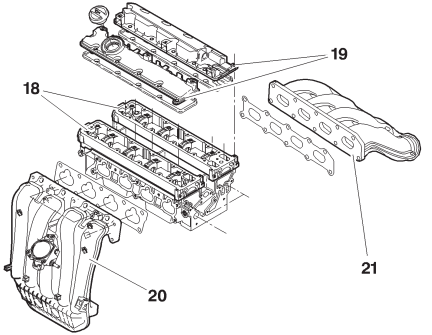
Crankshaft

Description	(16) Con-rod caps	(17) Flywheel/ crankshaft fixing
Pre-tightening	1 ± 0,1	2,5 ± 0,2
Slackening	Yes	18° ± 1°
Re-tightening	2,5 ± 0,2	1 ± 0,1
Angular tightening	46° ± 5°	22° ± 2°

C8	SPECIAL FEATURES: TIGHTENING TORQUES

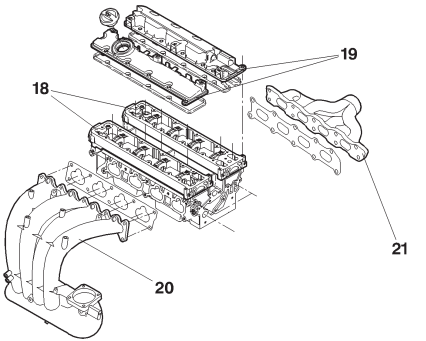
Equipment on cylinder head

Engine: RFN



B1BK1X9D

Engine: 3FZ

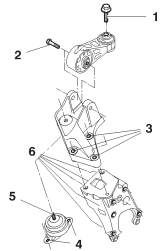


B1BK1XAD

Description	(18) Camshaft bearing cap covers	(19) Valve covers
Pre-tightening	0,5	0,5
Tightening	1 ± 0,1	1,5 ± 0,1
Description	**(20) Inlet manifold**	**(21) Exhaust manifold**
Tightening	1 ± 0,1	3,5 ± 0,3

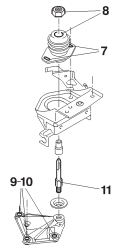
SPECIAL FEATURES: POWER UNIT SUSPENSION — C8

Upper RH engine support



B1BK1X5D

Intermediate engine support



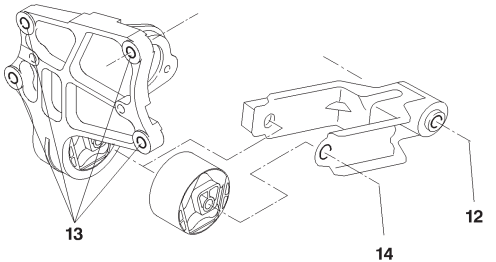
B1BK1X6D

Engines: RFN 3FZ

Ref.	Description	RFN		3FZ
	Gearbox type	BE4/5	AL4	ML5C
(1)	Rod/body fixing screw.	5 ± 0,5		
(2)	Engine support/torque reaction rod flexible stop pin	4,5 ± 0,4		
(3)	Upper support/intermediate support fixing screw.	6,5 ± 0,6		
(4)	Upper support/body fixing screw	3 ± 0,3		
(5)	Upper support/flexible support fixing nut.	4,5 ± 0,4		
(6)	Support			
(7)	LH flexible support/LH engine support fixing nut.	6,5 ± 0,6		
(8)	LH flexible support/body fixing screw.	3 ± 0,3		
(9)	Intermediate engine support/gearbox casing fixing screw.		4,5 ± 0,4	
(10)	LH intermediate support/gearbox fixing screw.	6 ± 0,6		4,5 ± 0,4
(11)	Flexible support pin.	5 ± 0,5		

C8 SPECIAL FEATURES: POWER UNIT SUSPENSION

Intermediate engine support

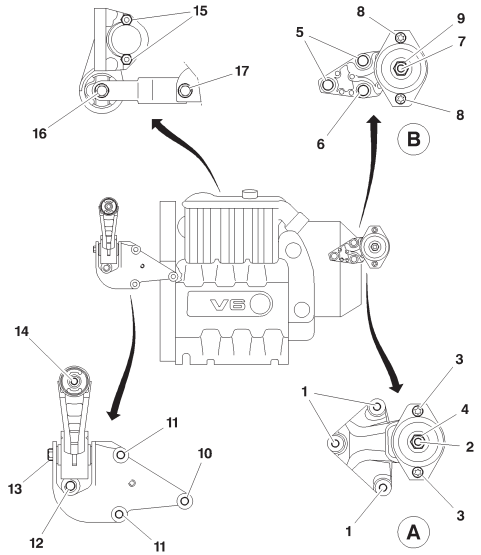


B1BK1X7D

Engines: RFN 3FZ

Ref.	Description	RFN		3FZ
	Gearbox type	BE4/5	AL4	ML5C
(12)	Lower RH rod/subframe fixing screw.	9 ± 0,9		
(13)	Lower RH engine support/cylinder block fixing screw.	4,5 ± 0,4		
(14)	Lower rod/lower RH engine support fixing screw	6,5 ± 0,6		

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C5



Engine: XFX

LH engine support.

(A) Manual gearbox		(B) Automatic gearbox	
(1)	: 4,5 ± 0,5	(5)	: 6 ± 0,6
(2)	: 5 ± 0,5	(6)	: 5,5 ± 0,5
(3)	: 3 ± 0,3	(7)	: 0,8 ± 0,1
(4)	: 6,5 ± 0,6	(8)	: 2,7 ± 0,3
		(9)	: 2,8 ± 0,1

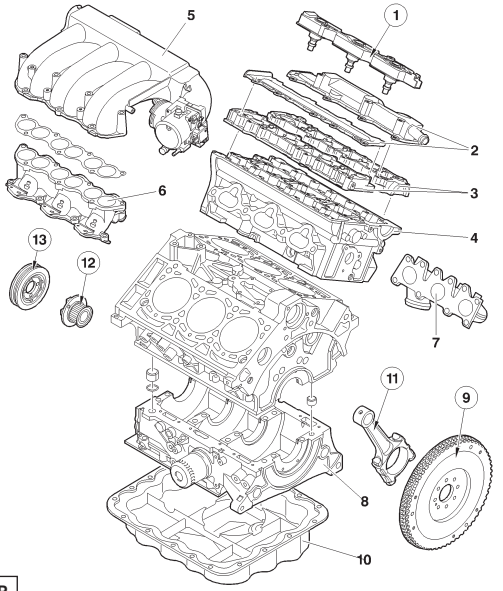
Upper RH engine support

(10) and (11)	: 6,1 ± 0,6
(12)	: 4,5 ± 0.,5
(13)	: 5 ± 0,5
(14)	: 5 ± 0,5

Lower RH engine support – Torque reaction rod

(15)	: 1 ± 0,1
(16)	: 5 ± 0,5
(17)	: 5 ± 0,5

C5	SPECIAL FEATURES: TIGHTENING TORQUES



B1BP1HAP

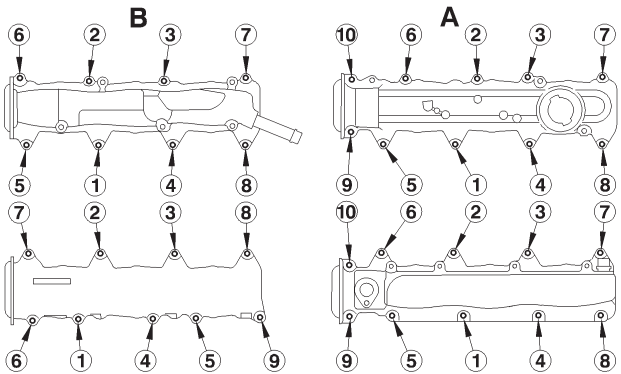
Engine: XFX

(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**

SPECIFIC FEATURES: TIGHTENING TORQUES (m.daN)	C5

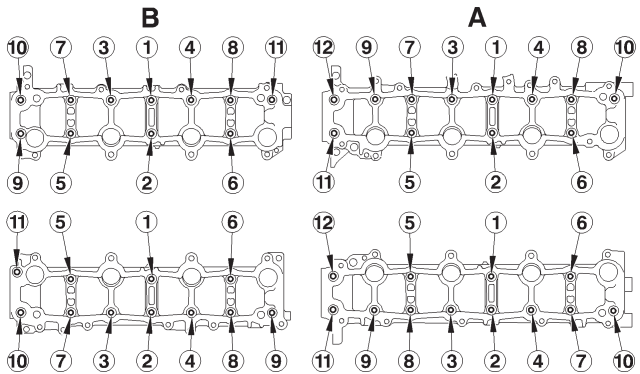
Engine: XFX

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



B1DP08UD

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



B1DP08TD

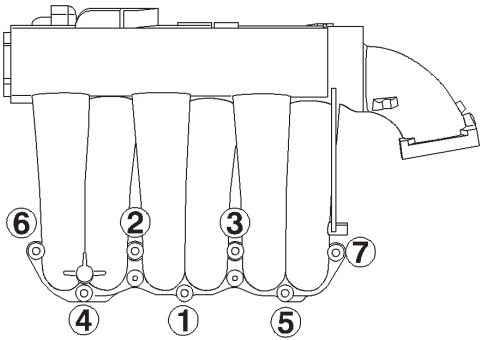
WARNING: Tighten screw by screw in the order shown.

- Pre-tighten:	**0,5**	- Pre-tighten:	**0,2**
- Tighten:	**1 ± 0,1**	- Tighten:	**0,8**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFX

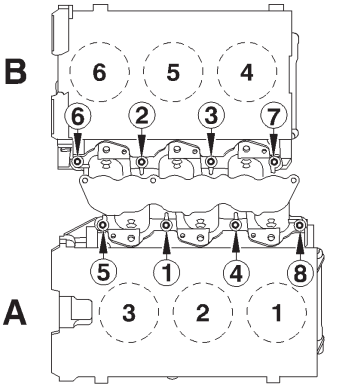
- 5 Air inlet manifold



B1HP0LJC

- Pre-tighten:	**1 ± 0,1**
- Tighten:	**2 ± 0,2**

- 6 Lower manifold (A) Front cyl. head (B) Rear cyl. head



B1DP097C

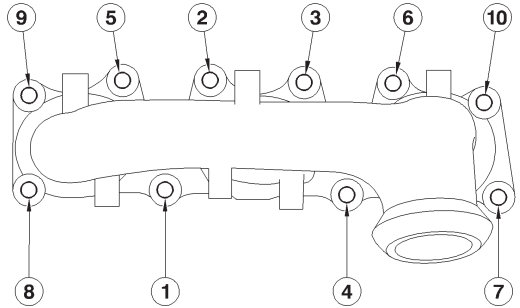
WARNING: Tighten screw by screw in the order shown.

- Pre-tighten:	**1 ± 0,1**
- Tighten:	**2,5 ± 0,2**

SPECIFIC FEATURES: TIGHTENING TORQUES (m.daN)	C5

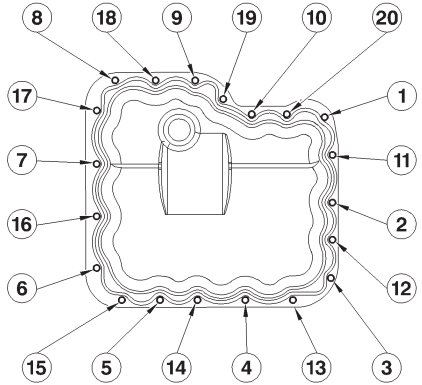
Engine: XFX

- 7 Exhaust manifold (NEW gasket)



B1BP1GXD

- 10 Oil sump

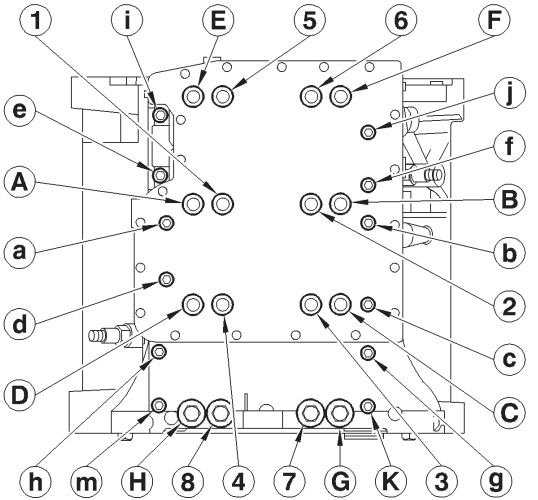


B1BP1GZD

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 ±**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)



B1BP1GYD

Engine: XFX

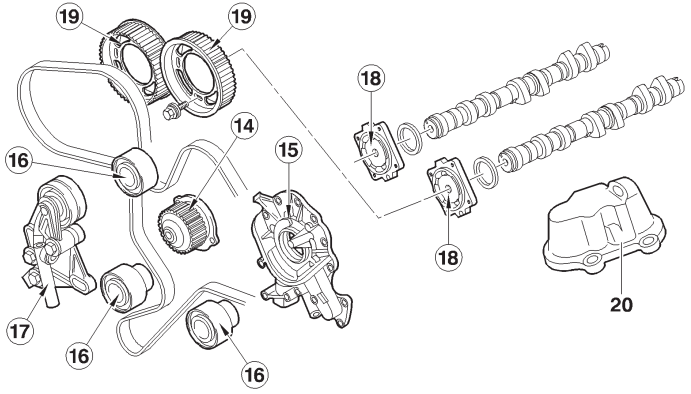
- 8 Crankshaft bearing

- 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) | C5



B1BP1HBD

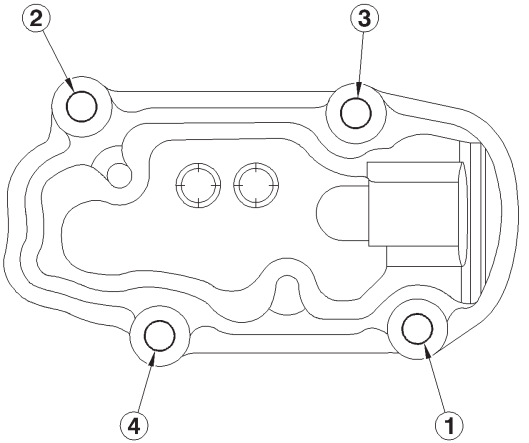
Engine: XFX

(14) Coolant 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**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFX

- 20 Oil vapour recovery housing.



B1BP1H1D

WARNING: Tighten screw by screw in the order shown.

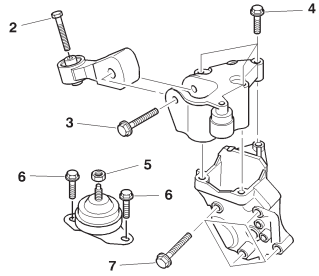
- Pre-tighten	**0.5 ±**
- Tighten	**1 ± 0,1**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

Engine: XFW

Power unit suspension

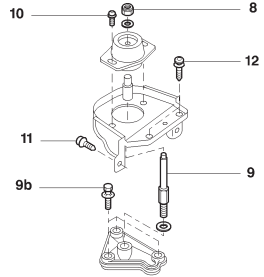
RH engine support (Suspension)



B1BK24RD

(2) Link rod fixing : **5 ± 0,5**
(3) Link rod fixing : **4,5 ± 0,4**
(4) Fixing of upper RH engine support on intermediate engine support flexible mounting : **6 ± 0,6**
(5) Fixing of RH engine support on flexible mounting : **4,5 ± 0,4**
(6) Fixing of flexible mounting : **3 ± 0,3**
(7) Fixing of RH intermediate engine support on cylinder block : **6 ± 0,6**

Gearbox suspension



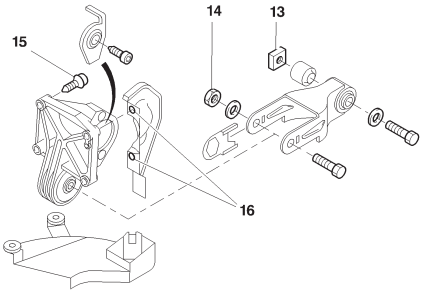
B1BK24SD

(8) Fixing of gearbox support on LH flexible mounting : **6,5 ± 0,6**
(9) Shaft : **6,5 ± 0,6**
(10) Fixing of flexible mounting on support : **3 ± 0,3**
(11) Fixing of flexible mounting support on body : **2,5 ± 0,2**
(12) Fixing of flexible mounting support on body : **2,5 ± 0,2**

C8	SPECIAL FEATURES: TIGHTENING TORQUES

Engine: XFW

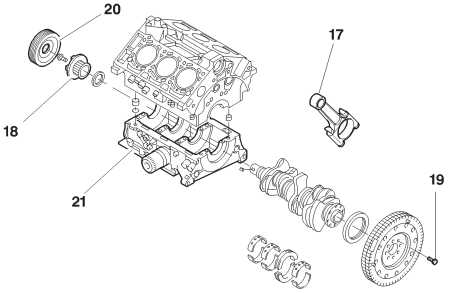
Power unit suspension – Engine support (Lower)



B1BK24TD

(13) Torque reaction link rod fixing	**: 9 ± 0,9**
(14) Fixing of link rod on torque reaction flexible mounting	**: 6,5 ± 0,6**
(15) Fixing of torque reaction flexible mounting	**: 4,5 ± 0,4**
(16) Fixing of heat shield on torque reaction flexible mounting	**: 1 ± 0,1**

Crankshaft



B1BK24UD

(17) Bearing cap	Tightening	**: 2 ± 0,2**
	Angular tightening	**: 74° ± 7°**
(18) Timing pinion	Tightening	**: 4 ± 0,4**
	Angular tightening	**: 80° ± 8°**
(19) Fixing of starter gear support flange, plus crankshaft converter support	Tightening	**: 2 ± 0,2**
	Angular tightening	**: 60° ± 6°**
(20) Accessory pulley on timing pinion		**: 2,5 ± 0,2**

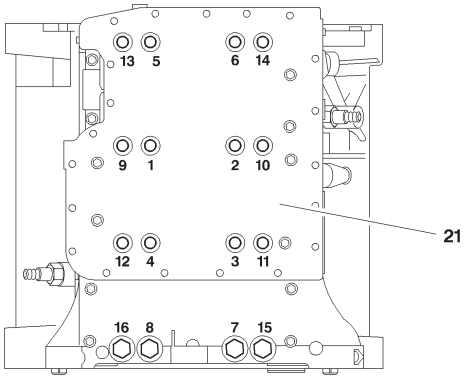
SPECIAL FEATURES: TIGHTENING TORQUES

C8

Engine: XFW

Cylinder block

Bearing cap cover



Respect the sequence of stages and the order of tightening

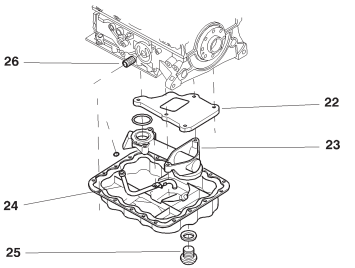
Reference/description	M11 Bolts from 1 to 8	M8 Bolts from 9 to 16	M6
(21) Fixings of bearings/cap covers or bearings/caps	**Stage 1** 3 ± 0,3	**Stage 2** 1 ± 0,1	**Stage 3** 1 ± 0,1
(21) Fixings of bearings/cap covers or bearings/caps (Slacken **to zero torque.**)	**Stage 4** YES	**Stage 4** YES	NO
(21) Fixings of bearing cap cover or bearing caps (Tighten **bolt by bolt**) Tightening + Angular tightening	**Stage 5** 3 ± 0,3 180°	**Stage 6** 1 ± 0,1 180°	

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFW

Lubrication circuit

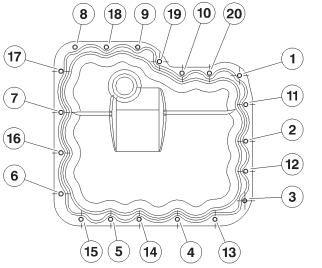
Lubrication circuit.



B1BK24WD

(22) Oil separator	**: 0,8**
(23) Strainer	**: 0,8**
(24) Induction pipe	**: 0,8**
(25) Drain plug	**: 3 ± 0,3**
(26) Oil filter sleeve (with coolant/oil exchanger)	**: 0,5**
Oil filter	**: 0,2**

Oil sump



B1BK24XD

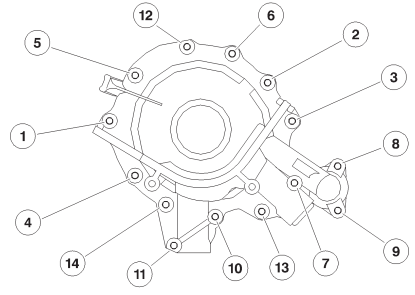
Respect the sequence of stages and the order of tightening

Stage 1: Do up bolts 13,15 and 17.
Stage 2: Tighten bolts 13,15 and 17 to **: 0,2**
Stage 3: Do up the 17 remaining bolts.
Stage 4: Tighten the remaining bolts to **: 0,5**
Stage 5: Tighten all the bolts **: 0,8**
Stage 6: Repeat the tightening a few times in the same order to obtain a tightening torque of **0,8 m.daN** on all the bolts.

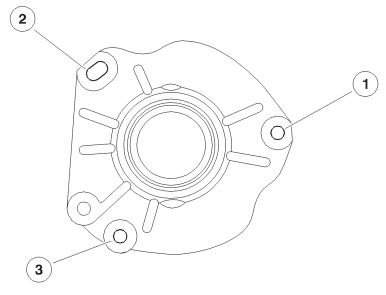
SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C8

Engine: XFW

Lubrication circuit	Cooling circuit
Oil pump	**Coolant pump**



B1BK3B6D



B1BK3B7D

Respect the sequence of stages and the order of tightening

Stage 1: Position the screws and do them up by hand.
Stage 2: Pre-tighten the screws **: 0,5**
Stage 3: Tighten the screws **: 0,8**
Stage 4: Repeat the tightening a few times in the same order to obtain a tightening torque of **0,8 m.daN** on all the screws.

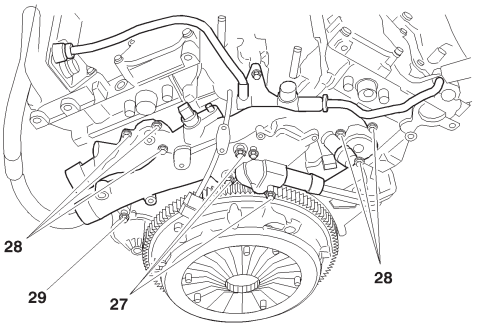
Stage 1: Position the screws and do them up by hand.
Stage 2: Pre-tighten the screws **: 0,5**
Stage 3: Tighten the screws **: 0,8**
Stage 4: Repeat the tightening a few times in the same order to obtain a tightening torque of **0,8 m.daN** on all the screws.

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFW

Lubrication circuit

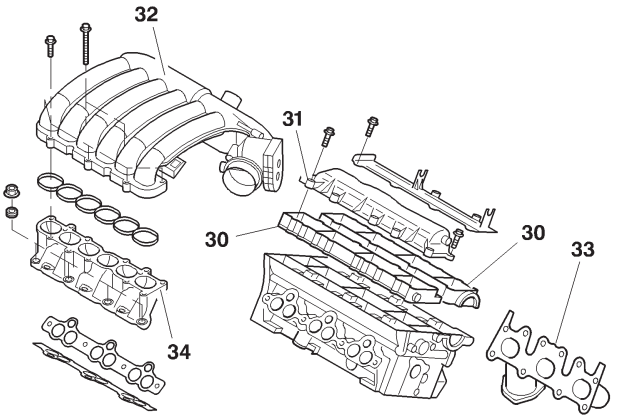
Coolant manifold



B1BK24YD

(27) Screws	**: 2,5 ± 0,2**
(28) Screws	**: 0,8**
(29) Screw	**: 0,8**

Cylinder head equipment



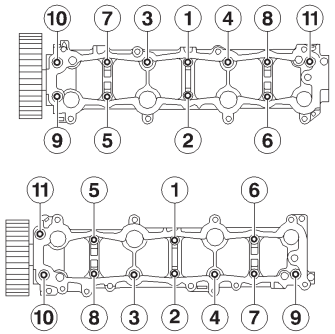
B1BK24ZD

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C8

Engine: XFW

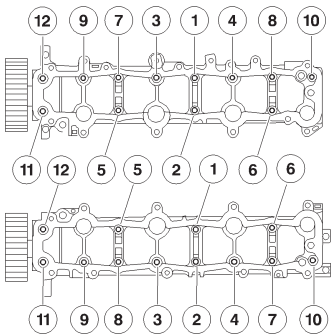
Cylinder head equipment

Camshaft bearing cap cover (right hand side)



B1EK0GCC

Camshaft bearing cap cover (left hand side)



B1BK3B8D

Respect the sequence of stages and the order of tightening

(30) Camshaft bearing cap cover or camshaft bearing:

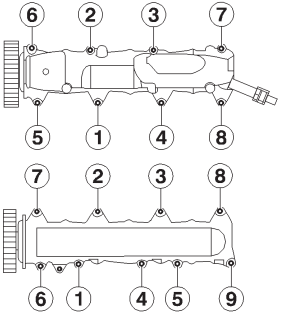
Pre-tighten to	**: 0,2**
Tighten to	**: 1**

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFW

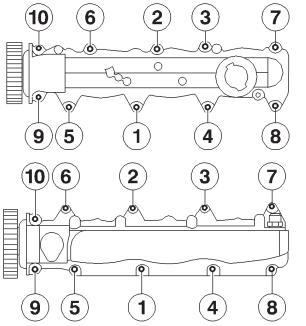
Cylinder head equipment

Valve covers (right hand side)



B1EK0GEC

Valve covers (left hand side)



B1EK0GFC

Respect the sequence of stages and the order of tightening

(31) Valve cover:

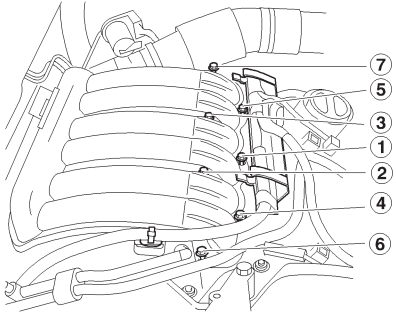
Pre-tighten to	**: 0,5**
Tighten to	**: 0,8**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C8

Engine: XFW

Cylinder head equipment

Inlet manifold



B1BK251D

Respect the sequence of stages and the order of tightening

(32) Inlet manifold:

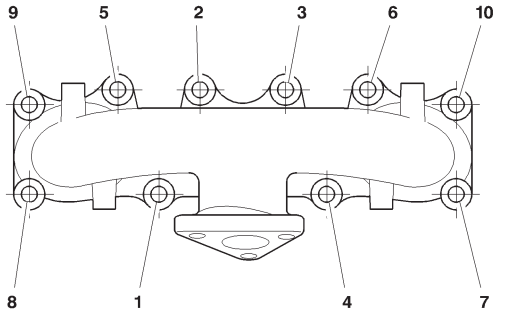
Pre-tighten to	**: 0,4**
Tighten to	**: 0,8**

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: XFW

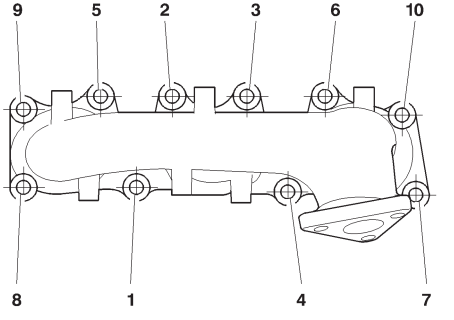
Cylinder head equipment

Exhaust manifold (right hand side)



B1JK03ND

Exhaust manifold (left hand side)



B1JK03LD

Respect the sequence of stages and the order of tightening

(33) Exhaust manifold:

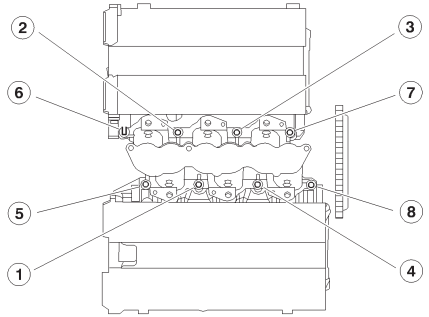
Pre-tighten to	**: 1**
Tighten to	**: 3 ± 0,3**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C8

Engine: XFW

Cylinder head equipment

Inlet distributor



B1BK252D

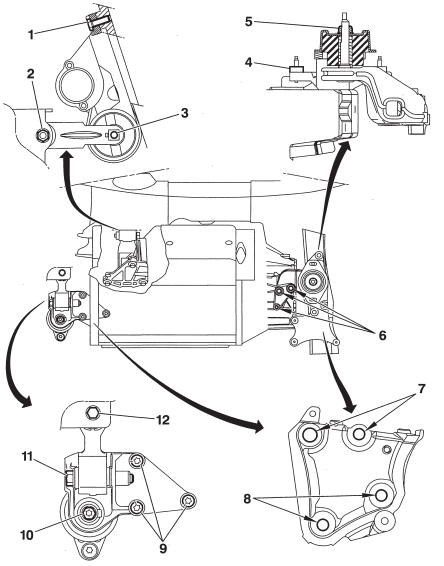
Respect the sequence of stages and the order of tightening

(34) Inlet distributor:

Pre-tighten to	**: 0,4**
Tighten to	**: 0,8**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: RHY



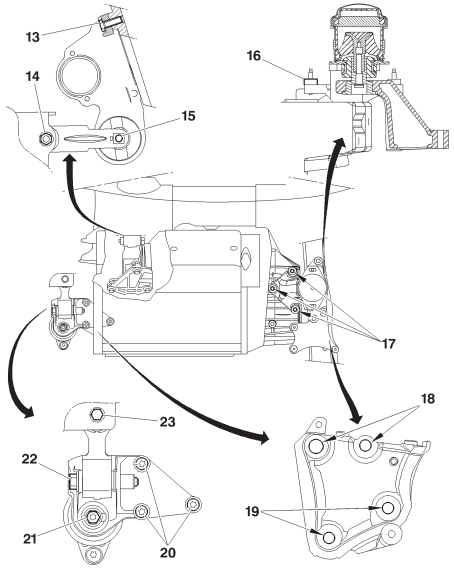
B1BP27KP

Tightening torques

(1)	4,5 ± 0,5
(2)	5 ± 0,5
(3)	5 ± 0,5
(4)	2,7 ± 0,3
(5)	6,5 ± 0,6
(6)	4,5 ± 0,5
(7)	2,1 ± 0,2
(8)	4,5 ± 0,5
(9)	6,1 ± 0,6
(10)	4,5 ± 0,5
(11)	5 ± 0,5
(12)	5 ± 0,5

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C5

Engines: RHS RHZ



B1BP27LP

Tightening torques

(13)	4,5 ± 0,5
(14)	5 ± 0,5
(15)	5 ± 0,5
(16)	2,7 ± 0,3
(17)	4,5 ± 0,5
(18)	2,1 ± 0,2
(19)	4,5 ± 0,5
(20)	6,1 ± 0,6
(21)	4,5 ± 0,5
(22)	5 ± 0,5
(23)	5 ± 0,5

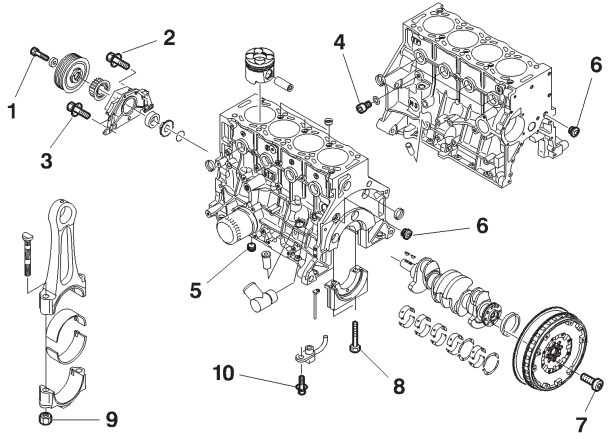
C5	SPECIAL FEATURES: TIGHTENING TORQUES	
Engines: RHY RHZ RHS		
	Crankshaft	
Bearing cap fixing screws Pre-tightening Angular tightening	**2,5 ± 0,2** **60°**	
Con rod nuts Pre-tightening Angular tightening	**2 ± 0,2** **70°**	
Accessories drive pulley Pre-tightening Angular tightening	**RPO → 8631** **4 ± 0,4** **51°**	**RPO 8631 →** **5 ± 0,5** **62° ± 5°**
	Cylinder block	
Piston skirt spray jet	**1 ± 0,1**	
Sump	**1,6 ± 0,2**	
Timing belt guide roller	**2,5 ± 0,2**	
Timing belt tensioner roller	**2,5 ± 0,2**	

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C5
Engines: RHY RHZ RHS	
	Cylinder head
Camshaft bearing covers	**1 ± 0,1**
Exhaust manifold	**2 ± 0,2**
Valve cover	**0,8 ± 0,1**
Camshaft pulley	**4,3 ± 0,5**
Hub pulley	**2 ± 0,2**
	Flywheel - Clutch
Flywheel	**4,8 ± 0,5**
Clutch mechanism	**2 ± 0,2**
	Lubrication circuit
Oil pump	**1,3 ± 0,1**
Coolant/oil hear exchanger	**5,8 ± 0,5**
Turbocharger lubrication pipe Engine end Turbocharger end	 **3 ± 0,3** **2 ± 0,2**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)
Engines: RHY RHZ RHS	
	Diesel injection circuit
Injector fixing flange nut	3 ± 0,3
Union on high pressure common injection rail	2 ± 0,2
Injection pump on support	2,25 ±0,3
Union on diesel injection	2,2 ± 0,2
Injection pump pulley	5 ± 0,5
Union on fuel high pressure pump	2,2 ± 0,2
	Cooling circuit
Coolant pump	1,5 ± 0,1
Coolant inlet housing	2 ± 0,2

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

Engines: RHW RHT RHM



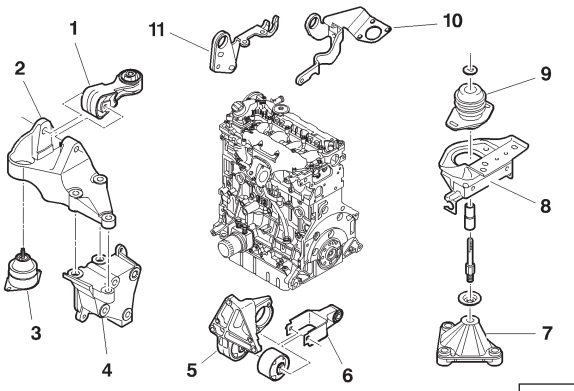
B1BK3EPD

	Crankshaft	
(1)	**Pulley screw M14x150-70** Pre-tightening Angular tightening	 **5 ± 0,5** **62°**
(2)	**Screw M7x100-20 (x 4)** Pre-tightening Tightening	 **0,7 ± 0,1** **1,5 ± 0,1**
(3)	**Screw M7x100-40 (x 2) (*)** Pre-tightening Tightening	 **0,7 ± 0,1** **1,5 ± 0,1**
(4)	**Plug CHC M12x150-16 (x 1)**	**2,5 ± 0,2**
(5)	**Plug M15x150 (x 1)**	**2,5 ± 0,2**
(6)	**Plugs M15x150 (x 2)**	**4 ± 0,4**
(7)	**Screw M9x100-24 (+loctite FRENETANCH) (x8)**	**4,8 ± 0,5**
(8)	**Screw M12x150-81 (x10)** Pre-tightening Angular tightening (**)	 **2,5 ± 0,2** **60°**
(9)	**Nut M9x100 (x8)** Pre-tightening Angular tightening	 **2 ± 0,2** **70°**
(10)	**Screw M16x10-16 (x4)**	**1 ± 0,1**

(*) = Re-use prohibited.
(**) = Tighten in a spiral commencing from the inside.

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engines: RHW RHT RHM

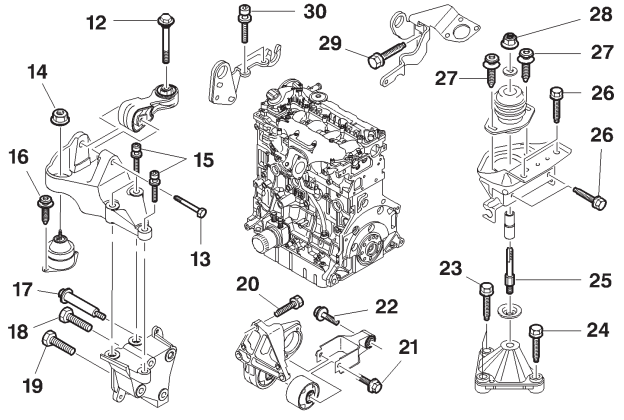


B1BK3EED

	Engine suspension (identification)
(1)	Upper RH torque reaction rod
(2)	Upper RH engine support
(3)	RH engine flexible support
(4)	Upper RH intermediate engine support
(5)	Lower RH engine support
(6)	Torque reaction rod
(7)	Upper LH intermediate engine support
(8)	LH engine support
(9)	LH engine flexible support
(10)	Lifting attachment, flywheel end
(11)	Lifting attachment, timing end

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

Engines: RHW RHT RHM

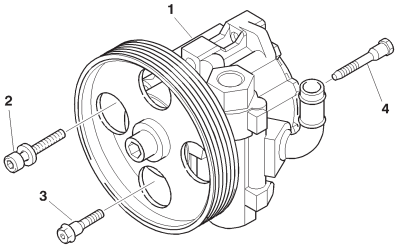


B1BK3EDD

Engine suspension (Tightening torques)		
(12)	Spherical-base screw M10x150-75 **(x 1)**	**5 ± ,05**
(13)	Shaft screw **(x 1)**	**4,5 ± 0,4**
(14)	Nut M10x150 **(x 1)**	**4,5 ± 0,4**
(15)	Screw M10x150-60 **(x 3)**	**6 ± 0,6**
(16)	Screw M8x125-25 **(x 2)**	**3 ± 0,3**
(17)	Shouldered shaft screw M8x125-15 **(x 1)**	**2 ± 0,2**
(18)	Locking screw M10x125-85 **(x 1)**	**4,5 ± 0,4**
(19)	Locking screw M10x125-70 **(x 2)**	**4,5 ± 0,4**
(20)	Spherical-base screws M10x150-35 **(x 3)**	**4,5 ± 0,4**
(21)	Spherical-base screws M10x150-72 **(x 1)**	**6,5 ± 0,6**
(22)	Spherical-base screws M12x175-60 **(x 1)**	**9 ± 0,9**
(23)	Nut M10x150 **(x 1)**	**4,5 ± 0,4**
(24)	Screw M10 x150-55 **(x 2)**	**4,5 ± 0,4**
(25)	Support shaft **(x 1)**	**5 ± 0,5**
(26)	Screw M8x125-25 **(x 4)**	**2,5 ± 0,2**
(27)	Screw M8x125-25 **(x 2)**	**3 ± 0,3**
(28)	Locking nut M12x175-18 **(x 1)**	**6,5 ± 0,6**
(29)	Screw M8x125-25 **(x 1)**	**1,5 ± 0,1**
(30)	Screw M6x100-20 **(x 2)**	**1,2 ± 0,1**

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

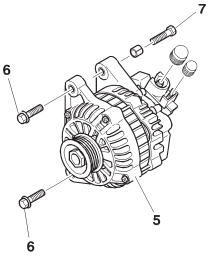
Engines: RHW RHT RHM



B1BK3E8D

Power steering pump		
(1)	Power steering pump	
(2)	Screw M8x125-30 **(x 1)**	**2,5 ± 0,2**
(3)	Shouldered shaft screw M8x125-22 **(x 1)**	**2,2 ± 0,2**
(4)	Shouldered shaft screw M8x125-48 **(x 1)**	**2,2 ± 0,2**

NOTE: Tighten the fixings **(2)** and **(3)** before the fixing **(4)**, to ensure that the auxiliary drive belt is correctly aligned.



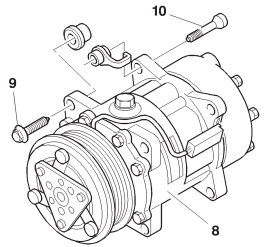
B1BK3E7D

Alternator		
(5)	Alternator	
(6)	Spherical-base screw M10 x150-50 **(x 2)**	**4,1 ± 0,4**
(7)	Screw M10x150-40 **(x 1)**	**3,9 ± 0,4**

NOTE: Tighten the fixings **(6)** before the fixing **(7)**, to ensure that the auxiliary drive belt is correctly aligned.

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

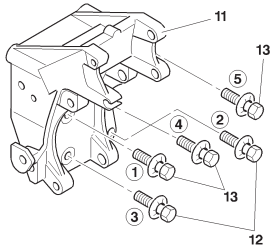
Engines: RHW RHT RHM



B1EK3E9D

Air conditioning compressor		
(8)	Air conditioning compressor	
(9)	Spherical-base screw M10x150-60 **(x 1)**	**4 ± 0,4**
(10)	Shouldered shaft screw M10x150-52 **(x 2)**	**4,2 ± 0,4**

NOTA: Tighten the fixing **(9)** before the fixing **(10)**, to ensure that the auxiliary drive belt is correctly aligned.



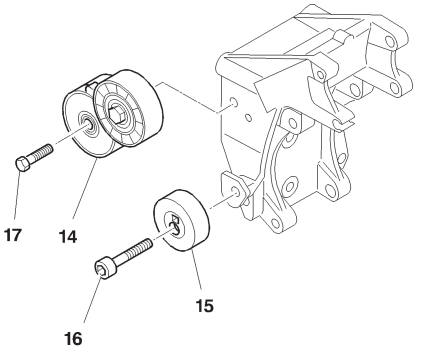
B1EK3EAD

Accessories support		
(11)	Power steering pump support	
(12)	Spherical-base screw M8 x125-35 **(x 2) (*)**	
	Pre-tightening	**1 ± 0,1**
	Tightening	**2 ± 0,2**
(13)	Screws M8x125-80 **(x 1) (*)**	
	Pre-tightening	**1 ± 0,2**
	Tightening	**2 ± 0,2**

(*) = In the order indicated (1 to 5)

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engines: RHW RHT RHM

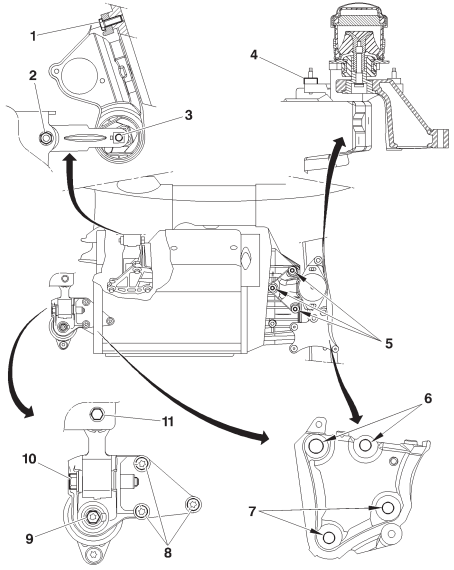


B1BK3EWD

Guide roller		
(14)	Dynamic tensioner roller	
(15)	Eccentric guide roller	
(16)	Screw M10x150-50 **(x 1)** Pre-tightening Tightening	 **1 ± 0,1** **4,3 ± 0,4**
(17)	Screw M8x150-60 **(x 1)** Pre-tightening Tightening	 **2 ± 0,2** **4,5 ± 0,4**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C5

Engine: 4HX



B1BP284P

Tightening torques

(1)	4,5 ± 0,5
(2)	5 ± 0,5
(3)	5 ± 0,5
(4)	2,7 ± 0,3
(5)	4,5 ± 0,5
(6)	2,1 ± 0,2
(7)	4,5 ± 0,5
(8)	6,1 ± 0,6
(9)	4,5 ± 0,5
(10)	5 ± 0,5
(11)	5 ± 0,5

C5	SPECIAL FEATURES: TIGHTENING TORQUES

Engine: 4HX

	Crankshaft
Crankshaft bearing cap screws	
Pre-tightening	**2,5 ± 0,2**
Angular tightening	**60°**
Con rod cap screws	
Tighten	**1 ± 0,1**
Slacken	**180°**
Tighten	**2,3 ± 0,1**
Angular tighten	**46° ± 5°**
Auxiliary drive belt pulley	
Tightening	**7 ± 0,25**
Angular tightening	**60° ± 5°**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C5
Engine: 4HX	
	Cylinder block
Piston skirt spray jets	**1 ± 0,1**
Sump	
Pre-tightening	**1 ± 0,1**
Tightening	**1,6 ± 0,3**
Timing belt guide roller	
Pre-tightening	**1,5 ± 0,1**
Tightening	**4,3 ± 0,4**
Timing belt tensioner roller	**2,5 ± 0,2**
RH engine support	
Pre-tighten **the 4 screws**	**1 ± 0,1**
Tighten the screw **Ø 8**	**2 ± 0,2**
Tighten the screws **Ø 10**	**4,5 ± 0,2**

C5	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

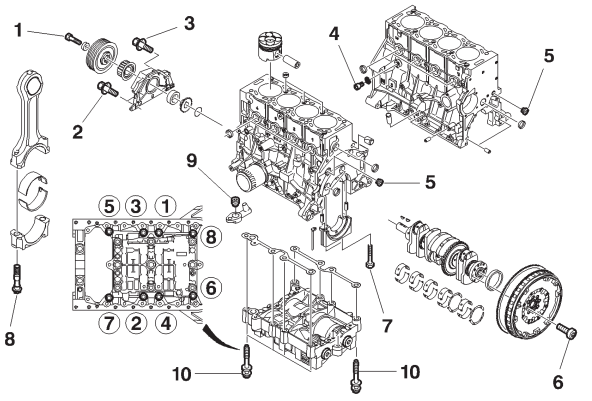
Engine: 4HX

	Cylinder head
Camshaft bearing cap cover	
Tighten	**1 ± 0,1**
Pre-tighten the **28 screws Ø 6**	**6 ± 0,5**
Tighten the **28 screws Ø 6**	**1 ± 0,1**
Exhaust manifold	
Pre-tighten the **8 nuts**	**1,5 ± 0,1**
Tighten the **8 nuts**	**0,3 ± 0,3**
Valve cover	
Pre-tighten the **13 screws**	**0,5 ± 0,15**
Tighten the **13 screws**	**9 ± 0,1**
Camshaft pulley hub	**4,3 ± 0,4**
Pulley on hub	**2 ± 0,2**
	Flywheel - Clutch
Flywheel	
Pre-tighten	**1,5 ± 0,1**
Tighten	**4,7 ± 0,4**
Clutch mechanism	**2 ± 0,2**

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)	C5
Engine: 4HX	
	Lubrication circuit
Oil pump	
Pre-tighten	**0,7**
Tighten	**0,9 ± 0,1**
Coolant/oil heat exchanger	**5,8 ± 0,5**
Turbocharger lubrication tube	
Engine end	**3 ± 0,3**
Turbocharger end	**2 ± 0,2**
	Diesel injection circuit
Diesel injector	
Do up the **2 nuts**	**By hand**
Tighten	**4 ± 0,3**
Angular tighten	**45° ± 5°**
Union on injection rail	**2 ± 0,2**
Injection pump on support	**2,25 ±0,3**
Union on diesel injector	**2 ± 0,2**
Injection pump pulley	**5 ± 0,5**
Union on injection pump	**2 ± 0,2**
	Cooling circuit
Coolant pump	**1,6 ± 0,3**
Coolant inlet housing	**2 ± 0,2**

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: 4HW



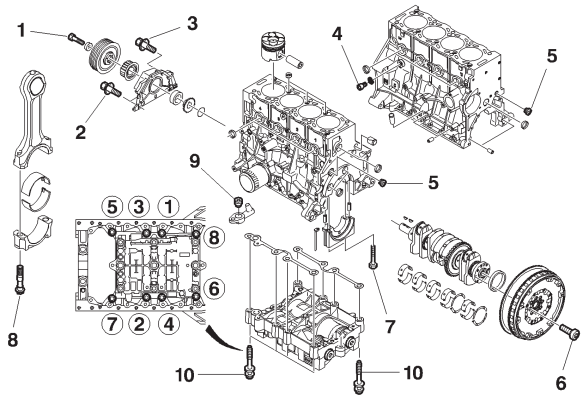
B1BK3EMD

	Crankshaft	
(1)	**Pulley screw M14x150-70** Pre-tightening Angular tightening	 **7 ± 0,5** **82°**
(2)	**Screw M7x100-40 (x 2) (*)** Pre-tightening Tightening	 **0,7 ± 0,1** **1,5 ± 0,1**
(3)	**Screw M7x100-20 (x 4)** Pre-tightening Tightening	 **0,7 ± 0,1** **1,5 ± 0,1**
(4)	**Plug CHC M12x150-16 (x 1)**	**2,5 ± 0,2**
(5)	**Plugs M15x150 (x 2)**	**4 ± 0,4**
(6)	**Screw M9x100-24 (+loctite FRENETANCH) (x8)** Pre-tighten Tighten	 **1,5 ± 0,1** **5 ± 0,5**
(7)	**Screw M12x150-81 (x10) (**)** Pre-tighten Tighten Angular tighten	 **1 ± 0,1** **2,5 ± 0,2** **60°**

(*) = Re-use prohibited.
(**) = Tighten in a spiral, commencing from the inside.

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

Engine: 4HW

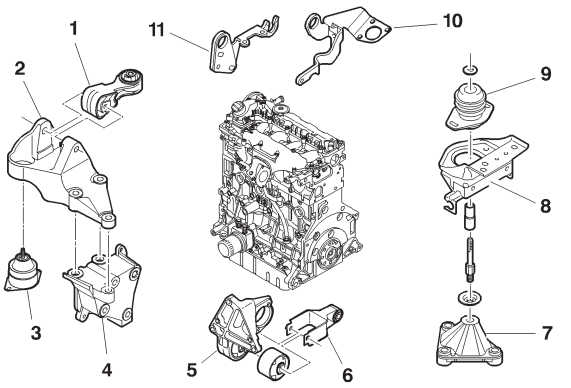


	Crankshaft (continued)		
(8)	**Screw M7x100-20 (x8) (*)** [Screw by screw and part stage]		
	Stage 1:	Tighten	**1**
	Stage 2:	Slacken	**180°**
	Stage 3:	Tighten	**2,3 ± 0,2**
	Stage 4:	Angular tighten	**46°**
(9)	**Screw M9x100-45 (x4) (*)**		**1 ±**
(10)	**Screw M8x125-60 (x8) (***)**		
	Pre-tighten		**0,5**
	Tighten		**1 ± 0,1**
	Angular tighten		**60°**

(*) = Re-use prohibited.
(**) = Tighten in a spiral, commencing from the inside.
(***) = Tighten in the order indicated **1 to 8**

C8	SPECIAL FEATURES: TIGHTENING TORQUES

Engine: 4HW

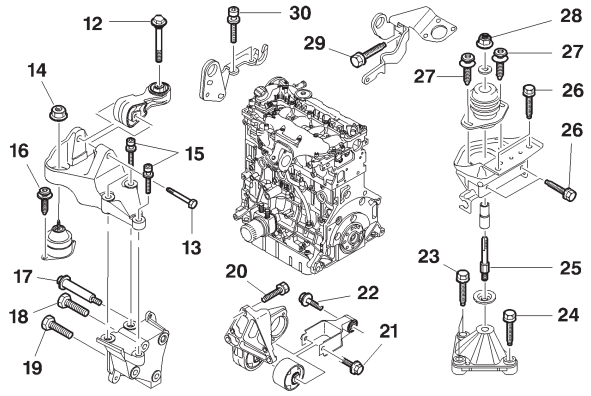


B1BK3EED

Engine suspension (identification)	
(1)	Upper RH torque reaction rod
(2)	Upper RH engine support
(3)	RH engine flexible support
(4)	Upper RH intermediate engine support
(5)	Lower RH engine support
(6)	Torque reaction rod
(7)	Upper LH intermediate engine support
(8)	LH engine support
(9)	LH engine flexible support
(10)	Lifting attachment, flywheel end
(11)	Lifting attachment, timing end

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

Engine: 4HW

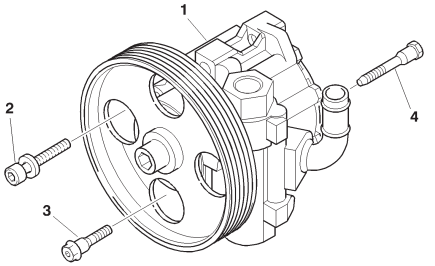


B1BK3EDD

Engine suspension (Tightening torques)		
(12)	Spherical-base screw M10x150-75 **(x 1)**	**5 ± ,05**
(13)	Shaft screw **(x 1)**	**4,5 ± 0,4**
(14)	Nut M10x150 **(x 1)**	**4,5 ± 0,4**
(15)	Screw M10x150-60 **(x 3)**	**6 ± 0,6**
(16)	Screw M8x125-25 **(x 2)**	**3 ± 0,3**
(17)	Shouldered shaft screw M8x125-15 **(x 1)**	**2 ± 0,2**
(18)	Locking screw M10x125-85 **(x 1)**	**4,5 ± 0,4**
(19)	Locking screw M10x125-70 **(x 2)**	**4,5 ± 0,4**
(20)	Spherical-base screws M10x150-35 **(x 3)**	**4,5 ± 0,4**
(21)	Spherical-base screws M10x150-72 **(x 1)**	**6,5 ± 0,6**
(22)	Spherical-base screws M12x175-60 **(x 1)**	**9 ± 0,9**
(23)	Nut M10x150 **(x 1)**	**4,5 ± 0,4**
(24)	Screw M10 x150-55 **(x 2)**	**4,5 ± 0,4**
(25)	Support shaft **(x 1)**	**5 ± 0,5**
(26)	Screw M8x125-25 **(x 4)**	**2,5 ± 0,2**
(27)	Screw M8x125-25 **(x 2)**	**3 ± 0,3**
(28)	Locking nut M12x175-18 **(x 1)**	**6,5 ± 0,6**
(29)	Screw M8x125-25 **(x 1)**	**1,5 ± 0,1**
(30)	Screw M6x100-20 **(x 2)**	**1,2 ± 0,1**

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

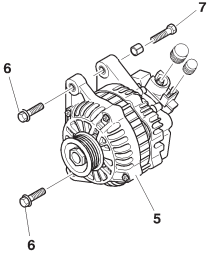
Engine: 4HW



B1BK3E8D

Power steering pump		
(1)	Power steering pump	
(2)	Screw M8x125-30 **(x 1)**	**2,5 ± 0,2**
(3)	Shouldered shaft screw M8x125-22 **(x 1)**	**2,2 ± 0,2**
(4)	Shouldered shaft screw M8x125-48 **(x 1)**	**2,2 ± 0,2**

NOTE: Tighten the fixings **(2)** and **(3)** before the fixing **(4)**, to ensure that the auxiliary drive belt is correctly aligned.



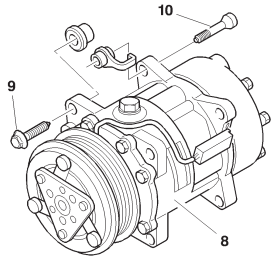
B1BK3E7D

Alternator		
(5)	Alternator	
(6)	Spherical-base screw M10 x150-50 **(x 2)**	**4,1 ± 0,4**
(7)	Screw M10x150-40 **(x 1)**	**3,9 ± 0,4**

NOTE: Tighten the fixings **(6)** before the fixing **(7)**, to ensure that the auxiliary drive belt is correctly aligned.

SPECIAL FEATURES: TIGHTENING TORQUES (m.daN) — C8

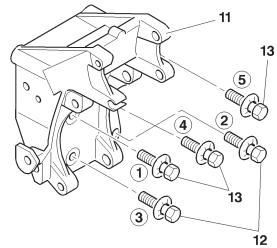
Engine: 4HW



B1EK3E9D

Air conditioning compressor		
(8)	Air conditioning compressor	
(9)	Spherical-base screw M10x150-60 **(x 1)**	**4 ± 0,4**
(10)	Shouldered shaft screw M10x150-52 **(x 2)**	**4,2 ± 0,4**

NOTE: Tighten the fixing **(9)** before the fixing **(10)**, to ensure that the auxiliary drive belt is correctly aligned.



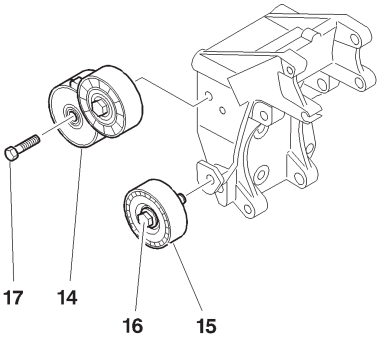
B1EK3EAD

Accessories support		
(11)	Power steering pump support	
(12)	Spherical-base screw M8 x125-35 **(x 2) (*)**	
	Pre-tightening	**1 ± 0,1**
	Tightening	**2 ± 0,2**
(13)	Screws M8x125-80 **(x 1) (*)**	
	Pre-tightening	**1 ± 0,2**
	Tightening	**2,3 ± 0,2**

(*) = In the order indicated (1 à 5)

C8	SPECIAL FEATURES: TIGHTENING TORQUES (m.daN)

Engine: 4HW



B1BK3EBD

Guide roller		
(14)	Dynamic tensioner roller	
(15)	Eccentric guide roller	
(16)	Screw M10x150-50 **(x 1)**	
	Pre-tightening	**1,5 ± 0,1**
	Tightening	**3 ± 0,3**
(17)	Screw M8x150-60 **(x 1)**	
	Pre-tightening	**2 ± 0,2**
	Tightening	**4,5 ± 0,4**

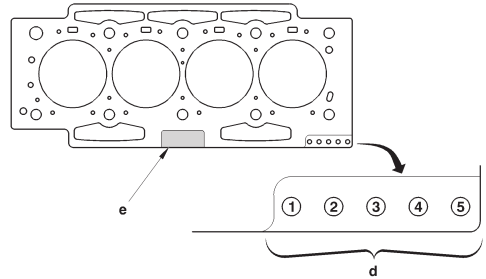
CYLINDER HEAD — C5

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	0,8 mm		1,1 mm	1,4 mm
Supplier	MEILLOR			

Multilayer metallic cylinder head gasket.



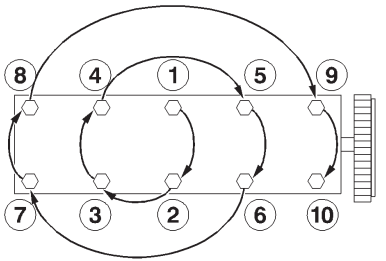
(d) Reference zone
(e) Marking zone.

B1DP183D

C5	CYLINDER HEAD

Engines: 6FZ-RFN-RLZ

Cylinder head tightening (m.daN)



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

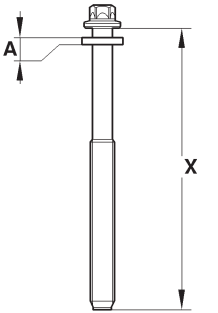
B1DP05BC

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



A = Washer thickness: **4 ± 0,2 mm**.
X= Length under heads of the new bolts = **144,5 ± 0,5 mm**.

B1DP16FC

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

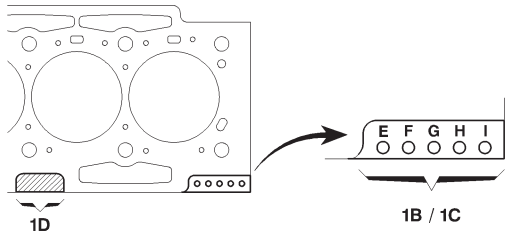
CYLINDER HEAD — C8

Engines: RFN – 3FZ

Cylinder head gasket identification

Multilayer metallic gasket.

Ref.	Cylinder head gasket thickness (mm)	
	RFN	**3FZ**
(1B): Nominal dimension	**E – H = 0,8**	**E – G = 0,8**
(1C): Repair dimension	**E – F – H = 0,99**	**E – F – G none**
(1D): Manufacturer identification.		

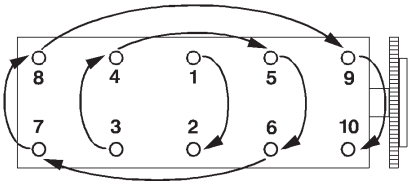


B1BK24QD

C8	CYLINDER HEAD

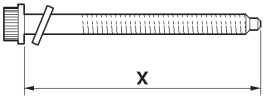
Engines: RFN – 3FZ

Cylinder head tightening (m.daN)



B1DK001C

Cylinder head bolts



B1DB002C

Tighten in the order indicated

	RFN	3FZ
Pre-tightening	1/: 1,5	
	2/: 5	
Slackening	360°	
Tightening	2	
Angular tightening	285°	270°

X =MAX. re-usable length

RFN	3FZ
144,5 mm	127,5 mm

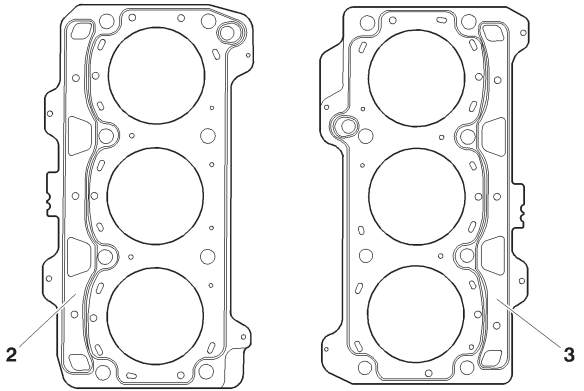
CYLINDER HEAD — C5

Engine: XFX

Cylinder head gasket identification

Supplier	Thickness (Standard) (mm)	Thickness reference
ERLING	0,75	Central lug Exhaust end

Multilayer metallic cylinder head gasket.



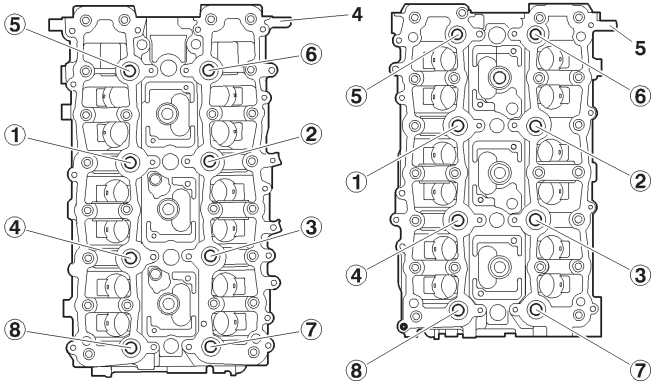
(2) Front cylinder head gasket.
(3) Rear cylinder head gasket.

B1DP18YD

C5	CYLINDER HEAD

Engine: XFX

Cylinder head tightening (m.daN)



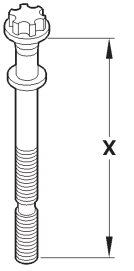
B1DP18ZD

In the order indicated.

Pre-tightening	**2 ± 0,2.**
Slackening	**YES**
Pre-tightening	**1,5 ± 0,2.**
Angular tightening	**225°.**

B1DP09VC

Cylinder head bolts



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

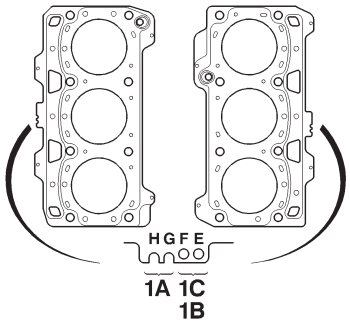
X =MAX. re-usable length
XFX
149,5 mm

CYLINDER HEAD — C8

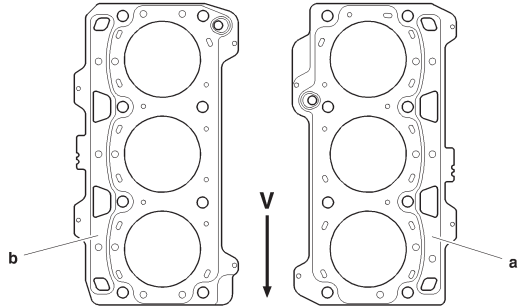
Engine: XFW

Cylinder head gasket identification

The RH and LH cylinder head gaskets are specific, of multilayer metallic type.



B1DK0QKD



B1DK0QLD

Cylinder head gasket thicknesses:

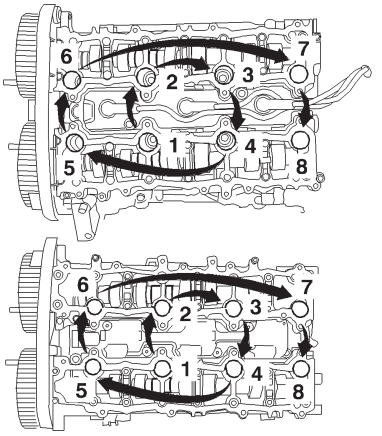
(1A): Engine ref: **G-H**
(1B): Nominal dimension: **Without marking** **= 0,75 mm**
(1C): Repair dimension: **E (1st repair dimension R1)** **= 0,95 mm**
(1C): Repair dimension: **E-F (2nd repair dimension R2)** **= 1,15 mm**

(a): RH cylinder head gasket.
(b): LH cylinder head gasket.
V: Engine flywheel side.

C8	CYLINDER HEAD

Engine: XFW

Cylinder head tightening (m.daN)



B1EK0XAD

Pre-tightening : **2**

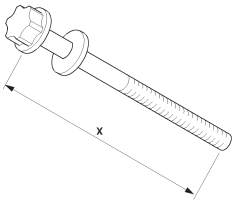
Slackening : **YES**

Tightening : **1,5**

Angular tightening : **225°**

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

Cylinder head bolts



B1DK0QPD

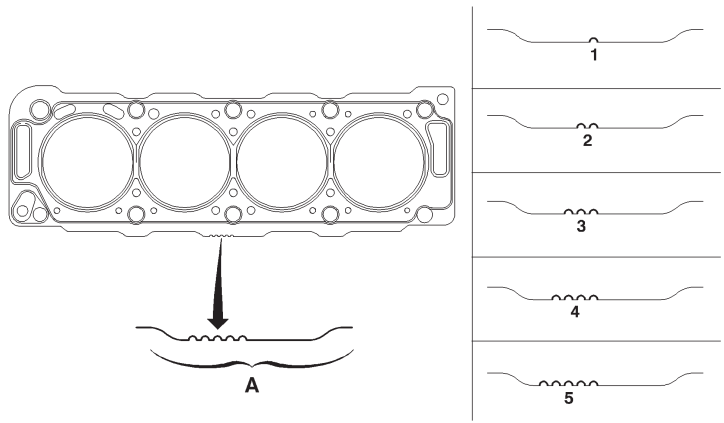
X =MAX. RE-USABLE LENGTH
149,5 mm

CYLINDER HEAD — C5

Engines: RHY-RHS-RHZ

Cylinder head gasket identification

Engine plate	Piston stand-proud (mm)	Thickness (mm)	Number of notches at A
RHY RHS RHZ	0,470 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 0,80	1,50 ± 0,06	5



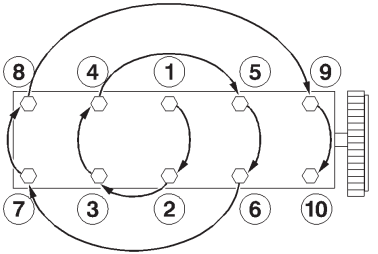
B1DP15AD

C5	CYLINDER HEAD

Engines: RHY-RHS-RHZ

Cylinder head gasket identification

Cylinder head tightening (m.daN)



B1DP05BC

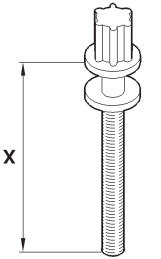
RHY-RHS-RHZ

- Pre-tightening	**2 ± 0,2**
- Tightening	**6 ± 0,6**
- Angular tightening	**220°± 5°**

NOTE: Oil the threads and under the heads of the cylinder head 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

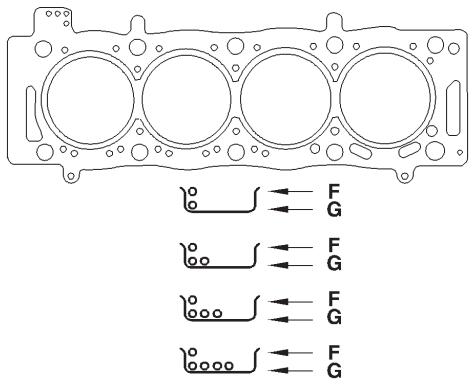
CYLINDER HEAD

C8

Engines: RHT RHW 4HW

Cylinder head gasket identification

Piston stand-proud (mm)	Thickness (mm)	Hole at F		Hole at G
		RHT RHW	4HW	
0,55 to 0,60	1,25 ± 0,04	0	1	1
0,61 to 0,65	1,30 ± 0,04	0	1	2
0,66 to 0,70	1,35 ± 0,04	0	1	3
0,71 to 0,75	1,40 ± 0,04	0	1	4

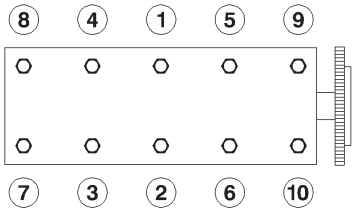


B1DK0Q6C

C8	CYLINDER HEAD

Engines: RHT RHW 4HW

Cylinder head tightening (m.daN)

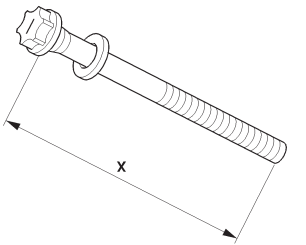


B1DK00SC

Tighten in the order indicated

Pre-tighten:	1/	2
	2/	6
Slacken:		360°
Tighten:	1/	2
	2/	6
Angular-tighten:		220°

Cylinder head bolts



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

B1DK1M6D

X =MAX. re-usable length	
RHT - RHW	4HW
134 mm	134,5 mm

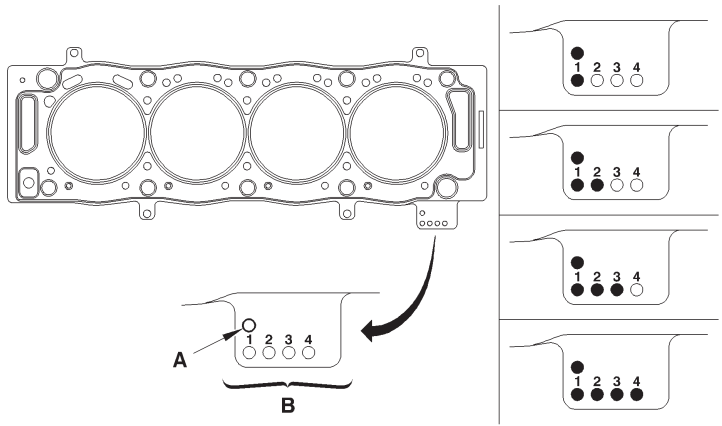
CYLINDER HEAD — C5

Engine: 4HX

Cylinder head gasket identification

Engine plate	Piston stand-proud (mm)	Thickness (mm)	Number of notches At A	Number of notches 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.

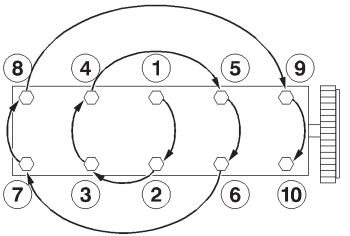


B1DP18XD

C5	CYLINDER HEAD (continued)

Engine: 4HX

Cylinder head tightening (m.daN)



B1DP05BC

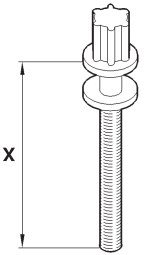
4HX	
Pre-tighten	**2 ± 0,2**
Tighten	**6 ± 0,6**
Slacken	**360°**
Pre-tighten	**2 ± 0,2**
Tighten	**6 ± 0,6**
Angular-tighten	**220° ± 5°**

ESSENTIAL: Proceed screw by screw in the order indicated.

(in 2 attempts max.)
(Order 1 to10)

Cylinder head bolts

4HX



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

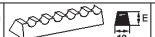
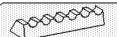
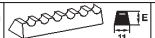
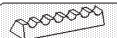
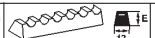
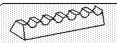
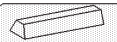
B1DP15EC

X =MAX. re-usable length
4HX
X = 134,5 MM

BELT TENSION/SEEM UNITS CORRESPONDENCE TABLE

C5 - C8

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

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

B1EP135D

AUXILIARY EQUIPMENT DRIVE BELT

	EW				ES		DW							
	7	10		12	9		10						12	
	J4		D	J4	J4S		TD	ATED		ATED4			TED	TED4
Engine plate	**6FZ**	**RFN**	**RLZ**	**3FZ**	**XFX**	**XFW**	**RHY**	**RHS**	**RHZ**	**RHW**	**RHT**	**RHM**	**4HX**	**4HW**
C5	1.8i 16V	2.0i 16V	2.0i 16V HPi		3.0i 24V		2.0 HDi	2.0 HDi	2.0 HDi				2.2 HDi	
See pages:	114				116		118 to 121						124 to 125	
C8		2.0i 16V		2.2 16V HPi		3.0i 24S				2.0 16V HDi	2.0 16V HDi	2.0 16V HDi		2.2 HDi
See pages:		115		115		117				122				126

AUXILIARY EQUIPMENT DRIVE BELT

Engines: all types Petrol and Diesel

TOOLS

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

WARNING: If using tool 4099-T (C.TRONIC 105), refer to the correspondence table on page 93.

ESSENTIAL:

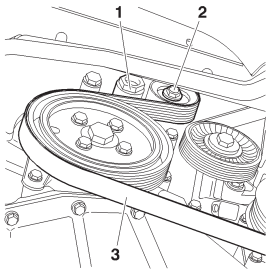
- Before refitting the auxiliary equipment drive belt, check that:

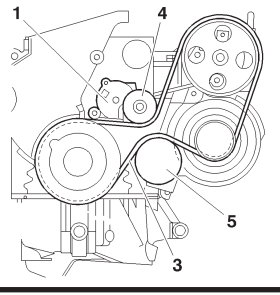
- 1 / The roller(s) rotate freely (no play or stiffness)

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

AUXILIARY EQUIPMENT DRIVE BELT

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*).

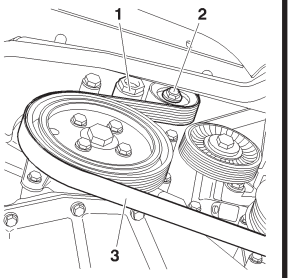
WARNING: the screw (**2**) has a left hand thread.
- Remove the belt (**3**), while keeping the tensioner roller (**1**) tensioned.

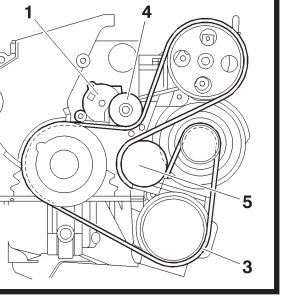
Refit the belt.
- Compress the tensioner roller (**1**)
- Fit the belt (**3**).
- Release the tensioner roller (**1**).

Tightening torques m.daN.

Tensioner roller screw (**4**)	**2 ± 0,2**
Guide roller screw (**5**)	**3,5 ± 0,3**

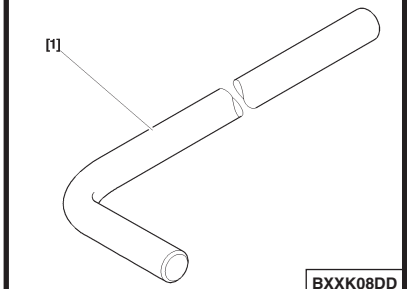
B1BP23PC | **B1BP23QC**



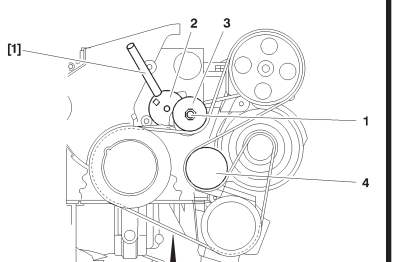


B1BP23PC | **B1BP23RC**

AUXILIARY EQUIPMENT DRIVE BELT



BXXK08DD



BXXK0AUD

Engines: RFN-3FZ

Tools

[1] Peg for dynamic tensioner roller **(-).0189-E**

Removing.

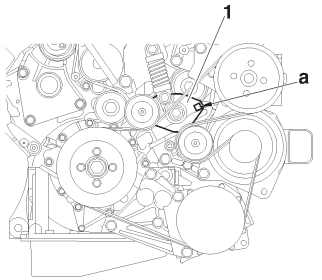
Remove:
The front RH wheel.
The front RH splash-shield.
Detension the auxiliary drive belt by actioning the screw **(1)**.
Peg the dynamic tensioner roller **(2)**, using tool **[1]**.
Remove the auxiliary drive belt.
ESSENTIAL: Check that the rollers (3) and (4) turn freely (no tight spot).

Refitting.

Refit the auxiliary drive belt.
Check that the auxiliary drive belt is correctly positioned in the grooves of the various pulleys.
Remove tool **[1]**.
Continue the refitting operations in reverse order to removal.

C5 AUXILIARY EQUIPMENT DRIVE BELT

Engine: XFX



B1BP27EC

Tools

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

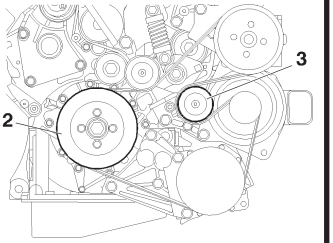
Remove.

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

Refit.

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

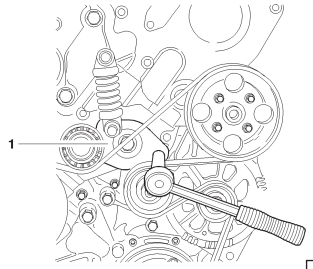
Release the tensioner roller bracket (**1**), by turning it anti-clockwise, using tools **[1]** and **[2]**.
ESSENTIAL: Make sure that the belt is correctly positioned in the grooves of the various pulleys.



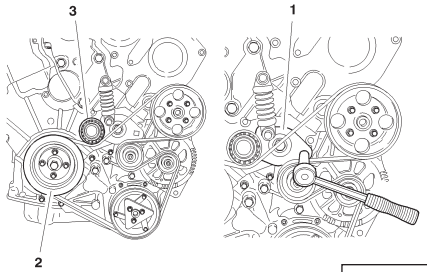
B1BP27FC

AUXILIARY EQUIPMENT DRIVE BELT

C8



B1EK0VAD



B1EK0VBD

Engine: XFW

Tools

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

Removing.

Move aside the power steering oil low pressure pipe flange.

Pivot the support (**1**) of the tensioner roller clockwise, as far as it will go, using tools **[1]** and **[2]**.

Remove the auxiliary drive belt.

IMPERATIVE: Check the operation of the rollers (no play, no tight spot).

Refitting.

Position the auxiliary drive belt.

Commence with the crankshaft pulley (**2**).

Finish with the tensioner roller (**3**).

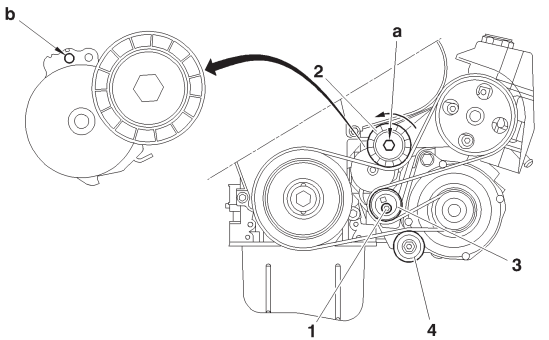
Free the support (**1**) of the tensioner roller, pivoting it anti-clockwise, using tools **[1]** and **[2]**.

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

Continue the refitting operations in reverse order to removal.

C5	AUXILIARY EQUIPMENT DRIVE BELT

Engines: RHY - RHS - RHZ



B1BP1YKD

Without air conditioning

Tools

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

Remove

Re-use of belt

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

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

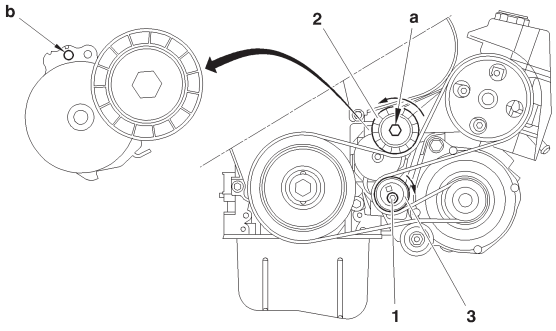
No re-use of belt.

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

AUXILIARY EQUIPMENT DRIVE BELT

C5

Engines: RHY RHS RHZ



B1BP1YMD

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.

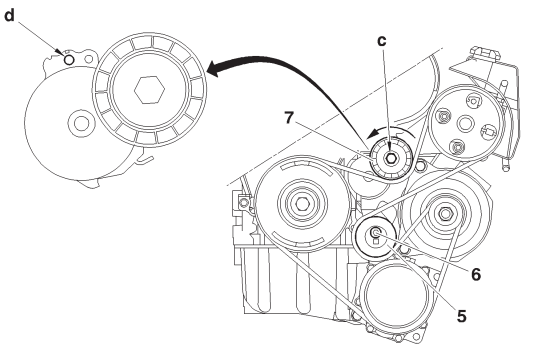
- Turn the eccentric roller (**3**), tool **[1]** (clockwise) to free the tool **[2]** from its pegging at **«b»**.
- Hold the eccentric roller (**3**), tool **[1]**, and tighten the screw (**1**) to **4.3 ± 0.5 m.daN**.

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.

C5 AUXILIARY EQUIPMENT DRIVE BELT

Engines: RHY - RHS - RHZ



B1BP1YLD

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.

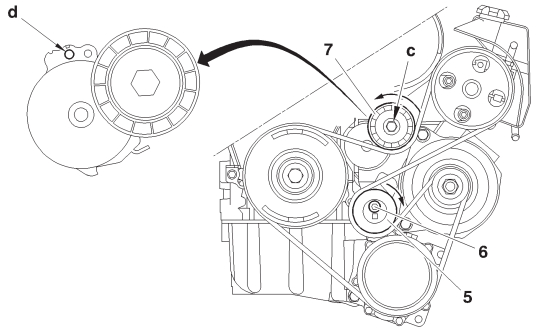
No re-use of belt.

- 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.

AUXILIARY EQUIPMENT DRIVE BELT

C5

Engines: RHY – RHS – RHZ



B1BP1YND

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.

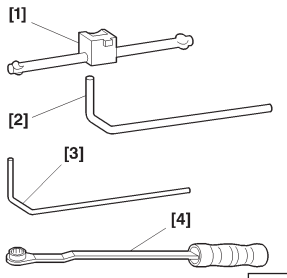
WARNING: Respect the direction in which the belt is fitted.
Remove the tool **[4]**.

New belt.

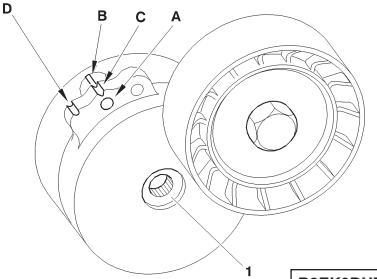
Refit the belt.
- Turn the eccentric roller (**5**), tool **[1]** (clockwise) to free the tool **[2]** from its pegging at **«d»**.
- Hold the eccentric roller (**5**), tool **[1]**, and tighten the screw (**6**) to **4.3 ± 0.5 m.daN**.

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.

C8 AUXILIARY EQUIPMENT DRIVE BELT



E5AK0E9C



B3EK0DHD

Engines: RHT - RHW - RHM

Tools.

[1] Tensioning lever	**: (-).0188-J2.**
[2] Peg for dynamic roller Ø 4 mm	**: (-) 0188-Q1.**
[3] Peg for dynamic roller Ø 2 mm	**: (-).0188-Q2.**
[4] Dynamic roller compression lever	**: (-).1888-Z.**

(A) Pegging hole.
(B) Belt wear check mark (fixed on engine).
(C) Zero wear mark.
(D) Maximum wear mark.

This marking system permits checking of the belt wear; if the marks (**D**) and (**B**) coincide, it implies that the belt requires replacing.

Tighten the screw (**1**) to **4,5 ± 0,4 m.daN**.

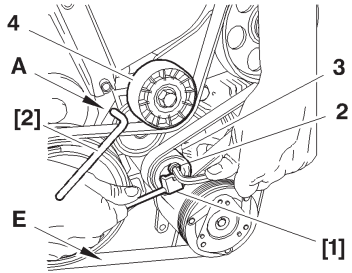
Removing.

Remove:
- The front RH wheel.
- The front RH splash-shield.
- The under-engine shield.

IMPERATIVE: Mark the direction of rotation of the belt if to be re-used.

AUXILIARY EQUIPMENT DRIVE BELT — C8

Engines: RHT RHW RHM



B1BK1A4C

Removing (continued).

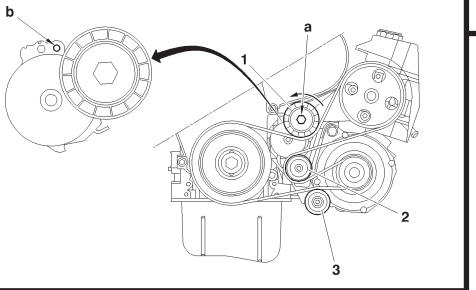
Slacken the fixing (**2**).
Action the roller (**3**), using tool **[1]**, until the tool **[2]** is positioned in the pegging hole (**A**).
Bring the roller (**3**) back towards the rear.
Gently tighten the screw (**2**).
Remove the belt.
ESSENTIAL: Check that the rollers (3) and (4) turn freely (no play, no tight spot).

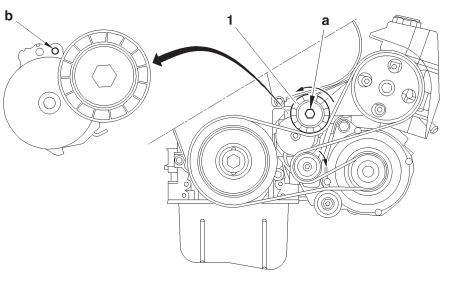
Refitting.

IMPERATIVE: If re-using the belt, refit it respecting the direction of rotation marked on removal.
Refit the belt, finishing with the tensioner roller (**4**).
Action the roller (**3**), using tool **[1]** (clockwise) to free the tool **[2]**.
Tighten the fixing (**2**) to **4,5 ± 0,5 m.daN**, without altering the position of the roller.
ESSENTIAL: Check that the belt is correctly positioned in the grooves of the various pulleys.
Remove the tool **[1]**.
Rotate the engine **four times**.
Check that the marks (**B**) and (**C**) coincide.
Tool **[3]** should be able to engage freely, if not, repeat the adjustment.
Complete the refitting.

C5	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.

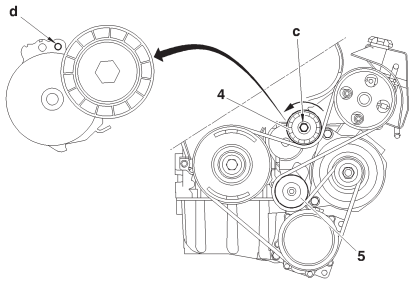
Refit.
- Refit the auxiliaries drive belt.
- Compress the tensioner roller (**1**) by action at **«a»** (*anti-clockwise*), using tool **[1].**
- Remove the tool **[2] at «b».**

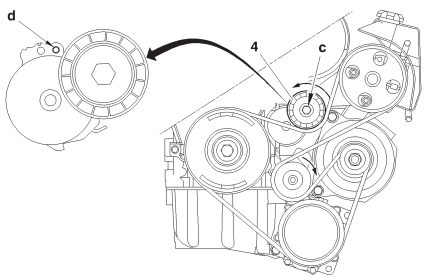
B1BP270D	B1BP272D

AUXILIARY EQUIPMENT DRIVE BELT

C5

Engine: 4HX





With air conditioning

Tools

[1] Dynamic tensioner compression lever **: (-).0188.Z**
[2] Peg **Ø 4 mm** **: (-).0188.Q1**

Remove.

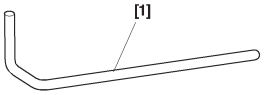
WARNING: mark the direction of fitting in case the belt is to be reused.

- 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

C8	AUXILIARY EQUIPMENT DRIVE BELT



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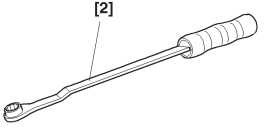


E5AK0E8C

Engine: 4HW

Tools.

[1] Peg for dynamic roller **: (-) 0188-Q1**
[2] Dynamic roller compression lever **: (-).1888-Z.**

(A) Pegging hole.
(B) Belt wear check mark (fixed on engine).
(C) Zero wear mark.
(D) Maximum wear mark.

This marking system permits checking of the belt wear; if the marks (**D**) and (**B**) coincide, it implies that the belt requires replacing.

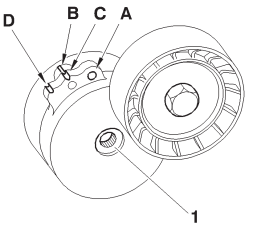
Tighten the screw (**1**) to **4,5 ± 0,4 m.daN.**

Removing.

Remove:

- The front RH wheel.
- The front RH splash-shield.
- The under-engine shield.

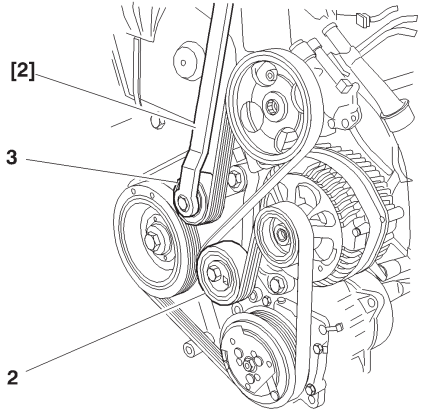
IMPERATIVE: Mark the direction of rotation of the belt if to be re-used.



B3EK09PC

AUXILIARY EQUIPMENT DRIVE BELT

C8



B1BK1IWD

Engine: 4HW

Removing (continued).

Action the roller (**3**), using tool **[2]**, until the tool **[1]** is positioned in the pegging hole (**A**).
Remove the belt.

ESSENTIAL: Check that the rollers (3) and (4) turn freely (no play, no tight spot).

Refitting.

IMPERATIVE: If re-using the belt, refit it respecting the direction of rotation marked on removal.

Refit the belt, finishing with the tensioner roller (**3**).

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

Rotate the engine **four times.**

Complete the refitting.

CHECKING AND SETTING THE VALVE TIMING

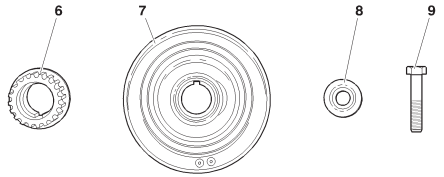
	EW				ES		DW							
	7	10		12	9		10						12	
	J4		D	J4	J4S		TD	ATED		ATED4			TED	TED4
Engine plate	**6FZ**	**RFN**	**RLZ**	**3FZ**	**XFX**	**XFW**	**RHY**	**RHS**	**RHZ**	**RHW**	**RHT**	**RHM**	**4HX**	**4HW**
C5	1.8i 16V	2.0i 16V	2.0i 16V HPi		3.0i 24V		2.0 HDi	2.0 HDi	2.0 HDi				2.2 HDi	
See pages:	129 à 137				156 à 161		170 à 178						179 à 184	
C8		2.0i 16V		2.2 16V HPi		3.0i 24V				2.0 16V HDi	2.0 16V HDi	2.0 16V HDi		2.2 HDi
See pages:		138 to 146		147 to 155		162 to 169				185 to 192				185 to 192

CHECKING AND SETTING THE VALVE TIMING

C5

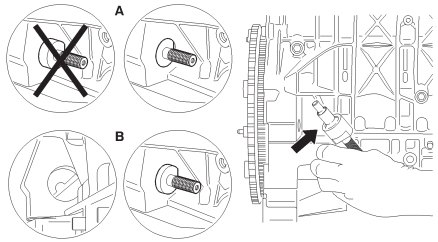
NEW ASSEMBLY **2003 →**

Engines: 6FZ-RFN-RLZ **2003 →**



B1EP1B9D

(6) Crankshaft pinion.
(7) Accessories drive pulley.
(8) Washer.
(9) Screw.
The pinion (**6**) is fitted as an idler on the crankshaft.
The accessories drive pulley (**7**) is immobilised on the crankshaft by a half-moon keyway and by the tightening of washer (**8**) and screw (**9**).
A: Pegging on manual gearbox.
B: Pegging on automatic gearbox.



B1BP2V2D

The pegging of the crankshaft is done on the flywheel, or on the converter drive plate (automatic gearbox).
The pegging hole on the cylinder block (exhaust end) is calibrated and reinforced.

IMPERATIVE: Never turn the crankshaft with the accessories drive pulley slackened.

IIMPERATIVE: Never remove the accessories drive pulley without pegging the crankshaft and the camshafts.

IMPERATIVE: Always turn the crankshaft in the direction of engine rotation.

C5	CHECKING AND SETTING THE VALVE TIMING

Engines: 6FZ-RFN-RLZ 2003 →

Tools.

[1] Union relieving the fuel pressure	**: 4192-T**
[2] Crankshaft setting peg	**: (-).0189.R**
[3] Camshaft setting peg	**: (-).0189.A**
[4] Camshaft setting peg	**: (-).0189.L**
[5] Tool for moving and locking the tensioner roller	**: (-).0189.S**
[5a]	**: (-).0189.S1**
[5b]	**: (-).0189 S2**
[6] Adaptor for angular tightening	**: 4069-T**
[7] Plug kit	**: (-) 0189.Q**
[8] Timing belt retaining pin	**: (-) 0189.K**

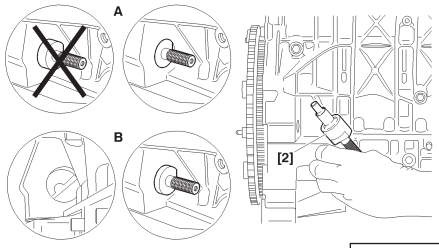
Checking the setting of the timing

Removing.

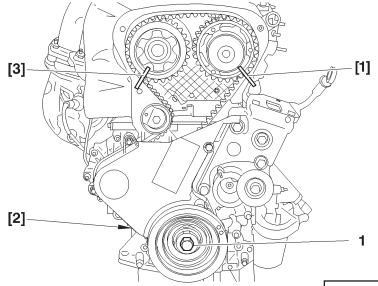
Disconnect the battery negative terminal (See corresponding operation).
Raise and support the vehicle, front wheels hanging.
Detach, move aside and plug the fuel supply pipe, using tool **[7]**
Remove:
The front RH wheel.
The splash-shield.
The upper timing cover.

CHECKING AND SETTING THE VALVE TIMING

C5



B1BP2V3D



B1BP2WAD

Engines: 6FZ-RFN-RLZ 2003 →

Checking the setting of the timing (continued).

A: Pegging on the manual gearbox, tool **[2]**.
B: Pegging on the automatic gearbox, tool **[2]**.

Turn the engine by means of the crankshaft pinion screw (**1**), to bring it to the pegging position.

Peg:
The crankshaft, using tooll **[2]**.
The camshaft pulleys, using tools **[3]** and **[4].**

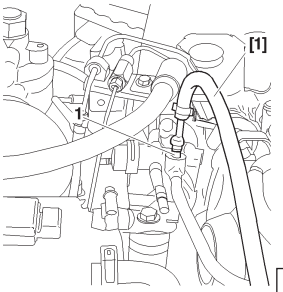
NOTE: The pegs **[1]** and **[3]** should go in without effort.

WARNING: If the pegs go in only with difficulty, repeat the operation for fitting and tensioning the timing belt (See corresponding operation).

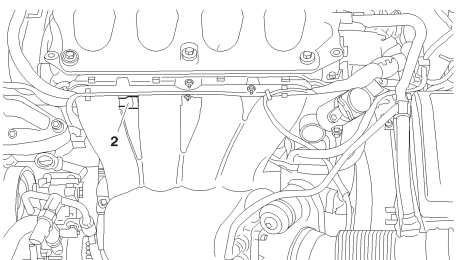
Refitting.

Remove tools **[2], [3], [4] and [7].**
Complete the refitting in reverse order to removal.

C5	CHECKING AND SETTING THE VALVE TIMING



B1BP2AMC



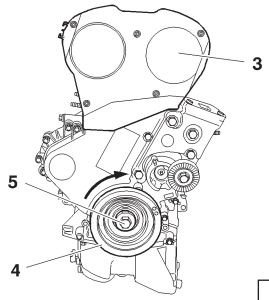
B1BP2AND

Engines: 6FZ-RFN-RLZ 2003 →

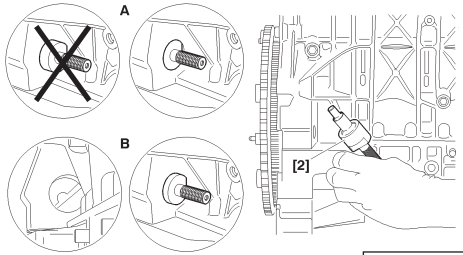
Setting the timing.
Removing.
Remove:
The engine cover
The battery cover
Disconnect the battery negative terminal (See corresponding operation).
Raise and support the vehicle, front wheels hanging.
Remove:
The front RH wheel.
The splash-shield.
The accessories drive belt (See corresponding operation).
Unclip:
The electrical harness (on the timing cover).
The petrol delivery pipe.
Place tool **[1]** on the valve (**1**) in order to reduce the fuel supply circuit pressure.
WARNING: Position a cloth to protect yourself from any projections of fuel.
Uncouple the fuel delivery (**2**), blanking it with a plug, tool **[7]**.
Remove the fixing nut from the expansion chamber.
Detach the hose from the cooling radiator and from the front crossmember.
Disengage the expansion chamber.
Remove the torque reaction rod.

CHECKING AND SETTING THE VALVE TIMING — C5

Engines: 6FZ-RFN-RLZ 2003 →



B1BP2WBC



B1BP2V3D

Setting the timing (continued)

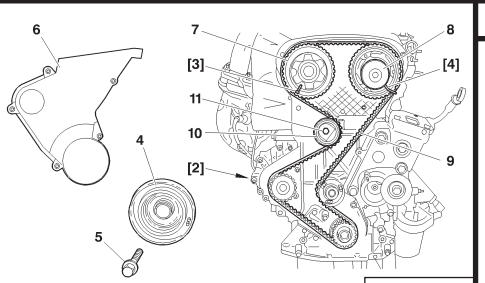
Remove the upper timing cover (**3**)**.**

Rotate the engine by means of the screw (**5**) of the crankshaft pulley (**4**) to bring it to the pegging position.

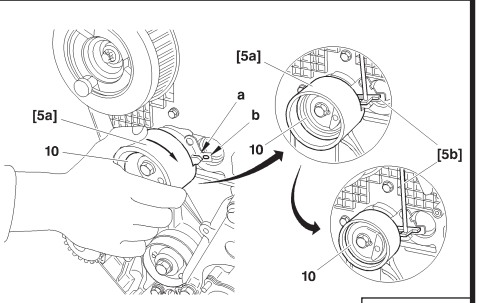
Pegging on the gearbox.

A: Pegging on the manual gearbox, tool **[2].**
B: Pegging on the automatic gearbox, tool **[2].**

C5	CHECKING AND SETTING THE VALVE TIMING



B1EP1BYD



B1EP1BZD

Engines: 6FZ-RFN-RLZ 2003 →

Setting the timing (continued)

Peg the camshaft pulleys (**7**) and (**8**), using tools **[3]** and **[4].**

Remove:

The screw **(5).**

The crankshaft pulley (**4**)**.**

The lower timing cover (**6**)**.**

IMPERATIVE: Never remove the crankshaft pulley without pegging the crankshaft and camshafts.

Slacken the screw (**11**) of the tensioner roller (**10**).

Turn the tensioner roller (**10**) (clockwise).

Remove the timing belt (**9**).

Turn the tensioner roller (**10**), using tool **[5a]**, to go past the slot **«b»**.

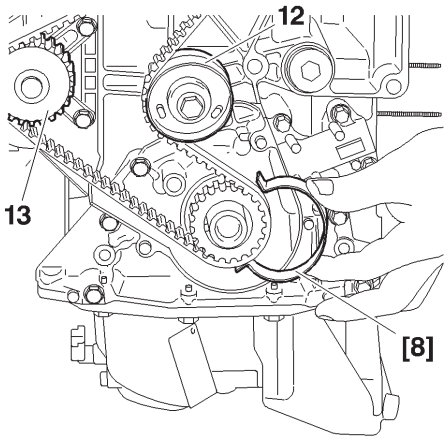
Position the tool **[5b]** to lock the index **«a»** and remove the tool **[5a].**

IMPERATIVE: Systematically replace the following components: timing belt, exhaust manifold fixing nuts, timing belt tensioner roller nut.

CHECKING AND SETTING THE VALVE TIMING

C5

Engines: 6FZ-RFN-RLZ 2003 →



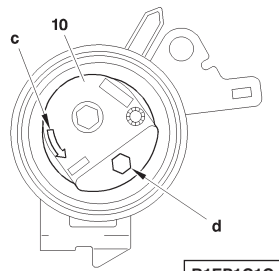
B1EP1C0C

Setting the timing (continued)

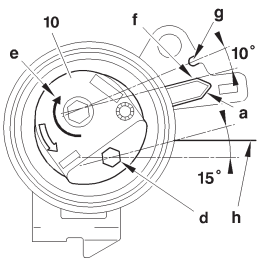
Reposition the timing belt (**9**) on the crankshaft pulley.
Hold the timing belt (**9**) in place using tool **[3]**.
Fit the timing belt (**9**) in place, respecting the following order:
- Guide roller (**12**)**.**
- Inlet camshaft pulley (**8**)**.**
- Exhaust camshaft pulley (**7**)**.**
- Coolant pump (**13**)**.**
- Tensioner roller (**10**)**.**

NOTE: Make so that the belt (**9**) is as flush as possible with the exterior face of the various pinions and rollers.
Remove:
Tool **[2]**.
Tool **[3]** from the exhaust camshaft pulley.
Tool **[5b]** from the tensioner roller (**10**)**.**
Refit:
The lower timing cover (**6**) (by moving the engine)
The crankshaft pulley (**4**)
Screw (**4**) of the crankshaft pulley
Tighten screw (**5**) to **4 ± 0,4 m.daN,** then angular tighten to **53° ± 4°**, tool **[6].**

C5	CHECKING AND SETTING THE VALVE TIMING



B1EP1C1C



B1EP1C2C

Engines: 6FZ-RFN-RLZ 2003 →

Tensioning the timing belt.
Turn the tensioner roller (**10**) in the direction of the arrow **«c»**, by means of a **hexagonal spanner** at **«d»**.
Positionner l'index **«a»** en position **«f»**

IMPERATIVE: The index «a» should go past the slot «g» by an angular value of 10°.
If it does not, replace the tensioner roller or the timing belt and tensioner roller assembly.

Next bring the index **«a»** to its adjusting position **«g»,** by turning the tensioner roller in the direction of the arrow **«e»**.
WARNING: the index **«a»** should not pass the slot **«g»**.
Otherwise, repeat the operation to tension the timing belt.

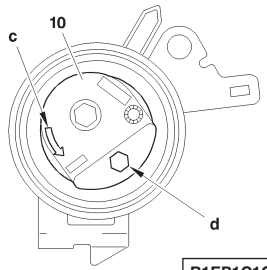
IMPERATIVE: The tensioner roller should not turn during the tightening of its fixing.
If it does, repeat the operation to tension the timing belt.

Tighten the screw (**11**) of the tensioner roller (**8**) to **2,1 ± 0,2 m.daN**.

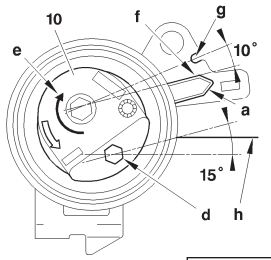
IMPERATIVE: The hexagonal tensioner roller drive should be approx. 15° below the level of the cylinder head gasket «h».
If it is not, replace the tensioner roller or the timing belt and tensioner roller assembly.

CHECKING AND SETTING THE VALVE TIMING — C5

Engines: 6FZ-RFN-RLZ 2003 →



B1EP1C1C



B1EP1C2C

Refitting (continued)
Remove the tools.
Rotate the crankshaft **ten times** (normal direction of rotation).

IMPERATIVE: No pressure or outside force should be brought to bear on the timing belt.

Peg the inlet camshaft pulley, using tool **[4]**.

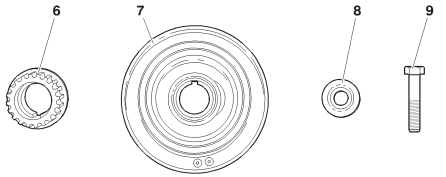
Checks.

Tension of the timing belt.

ESSENTIAL: Check the position of the index «a», which should be opposite the slot «g».
If the position of the index «a» is not correct, repeat the operations to tension the timing belt.

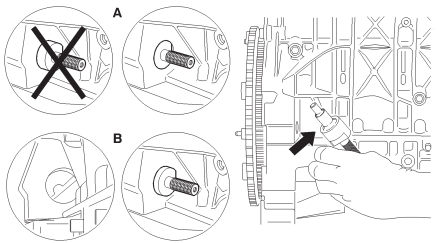
Refit the upper timing cover (**6**).
Clip the fuel delivery hose on the timing cover.
Refit the accessories drive belt (See corresponding operation).
Lower the vehicle.
Reconnect the battery (See corresponding operation).

C8	CHECKING AND SETTING THE VALVE TIMING
NEW ASSEMBLY **2003 →**	**Engine: RFN 2003 →**



B1EP1B9D

(**6**) Crankshaft pinion.
(**7**) Accessories drive pulley.
(**8**) Washer.
(**9**) Screw.
The pinion (**6**) is fitted as an idler on the crankshaft.
The accessories drive pulley (**7**) is immobilised on the crankshaft by a half-moon keyway and by the tightening of washer (**8**) and screw (**9**).
A: Pegging on manual gearbox.
B: Pegging on automatic gearbox.



B1BP2V2D

The pegging of the crankshaft is done on the flywheel, or on the converter drive plate (automatic gearbox).
The pegging hole on the cylinder block (exhaust end) is calibrated and reinforced.

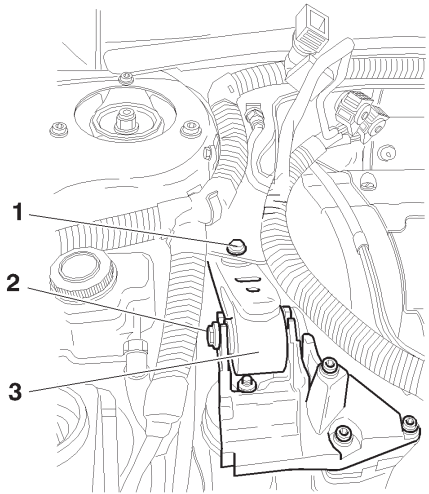
IMPERATIVE: Never turn the crankshaft with the accessories drive pulley slackened.

IMPERATIVE: Never remove the accessories drive pulley without pegging the crankshaft and the camshafts.

IMPERATIVE: Always turn the crankshaft in the direction of engine rotation.

CHECKING AND SETTING THE VALVE TIMING — C8

Engine: RFN 2003 →



B1EK1T7D

Tools.

[1] Camshaft setting peg	**: (-) 0189.A**
[2] Crankshaft setting peg	**: (-).0189.R**
[3] Timing belt retaining pin	**: (-).0189.K**
[4] Adaptor for angular tightening	**: 4069-T**
[5] Tool for moving and locking the tensioner roller	**: (-).0189.S**
[5a]	**: (-).0189.S1**
[5b]	**: (-).0189 S2**
[6] Peg for positioning the dynamic tensioner roller	**: (-).0189.J**

Removing.

Disconnect the battery.

Remove:

- The under-engine shield.
- The auxiliary drive belt (see corresponding operation).

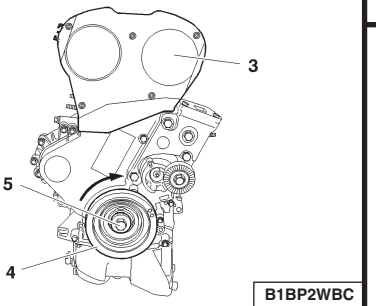
Move aside:

- The fuel delivery pipe.
- The canister purge electrovalve.
- The expansion chamber.

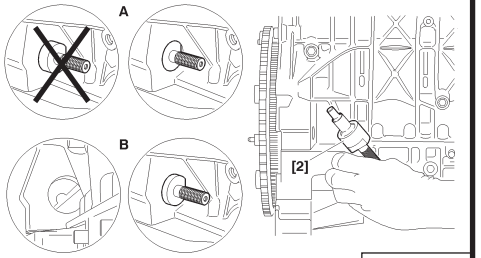
Remove:

- The screws (**1**) and (**2**).
- The torque reaction rod (**3**).

C8	CHECKING AND SETTING THE VALVE TIMING



B1BP2WBC



B1BP2V3D

Engine: RFN 2003 →

Setting the timing (continued).

Remove the upper timing cover (**4**).

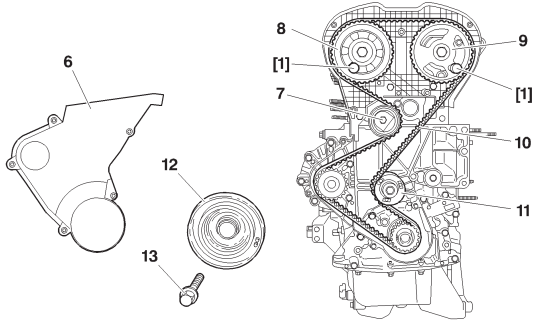
WARNING: Do not slacken the screws **«a»**.

Turn the engine by means of the crankshaft pinion screw (**5**), to bring it to the pegging position.

A: Pegging on the manual gearbox, tool **[2]**.
B: Pegging on the automatic gearbox, tool **[2]**.

CHECKING AND SETTING THE VALVE TIMING

C5



B1EP1BWD

Engine: RFN 2003 →

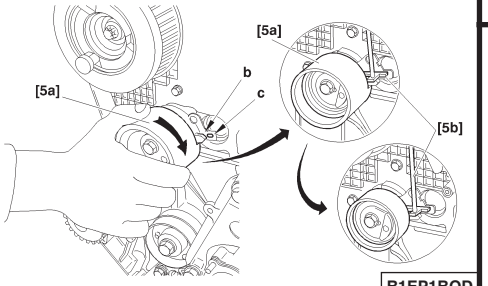
Setting the timing (continued)
Peg the camshaft pulleys (**8**) and (**9**), using tool **[1]**.
The screw (**13**).
The crankshaft pulley (**12**).
The timing cover (**6**).

IMPERATIVE: Never remove the crankshaft pulley without pegging the crankshaft and camshafts.

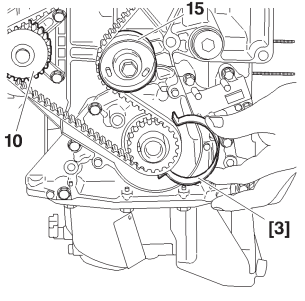
Slacken the screw (**7**) of the tensioner roller.
Turn the tensioner roller (clockwise).
Remove the timing belt (**9**).

C8

CHECKING AND SETTING THE VALVE TIMING



B1EP1BQD



B1EP1BRC

Engine: RFN 2003 →

Refitting.

IMPERATIVE: Check that the tensioner roller, guide roller and coolant pump can turn freely (without play and without tight spots); check also that these rollers are not noisy and/or that they are not splashed with grease.

If replacing the tensioner roller: **Tighten to 3,5 ± 0,3 m.daN.**

Turn the tensioner roller, using tool **[5a]**, to go past the slot **«c»**.
Position the tool **[5b]** to lock the index **«b»** and remove the tool **[5a]**.

IMPERATIVE: Systematically replace the following components: timing belt, exhaust manifold fixing nuts, timing belt tensioner roller nut.

Reposition the timing belt (**10**) on the crankshaft pinion.

Hold the timing belt (**10**) in place using tool **[3]**.

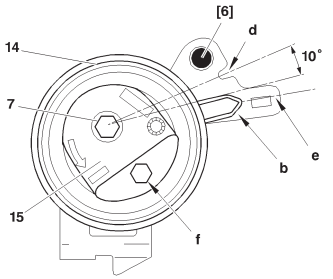
CHECKING AND SETTING THE VALVE TIMING — C8

Engine: RFN 2003 →

Fit the timing belt **(10)** in place, respecting the following order:
- Guide roller (**11**).
- Inlet camshaft pulley (**9**).
- Exhaust camshaft pulley (**8**).
- Coolant pump.
- Tensioner roller.

NOTE: Make so that the belt (**10**) is as flush as possible with the exterior face of the various pinions and rollers.
Remove:
Tool **[2]**.
Tool **[3]**.
Tool **[1]** from the exhaust camshaft pulley.
Tool **[5b]** from the tensioner roller.
Refit:
The lower timing cover.
The crankshaft pulley (**12**).
The screw (**13**).
Tighten screw (**13**) to **4 ± 0,4 m.daN**, then angular tighten to **53° ± 4°**, tool **[4]**.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EP1BXD

Engine: RFN 2003 →

Tensioning the timing belt.

IMPERATIVE: This operation must be one with the engine cold.

«e» Max. position.
«d» Nominal tension position.

Using the hexagonal bracket **«f»**, turn the hub of the tensioner roller (**14**) (anti-clockwise), to bring the index **«b»** to position **«e»** to tension the belt to the maximum.

Turn the eccentric hub (**15**) of the roller (**14**) (clockwise), until the cursor (**b**) comes into gentle contact with the peg **[6]**.

IMPERATIVE: Never turn the eccentric hub (15) by a complete rotation when the tool [6] is in position.

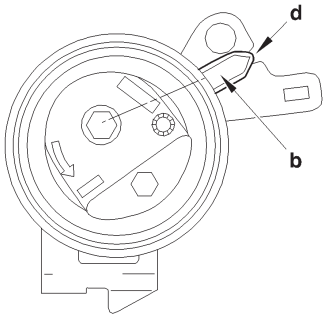
NOTE: This operation enables you to position the index **«b»** in the nominal position **«d»**.

Tighten screw (**7**) to **2 m.daN**, holding the roller by means of the hexagonal bracket **«f»**.

Remove the pegs **[1]**, **[2]** and **[6]**.

CHECKING AND SETTING THE VALVE TIMING

C8



B1EP1BTC

Engine: RFN 2003 →

Checks.

Make **two rotations** of the crankshaft (direction of rotation of the engine).

IMPERATIVE: Never turn the crankshaft backwards.

Make sure that the timing is correctly set, by refitting the camshaft and crankshaft setting pegs.

Remove the setting pegs.

Make **ten rotations** of the crankshaft (direction of rotation of the engine).

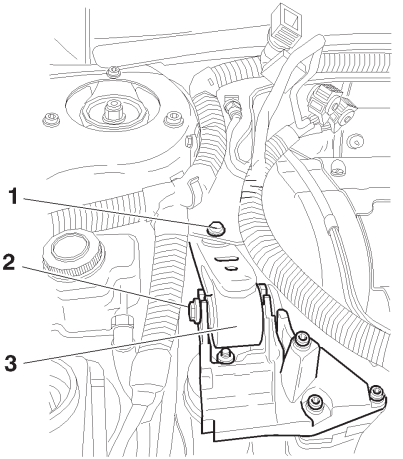
Check the position of the index (**15**).

If the index (**15**) is not in its adjustment position **«e»**, recommence the operations to tension the timing belt.

C8

CHECKING AND SETTING THE VALVE TIMING

Engine: RFN 2003 →



B1EK1T7D

Refitting (continued).

Refit:

The upper timing cover.

The torque reaction rod (**3**).

The screw (**1**), tighten to **4,5 m.daN**

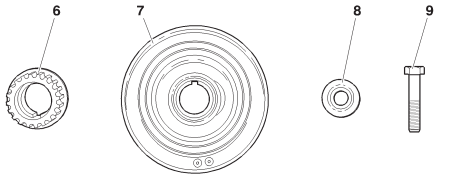
The screw (**2**), tighten to **4,5 m.daN.**

Continue the refitting operations in reverse order to removal.

Refit the auxiliary drive belt (see corresponding operation).

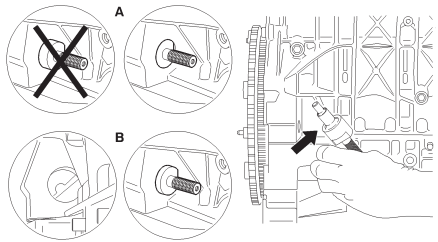
CHECKING AND SETTING THE VALVE TIMING — C8

NEW ASSEMBLY 2003 → | **Engine: 3FZ 2003 →**



B1EP1B9D

(**6**) Crankshaft pinion.
(**7**) Accessories drive pulley.
(**8**) Washer.
(**9**) Screw.
The pinion (**6**) is fitted as an idler on the crankshaft.
The accessories drive pulley (**7**) is immobilised on the crankshaft by a half-moon keyway and by the tightening of washer (**8**) and screw (**9**).
A: Pegging on manual gearbox.
B: Pegging on automatic gearbox.



B1BP2V2D

The pegging of the crankshaft is done on the flywheel, or on the converter drive plate (automatic gearbox).
The pegging hole on the cylinder block (exhaust end) is calibrated and reinforced.

IMPERATIVE: Never turn the crankshaft with the accessories drive pulley slackened.

IMPERATIVE: Never remove the accessories drive pulley without pegging the crankshaft and the camshafts.

IMPERATIVE: Always turn the crankshaft in the direction of engine rotation.

C8	CHECKING AND SETTING THE VALVE TIMING

Engine: 3FZ 2003 →

Tools.

[1] Camshaft setting peg	**: (-) 0189.A**
[2] Crankshaft setting peg	**: (-).0189.R**
[3] Timing belt retaining pin	**: (-).0189.K**
[4] Adaptor for angular tightening	**: 4069-T**
[5] Tool for moving and locking the tensioner roller	**: (-).0189.S**
[5a]	**: (-).0189.S1**
[5b]	**: (-).0189 S2**
[6] Peg for positioning the dynamic tensioner roller	**: (-).0189.J**
[7] Camshaft setting peg	**: (-).0189.L**

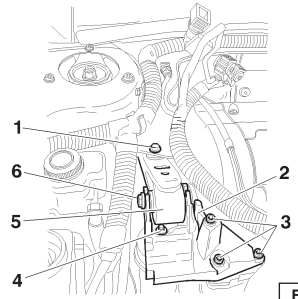
Removing.

Disconnect the battery.
Remove:
- The under-engine shield.
- The auxiliary drive belt (see corresponding operation).

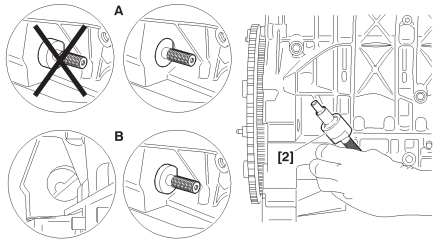
Move aside:
- The fuel delivery pipe.
- The canister purge electrovalve.
- The expansion chamber.

Place a jack under the vehicle to support the engine.

CHECKING AND SETTING THE VALVE TIMING — C8



B1EP1BMC



B1BP2V3D

Engine: 3FZ 2003 →

Remove:

- The screws (**1**) and (**26**).

- The torque reaction rod (**3**).

- The nut (**4**).

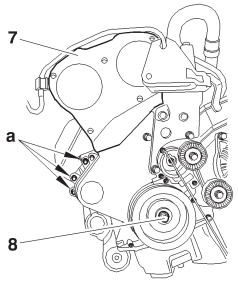
- The three screws (**3**).

- The RH engine support (**2**).

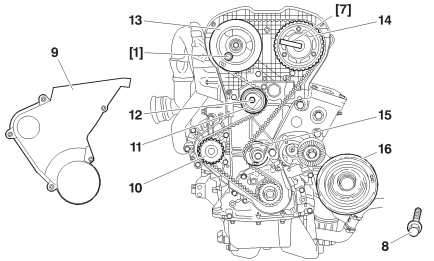
IMPERATIVE: Uncouple the exhaust line to avoid any damage to the flexible pipe caused by twisting, pulling and bending it while removing one of the power unit supports.

A: Pegging on the manual gearbox, tool **[2]**.
B: Pegging on the automatic gearbox, tool **[2]**.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EP1BNC



B1EP1BPD

Engine: 3FZ 2003 →

Remove the timing cover (**7**).

WARNING: Do not slacken the screws (**a**).

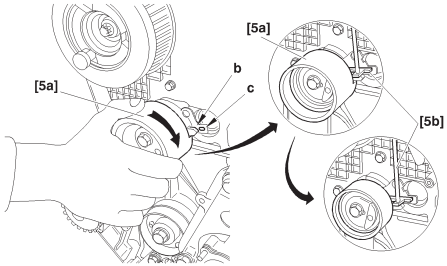
Rotate the engine by means of the screw (**8**) of the crankshaft pinion to bring it to the pegging position.
Peg the camshaft pulleys (**13**) and (**14**), using tools **[1]** and **[7]**.
Remove:
The screw (**8**).
The crankshaft pulley (**16**).
The timing cover (**9**).

IMPERATIVE: Never remove the crankshaft pulley without pegging the crankshaft and camshafts.

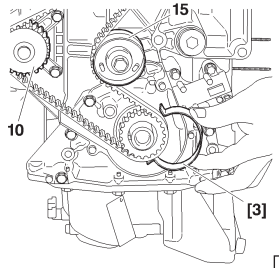
Slacken the screw (**12**) of the tensioner roller (**11**).
Turn the tensioner roller (**11**) (clockwise).
Remove the timing belt.

CHECKING AND SETTING THE VALVE TIMING

C8



B1EP1BQD



B1EP1BRC

Engine: 3FZ 2003 →

Refitting.

IMPERATIVE: Check that the tensioner roller, guide roller and coolant pump can turn freely (without play and without tight spots); check also that these rollers are not noisy and/or that they are not splashed with grease.

If replacing the tensioner roller (**15**): **Tighten to 3,5**.

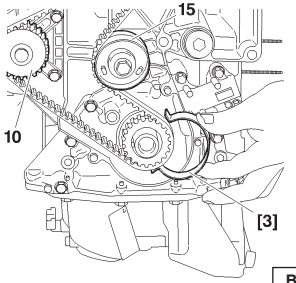
Turn the tensioner roller, using tool **[5a]**, to go past the slot **«c»**.
Position the tool **[5b]** to lock the index **«b»** and remove the tool **[5a]**.

IMPERATIVE: Systematically replace the following components: timing belt, exhaust manifold fixing nuts, timing belt tensioner roller nut.

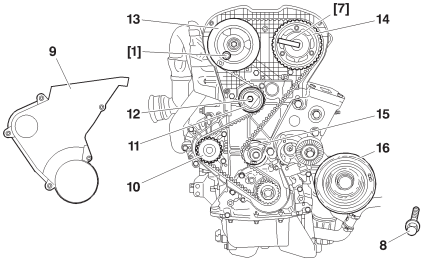
Reposition the timing belt on the crankshaft pinion.

Hold the timing belt in place using tool **[3]**.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EP1BRC



B1EP1BPD

Engine: 3FZ 2003 →

Fit the timing belt in place, respecting the following order:
- Guide roller (**15**).
- Inlet camshaft pulley (**14**).
- Exhaust camshaft pulley (**13**).
- Coolant pump (**10**).
- Tensioner roller (**11**).

NOTE: Make so that the belt is as flush as possible with the exterior face of the various pinions and rollers.

Remove:

Tool **[3]**.

Tool **[1]** from the exhaust camshaft pulley.

Tool **[5b]** from the tensioner roller.

Refit:

The lower timing cover (**9**).

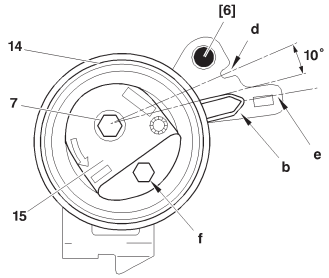
The crankshaft pulley (**16**).

The screw (**8**) of the crankshaft pulley.

Tighten screw (**8**) to **4 ± 0,4 m.daN**, then angular tighten to **53° ± 4°**, tool **[4]**.

CHECKING AND SETTING THE VALVE TIMING

Engine: 3FZ 2003 →



B1EP1BXD

Tensioning the timing belt.

IMPERATIVE: This operation must be done with the engine cold.

«e» Max. position.
«d» Nominal tension position.

Using the hexagonal bracket **«f»**, turn the hub of the tensioner roller (**18**) (anti-clockwise), to bring the index **«b»** to position **«e»** to tension the belt to the maximum.

Turn the eccentric hub (**17**) of the roller (**18**) (clockwise), until the cursor (**b**) comes into gentle contact with the peg **[6]**.

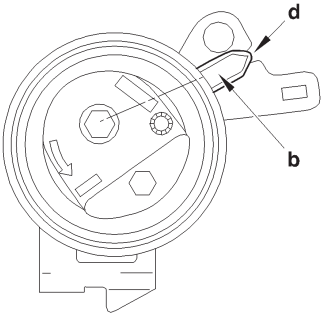
IMPERATIVE: Never turn the eccentric hub (8) by a complete rotation when the tool [4] is in position.

NOTE: This operation enables you to position the index **«e»** in the nominal position **«d»**.

Tighten screw (**12**) to **2 m.daN**, holding the roller by means of the hexagonal bracket **«f»**.

Remove the pegs **[7]**, **[2]** and **[4]**.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EP1BTC

Engine: 3FZ 2003 →

Checks.

Make **two rotations** of the crankshaft (direction of rotation of the engine).

IMPERATIVE: Never turn the crankshaft backwards.

Make sure that the timing is correctly set, by refitting the camshaft and crankshaft setting pegs.

Remove the setting pegs.

Make **ten rotations** of the crankshaft (direction of rotation of the engine).

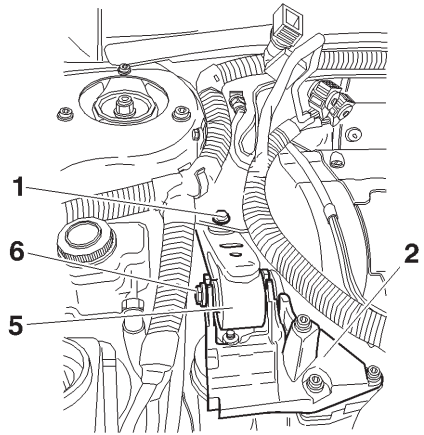
Check the position of the index (**b**).

If the index (**b**) is not in its adjustment position **«e»**, recommence the operations to tension the timing belt.

CHECKING AND SETTING THE VALVE TIMING

C8

Engine: 3FZ 2003 →



B1EP1BUC

Refitting (continued).

Refit:

The upper timing cover.
The RH engine support (**2**).
The torque reaction rod (**5**).

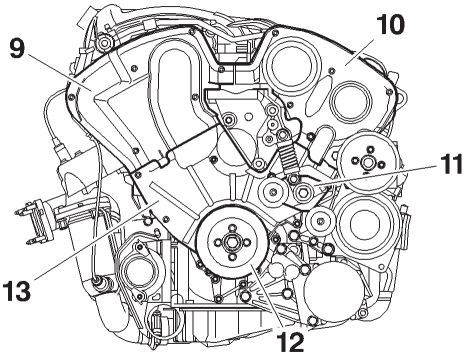
The screw (**1**), tighten to **4,5 m.daN**

The screw (**6**), tighten to **4,5 m.daN**.

Continue the refitting operations in reverse order to removal.

Refit the auxiliary drive belt (see corresponding operation).

C5	CHECKING AND SETTING THE VALVE TIMING



B1BP2BKC

Engine: XFX

Tools.

[1] Camshaft setting pegs	**(-).0187.B**
[2] Crankshaft setting peg	**(-).0187.A.**
[3] Fuel pressure take-off union	**4192-T**
[4] Belt retaining pin	**(-).0187.J**
[5] Exhaust camshaft hubs immobilising tool	**(-).0187.F.**
[6] Inlet camshaft hubs immobilising tool	**(-).0187.F**

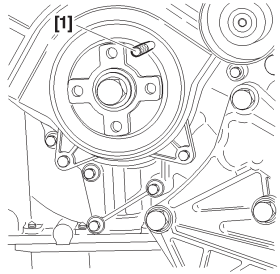
Remove the auxiliaries drive belt (*See corresponding operation*).

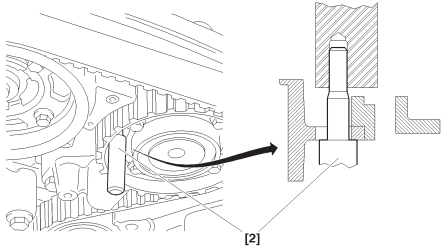
Checking the valve timing setting.

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

CHECKING AND SETTING THE VALVE TIMING

C5





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]**.

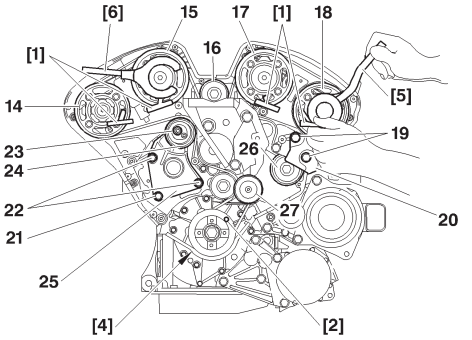
Refit:
- The lower timing cover (**13**).
- The upper timing covers (**9**) and (**10**).
- The crankshaft pulley (**12**).
- The roller / dynamic tensioner assembly (**11**).
- The power steering pulley.

- Complete the refitting of components.

- Initialise the ignition injection ECU.

B1EP08TC | B1EP15UD

C5 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**).

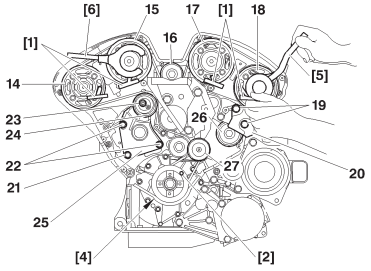
Remove the guide roller (**16**)

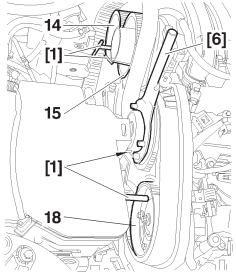
WARNING: mark the direction of fitting of the timing belt, in case the belt is to be reused

- Remove the timing belt.

CHECKING AND SETTING THE VALVE TIMING

C5





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 _ **turn**.
- Make sure that the pulleys are turning freely on the camshaft hub.
- Turn the camshaft pulleys in a clockwise direction, to end of slots.

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

- Fit the timing belt on the crankshaft pinion.
- Position the tool **[6]**.

Position the timing belt in the following sequence: (*Belt well tensioned*).

- The roller (**26**), the pulley (**18**), the pulley (**17**),
- Keep the timing belt well tensioned:
- Refit the guide roller (**16**), **tighten to 8 ± 0,8 m.daN.**

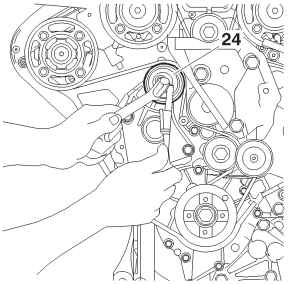
Position the timing in the following sequence:

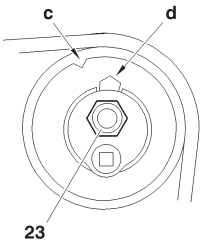
- The camshaft pulley (**15**), the camshaft pulley (**14**), the tensioner roller (**24**), the water pump pulley, and the guide roller (**27**).

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

B1EP15VD | B1BP2BLC

C5	CHECKING AND SETTING THE VALVE TIMING





Engine: XFX

Setting the valve timing (continued)

Adjusting the timing belt tension.

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

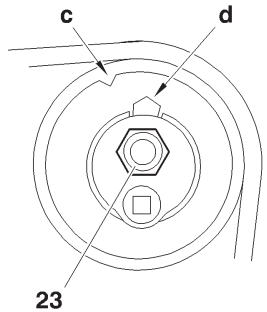
- Peg the crankshaft, using tool **[2]**, and the camshaft pulleys, using tool **[1]**.
- Untighten the nut (**23**) of the tensioner roller (**24**).

Adjust the belt tension, pivoting the roller (**24**) using tool (*type FACOM S.161*).

CHECKING AND SETTING THE VALVE TIMING

C5

Engine: XFX



B1EP15XC

Setting the valve timing (continued)

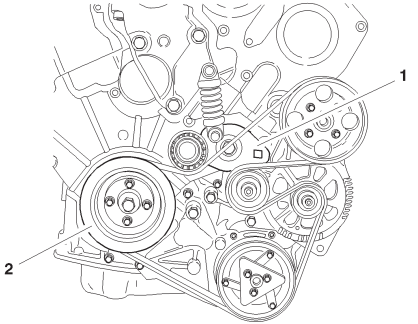
- Align the marks «**c**» and «**d**», without detensioning the timing belt.
(*Failing this, restart the operation of adjusting the belt tension*).
- Hold the tensioner roller (**24**).
- Tighten the nut (**23**), **tighten to 1 ± 0,1 m.daN.**
- Check the position of the tensioner roller.
- Remove the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

C8 CHECKING AND SETTING THE VALVE TIMING

Engine: XFW



B1EK004D

Tools.

[1] Camshaft setting pegs	**: (-).0187-B**
[2] Crankshaft setting peg	**: (-).0187-A**
[3] Belt retaining pin	**: (-).0187-J**
[4] Peg for checking camshaft settings	**: (-).0187-CZ**
[5] Tool for immobilising inlet camshaft hubs	**: (-).0187-C**
[6] Tool for immobilising exhaust camshaft hubs	**: (-).0187-F**
[7] Instrument for measuring belt tension	**: (-).0192**

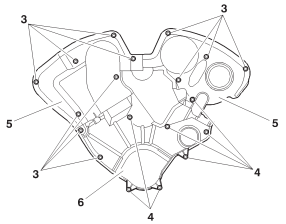
Removing.

Remove:
The front RH wheel
The RH wheelarch.
The front RH tie-bar.
The auxiliary drive belt (see *corresponding operation*).
The tensioner roller assembly (**1**).
The crankshaft pulley (**2**).

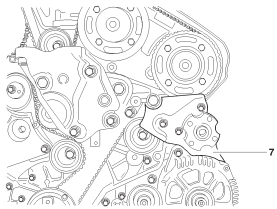
Support the engine using a stand.
Remove:
The upper RH torque reaction rod.
The RH engine support.

CHECKING AND SETTING THE VALVE TIMING

Engine: XFW



B1EK005D



B1EK006D

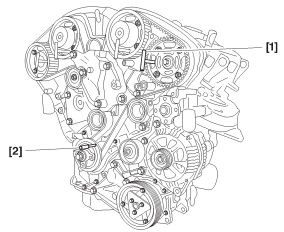
Removing (continued).

Remove:
The **twelve screws** (**3**) (6mm *external hexagonal adaptor*).
The **seven screws** (**4**) (7mm *external hexagonal adaptor*).
The **two** covers (**5**)
The cover (**6**)
The fixing screws of the power steering pump, then suspend the latter.
The support (**7**).

NOTE: The camshaft pegging operation can be performed without slackening the pinion screws or rotating the camshafts (using tools **[5]** and **[6]**; lightly oil the pegs **[1]** and **[2]** prior to fitting.

Peg in the sequence:

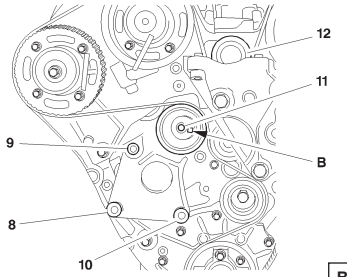
Camshafts, using tool **[1]**.
Crankshaft, using tool **[2]**



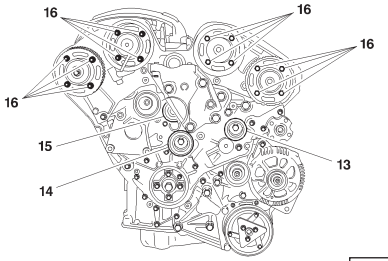
B1EK007D

C8

CHECKING AND SETTING THE VALVE TIMING



B1EK008D



B1EK009D

Engine: XFW

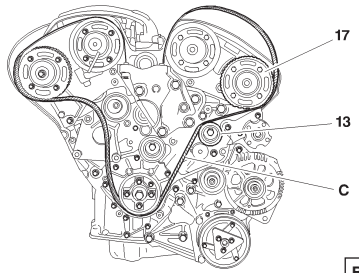
Removing (continued).

Remove screw (**8**).
Slacken screws (**9**) and (**10**) and nut (**11**).
Pivot the tensioner roller eccentric (clockwise), using tool **FACOM R 161** at «**B**».
Remove the guide roller (**12**).
Remove the timing belt, commencing with the tensioner roller and the coolant pump.

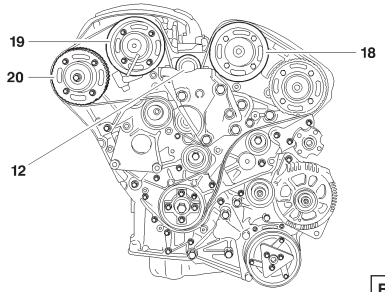
Refitting.

Make sure that the camshafts, as well as the crankshaft, are correctly pegged.
Check that the rollers (**13**) and (**14**), as well as the coolant pump (**15**) turn freely (no tight spots).
If replacing the belt, tighten the rollers (**13**) and (**14**) to **8 ± 0,8 m.daN**.
Slacken screws (**16**) by a _ **turn**.
Ensure that the camshaft pinions rotate freely on their hubs.
Turn the **four** camshaft pinions (clockwise), to end of slots.
Engage the timing belt on the crankshaft pinion.
Immobilise the belt, using tool **[4]**.

CHECKING AND SETTING THE VALVE TIMING



B1EK00AD



B1EK00BD

Engine: XFW

Refitting (continued).

Position the belt on the guide roller (**13**), belt at (**C**) well tensioned.

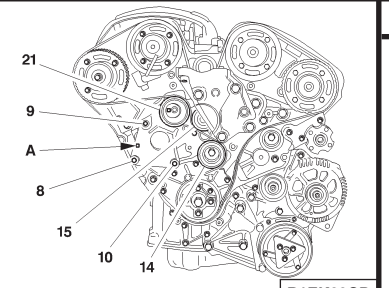
NOTE: Carefully turn the camshaft pinion in the opposite direction to the rotation of the engine in order to engage the belt on the pinion.

Engage the belt on the LH exhaust camshaft pinion (**17**).

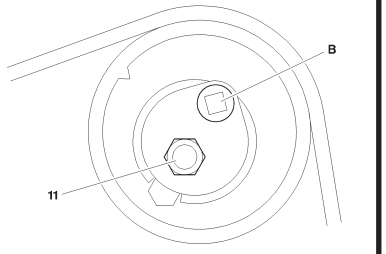
IMPERATIVE: The angular displacement value of the pinion relative to the timing belt should not be greater than the width of one tooth.

Engage the belt on the LH inlet camshaft pinion (**18**), as before.
Refit the roller (**12**), tighten to **8 ± 0,8 m.daN**.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EK00CD



B1EK00DD

Engine: XFW

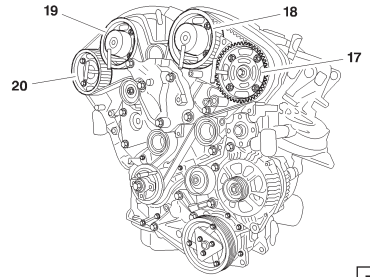
Refitting (continued).

Engage the belt on:
The roller (**13**).
The camshaft pinions, inlet (**19**) then RH exhaust (**20**), as before for the camshafts.
Simultaneously engage the belt on:
The roller (**21**).
The pump (**15**).
The roller (**14**).
Using tool **FACOM S.161**, at **«A»**, pivot the plate to be able to engage the screw (**8**).
Tighten screws (**8**), (**9**) and (**10**) to **2,5 ± 0,2 m.daN**.
Pivot the tensoner roller to tension the belt to the maximum (anti-clockwise), using tool **FACOM R.161** at **«B»**:
- SEEM CTI 901-1: **440 ± 15 SEEM units**,
- SEEM CTG 105.5: **83 ± 2 SEEM units**,
- SEEM CTG 105.6: **86 ± 2 SEEM units**.

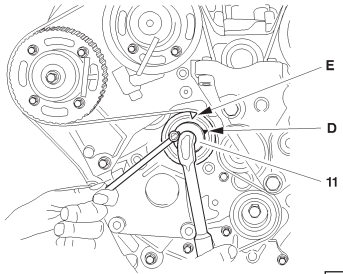
Tighten the nut (**11**) of the tensioner roller to **1 ± 0,1 m.daN**.

IMPERATIVE: Check that the camshaft pinions are not at end of slots (by removing a screw).
If they are, repeat the operation to refit the belt.

CHECKING AND SETTING THE VALVE TIMING — C8



B1EK00ED



B1EK0VRD

Engine: XFW

Refitting (continued).

Tighten at least two screws (**16**) per hub to **1 ± 0,1 m.daN**, in the order indicated (**17**), (**18**), (**19**) and (**20**).
Remove tools **[4]**, **[7]**, **[1]** and **[2]**.
Effect **two rotations** of the crankshaft (direction of rotation of the engine).

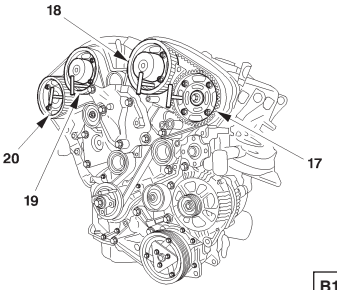
WARNING: Never rotate the engine backwards.

Peg the crankshaft, using tool **[2]**.
Slacken the nut (**11**) a _ **turn**.
Align the marks (**D**) and (**E**) of the tensioner roller, using tool **FACOM R.161**.
Tighten the nut (**11**) to **2,5 ± 0,2 m.daN**, without altering the position of the roller.
Remove the crankshaft setting peg **[2]**.
Effect **two rotations** of the crankshaft.

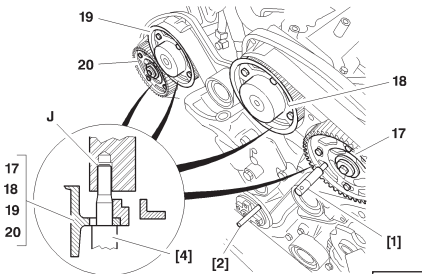
WARNING: Never rotate the engine backwards.

Peg the crankshaft, using tool **[2]**.
Check the position of the tensioner roller.
If the marks are not aligned, recommence the alignment of the marks (**D**) and (**E**) of the tensioner roller.

C8	CHECKING AND SETTING THE VALVE TIMING



B1EK00GD



B1EK00HD

Engine: XFW

Refitting (continued).

Peg the camshaft hubs, starting with LH exhaust (**17**) then (**18**), (**19**) and (**20**), using tool **[1]**, proceeding in the following way:

- **The peg goes in:** slacken by **45°** the fixing screws of the pinion on the camshaft hub.
- **The peg does not go in:** slacken by 45° the fixing screws of the pinion on the camshaft hub until the peg will go in.

ESSENTIAL:

Check that the camshaft pinions are not at end of slots (by removing a screw).

If they are, repeat the operation to refit the belt..

Tighten the pinions in the sequence below:

Pinions (**17**), (**18**), (**19**), (**20**) tighten to **1 ± 0,1 m.daN**.

Remove tools **[1]** and **[2]**

Checking the setting of the timing.

Effect **two rotations** (Normal direction of rotation of the engine).

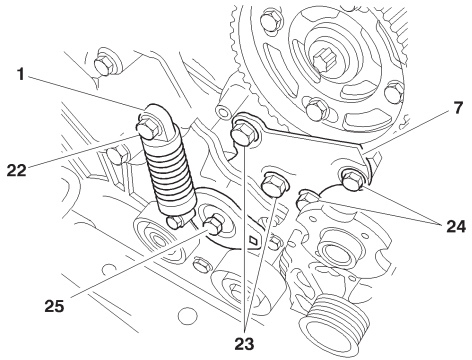
Imperative: Never turn the engine backwards.

Refit the crankshaft peg **[2]**.

Check that the peg for checking the camshaft settings **[4]** engages freely in the cylinder heads (**J**), as far as the camshaft pinions.

CHECKING AND SETTING THE VALVE TIMING

C8



B1EK00JD

Engine: XFW

Checking the setting of the timing (continued).

Should this not be the case, repeat the operation to refit the belt.
Remove the crankshaft peg **[2]**.

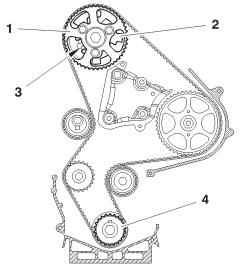
Refitting (continued).

Refit:
The power steering pump.
The support (**7**).
The tensioner roller assembly (**1**).
Tighten:
Screw (**22**) to **2,5 m.daN** + LOCTITE FRNETANCH.
Screw (**23**) to **4,0 m.daN** + LOCTITE FRNETANCH.
Screw (**24**) to **2,5 m.daN** + LOCTITE FRNETANCH.
Screw (**25**) to **6,0 m.daN** + LOCTITE FRNETANCH.
Tighten the crankshaft pulley screws to **2,5 ± 0,2 m.daN**.
Refit the auxiliary drive belt (see corresponding operation).
Complete the refitting operations in the opposite order to removal.

C5	SPECIAL FEATURES: CHECKING AND SETTING THE VALVE TIMING

Engines: RHY-RHS-RHZ RPO 9128 →

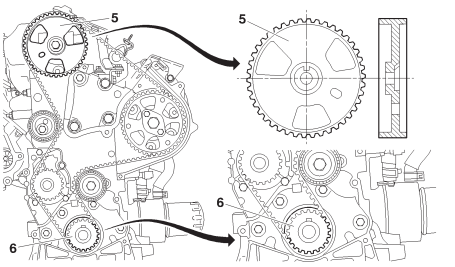
OLD FITTING: → RPO 9127



B1EP176D

(1) «Idler» camshaft pulley
(2) *Target for cylinder reference sensor.*
(3) *Camshaft hub.*
(4) «Fixed» crankshaft pinion.
*The determining of the tension of the timing belt is done on the camshaft pulley (**1**).*

NEW FITTING: RPO 9128 →



B1EP177D

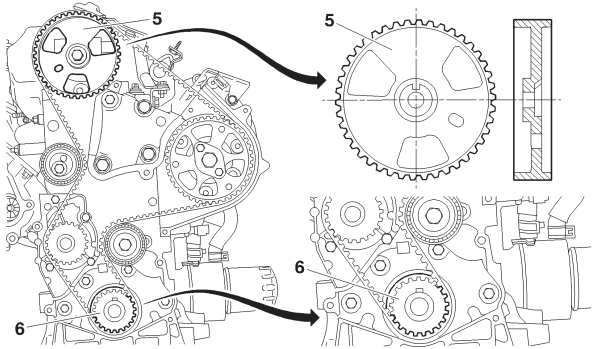
*The new timing on **8 valve engines** DW10TD (**RHY**) and DW10 ATED (**RHS-RHZ**) requires the following components:*
«Idler» crankshaft pinion
«Fixed» camshaft pulley.

(5) «Fixed» camshaft pulley (pulley with integral cylinder reference sensor target).
(6) «Idler» crankshaft pinion (with increased width keyway groove).
The determining of the tension of the timing belt is done on the crankshaft pinion (6).

SPECIAL FEATURES: CHECKING AND SETTING THE VALVE TIMING — C5

Engines: RHY - RHS - RHZ RPO 9128 →

NEW FITTING: RPO 9128 → (continued)



B1EP177D

The new fitting discontinues the following components:
- Camshaft hub.
- Cylinder reference sensor target.

Repair – Accessories drive pulley

Remove – Refit

WARNING: Peg the camshaft and the crankshaft before ever removing the accessories drive pulley (the pegging prevents any offsetting of the camshaft).

If necessary, apply a paint spot to mark the accessories drive pulley being replaced.

Replacement parts.

The Replacement Parts service markets the old as well as the new components.

C5	CHECKING AND SETTING THE VALVE TIMING

NOTE: Checking and setting the valve timing on engines: RHY-RHS-RHZ → RPO 9127
See Mechanic's Handbook 2003 pages 151 to 154

Engines: RHY-RHS-RHZ RPO 9128 →

Tools.

[1] Belt tension measuring equipment	**: 4122-T**
[2] Tension lever	**: (-).0188.J2.**
[3] Engine flywheel peg	**: (-).0188.Y.**
[4] Belt clamp	**: (-).0188.AD**
[5] Camshaft pulley peg	**: (-).0188.M**
[6] Engine flywheel lock	**: (-).0188.F.**
[7] Set of blocking plugs	**: (-).0188.T.**
[8] Pulley extractor	**: (-).0188.P.**
[9] 2 mm dia.peg	**: (-).0188.Q2**

B1EP159D

Removing

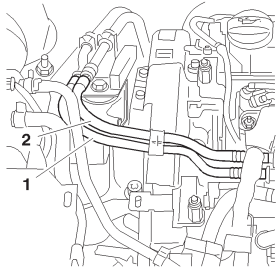
IMPERATIVE: Respect the safety and cleanliness requirements that are specific to high pressure diesel injection (HDi) engines.

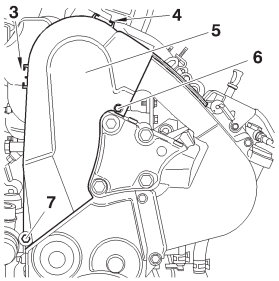
Undo the front RH wheel bolts.
Raise and support the vehicle on the front RH side.
Disconnect the battery negative terminal.
Remove:
The under-engine sound-deadening.
The front RH wheel.
The front RH splash-shield.
The engine cover.
Unclip and move aside the cooling hose.
Remove the accessories drive belt.
(See corresponding operation).

CHECKING AND SETTING THE VALVE TIMING

C5

ENGINES: RHY-RHS-RHZ RPO 9128 →





Uncouple, plug and move aside, using tool **[7]** , the fuel delivery pipe (**2**) and return pipe (**1**).

Remove:

Screws (**3**), (**4**) and (**6**).

Screw (**7**).

The upper timing cover (**5**).

WARNING: Refit screw (**7**) equipped with a spacer (**17 mm** thick), tighten the screw (**7**) to **1,5 ± 0,1 m. daN**.

NOTE: The screw (**7**) is one of the screws securing the coolant pump and is there for its sealing.

Put the gear lever in **5th** gear.

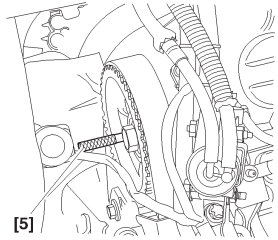
Turn the road wheel to turn the engine in its direction of rotation.

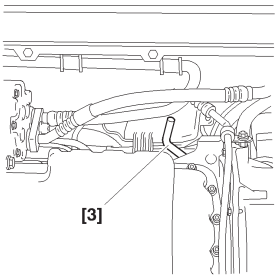
Orient the camshaft pulley in the pegging position, use a mirror if necessary.

Peg the camshaft, using tool **[5]**

Peg the engine flywheel, using tool **[3]**.

B1BP2R2C | B1EP1A7C

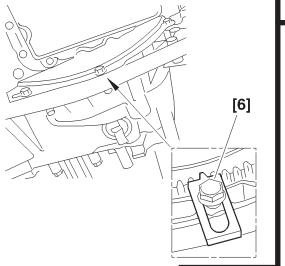




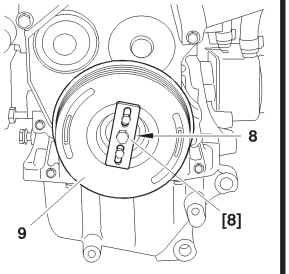
B1BP2H2C | B1BP2H3C

C5

CHECKING AND SETTING THE VALVE TIMING



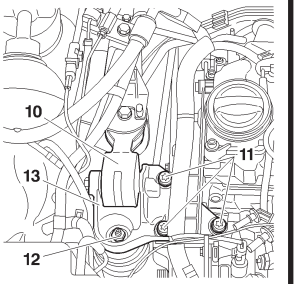
B1CP04BC



B1BP2R3C

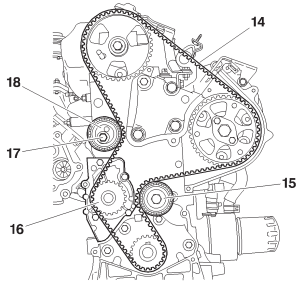
ENGINES: RHY-RHS-RHZ RPO 9128 →

Remove:
The fixings of the pipe linking the power steering pump with the rotary valve.
The clutch lower closing plate.
Lock the engine flywheel, using tool **[6]**.
Remove the screw (**8**).
Refit the screw (**8**) without its thrust washer.
Remove:
The accessories pulley (**9**), using tool **[8]**.
Tool **[6]**.
The lower torque reaction rod.
Support the engine by means of a workshop hoist.
Remove:
The bearing shell fitting (**10**).
The nut (**12**).
Screws (**11**).
The bracket (**13**).
NOTE: Lift then lower the engine with the workshop hoist, to have access to the timing cover fixing screws.
Remove:
The intermediate timing cover.
The lower timing cover.

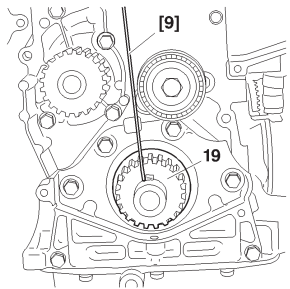


B1BP2R4C

CHECKING AND SETTING THE VALVE TIMING — C5



B1EP1A8D



B1EP1A9C

Engines: RHY-RHS-RHZ RPO 9128 →

Slacken the screw (**17**) of the tensioner roller (**18**).

Remove the timing belt (**14**).

Checks.

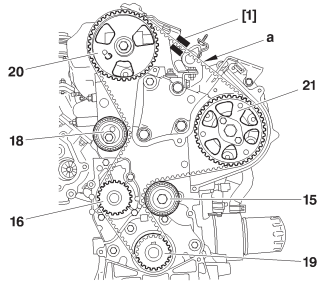
IMPERATIVE: Just before refitting, carry out the checks below:

Check that:
The rollers (**18**) and (**15**) turn freely (without play and without any tight spot).
The coolant pump pulley (**16**) turns freely (without play and without any tight spot).
There are no traces of oil leaks from the crankshaft and camshaft seals, etc.
The crankshaft pinion travels freely on the keyway.

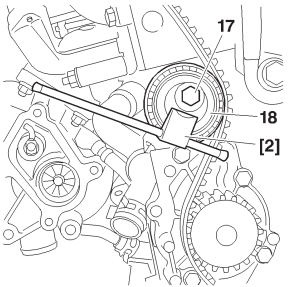
Replace defective components if necessary.

Peg the crankshaft pinion (**19**) by inserting tool **[9]** on the LH side of the keyway.

C5	CHECKING AND SETTING THE VALVE TIMING



B1EP1ABD



B1EP1ACC

Engines: RHY-RHS-RHZ RPO 9128 →

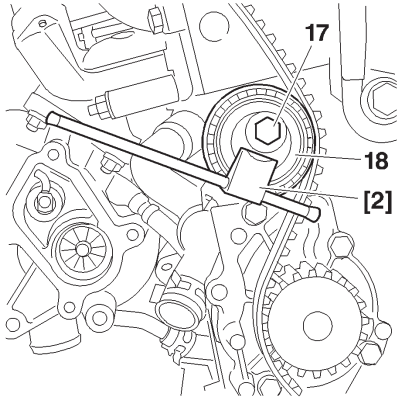
Reposition the timimg belt, belt at **«a»** well tensioned, in the following order:
Fuel high pressure pump pulley (**21**).
Guide roller (**15**).
Crankshaft pinion (**19**).
Coolant pump pinion (**16**).
Tensioner roller (**18**).
Position tool **[1]** on the belt at **«a»**.
Remove tools **[4]** and **[9]**
Turn the tensioner roller (**18**) anti-clockwise, using tool **[2]**, to attain an overtension of:

98 ± 2 SEEM units.

Tighten screw (**17**) of the tensioner roller to **2,5 ± 0,2 m.da N**.
Lock the flywheel by means of tool **[6]**.
Tighten the accessories drive pulley screw (**8**) to **7 ± 0,7 m.da N**.
Remove tools **[1]**, **[3]**, **[5]** and **[6]**.
Rotate the crankshaft **eight times** in the normal direction of rotation.
Peg:
The crankshaft, using tool **[3]**.
The camshaft drive pulley, using tool **[5]**.

CHECKING AND SETTING THE VALVE TIMING — C5

Engines: RHY-RHS-RHZ RPO 9128 →



B1EP1ACC

Lock the engine flywheel, using tool **[6]**.
Slacken: The accessories drive pulley (**8**).
The screw (**17**) of the tensioner roller (**18**).
Fit the tool **[1]**.
Turn the tensioner roller, using tool **[2]**, to attain a tension of:

54 ± 2 SEEM units.

Tighten screw (**17**) of the tensioner roller (**18**) to **2,5 ± 0,2 m.daN**.
Remove tool **[1]**.
Fit tool **[1]**.
The tension value should be:

54 ± 3 SEEM units.

ESSENTIAL: If the value is incorrect, recommence the operation.

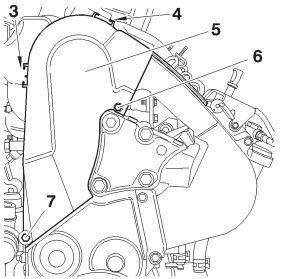
Remove tools **[1]**, **[3]**, **[5]** and **[6]**.
Rotate the crankshaft **two times** in the normal direction of rotation.
Peg:
The crankshaft, using tool **[3]**.
The camshaft drive pulley.

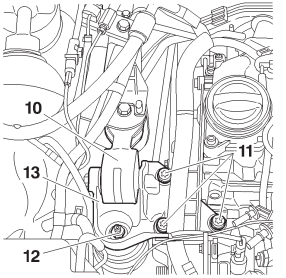
IMPERATIVE: If the pegging is not possible, recommence the operation.

C5

CHECKING AND SETTING THE VALVE TIMING

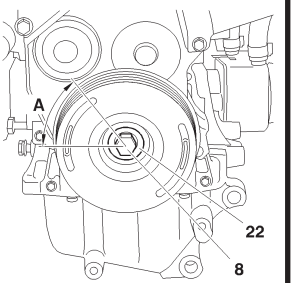
Engines: RHY-RHS-RHZ RPO 9128 →





Remove:
Tools **[3]** and **[5]**.
Screw (**7**) and the spacer.
Refit:
The lower, intermediate and upper covers (**5**)
Screw (**7**), **tighten to 1,5 ± 0,1 m.daN**
Screws (**3**), (**4**) and (**6**).
The bracket (**13**).
Screws (**11**) , **tighten to 6,1 ± 0,5 m.daN**
The nut (**12**), **tighten to 4,5 ± 0,5 m.daN**
Fit the bearing shell (**10**).
Take away the workshop hoist.
Clip the fuel delivery and return pipes.
Remove the tool **[7]**.
Couple:
The fuel delivery pipe (**12**). The fuel return pipe (**1**).
Coat the screw (**8**) with loctite **FRENETANCH**.
Refit the tool **[6]** and the screw (**8**) with the washer (**22**),
Tighten to **7 ± 0,2 m.daN** and angular tighten to **A = 60° ± 5°**
Refit the torque reaction rod on the lower engine support.
Remove the tool **[6]**.
Reposition and reclip the cooling hose.
Complete the refitting of components in reverse order to removal.

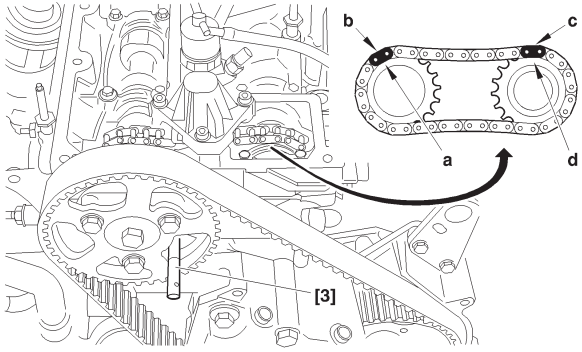
B1EP1A7C | B1BP2R4C



B1EP1ADC

CHECKING AND SETTING THE VALVE TIMING

C5



B1EP159D

Engine: 4HX

Tools

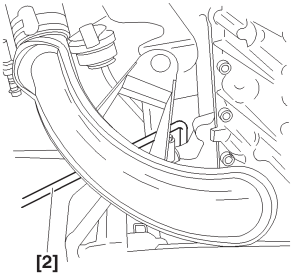
[1] Belt tension measuring instrument	**: 4122-T**
[2] Engine flywheel peg	**: (-).0188.X.**
[3] Tension lever	**: (-).0188.Y.**
[4] Belt compression spring	**: (-).0188.K.**
[5] Camshaft pinion peg	**: (-).0188.M.**
[6] Engine flywheel lock	**: (-).0188.F.**
[7] Set of blocking plugs	**: (-).0188.T.**

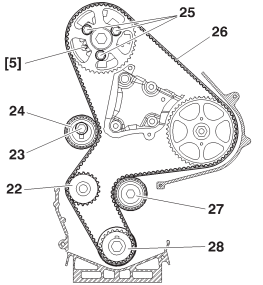
IMPERATIVE: Respect the safety and cleanliness recommendations specific to high pressure diesel injection (HDi) engines.

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*).

C5	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*).

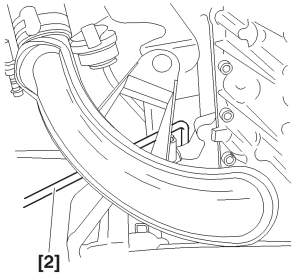
If the marks on the chains and pinions are coinciding, continue the checking operations.

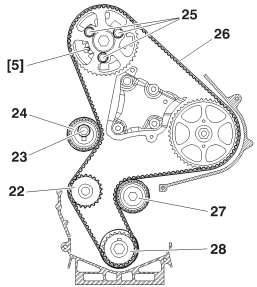
Peg:
- The crankshaft, using tool **[2]**.
- The camshaft pinion, using tool **[5]**

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]**.

CHECKING AND SETTING THE VALVE TIMING

C5





Engine: 4HX

Setting the valve timing.
- Turn the crankshaft to bring camshaft to its pegging point.
- Peg the crankshaft, using tool **[2]**.
- 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*).

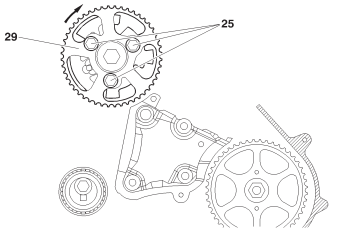
NOTE: Replace defective components (*If necessary*).

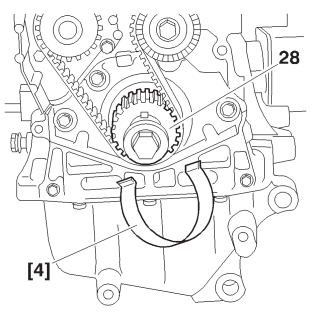
B1BP298C | B1EP15AD

C5

CHECKING AND SETTING THE VALVE TIMING

Engine: 4HX





Setting the valve timing (continued).

Refit

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

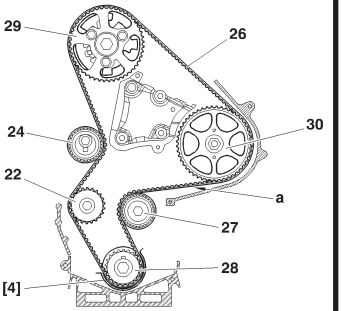
Reposition the timing belt, keeping the belt tight at **«a»**, in the following order:

- Guide roller (**27**).
- Fuel high pressure pump pinion (**30**).
- Camshaft pinion (**29**).
- Water pump pinion (**22**).
- Tensioner roller (**24**).

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

- Remove the tool [4].

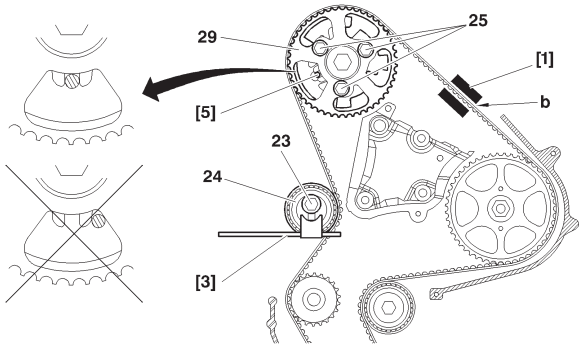
B1EP15BD | B1EP15CC



B1EP15DD

CHECKING AND SETTING THE VALVE TIMING

C5



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:

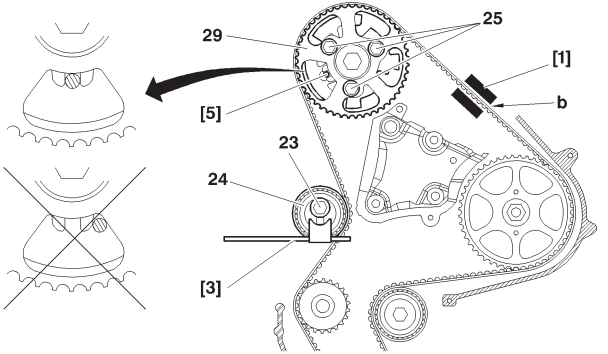
106 ± 2 SEEM units.

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**.

C5	CHECKING AND SETTING THE VALVE TIMING



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.

CHECKING AND SETTING THE VALVE TIMING — C8

Engines: RHT-RHW-RHM-4HW

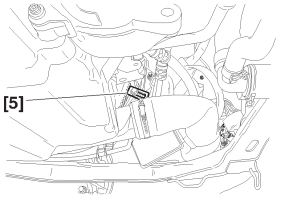
Tools:

[1] Instrument for measuring belt tension SEEM C.TRONIC	**: (-).0192**
[2] Crankshaft setting peg (engine **DW12TED4**)	**: (-).0188-X**
[3] Camshaft peg	**: (-).0188-M**
[4] Belt retaining pin	**: (-).0188-K**
[5] Engine flywheel stop	**: (-).0188-F**
[7] Tensioning lever	**: (-).0188-J2**
[8] Pulley extractor	**: (-).0188-P**
[9] Crankshaft setting peg (engine **DW10ATED4**)	**: (-).0188-Y**
[10] Crossmember	**: 4090-T**
[11] Tie-bar support	**: 4176-T**
[12] Retaining support	**: (-).0911-J**
[13] Support with adjustable screw	**: (-).0911-H**
[14] Set of plugs	**: (-).0188-T**

Removing.

Remove:

- The front RH splashshield.
- The under-engine shield.
- The auxiliary drive belt (see corresponding operation).



B1EK0TVC

Engines: RHT-RHW-RHM-4HW

Removing.

Remove:
- The closing panel of the clutch casing (block the engine flywheel, tool **[5]**.
- The auxiliary drive pulley screw.

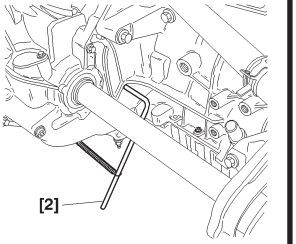
Refit the screw without the washer.

Remove:
- The auxiliary drive pulley, using tool **[8]**.
- The tool **[5]**.

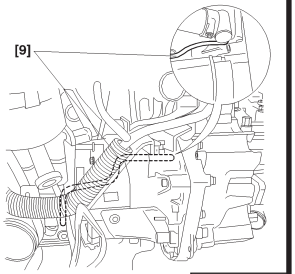
Turn the crankshaft.

Peg:

- The engine flywheel, tool **[2]** (engine **DW12TED4**).
- The engine flywheel, tool **[9]** (engine **DW10ATED4**).



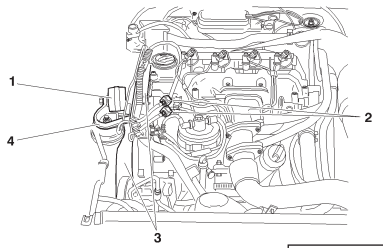
B1EK0TUC



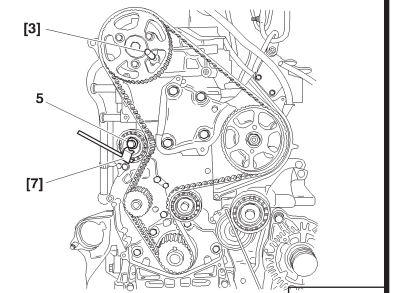
B1EK1T4D

CHECKING AND SETTING THE VALVE TIMING

C8



B1EK1TTD



B1EK1T2D

Engines: RHT-RHW-RHM-4HW

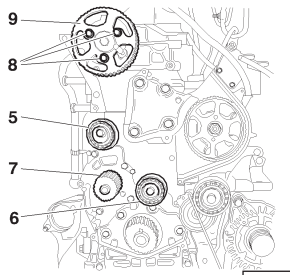
Removing (continued).
Disconnect the battery.
Move aside the header tank.
Position the tools for supporting the engine **[10]**, **[11]**, **[12]** and **[13]**.
Remove:
- The scuttle panel grille.
- The torque reaction rod (**1**).
- The fuel unions (**2**).

IMPERATIVE: Plug the apertures using tool [13].

Protect the radiator harness with strong cardboard cut out to the dimensions of the radiator.
Remove:
- The RH engine support (**4**).
- The timing covers (**3**).
- The lower timing cover.

Peg the camshaft pulley, using tool **[3]**.
Slacken the tensioner roller fixing (**5**).
Retighten the fixing to the position of maximum de-tension. (Tighten to **0,1 m.daN**).
Remove the timimg belt.

CHECKING AND SETTING THE VALVE TIMING



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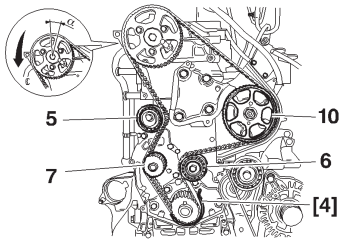


B1EK0TYC

Engines: RHT-RHW-RHM-4HW

Refitting.

IMPERATIVE: Check that the rollers (5) and (6) as well as the coolant pump (7) turn freely (no play, no tight spot), check also that these rollers are not noisy and/or that they are not throwing out grease.

In the event of replacement, tighten the roller (**6**) to **4,3 ± 0,4 m.daN**.

Slacken the screws (**8**)

Check that the pulley (**9**) turns freely on its hub.

Tighten the screws (**8**) by hand.

Slacken the screws (**8**) by a **1/6 turn**.

Turn the pulley (**9**) (clockwise), to end of slots.

Refit the timing belt, well tensioned, in the following order:

- Crankshaft (immobilise the belt, using tool **[4]**).
- Guide roller (**6**).

Engage the timing belt on the pulley (**10**).

Carefully turn the camshaft pinion in the opposite direction to the rotation of the engine in order to engage the belt on the pinion.

WARNING: The angular displacement **«a»** of the pulley relative to the belt should not be greater than the width of one tooth.

Engage the belt on the tensioner roller (**5**) and on the coolant pump pinion (**7**).

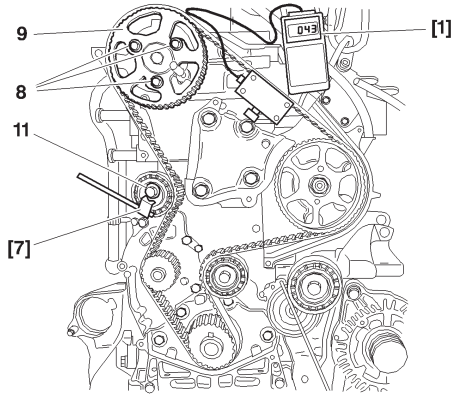
Turn the tensioner roller (**5**) (anti-clockwise), so as to put the tensioner roller (**5**) in contact with the belt.

Pre-tighten the fixing screw of the tensioner roller to **0,1 m.daN**.

Remove the tool **[4]**.

CHECKING AND SETTING THE VALVE TIMING

C8



B1EK1TSD

Engines: RHT-RHW-RHM-4HW

Pre-tensioning the timing belt.

Position the tool **[1]**.

NOTE: Check that the tool is not in contact with anything else around it.

Turn the roller (**5**) (anti-clockwise), using tool **[7]** to obtain a tension of:

98 ± 2 SEEM units.

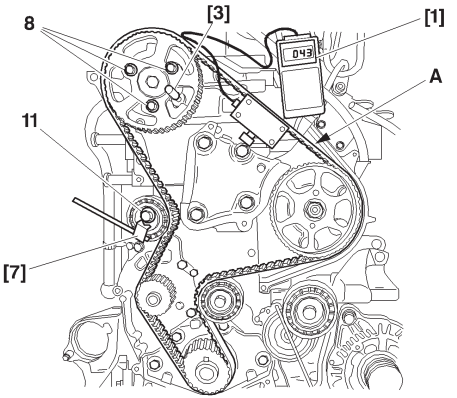
Tighten the screw (**11**) to **2,3 ± 0,2 m.daN** (without modifying the position of the roller).
Remove the tool **[1]**.

IMPERATIVE: By removing one of the screws (8) on the pulley (9), make sure that these screws (8) are not at end of slots. (If they are, repeat the operation to refit the timing belt).

Bring the screws (**8**) into contact with the pulleys.
Tighten the screws (**8**) to **2 ± 0,2 m.daN**.
Remove the setting pegs **[3]** and **[2]**.
Effect eight turns of the engine in the normal direction of rotation.

IMPERATIVE: Never turn the crankshaft backwards.

C8 CHECKING AND SETTING THE VALVE TIMING



B1EK1T1D

Engines: RHT-RHW-RHM-4HW

Tensioning the timing belt.

Refit the pegs **[2]** and **[3]**.
Slacken the screws (**8**).
Tighten the screws (**8**), by hand.
Slacken the screws (**8**) by a **1/6 turn**.
Slacken screw (**11**).
Place tool **[1]** on the belt at (**A**).
Turn the roller (anti-clockwise),using tool **[7]** to obtain a tension of:

51 ± 2 SEEM units.

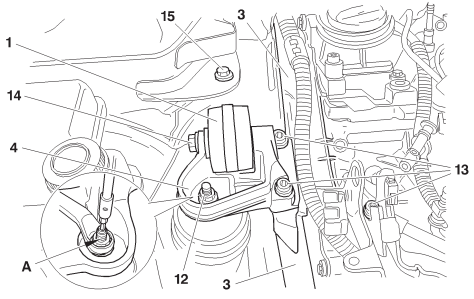
Tighten screw (**11**) to **2,3 ± 0,2 m.daN**. (without modifying the position of the roller).
Tighten the screws (**8**) to **2 ± 0,2 m.daN**.
Remove tool **[1]** to release the internal forces.
Refit the tool **[1]**.
The tension value should be between **48** and **55 SEEM units**.

IMPERATIVE: Value noted outside the tolerance: detension the belt and recommence the operation

Remove tools **[1]**, **[2]** and **[3]**.

CHECKING AND SETTING THE VALVE TIMING

C8



B1EK1T0D

Engines: RHT-RHW-RHM-4HW

Checking the timing setting.

Effect **two turns** of the engine in the normal direction of rotation, without turning the engine backwards.
Refit the peg **[2]**.

IMPERATIVE: Check visually that the offset between the hole in the camshaft hubs and the corresponding pegging hole is not more than 1 mm.

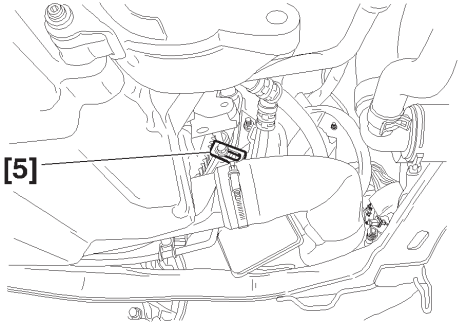
Remove the peg **[2]**.
Refit:
- The lower timing cover.
- The elements (**3**) of the timing cover.
- The engine support (**4**).
- The screws (**13**), tighten to **6,1 ± 0,6 m.daN**.
- The nut (**12**), tighten to **4,5 ± 0,4 m.daN**.

IMPERATIVE: Apply an opposite torque at (A).

Refit:
- The torque reaction rod (**1**).
- Screw (**14**), tighten to **5 ± 0,5 m.daN**.
- Screw (**15**), tighten to **5 ± 0,5 m.daN**.

C8

CHECKING AND SETTING THE VALVE TIMING



B1EK0TVC

Engines: RHT-RHW-RHM-4HW

Refit:
- The tool **[5]**.
- The auxiliary drive pulley

Clean the threads of the pulley screw going into the crankshaft, (Tap **M16x150**).
Brush the screw threads.

Tightening torque for the screw:
Tighten to: **7 ± 0,7 m.daN (+ LOCTITE FRENETANCH)**
Angular tighten: **60° ± 6° (Tool FACOM D360).**

Check the tightening: **26 ± 2,6 m.daN**

Refit the auxiliary drive belt (see corresponding operation).

Remove tool **[5]**.
Refit the closing plate, tighten to **0,7 m.daN**.
Tighten the wheel bolts to **10 m.daN**.
Complete the refitting in reverse order to removal.
Initialise the various ECUs.

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

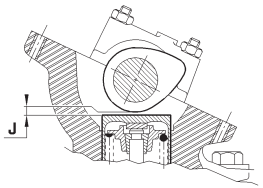
● Inlet

⊗ 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

C5	CHECKING THE OIL PRESSURE							
To be read with the Petrol and Diesel correspondence tables								
	C5							
Engine type	**6FZ**	**RFN**	**RLZ**	**XFX**	**RHY**	**RHS**	**RHZ**	**4HX**
Temperature (°C)	90°C							
Pressure (Bars)	1,5		5	7 - 8	2		4	
Rpm	1000		3000	900 - 3000	1000		4000	
	Tools (Kit 4103)							
2279-T.Bis	X	X	X	X	X	X	X	X
4103-T.B	X	X	X	X	X	X	X	X
7001-T	X	X	X					
4202-T				X	X	X	X	X

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

CHECKING THE OIL PRESSURE							C8
To be read with the Petrol and Diesel correspondence tables							
	C8						
Engine type	**RFN**	**3FZ**	**XFW**	**RHW**	**RHT**	**RHM**	**4HW**
Temperature (°C)	80°C						
Pressure (Bars)	1,5 - 5	3,4 - 6,9	1,2 - 5	2		4	
Rpm	1000 - 3000	1000 - 4000	650 - 3000	1000		2000	
	Tools (Kit 4103)						
2279-T.Bis	X	X	X	X	X	X	X
4103-T.B	X	X	X	X	X	X	X
7001-T			X				
4202-T	X	X		X	X	X	X

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

C5 C8	OIL FILTERS							
	Petrol				Diesel			
	EW			ES9J4S	DW			
	1.8i 16V	2.0i 16V	2.0i 16V HPi	3.0i 24V	2.0 HDi			2.2 HDi
	6FZ	RFN	RLZ	XFX	RHY	RHS	RHZ	4HX
C5	1109 T1				1109 T1			
				1109 S8				

	Petrol			Diesel			
	EW		ES9J4S	DW			
	2.0i 16V	2.2 16V HPi	3.0i 24V	2.0 16V HDi			2.2 HDi
	RFN	3FZ	XFW	RHW	RHT	RHM	4HW
C8	1109 T1			1109 T1			
			1109 S8				

PURFLUX = 1109 T1 – 1109 S8

FILLING AND BLEEDING THE COOLING CIRCUIT

C5 C8

TOOLS

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

ESSENTIAL: Respect the safety and cleanliness recommendations.

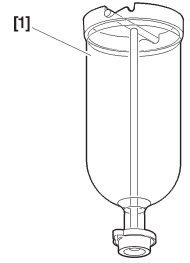
- The draining and refilling operations can be carried out by means of a WINN'S coolant replacement apparatus or similar; **it is essential to follow the instructions when using this apparatus.**

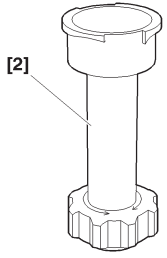
Filling and bleeding

- Fit the cylinder adaptor **[2] 4222-T** and the filling cylinder **[1] 4520 -T**.
- Use the coolant to ensure protection between **-1 5°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 - C8		IDLING - DEPOLLUTION						
Vehicle		Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content	
					Manual gearbox	Auto. gearbox: N engaged	CO	CO_2
C5	1.8i 16V	6FZ	L4 IF/L5	SAGEM S2000	700		< 0,5	> 9
	2.0i 16V	RFN	IF/L5	M. MARELLI 48P2	800			
	2.0i 16V HPi	RLZ	L4	SIEMENS SIRIUS 81	900			
	3.0i V6	XFX	IF/L5	BOSCH ME 7.4.6.	650	600		
C8	2.0i 16V	RFN	IF/L5	M. MARELLI 4MP2	800		< 0,5	> 9
	2.2i 16v	3FZ	IF/L5	M. MARELLI 4MP2				
	3.0i V6	XFW	IF/L5	BOSCH ME 7.4.6.	650	600		

PETROL INJECTION							C5 - C8
	C5				C8		
	1.8i 16V	2.0i 16V	2.0i 16V HPi	3.0i V6	2.0i 16 V	2.2i 16 V	3.0i V6
Engine type	**6FZ**	**RFN**	**RLZ**	**XFX**	**RFN**	**3FZ**	**XFW**
Emission standard	L4 - IF/L5	IF L5	L4	IF/L5	IF L5	IF L5	IF/L5
Make **Injection type**	SAGEM S2000	M.MARELLI 48P2	SIEMENS SIRIUS 81	BOSCH ME 7.4.6	M.MARELLI 4MP2	M.MARELLI 4MP2	BOSCH ME 7.4.6
Fuel pressure (bars)	3,5	3,5	5	3,5	3,5	3,5	3,5
Overspeed cut-off (rpm)	6500	6530	5500	6520	6000	5650	6520
Injection cut-in during deceleration (rpm)	12,2	14,5	1,88	16	14,5	14,5	16
Injector resistive value (ohms)	3 800 at 10°C		2500 at 20°C		800 at 50°C		230 at 90°C
Engine coolant temperature sensor resistive value (ohms)	Stepper motor: 53						
Idling actuator or stepper motor resistive value (ohms)	3 800 at 10°C		2500 at 20°C		800 at 50°C		230 at 90°C

DEPOLLUTION TECHNICAL CHECKS (FRANCE)

All Types Petrol CO Corrected (In %)

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.**

All Types Diesel (m^{-1})

01/96 →

Atmospheric engine.

Less than 2.5 m^{-1}

Turbocharged engine.

Less than 3.0 m^{-1}

EMISSION STANDARDS

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	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	With oxygen sensor, without catalytic converter
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	

EMISSION STANDARDS								
STANDARD			APPLICATIONS			NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A/S	RP					
US 83	Z	US 83	Petrol Diesel	Private vehicles: • certain non-EEC European countries • certain Export countries	Current	→ Adoption of U.S. standard	With oxygen sensor and catalytic converter for petrol vehicles
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	

EMISSION STANDARDS

STANDARD			APPLICATIONS			NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A/S	RP					
US 84 LDT	X1	US 84	Petrol Diesel	Private 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	Private vehicles: • certain non-EEC European countries • certain Export countries	Current	→ Adoption of the U.S. standard for light utility vehicles	
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	

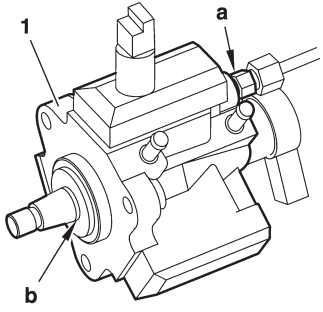
EMISSION STANDARDS								
STANDARD			APPLICATIONS			NOTES	CHARACTERISTICS
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A/S	RP					
EURO 2 **(EURO 96)**	L3	CEE 95	Petrol Diesel	Private vehicles: < 6 seats and < 2.5 tonnes • new models • existing models	 01/96 → 01/97 →	Brussels Directive 94/12 → EURO 93 standard made stricter	With oxygen sensor and reinforced catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.
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 3: 1700 kg	With oxygen sensor and reinforced catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.

EMISSION STANDARDS

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 3: 1760 kg	With 2 oxygen sensors and catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles. With EOBD on-board diagnosis.
EURO 4	IF / L5		Petrol	Private vehicles: All Types • new models • existing models	 → 01/2005 → 01/2006	Brussels Directive 99/102 → EURO 3 standard (L4) made stricter → Fiscal incentives	With 2 oxygen sensors and catalytic converter for petrol vehicles. With EOBD on-board diagnosis.

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 RHW RHT RHM 4HX 4HW



B1HP19LC

Cleaning.

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

Fuel supply circuit.

- Required fuel: diesel.

Electric circuit.

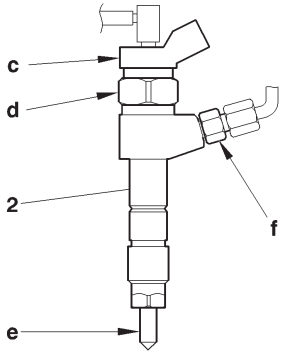
- Swapping injection ECUs between two vehicles will render it impossible to start either vehicle.
- It is forbidden to supply a diesel injector with 12 volts.

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

C5 - C8	PROHIBITED OPERATIONS: HDi DIRECT INJECTION SYSTEM	
Engines: RHY-RHS-RHZ-4HX	**Engines: RHY RHS RHZ 4HX RHW RHT RHM 4HW**	**Engines: RHW-RHT-RHM-4HW**



B1HP19NC

Diesel injectors.

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

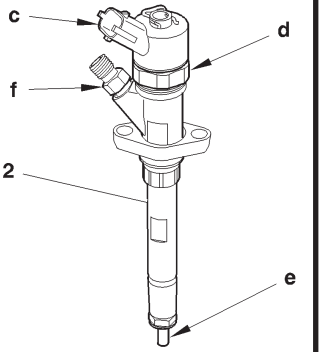
Do not separate the following components from the diesel injector carrier **(2)**:

- 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.



B1HP19MC

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.

C5 - C8	SAFETY REQUIREMENTS: HDi DIRECT INJECTION SYSTEM

Engines: RHY RHS RHZ RHW RHT RHM 4HX 4HW

CLEANLINESS REQUIREMENTS.

Preliminary operations

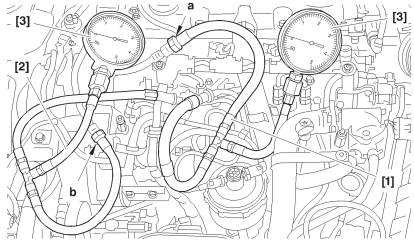
IMPERATIVE: The technician should wear clean overalls.
Before working on the injection system, it may be necessary to clean the apertures of the following sensitive components:
(refer to corresponding procedures).
- Fuel filter.
- High pressure fuel pump.
- Third piston deactivator.
- High pressure regulator.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

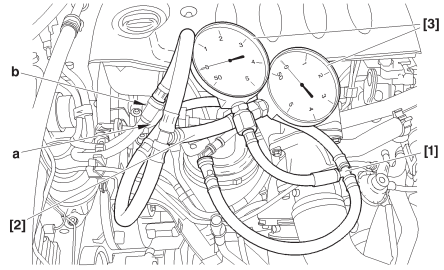
CHECKS: LOW PRESSURE FUEL SUPPLY CIRCUIT

C5

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] Extension	**: 4251-T.**	

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

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

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

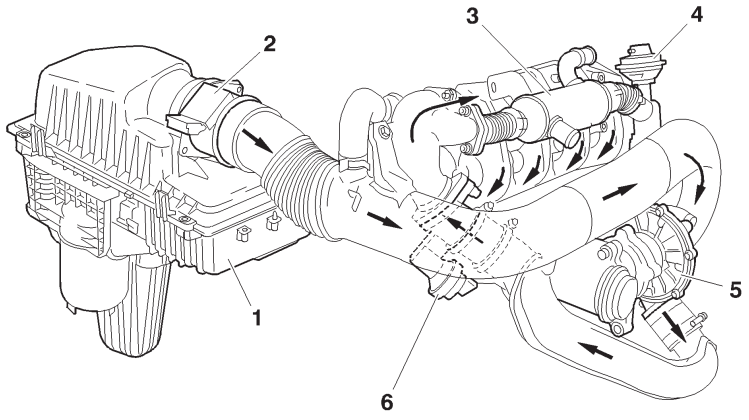
Check: diesel injector return flow (Table below)

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

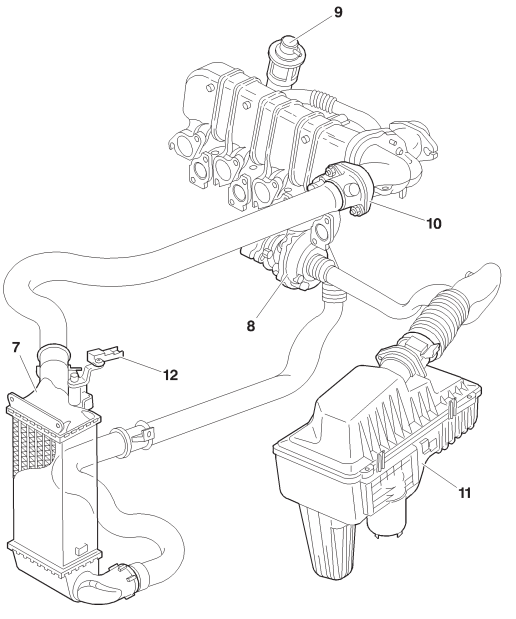


B1HP1A6D

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	AIR SUPPLY CIRCUIT SPECIFICATION



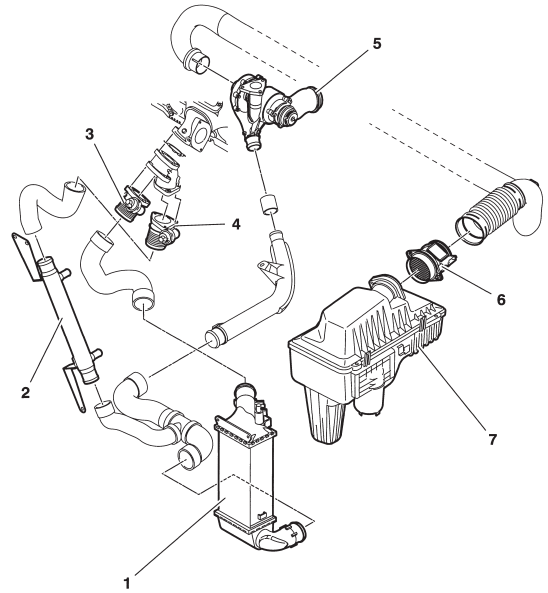
B1HP1A7P

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

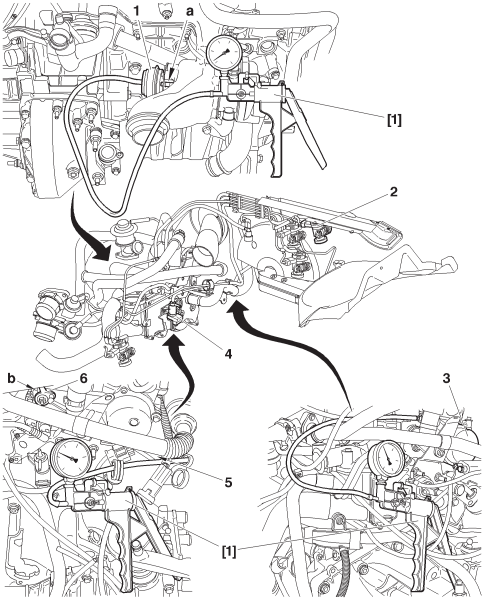


B1HP1BYP

Engine: 4HX

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

C5	CHECKS: AIR SUPPLY CIRCUIT



B1HP1ARP

Engine: 4HX

ESSENTIAL: Respect the safety and cleanliness recommendations.

Tool.

[1] Manual vacuum pump: **FACOM DA 16.**

Checks.

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

Engine: 4HX

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

Boost vacuum regulation electrovalve.
- Connect the tool **[1]** between the electrovalve **(2)** and the valve **(1)**.

Compare readings with the values in the table below.

Engine speed (rpm)	Vacuum (Bar)
780	**0,6 Bar**
4000	**0,25 Bar**

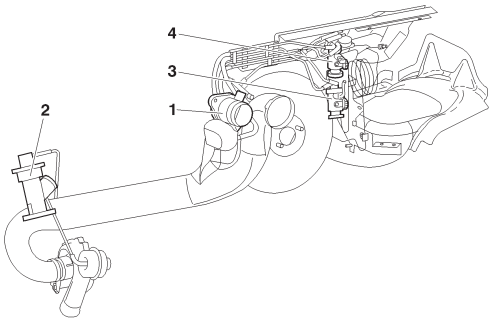
Boost pressure regulation valve.
- Connect the tool **[1]** on the valve **(1)**. (Grey marking on pipe).
- Appy a vacuum of **0.8 ba**r. The rod **"a"** should move **12 ± 2 mm.**
- Rod **"a"** should be moved **12 mm**

«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 Bar**
4000	**0,6 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».**

C5 CHECKS: EXHAUST GAS RECYCLING CIRCUIT



B1HP1BVD

Engines: RHY-RHS-RHZ

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

Tools

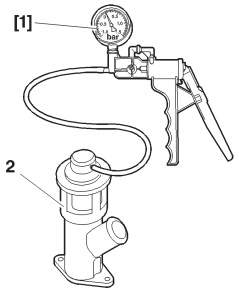
[1] Manual vacuum pump : FACOM DA 16.

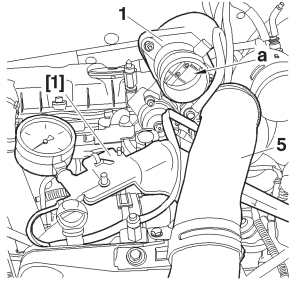
ESSENTIAL: Respect the safety and cleanliness requirements specific to high pressure diesel injection (HDi) engines.

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

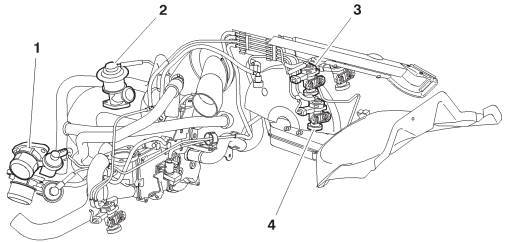
- Connect tool **[1]** on the **EGR** valve capsule take-off **(2)**.
- Apply a vacuum of approx. **0.6 bar** to activate the **EGR** valve..
- In abruptly suppressing the vacuum, the valve should click and lock itself back on its seating
- Repeat the operation several times.

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

C5	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.

Electrovalve (EGR).

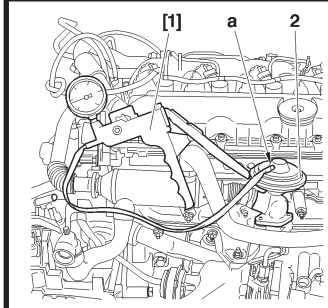
- Check, not under load, between the electrovalve (**3**) (*blue connector*) and the **EGR** valve (**2**) *(tube with blue marking).*
- Connect the tool **[1]** between the electrovalve (**3**) and the EGR valve (**2**).
- Compare readings with the values in the table below.

Butterfly housing electrovalve

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

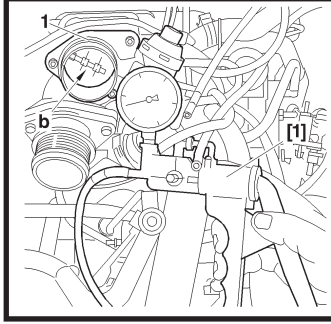
Engine speed (rpm)	Vacuum value (bar)
780	**0,5 Bar**
2500	**0 Bar**

Engine: 4HX



EGR valve

- Connect tool **[1]** on the take-off (**a**) of the **EGR** valve capsule (**2**).
- Apply a vacuum of approx. **0.6 bar** to activate the **EGR** valve.
- In abruptly suppressing the vacuum, the valve should click and lock itself back on its seating.
- Repeat the operation several times.



Butterfly housing

- Remove the air duct between the air/air exchanger and the butterfly housing (**1**).
- Disconnect the tube (*white marking*) on the electrovalve (**4**) (*black connector*).
- Connect tool [**1**] on the tube with the white marking.
- Apply a vacuum of approx. **0.8 bar**, the flap (**b**) of the butterfly housing (**1**) should be closed.

B1BP29NC | B1BP29PC

PARTICLE FILTER SAFETY AND CLEANLINESS REQUIREMENTS

General.

ESSENTIAL: Given the very high pressures prevailing in the fuel high pressure circuit (1600 Bars), respect the following regulations.

- It is forbidden to smoke in the immediate proximity of the high pressure circuit during a repair.
- Avoid working close to flames or sparks.

When the engine is running:

- Do touch the fuel high pressure circuit.
- Always keep out of range of possible projections of fuel, which could cause serious injuries.
- Do not place your hand near to any leak on the fuel high pressure circuit.
- After the engine has stopped, wait 30 seconds before starting any operation.

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

Safety rules.

IMPERATIVE: Wait at least an hour before starting any repair on the exhaust line.

Forced regeneration of the particle filter:

Check that there are no aerosols or inflammable products inside the vehicle's boot.

Wear high temperature gloves.

Connect the vehicle to a gas extractor approved for this type of operation.

IMPERATIVE: In the absence of the required installations, carry out the forced regeneration of the particle filter outside the workshop, in a concreted area well away from any inflammable materials. Place the vehicle in the high position.

PARTICLE FILTER SAFETY AND CLEANLINESS REQUIREMENTS

Operations on the fuel additive circuit.

IMPERATIVE: For all operations on the additive circuit, wear protective goggles and gloves that are resistant to hydrocarbons.

The work area must be ventilated.

In the event of any significant dispersion of additive:

- Wear a breathing mask for filtering the particles.
- Recover as much of the product as possible.
- Place the product thus recovered in an appropriately labelled container.
- Wash the soiled area with copious amounts of water.
- Dispose of materials and solid residues in an authorised recovery point.

IIMPERATIVE: The filling kit should be recycled following a repair. All «Eolys» additive containers that have been opened should be disposed of.

Cleanliness rules.

ESSENTIAL: The operator should wear clean overalls.

Before working on the injection circuit, it may be necessary to clean the unions of the following sensitive components (see corresponding operations):

- Fuel filter.
- Fuel high pressure pump.
- Fuel high pressure regulator.
- Fuel high pressure common injection rail.
- Fuel high pressure piping.
- Diesel injector carriers.

IMPERATIVE: After dismantling, immediately blank the unions of the sensitive components with plugs, to prevent any ingress of impurities.

SPECIAL FEATURES: FORCED REGENERATION OF THE PARTICLE FILTER

Tools
Diagnostic stations : **LEXIA** or **PROXIA.**
Imperative: Respect the safety and cleanliness requirements.

Forced regeneration of the particle filter.
IMPERATIVE: Respect the safety and cleanliness requirements specific to HDi engines.
ESSENTIAL: Connect the vehicle to a gas extractor approved for this type of operation.
In the absence of the required installations, carry out the forced regeneration of the particle filter outside the workshop, in a concreted area well away from any inflammable materials. Place the vehicle in the high position.
WARNING: Check that the fuel level is sufficient (at least **20 litres**).
Start the engine and allow it to warm up (**60°C** minimum).
Connect the diagnostic tool to the vehicle's central socket.
Trigger the regeneration cycle, with the diagnostic tool.
Automatic running of the regeneration cycle of the particle filter:
Autocheck by the engine ECU.
Stabilisation of engine speed at **4000 rpm**, operating with post injection.
Change to idling speed (for **30 seconds**).
Stabilisation of engine speed at **3000 rpm**, checking of the efficiency of the regeneration of the particle filter.
Change to idling speed.
NOTE: Let the engine run at idling speed for the benefit of cooling.
Stop the engine.
IMPERATIVE: Wait for at least an hour before any operation on the exhaust line.

SPECIAL FEATURES OF THE PARTICLE FILTER (FAP)

Evolution / particle filter additive

Vehicle concerned.

C5	**(RHS RHZ 4HX)**	**BOSCH EDC15C2 injection system**
C8	**(RHT 4HW)**	**BOSCH EDC15C2 injection system**

Evolution.

Application **RPO 9492**‡

New additive **«EOLYS 176»** to permit maintenance of the particle filter system every **120 000 Km**. **(75 000 miles).**

Old type of additive «DPX42»..

Change of particle filter, every **80 000 Km (50 000 miles)**.

Filling of additive reservoir, every **80 000 Km (50 000 miles)**.

New type of additive «EOLYS 176»..

The evolution of the additive necessitates the following components to be fitted:

New injection ECU with new mapping **: RPO 9457**‡

New fuel additive ECU with new mapping **: RPO 9492**‡

Injection ECU.

New ECU mapping to permit adaptation to the various types of additive.

Additive **: DPX42**

Additive **: EOLYS 176.**

Fuel additive ECU.

New ECU mapping to permit adaptation to the various types of additive.

Additive **: DPX42**

Additive **: EOLYS 176.**

SPECIAL FEATURES OF THE PARTICLE FILTER (FAP)

Evolution / particle filter additive

Additive "EOLYS 176"

New composition:

Cérine	**: 6,5% in volume.**
Catalyser	**: Brown colour.**
Solvent product	**: Combustible hydrocarbon.**

Additive reservoir:

Identification	**: Green ring on the clickfit cap.**
Filling of additive reservoir (partial)	**: Refer to the corresponding procedure.**

Repair.
Replacement part.
The **Replacement Parts** service markets **both** types of additive.
Additive «EOLYS 176»:

1 litre container	: Part No. **9736.85.**
3 litre container	: Part No. **9736.86.**

IMPERATIVE: Use only new additive, any particle risks a seizing of the additive injector.
Interchangeability.

SPECIAL FEATURES OF THE PARTICLE FILTER (FAP)

Evolution / particle filter additive

IMPERATIVE: It is forbidden to mix the 2 types of additive.
Use of the new type of additive on a old vehicle is prohibited (will cause a malfunctioning of the particle filtration system).
Check the type of additive.

3 Method of checking:
- Diagnostic tools, **2** methods.
- Visual.

IMPERATIVE: You are advised to check the coherence between the different methods.
Diagnostic tools:

Action: Connect the diagnostic tool - Perform a global test - Select: Diesel fuel additive ECU - Configuration (Read the type of additive in the programming)
On vehicle RPO 9492‡

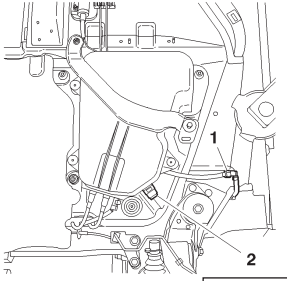
Action: Connect the diagnostic tool - Perform a global test - Select: Diesel engine - Configuration (Read the type of additive in the programming)

Visual:

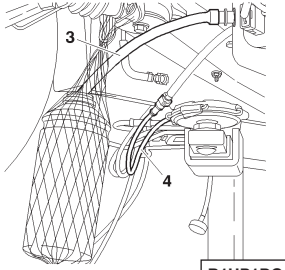
Creation of a colour code on the cap of the additive reservoir.

Additive	: Colour of the additive reservoir cap.
DPX 42	:**Black with white ring.**
EOLYS 176	: **Black with green ring.**

C5	SPECIAL FEATURES OF THE PARTICLE FILTER / FILLING THE ADDITIVE RESERVOIR



B1HP1DFC



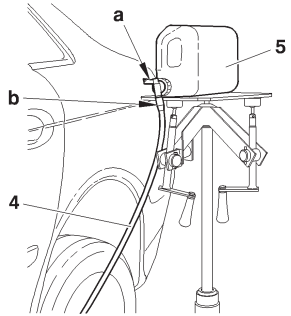
B1HP1DGC

IMPERATIVE: Respect the safety and cleanliness requirements.
Tools.
Diagnostic tool: **LEXIA or PROXIA**
1 litre filling kit comprising the following items:

1 Container of Eolys..	**2** Filters.	**2** Tubes
1 Empty container	**2** Hooks.	

Filling
NOTE: There exists a **5 litre** filling kit (see corresponding procedure).

IMPERATIVE: Respect the safety and cleanliness requirements specific to HDi engines.
IMPERATIVE: For all operations on the additive circuit, wear protective goggles and gloves that are resistant to hydrocarbons.
Place the vehicle on a lift.
Disconnect the battery negative terminal.
Remove the heat shield located under the diesel fuel additive reservoir.
Uncouple the union (**1**). Remove the filler cap (**2**).
Connect:
The pipe (**4**) of the filling kit on the clickfit union (**1**).
The pipe (**3**) of the filling kit in the place of the filler cap (**2**).
Position the empty container in one of the nets from the filling kit and suspend it, using a hook.
Insert the pipe into the empty container.



C4BP19HC

Screw the filler connector on the additive container (**5**) at **«b»**.
Place the additive container (**5**) on a component lift.
Open the tap located on the filler connector at **«a»**.
Tilt the additive container (**5**) (to facilitate the end of filling).
Fill until the additive starts to overflow.
Close the tap at **«a»**.
Remove:
- the filler union,
- the pipe (**4**).

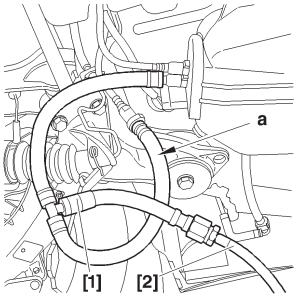
Couple the union (**1**).
Remove the pipe (**3**)
Refit:
- the cap (**2**),
- the heat shield located under the diesel fuel additive reservoir.

Reconnect the battery negative terminal

Cleanliness requirements:

IMPERATIVE: The filling kit should be recycled after this operation. Any «Eolys» additive containers that have been opened should not be kept.

C5 SPECIAL FEATURES OF THE PARTICLE FILTER / CHECKING THE ADDITIVE PUMP



B1HP1JUC

IMPERATIVE: Respect the safety and cleanliness requirements.

Tools.

[1] Union for releving the fuel pressure **Ø 10 mm**	**: 4215-T**	
[2] Extension for relieving the pressure	**: 4251-T**	
[3] Pressure gauge for checking the pressure	**: 4073-T**	Toolkit **4073-T.**
[4] Set of two hose clamps	**: 4153-T**	

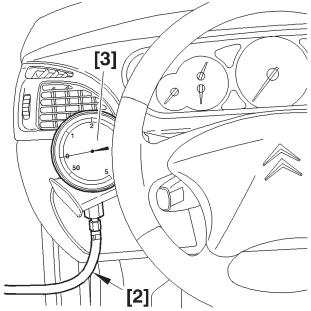
Checks

IMPERATIVE: Respect the safety and cleanliness requirements specific to HDi engines.

IMPERATIVE: For all operations on the additive circuit, wear protective goggles and gloves that are resistant to hydrocarbons.

Place the vehicle on a **4** column lift.
Remove the heat shield located under the diesel fuel additive reservoir.

Pressure of the additive pump.
Fit tool **[1]** in series in the additive pump pressure circuit.
Connect tool **[2]** on tool **[1].**
Fit tool **[4]** at **«a».**



C5FP0D1C

Place the pressure gauge **[3]** inside the vehicle.
Connect tool **[2]** to tool **[3]**.

WARNING: From switching on the ignition, the additive pump is supplied for **5 seconds.**

Switch on the ignition, check the pressure value indicated by the pressure gauge **[3]**.
Interpretation of the result of the check:

The pressure value is **3 ± 0,5 Bars** : **The additive pump is okay.**

The pressure value is less than **3 ± 0,5 Bars** : **The additive pump is defective.**

Sealing of the additive injector.

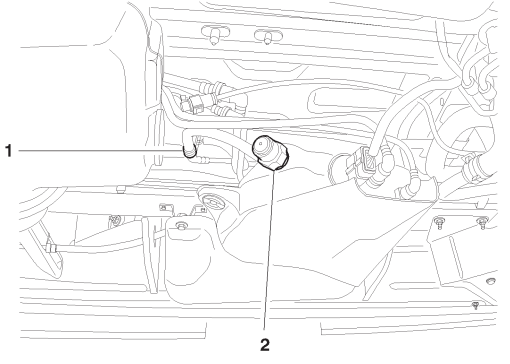
Remove tool **[4].**
Switch on the ignition, check the pressure value indicated by the pressure gauge **[3]**.
Interpretation of the result of the check:

The pressure value is **3 ± 0,5 Bars** : **The additive pump is okay.**

The pressure value is less than **3 ± 0,5 Bars** : **The additive pump is defective.**

Remove tools **[1]**, **[2]**, **[3]** and **[4].**

C8 SPECIAL FEATURES OF THE PARTICLE FILTER / FILLING THE ADDITIVE RESERVOIR



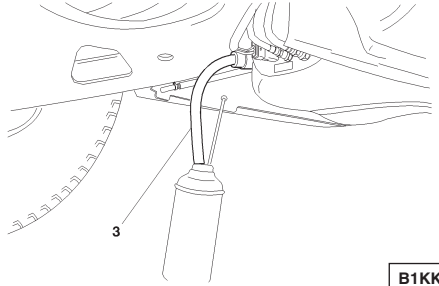
B1KK02RD

IMPERATIVE: Respect the safety and cleanliness requirements.
Tools.
Diagnostic tool: **LEXIA or PROXIA**
Filling kit comprising the following items:
1 Container of Eolys.**(5 litres** or **5 containers** each of **1 litre)**
1 Empty container
1 Filler pipe with cap and clickfit union
1 Overflow pipe
1 Means of suspending the container of product.

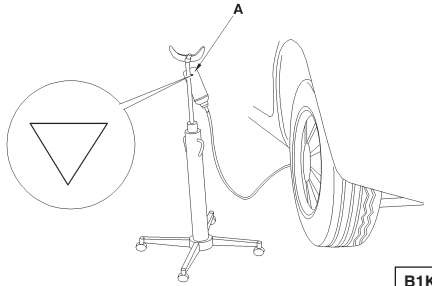
Filling

IMPERATIVE: Respect the safety and cleanliness requirements specific to HDi engines.
IMPERATIVE: For all operations on the additive circuit, wear protective goggles and gloves that are resistant to hydrocarbons.

Place the vehicle on a lift.
Uncouple the clickfit union (**1**) from the air vent of the additive reservoir.
Remove the overflow cap (**2**) of the additive reservoir.
Couple the female clickfit union of the container of **EOLYS** on the clickfit (**1**) of the circuit of the air vent of the additive reservoir.



B1KK010D



B1KK02TD

Couple the pipe of the collection container (**3**) on the overflow of the additive reservoir.
Suspend the container of **EOLYS** at a level higher than that of the additive reservoir.
Pierce the container of **EOLYS** at **«a»** (marked by a triangle on the container).
When all the fluid has flowed out, uncouple the clickfit union.
Recommence the filling until the fluid flows out through the overflow of the additive reservoir.

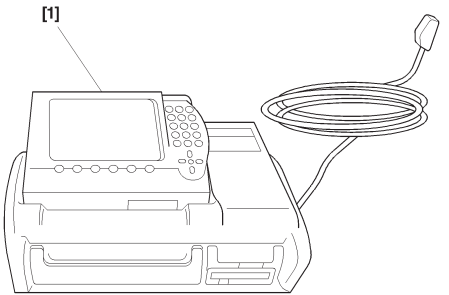
NOTE: The capacity of the additive reservoir is **5 litres**. The filling operation requires a maximum of **5 containers**.

Refit the overflow cap (**2**) of the additive reservoir.
Couple the clickfit union (**1**) to the air vent of the additive reservoir.

Cleanliness requirements:

IMPERATIVE: The filling kit should be recycled after this operation. Any «Eolys» additive containers that have been opened should not be kept.

C8	SPECIAL FEATURES OF THE PARTICLE FILTER / FILLING THE ADDITIVE RESERVOIR



E5AK0BWD

Re-initialisation of the engine management ECU

Re-initialise the engine ECU information on the total quantity of additive, following the procedure in the diagnostic tool:

Select the function «diagnosis».

«Choice of vehicle»

Enter the RPO no. of the vehicle.

Global test.

- Choice of injection.
- Diesel engine.
- A/S commands, FAP.

Re-initialisation of total quantity of additive (Reset).

Perform:

- Reading then deletion of the parameter of the total quantity of additive.
- Reading of the engine ECU fault codes.

Simulate a filling of the fuel tank in order to switch off the particle filter warning lamp:

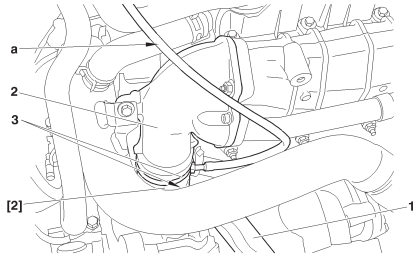
- Open the fuel cap.
- Put in **5 litres** of diesel fuel.
- Close the fuel cap.

Check the status of the particle filter in parameter measures, at the same level as the after-sales repair (particle filter / additive ECU, using the parameters of the particle filter status and the difference in pressures at the FAP inlet/outlet).

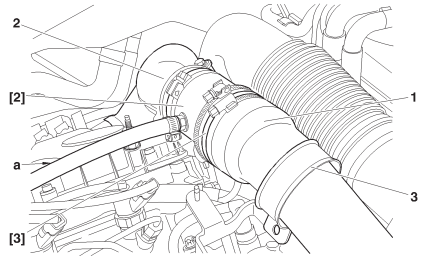
If the particle filter has regenerated : **Correct.**

If not **: Check the sealing of the exhaust line and sensor.**

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 l **[2]** with its tube **(a)** long enough for the gauge to be positioned inside the vehicle.

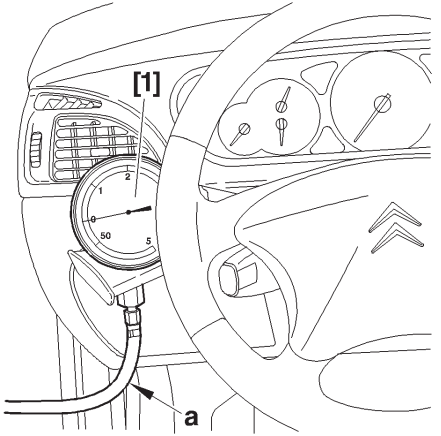
Checks.

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

B1BP1ZXD | B1HP12JD

INJECTION

C5	CHECKS: TURBO PRESSURE



C5FP0ACC

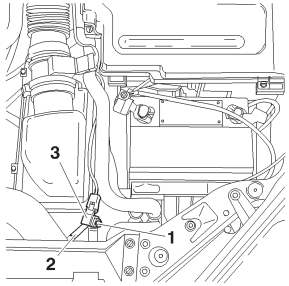
Engines: RHY-RHS-RHZ

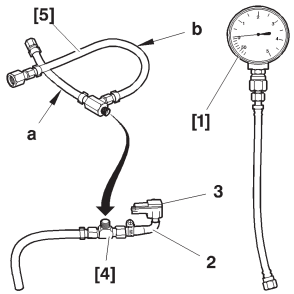
Procedure.

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)**.





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.

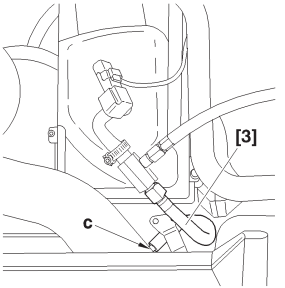
Fit as follows:

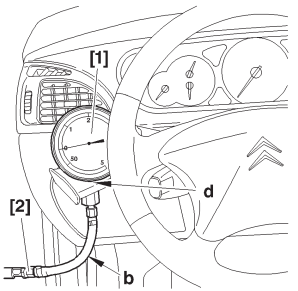
Remove the hose (**a**) of tool **[5]**, screw in its place the tool **[3]**, remove the hose (**b**) of tool **[5]**, screw the hose (**b**) of tool **[5]** on the pressure gauge **[1]**, screw the adaptor **[4]** onto the tool **[5]**

Connect the tube (**2**) of the pressure sensor (**3**) on the tool **[4]**, tighten the tube (**2**) with a Serflex type collar.

B1BP28DC | E5AP1SUC

C5	CHECKS: TURBO PRESSURE





Engine: 4HX

Preparation of tools: in position on the vehicle (continued).
Screw the tool **[3]** on the take-off of the turbo air radiator at **«c»**.
Place the pressure gauge on the cup holder at **«d.»**.
Connect the extension **[2]** on the hose **«b»** and tool **[5]**.

ESSENTIAL: Observe the following checking requirements.

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

Accelerate gradually: the pressures should be the following:

1.1 ± 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)**.

INJECTION PUMP SPECIFICATIONS (BOSCH and SIEMENS).						C5
Engines			Injection system	ECU	High pressure pump	Injectors
DW	10	TD	BOSCH	BOSCH EDC 15C2	BOSCH CP1	9625542580
			SIEMENS (except PICASSO)	SIEMENS ECUSID801	5WS 40001	5WS40000
		ATED	BOSCH	BOSCH EDC 15C2	BOSCH CP1	9625542580
	12	TED4				96372277980

C5 - C8		SPARKING PLUGS							
Vehicles		Engine types	BOSCH	Electrode gap	EYQUEM	Electrode gap	CHAMPION	Electrode gap	Tightening torque
C5	1.8i 16V	6FZ	FR 8 ME	0,9 ± 0,1	RFN 52 HZ	0,9 ± 0,05	REC 9 YCL	0,9 ± 0,05	2,75 ± 0,2
	2.0i 16V	RFN							
	2.0i 16V HPi	RLZ	ZR 8 TPP 15	1,0 ± 0,1					2,25 ± 0,2
	3.0i 24S	XFX	FGR 8 MQPE	0,55 ± 0,2					1 ± 0,1 90°
C8	2.0i 16V	RFN	FR 8 ME	0,9 ± 0,1	RFN 52 HZ	0,9 ± 0,05	REC 9 YCL	0,9 ± 0,05	2,75 ± 0,2
	2.2i 16V HPi	3FZ							
	3.0i 24S	XFW	FGR 8 MQPE	0,5 ± 0,2					1 ± 0,1 90°

SPEEDOMETER

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

This decree stipulates:

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

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:

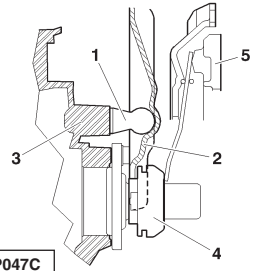
- The speedometer.
- The tyres fitted to the vehicle.
- The final drive ratio.
- The speedometer drive ratio.

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.

C5	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			ML5C
Supplier	VALEO			
Mechanism /type	230 DNG 4700			242 T 6500
Clutch disc	11 R 10X	12 R 14X	11 R 14X	11 A 14X
Ø of lining. Ext/Int	228/155			242/162
Quality of lining	F 410	F 808 DS	F 410	F 808

CLUTCH SPECIFICATIONS				C5
	Diesel			
	2.0 HDi			2.2 HDi
Engine type	**RHY**	**RHS**	**RHZ**	**4HX**
Gearbox type	BE4/5	ML/5		ML6C
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		

C8	CLUTCH SPECIFICATIONS				
	Petrol		Diesel		
	2.0i 16V	2.1 16V	2.0 HDi		2.2 HDi
Engine type	**RFN**	**3FZ**	**RHW**	**RHT**	**4HW**
Gearbox type	BE4/5	ML5C			ML6C
Feature	«**Push**» clutch		«**Pull**» clutch		
Supplier	VALEO		LUK		
Mechanism/type	230 DNG 4700	230 DNG 5100	225 T 5700		242 T 6500
Clutch disc	11 R 14 X		Clutch with double damping flywheel (DVA)		
Ø of lining. Ext/Int	228/155		225/150		242/162
Quality of lining	F 808				



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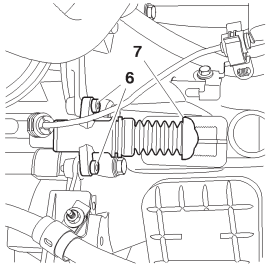


B2CP3FAC

Engines: 6FZ RFN RLZ RHY

Clutch types: **(BE4/5))**

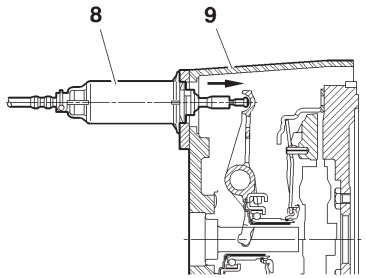
«Push» clutch with hydraulic control.

Description.
The declutch control has a declutch fork mounted on a ball-joint.
(1) The ball-joint is screwed into the clutch casing.
(2) Declutch fork.
(3) Clutch casing.
(4) Bearing.
(5) Clutch plate.

The clutch control slave cylinder **(7)** is fixed by two screws **(6)** onto the exterior of the clutch casing.

Tightening torques (m.daN).

- Fixing of clutch plate/engine flywheel : **2 ± 0,2**
- Fixing of engine flywheel/crankshaft : **4,8 ± 0,5**



B2BP04LC

Moteurs: XFX RHS RHZ 4HX

Clutch types: **(ML5C-ML6C)**

«Pull» clutch with hydraulic control.

Description.

The clutch control slave cylinder **(8)** is secured on the clutch housing **(9)** by rotation (**1/3 turn**).

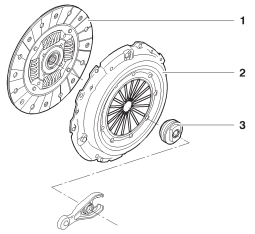
Tightening torques (m.daN).

- Fixing of clutch plate/engine flywheel : **2 ± 0,2**

- Fixing of engine flywheel/crankshaft
  - Tightening : **2 ± 0,2**
  - Angular tightening : **60° ± 5°**

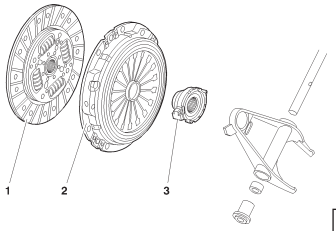
Engines: RFN 3FZ RHW RHT 4HW

«Push» clutch



B2BK22WD

«Pull» clutch



B2BB000D

«**Push**» clutch and «**Pull**» clutch

(1) Clutch disc.

(2) Clutch plate.

(3) Clutch bearing.

Bleeding the hydraulic clutch control.
Composition of the hydraulic circuit.
- Brake fluid reservoir located on the master cylinder.
- Hydraulic control sender located in the passenger compartment and fixed on the pedal gear.
- Clutch pedal.
- Hydraulic control receiver fixed on or inside the clutch housing, depending on gearbox type.

Bleed.

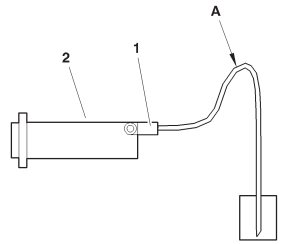
IMPERATIVE: Use only new, clear brake fluid, avoid entry of any foreign bodies or impurities into the hydraulic circuit.

Use only hydraulic fluid that is approved and recommended: **DOT4**.

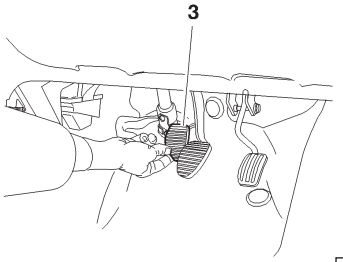
IMPERATIVE: Do not use any automatic bleed apparatus (risk of the fluid emulsifying in the reservoir).

Remove:
- The pollen filter and its support (see corresponding operation in chapter on aircon).
- The air filter and its union.
- The under-engine sound-deadening.

Refill the brake fluid reservoir to the maximum of its capacity.



B2BK22XD



B2BK064C

Bleeding the hydraulic clutch control (continued).

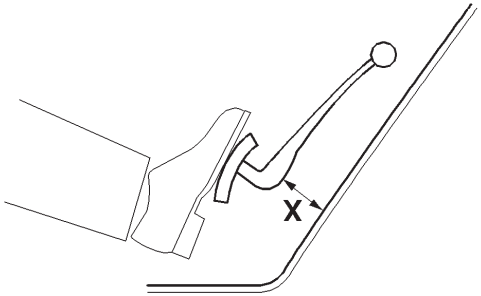
Couple a transparent pipe onto the bleed screw **(1)**.
Submerge the end of the pipe in a receptacle containing brake fluid, situated lower than the clutch slave cylinder **(2)**.
Create a syphon at «**A**» above the clutch slave cylinder, using the transparent pipe.

Open the bleed screw **(1)**.
Action the clutch pedal **(3)** manually through all its travel, with **seven** rapid down-up movements.
On the final movement, hold the clutch pedal **(3)** at the end of its travel.
Reclose the bleed screw **(1)**.
Allow the clutch pedal **(3)** to rise back up again.
Fill the brake fluid reservoir to the maximum of its capacity.

NOTE: For new bleed operations: open the bleed screw **(1)**.

If necessary, repeat the operation.

HYDRAULIC CLUTCH CONTROL SPECIFICATION



B2BK065C

Bleeding the hydraulic clutch control (continued).

Top up the brake fluid level to the **MAXIMUM** of the brake fluid reservoir capacity.

Declutch and clutch rapidly **40 times**.

Start the engine.

Apply the handbrake.

Engage a gear.

Check that the clutch starts to engage at a dimension **(X)** greater than or equal to **35 mm** (Dimension **(X)** is given as a guide).

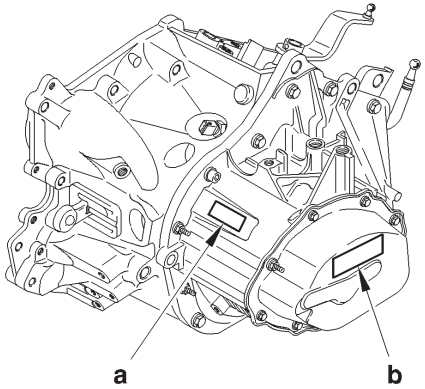
NOTE: If incorrect, repeat the bleed operations.

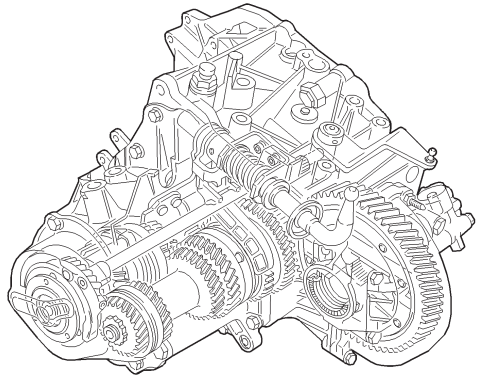
Tighten the bleed screw **(1**) to **0,75.m.daN**.

GEARBOX AND TYRE SPECIFICATIONS						C5
	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 95		20 DL 30	20 TP 93	20 DL 31
Reduction box torque	19x79	21x73		19x79	23x73	19x77
Speedometer ratio	None	52x67		None	52x67	None
	Petrol					
	3.0i V6					
		Automatic				
Engine type	XFX					
Tyres-Rolling circumference	215/55 R16 1,96 m					
Gearbox type	ML/5C	4 HP 20				
Gearbox ident. plate	20 LM 21	20 HZ 2				
Reduction box torque	16x65	20x69				
Speedometer ratio	None	59x68				

C5	GEARBOX AND TYRE SPECIFICATIONS				
	Diesel				
			2.0 HDi		
			Automatic		Automatic
Engine type	**RHY**	**RHS**		**RHZ**	
Tyres-Rolling circumference	195/65 R15 1,93 m				
Gearbox type	BE4/5	ML5C	AL4	ML5C	AL4
Gearbox ident. plate	20 DL 32	20 LM 23	20 TP 43	20 LM 23	20 TP 43
Reduction box torque	19 x 75	17 x 65	25 x 68	17 x 65	25 x 68
Speedometer ratio	None	None	52 x 67	None	52 x 67
	Diesel				
	2.2 HDi				
			Automatic		
Engine type	4HX				
Tyres-Rolling circumference	215/65 R16 1,96 m				
Gearbox type	ML5C	ML6C	4 HP 20		
Gearbox ident. plate	20 LM 17	20 MB 04	20 HZ 20		
Reduction box torque	17 x 67	17 x 67	23 x 66		
Speedometer ratio	None	None	59 x 68		

GEARBOX AND TYRE SPECIFICATIONS					C8
(1) = Right hand drive **(2)** = Left hand drive	**Petrol**				
	2.0i 16V			**2.2i 16V**	**3.0i 24V**
			Automatic		**Automatic**
Engine type	**RFN**			**3FZ**	**XFW**
Tyres-Rolling circumference	205/65 R15 1,973 m			215/65 R15 2,016 m	215/60 R16 - 2,025 m
Gearbox type	BE4/5		AL4	ML5C	4 HP 20
Gearbox ident. plate	20 DM 01 (1)	20 DM 00 (2)	20 TP 74	20 LM 25	20 HZ 27
Reduction box torque	14 x 62		21 x 73	14x65	19 x 73
Speedometer ratio	None		20 x 16	None	
	Diesel				
	2.0 HDi			**2.2 HDi**	
			Automatic		
Engine type	**RHW**	**RHT**	**RHM**	**4HW**	
Tyres-Rolling circumference	215/65 R15 2,016 m				
Gearbox type	ML5C		AL4	ML5C	ML6C
Gearbox ident. plate	20 LM 24		20 TS 04	20LM 01	20MB 05
Reduction box torque	15 x 67		21 x 73	16 x 69	16 x 69
Speedometer ratio	27 x 21		20 x 16	None	None

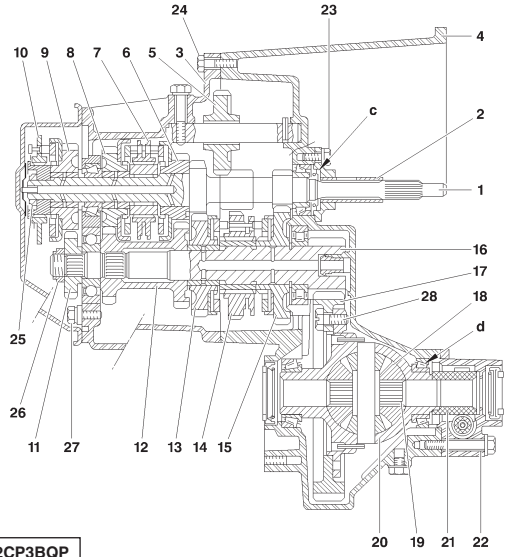




(a) Marking zone (sequence and serial no.).
(b) Location of identification label.

B2CP3BNC | B2CP3BPD

Engines: 6FZ RFN RLZ RHY



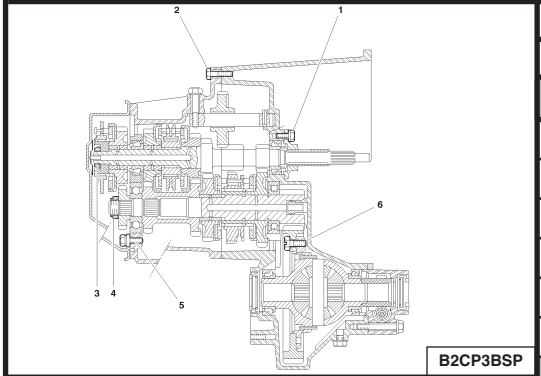
B2CP3BQP

Description

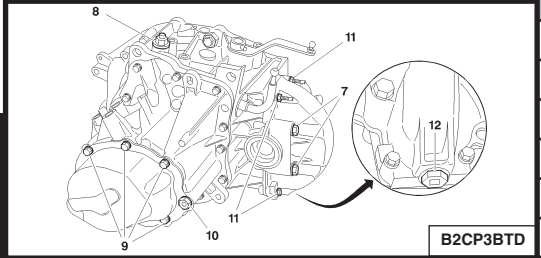
1) Primary shaft.
(2) Clutch bearing guide.
(3) Gearbox casing.
(4) Clutch housing.
(5) Reverse idle.
(6) Drive gear (3rd gear).
(7) 3rd /4th gear synchroniser
(8) Drive gear (4th gear).
(9) Drive gear (5th gear).
(10) 5th gear synchroniser.
(11) Driven gear (5th gear).
(12) Driven gear (2nd/4th gear)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



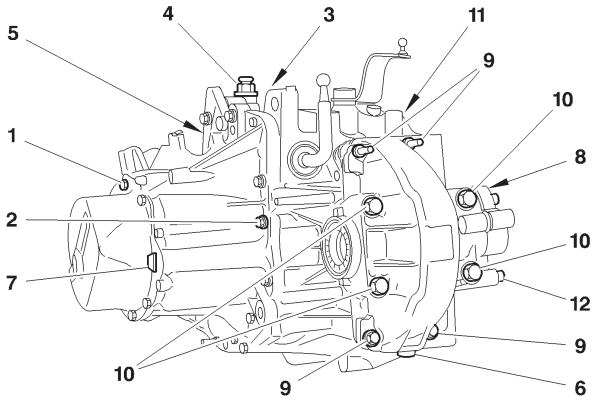
B2CP3BTD

Engines: 6FZ RFN RLZ RHY

Tightening torques

Ref.	Description	No. 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: 6FZ RFN RLZ RHY

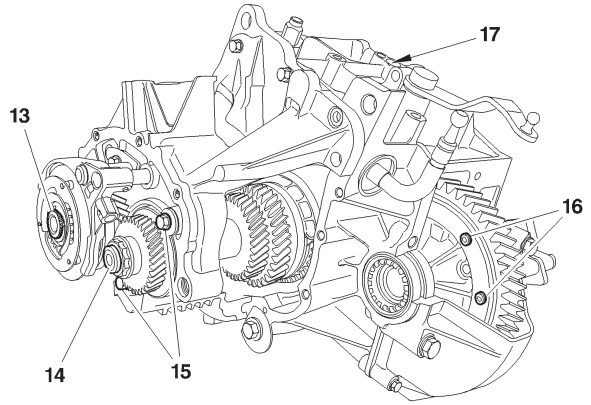


B2CKUB0D

Tightening torques m.daN.

(1) Gearbox rear casing	**: 1,5 ± 0,1**
(2) Gearbox casing/clutch casing fixings	**: 1,5 ± 0,1**
(3) Reverse gear rocker shaft fixing nut	**: 4,5 ± 0,4**
(4) Breather pipe	**: 1,5 ± 0,1**
(5) Reverse gear switch	**: 2,5 ± 0,2**
(6) Drain plug	**: 3,5 ± 0,2**
(7) Top-up plug	**: 2 ± 0,2**
(8) Speedo drive support	**: 1,5 ± 0,1**
(9) Differential housing fixings (M7)	**: 1,5 ± 0,1**
(10) Differential housing fixings (M10)	**: 5 ± 0,5**
(11) Clutch bearing guide fixing screw	**: 1,5 ± 0,1**
(12) Differential extension fixing	**: 1,5 ± 0,1**

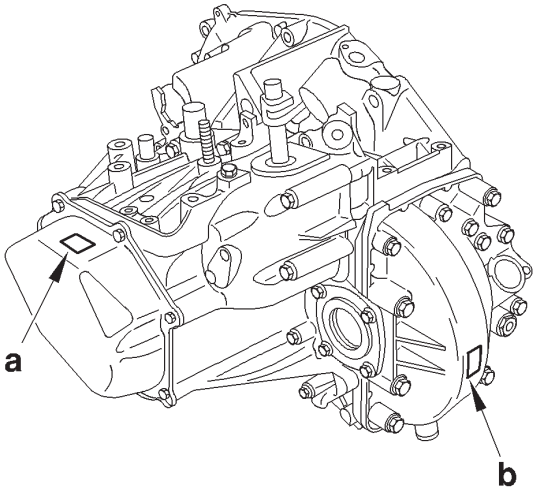
Engines: 6FZ RFN RLZ RHY



B2CKUB1D

Tightening torques m.daN.

(13) Primary shaft nut	**: 7,5 ± 0,7**
(14) Secondary shaft nut	**: 6,5 ± 0,6**
(15) Bearing retaining screw	**: 1,5 ± 0,1**
(16) Differential gearwheel screw	**: 6 ± 0,6**
(17) Gear control support screw	**: 1,5 ± 0,1**



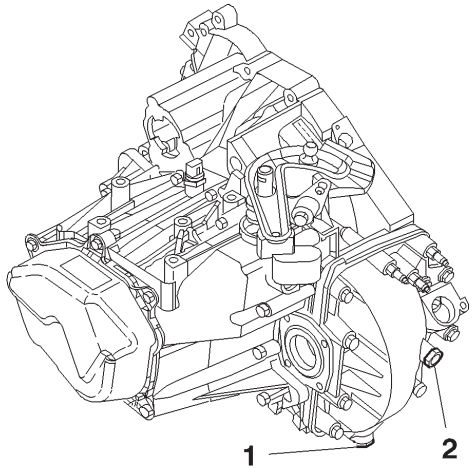
B2CP3KBC

Identification.

«a» Location of identification label.

«b»Marking zone.

Engines: 3FZ XFX RHS RHZ RHW RHT



B2CP3CUC

Recommendations - Precautions

(1) Drain plug.
(2) Filler and top-up plug.(Discontinuation of the plug from **RPO 9345 →**)

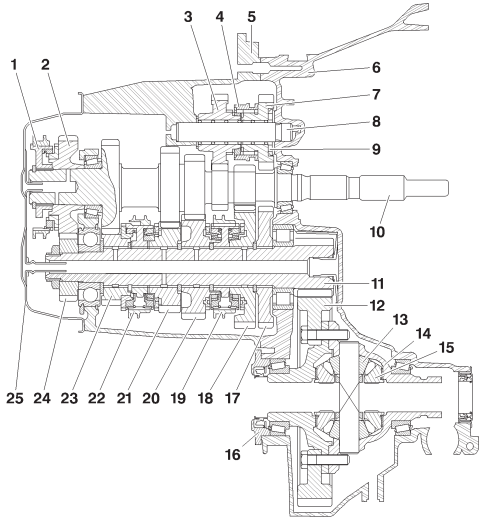
Oil quality.
- See chapter on lubricants.

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

Features.

The **ML/5** compact gearbox is an evolution of the **ML/5T** gearbox:
Length reduced by **14 mm**.
Enhancements in gear changing effort and travel.
New «chandelier» type gearbox control grille with special gear lever gaiter.
Unlocking device for reverse gear.
New support for the sender duct on the hydraulic clutch control.
New reverse gear switch.
Increase in oil quantity resulting from engine tilt.

Engines: 3FZ XFX RHS RHZ RHW RHT

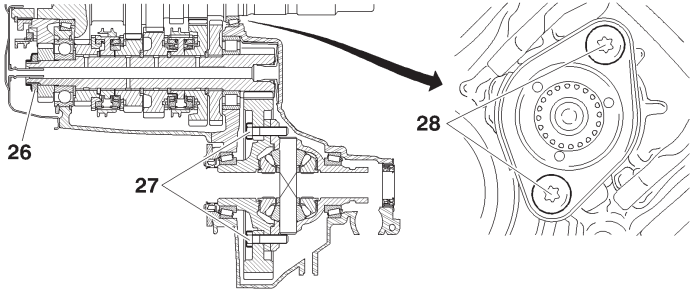


B2CP3KCP

(1) 5th gear synchroniser
(2) 5th gear drive pinion
(3) Reverse gear intermediate pinion
(4) Reverse gear slide pinion
(5) Gearbox casing
(6) Clutch housing
(7) Reverse gear slide pinion
(8) Reverse gear pin
(9) Reverse gear needle bearing
(10) Primary shaft
(11) Secondary shaft
(12) Differential crown

(13) Satellite pinion
(14) Differential housing
(15) Planet pinion
(16) Differential bearing stop plate
(17) Reverse gear driven pinion
(18) 1st gear driven pinion
(19) 1st and 2nd gear synchroniser
(20) 2nd gear driven pinion
(21) 3rd gear driven pinion
(22) 3rd and 4th gear synchroniser
(23) 4th gear driven pinion
(24) 5th gear driven pinion
(25) Steel casing

Engines: 3FZ XFX RHS RHZ RHW RHT

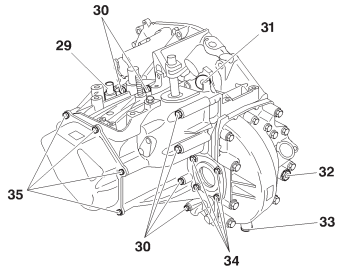


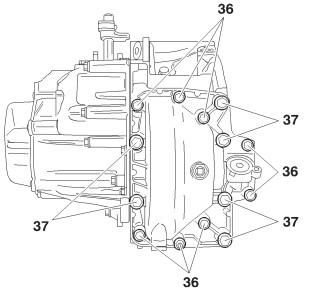
B2CP3KDD

Tightening torques m.daN

(26) Secondary shaft nut	**: 17 ± 1,5**
(27) Differential gearwheel screws	: **7,7 ± 0,3**
(28) Bearing guides	: **2 ± 0,2**

Engines: 3FZ XFX RHS RHZ RHW RHT





B2CP3KEP

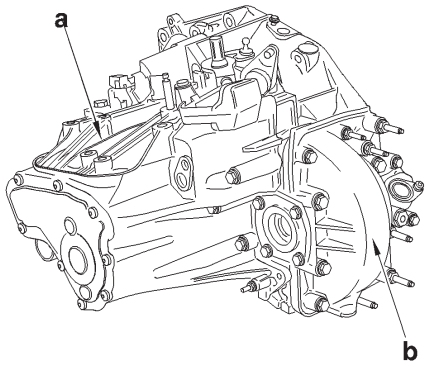
Tightening torques m.daN

(29) Reversing lamp switch	: **3 ± 0,1**
(30) Clutch housing/gearbox casing fixing screws	: **2 ± 0,2**
(31) Selection lever screw	: **4 ± 0,5**
(32) Filler and top-up plug **(*)**	: **3 ± 0,3**
(33) Drain plug	: **3 ± 0,3**
(34) Differential bearing stop plate screws	: **2 ± 0,2**
(35) Gearbox rear casing screws	: **2 ± 0,2**
(36) Differential housing fixings (M8 screws)	: **2 ± 0,2**
(37) Differential housing fixings (M10 screws)	: **4 ± 0,5**

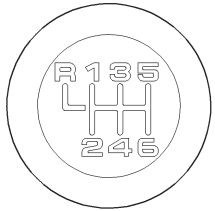
(*) = Discontinuation of the plug from **RPO 9345 →**

C5	ML/6C GEARBOX SPECIFICATION

Engine: 4HX



B2CP3SAC



B2CP3SBC

Identification.

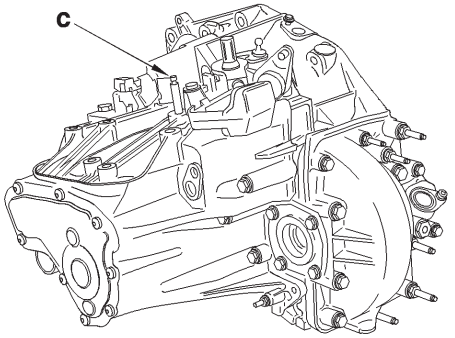
«a» Location of identification label
«b» Engraving zone

Features.

The **ML/6C** compact gearbox is an evolution of the **ML/5C** gearbox:
Length increased by **11,5mm**
Weight increased by **2 kg**
New gear ratios
New gearbox control grille
New gearbox ratio
NOTE: This gearbox has a reverse gear unlocking device.
The gear control is specific (6-speed gearbox).
It is necessary to lift the ring located under the gear lever knob to engage reverse gear.

ML/6C GEARBOX SPECIFICATION — C5

Engine: 4HX



B2CP3SFC

Lubrication.
Oil capacity:
2,1 litres (minimum).
2,4 litres ± **0,3** (maximum). **EW** engine
2,6 litres ± **0,3** (maximum). **DW** engine

Oil quality: **ESSO 75W80 EZL 848** or **TOTAL 75W80W H6959**.

Checking the oil level: No level check **(*)**

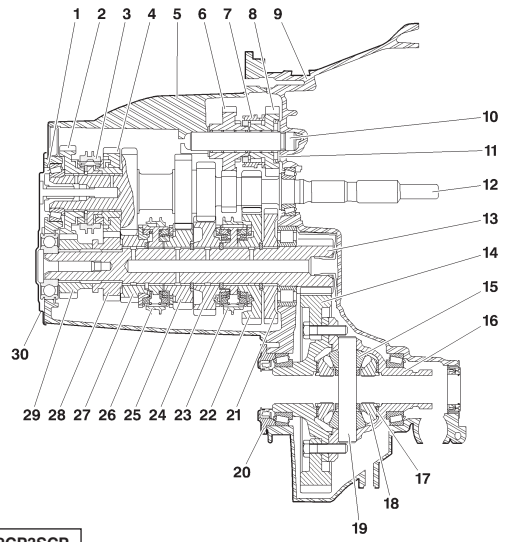
Lubrication for life

IMPERATIVE: Necessary to drain the gearbox and put back the exact oil quantity, in the case of an external or following a repair.

(*) NOTE: Do a visual check of the sealing at each engine oil change interval.

C5	ML6C GEARBOX

Engine: 4HX

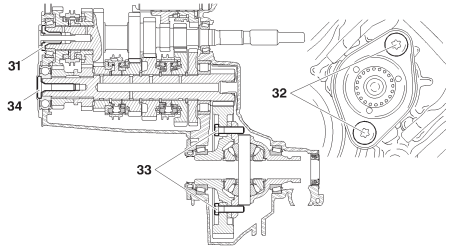


B2CP3SCP

Description

(1) Primary shaft bearing play adjustment shim
(2) 6th gear drive pinion
(3) 5th and 6th gear synchroniser
(4) 5th gear drive pinion
(5) Gearbox casing
(6) Reverse gear intermediate pinion
(7) Reverse gear synchroniser
(8) Reverse gear slide pinion
(9) Clutch housing
(10) Reverse gear pin
(11) Reverse gear needle bearing
(12) Primary shaft
(13) Secondary shaft
(14) Differential gearwheel
(15) Satellite pinions
(16) Differential housing
(17) Planet gear adjustment shims
(18) Planet pinions
(19) Satellite shaft
(20) Differential bearing stop plate
(21) Reverse gear driven pinion
(22) 1st gear driven pinion
(23) 1st and 2nd gear synchroniser
(24) 2nd gear driven pinion
(25) 3rd gear driven pinion
(26) 3rd and 4th gear synchroniser
(27)) 4th gear driven pinion
(28) 5th gear driven pinion
(29) 6th gear driven pinion
(30) 6th gear housing

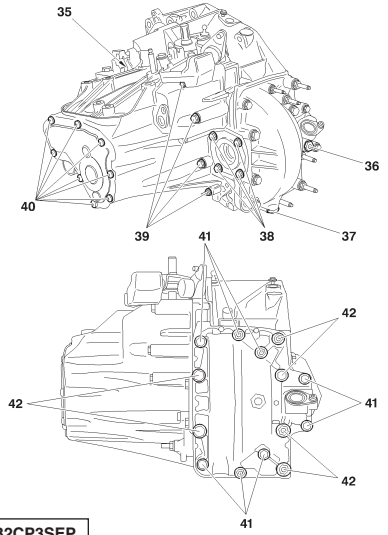
Engine: 4HX



B2CP3SDD

Tightening torques m.daN

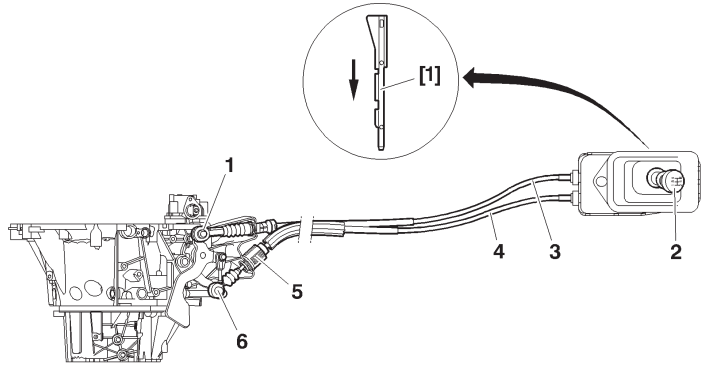
(31) Primary shaft screw	: **8 ± 0,8**
(32) Bearing guide screws	: **2 ± 0,2**
(33) Differential gearwheel screws	: **7,7 ± 0,3**
(34) Secondary shaft screw	: **13 ± 1,5**
(35) Reversing lamp switch	: **2,5 ± 0,2**
(36) Level plug	: **3 ± 0,2**
(37) Drain plug	: **3 ± 0,5**
(38) Differential bearing stop plate screw	: **3 ± 0,3**
(39) Clutch housing/gearbox casing fixing screws	**: 3 ± 0,3**
(40) 6th gear housing fixing screws	**: 2 ± 0,2**
(41) Differential housing fixings (M8 screws))	**: 1,8 ± 0,2**
(42) Differential housing fixings (M10 screws)	**: 4 ± 0,5**



B2CP3SEP

BE4/5 GEARBOX CONTROL SPECIFICATIONS

Engines: 6FZ RFN RLZ RHY



B2CP3CJD

Gear controls

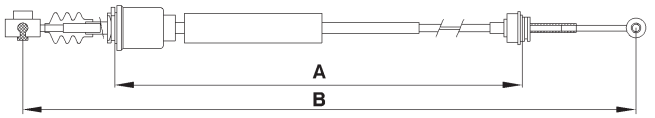
[1] Gear lever positioning tool **8605-T**

(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 — C5 C8

Engines: 6FZ RFN RLZ RHY

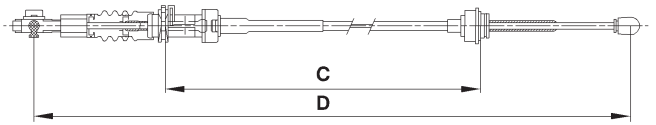
Gear selection control cable.



B2CP3CKD

	Left hand drive	Right hand drive
Length A	730 ± 3mm	
Length B	937,5 ± 7,5mm	

Gear engagement control cable.



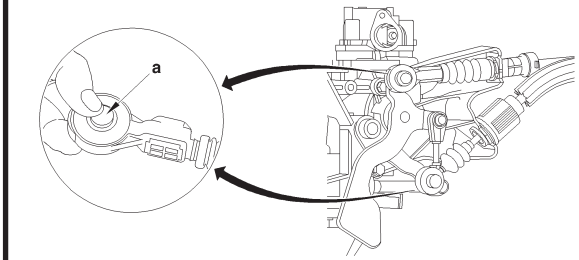
B2CP3CLD

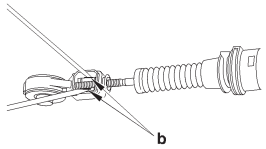
	Left hand drive	Right hand drive
Length G	700 ± 3 mm	
Length H	983 ± 7,5 mm	

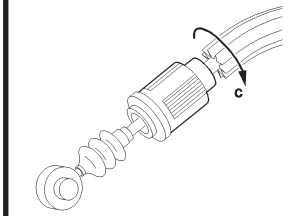
Note: See adjustment: **page 270.**

CHECKS AND ADJUSTMENTS: BE4/5 GEARBOX CONTROLS

Engines: 6FZ RFN RLZ RHY







Adjustments.

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

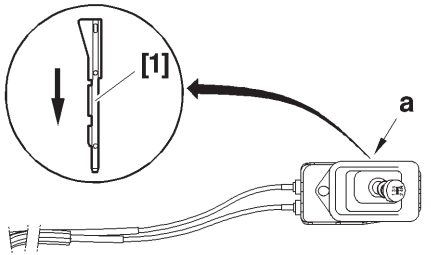
WARNING: Do not use oil to detach the ball-joints.

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

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

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

B2CP3CVD	B2CP3CWC	B2CP3CXC



B2CP3E7C

Tools.

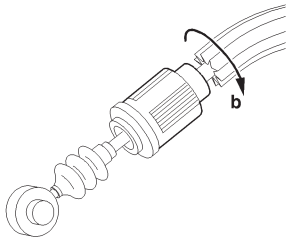
[1] Tool for positioning the gearbox control lever **8605-T** **Toolkit 9040-T**

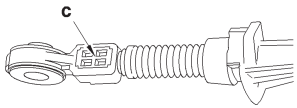
Adjustments.

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.

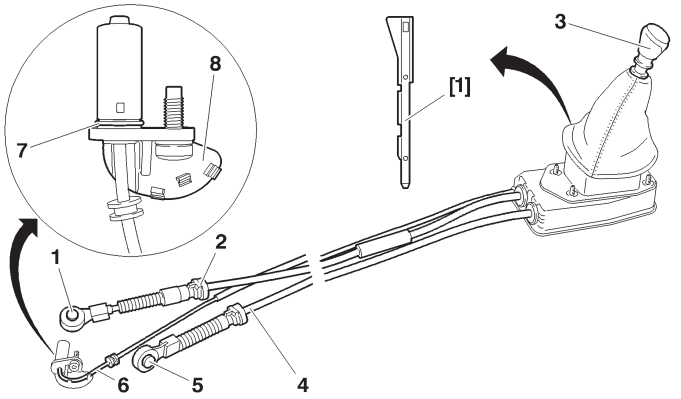
- Remove the air filter assembly.
- Unlock the gear engagement cable ball-joint (**b**).
- Unlock the gear selection cable ball-joint (**c**)
- Make sure the gear levers (*engagement and selection*) are in neutral position.
- Lock the cable lengths with the ball-joint locking keys.
- Remove the tool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

Checks.

- Check that all the gears engage without «**tightness** ».
- Check that t he 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: 3FZ XFX RHY RHZ RHT RHW 4HW 4HX



B2CP3KXD

Gear controls.

Gear control is by means of cables:
Gear selection control cable
Gear engagement control cable
Reverse gear control cable

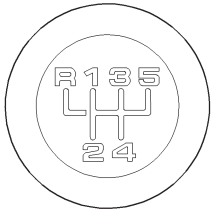
[1] Gear lever positioning tool **8605-T.**

(**1**) Gear engagement ball-joint : **Ø 10 mm**
(**2**) Gear engagement control cable
(**3**) Gear control lever
(**4**) Gear selection control cable
(**5**) Gear selection ball-joint : **Ø 10 mm**
(**6**) Reverse gear unlocking cable
(**7**) O-ring seal
(**8**) Reverse gear unlocking device

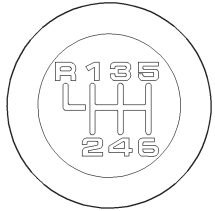
C5 C8	ML/5C - ML/6C GEARBOX CONTROL SPECIFICATIONS

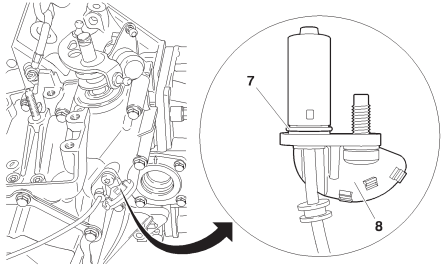
Engines: 3FZ XFX RHY RHZ RHT RHW 4HW 4HX

ML/5C



ML/6C





Features

New «chandelier» type gearbox control grille with special gear lever gaiter.
It is necessary to lift the ring located under the gear lever knob to engage reverse gear.
Unlocking device for reverse gear (**8**) external to the gearbox.
The reverse gear locking/unlocking system uses the 5th gear synchroniser.

IMPERATIVE: Systematically replace the O-ring seal (7) at each removal.

Adjustments

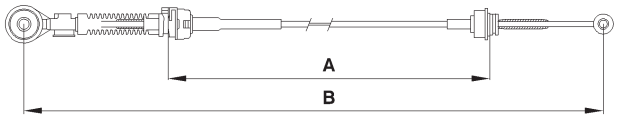
WARNING: Cables should be adjusted each time the gear controls are removed or a cable changed.

B2CP3HRC	B2CP3SBC	B2CP3KZC

ML/5C - ML/6C GEARBOX CONTROL SPECIFICATIONS — C5 C8

Engines: 3FZ XFX RHY RHZ RHT RHW 4HW

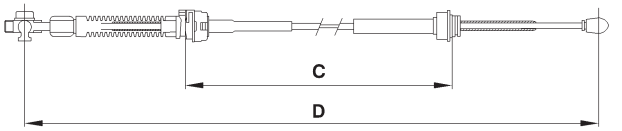
Gear selection control cable.



B2CP3CRD

	Left hand drive	Right hand drive
Adjustment	yes	
Length A (mm)	750	
Length B	1015	

Gear engagement control cable.



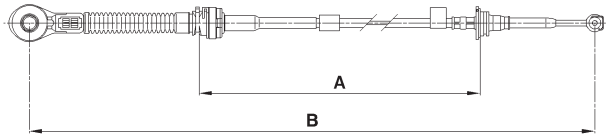
B2CP3CSD

	Left hand drive	Right hand drive
Adjustment	yes	
Length C (mm)	781	
Length D (mm)	1115	

C5 C8	ML/5C - ML/6C GEARBOX CONTROL SPECIFICATIONS

Engine: 4HX

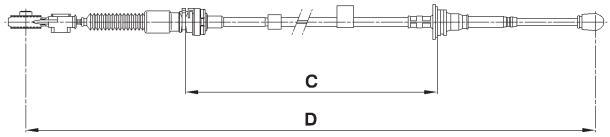
Gear selection control cable.



B2CP3SGD

	Left hand drive	Right hand drive
Adjustment	yes	
Length A (mm)	750	
Length B (mm)	1012	

Gear engagement control cable.



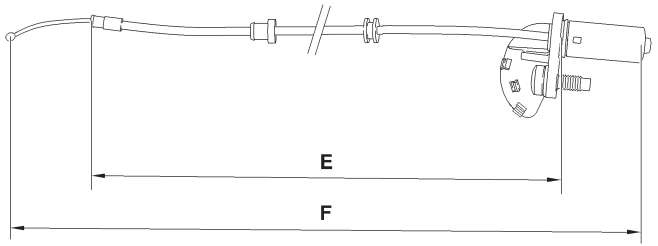
B2CP3SHD

	Left hand drive	Right hand drive
Adjustment	yes	
Length C (mm)	781	
Length D (mm)	1120	

ML/5C - ML/6C GEARBOX CONTROL SPECIFICATIONS	C5 C8

Engines: 3FZ XFX RHY RHZ RHT RHW 4HW 4HX

Reverse gear unlocking cable

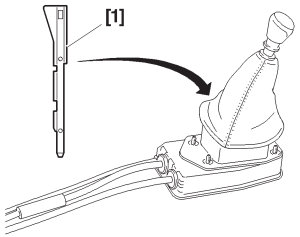


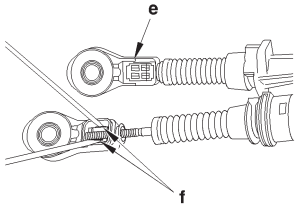
B2CP3KYD

	Left hand drive	Right hand drive
Adjustment	no	
Length E (mm)	1332	
Length F (mm)	1460	

CHECKS AND ADJUSTMENTS: ML/5C - ML/6C GEARBOX CONTROLS

Engines: 3FZ XFX RHY RHZ RHT RHW 4HW 4HX





B2CP3SJC | B2CP3SKC

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

To be carried out after the gearbox control cables are refitted (see corresponding procedure).

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

Lock the gear lever in neutral position, using tool **[1].**
Using two thin screwdrivers, release at **«f».**
Adjust the cable lengths.
Lock the cable lengths by pressing at **«e».**

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

Complete the refitting (see corresponding procedure).

RECOMMENDATIONS - PRECAUTIONS: AL 4 AUTOMATIC GEARBOX	C5 C8
Engines: 6FZ RFN RHS RHZ RHM	
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.

Customer reception.

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

Oil quality – Oil level.

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

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

ESSENTIAL: The gearbox must be replaced.

Oil 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).

C5 C8	RECOMMENDATIONS - PRECAUTIONS: AL 4 AUTOMATIC GEARBOX

Engines: 6FZ RFN RHS RHZ RHM

Precautions to be taken

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

IMPERATIVE: - Put gear lever in position «N»..
- Do not add any oil.
- Do not exceed 30 mph over a distance of 30 miles of maximum.

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.

Repairs on electrical components

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

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

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

Engines: 6FZ RFN RHS RHZ RHM

Precautions to be taken

Repairs on mechanical components

Never place the gearbox on the ground without protection.

In order to avoid breaking the input shaft ring, it is **imperative** that the converter retaining bracket should be in place when handling the gearbox.

It is **imperative** to use the centring peg and the converter retaining bracket to couple the gearbox on the engine.

After coupling the gearbox on the engine, remove the centring peg.

Modification of the oil usage counter value.

Exchanging the gearbox ECU:

Note down the gearbox counter value.
Transfer the value read into the the new gearbox ECU.

Exchanging the gearbox:

Initialise the oil usage counter to **0.**

Draining the gearbox:

Initialise the oil usage counter.
(follow the diagnostic tool procedure).

C5 C8	RECOMMENDATIONS - PRECAUTIONS: AL 4 AUTOMATIC GEARBOX

Engines: 6FZ RFN RHS RHZ RHM

Procedure for initialising the automatic gearbox ECU

Downloading

Updating the gearbox ECU by downloading:
Follow the procedure using the diagnostic tool.

The downloading operation enables the automatic gearbox to be updated, or adapted to an evolution of the engine ECU.
Before commencing the downloading, take the value of the oil usage counter present in the automatic gearbox ECU.

After the downloading operation, carry out the following:

- A clearing of faults.
- A pedal initialisation.
- A re-initialisation of the auto-adaptives.
- A downloading (if necessary).
- A writing of the value of the oil usage counter previously read.
- A road test.

ESSENTIAL: Every update of the automatic gearbox ECU should be accompanied by an update of the engine ECU.

Engines: 6FZ RFN RHS RHZ RHM

Procedure for initialising the automatic gearbox ECU

Updating the value of the oil usage counter

Using PROXIA

Access to reading and recording of the oil counter is via the menu:

«Configuration (integrated circuit button)/Oil counter».

Adjustment of the oil counter value is done in incremental steps of **2750 units.**

Using LEXIA or ELIT

Access to reading and recording of the oil counter is via the menu:

«Oil counter».

Adjustment of the oil counter value is done by entering directly the **5 figures** of the oil counter.

Downloading

ECU downloading procedure:
- Follow the diagnostic tool procedure.

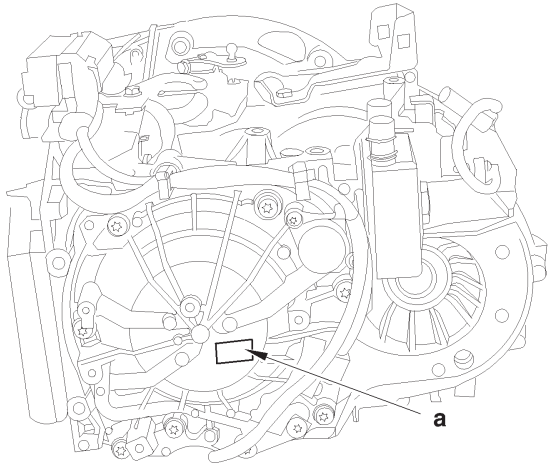
A new ECU or downloaded update is always configured with the following options:
- SHIFT LOCK gear selection lever position.
- Without OBD outlet (depollution L4).

If the ECU is to be fitted to a vehicle with depollution **L4** or not equipped with gear lever locking safety:
Perform a downloading operation.

Pedal initialisation.

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 butterfly potentiometer.

Engines: 6FZ RFN RHS RHZ RHM



B2CP3ECD

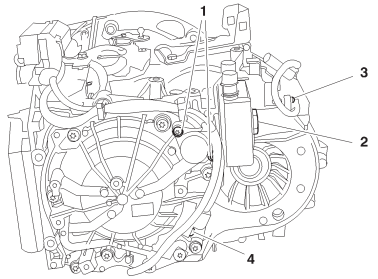
Identification

«a» Component reference.

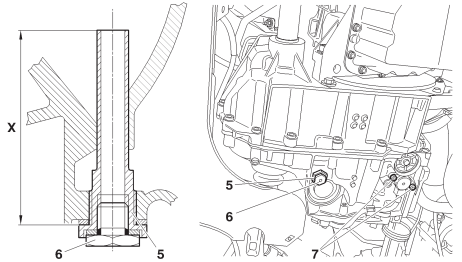
WARNING: This gearbox benefits from a special **CITROËN** semi-synthetic oil, which cannot be mixed with any other oil.

The gearbox is lubricated for life.

Engines: 6FZ RFN RHS RHZ RHM



B2CP3EDD



B2CP311D

Tightening torques m.daN

(**1**) Oil flow modulation electrovalve fixing : **1 ± 0,2**

(**2**) Heat exchanger fixing : **5 ± 1**

(**3**) Output speed sensor fixing : **1 ± 0,2**

(**4**) Output speed sensor fixing : **1 ± 0,2**

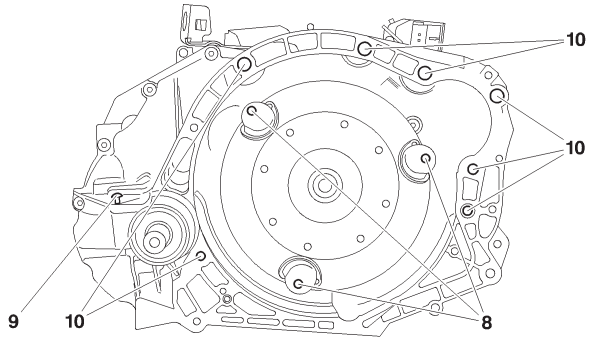
(**5**) Oil overflow and drain fixing
X = 75 mm (**EW7** and **EW10** engine versions) : **4 ± 0,2**
X = 77 mm (**DW10** engine version) : **4 ± 0,2**

(**6**) Oil level plug : **2,4 ± 0,4**

(**7**) Oil pressure sensor fixing : **0,8 ± 0,1**

C5 C8	SPECIAL FEATURES – TIGHTENING TORQUES: AL4 AUTOMATIC GEARBOX

Engines: 6FZ RFN RHS RHZ RHM



B2CP3EED

Tightening torques m.daN

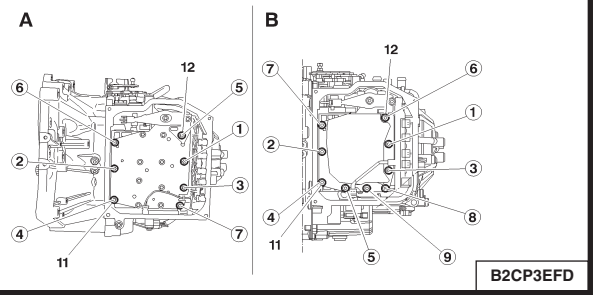
(**8**) Fixing of converter on diaphragm

Pre-tightening	: **1 ± 0,1**
Tightening	: **3 ± 0,3**

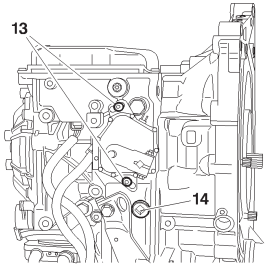
(**9**) Plug fixing : **0,8 ± 0,2**

(**10**) Gearbox fixing on engine : **5,2 ± 1**

Engines: 6FZ RFN RHS RHZ RHM



B2CP3EFD



B2CP3EGC

Tightening torques m.daN

A: EW7 and **EW10** engines
Hydraulic block fixing
Centre the hydraulic block, using screws (**11**) and (**12**)

Pre-tighten	(no strict order)	: **0,9**
Slacken		: **All 7 screws**
Tighten	(respect the order indicated)	: **0,75**

NOTE: The screw (**11**) is shouldered.

B: DW10 engine
Hydraulic block fixing
Centre the hydraulic block, using screws (**11**) and (**12**)

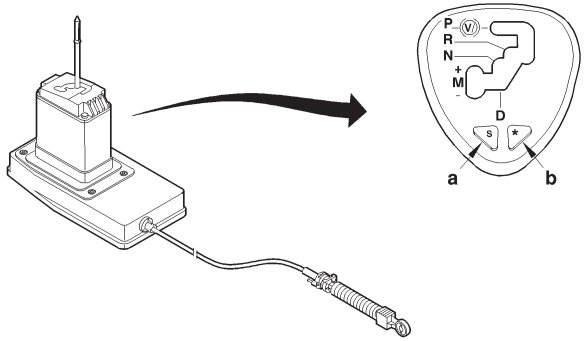
Pre-tighten	(no strict order)	: **0,9**
Slacken		: **All 7 screws**
Tighten	(respect the order indicated)	: **0,75**

NOTE: The screw (**11**) is shouldered

(**13**) Fixing of selector lever position switch	: **1,5 ± 0,2**
(**14**) Oil filler plug	: **2,4 ± 0,4**

C5	AL4 GEARBOX CONTROL SPECIFICATIONS

Engines: 6FZ RFN RHS RHZ



B2CP3DKD

In passenger compartment

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

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

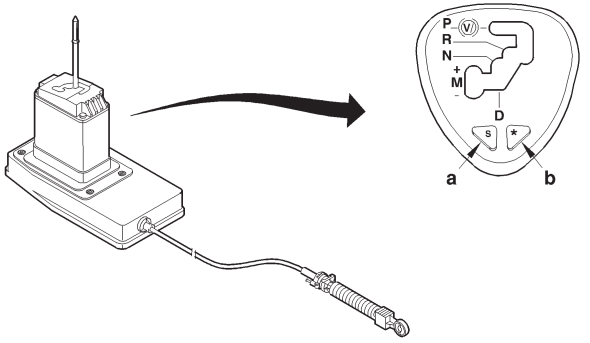
Position **«P»**: Park (*locking and immobilisation of the vehicle*).
Position **«R»**: Reverse gear.
Position **«N»:** Neutral.
Position **«D»**: Drive (*Use of the **4 gears** in their autoadaptive automatic function*)

Position **«M»**: Manual (this position lets the driver select his own gears in sequential mode by pulling the gear selector to **«M - »** or pushing it to **«M +»**).

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

Engines: 6FZ RFN RHS RHZ



B2CP3DKD

In passenger compartment (continued)

The information is transmitted to the gearbox ECU.

NOTE: The vehicle is equipped with the **«shift lock»:** you have to switch on the ignition and press the brake pedal to unlock the selector lever from position **«P».**

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

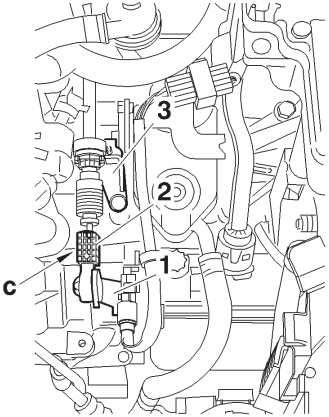
- Normal programme**:** Operates as the default programme (*Eco law*, *autoadaptive mode*).

- **Sport** programme **(a):** Permits a more dynamic, sporty performance.

- **Snow** programme **(b)**: Facilitates starting and adhesion on slippery surfaces.

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

Engines: 6FZ RFN RHS RHZ



Gearbox end

The automatic gearbox is controlled by a cable.

«c» Clip for unlocking the push-button in pushed-in position.

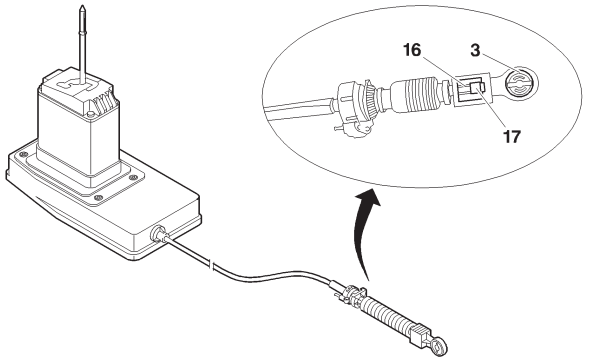
(**1**) Control lever with ball-joint.

(**2**) Automatic adjustment (pull out the button to adjust the control, push it in to lock the adjustment of the control).

(**3**) Sleeve stop.

B2CP3DLC

Engines: 6FZ RFN RHS RHZ



B2CP3DWD

On refitting.

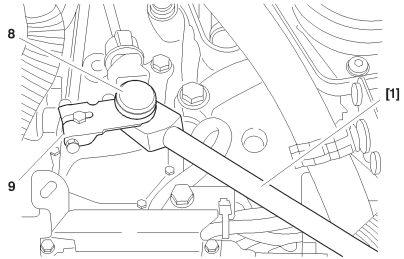
Refitting the gearbox control.

New gear selection control

Couple the ball-joint (**3**).
Push in the component (**16**) without bending the cable.
Release the component (**16**).
Lock the adjustment by means of component (**17**).
Check all the gear selection control positions.

Re-used gear selection control.

Unlock component (**17**).
Release the component **16**).
Couple the ball-joint (**3**).
Push in the component (**16**) without bending the cable.
Release the component (**16**).
Lock the adjustment by means of component (**17**).
Check all the gear selection control positions.



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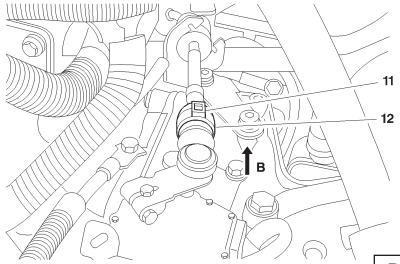


B2CKUF6D

Engines: RFN RHM

On refitting.

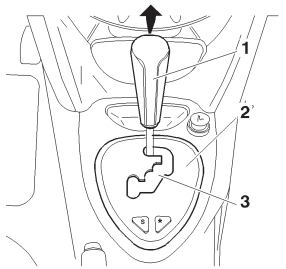
IMPERATIVE: Fit new clips and collars.

WARNING: Check that the gear control cables are correctly routed.
Proceed in opposite order to removal.

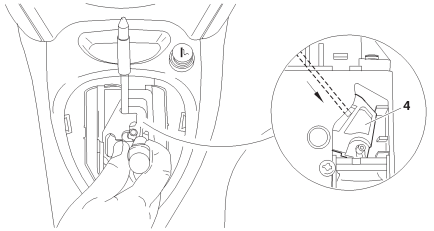
IMPERATIVE: To clip the ball-joint (8) position tool [1]
(Ball-joint extractor (-).0338.E) under the selection lever (9).

If necessary, adjust the selection control (if new or maladjusted).

Adjusting the selection control.
To unlock the gear control adjustment system, pull the white ring (**12**) towards the front of the vehicle and lift the orange plastic component (**11**).
Selection lever in position **«P».**
Engagement lever (**10**) as far as possible towards the rear of the vehicle (**B**).
Lock the adjustments of the gears by pressing on the orange plastic component (**11**).
Release the white ring (**12**).
The adjustment is complete.
Check all the gear selection control positions.



C5FP0CTC



C5FP0CUD

Engines: 6FZ RFN RHS RHZ

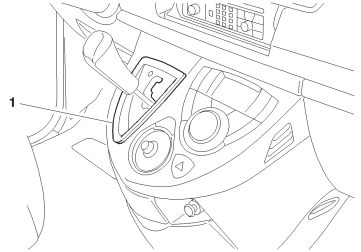
SHIFT LOCK

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

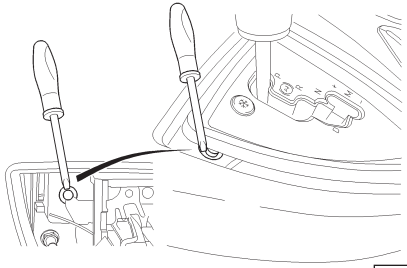
Unlocking the «SHIFT LOCK» **(normal operation).**
- Switch on the ignition.
- Press the brake pedal and keep it pressed.
- Move the gear selection lever out of position **«P».**

Unlocking the «SHIFT LOCK» (with an operating fault).
Should it be impossible to unlock the **«shift lock»** with the **«Normal operation»** method, the fault may originate from one of the following components:
- **«Shift lock».**
- Gear lever position switch.
- Automatic gearbox ECU.
- Electrical harnesses.
- Battery voltage.

Remove:
- The gear lever knob (**1**) (pull upwards).
- The cover (**2**) (Unclip).
- The grid (**3**).
- Unlock the **«shift lock»** (**4)** with the aid of a screwdriver.
- Move the gear selection lever out of position **«P».**



B2CK007D



B2CK008D

Engines: RFN RHM

SHIFT LOCK

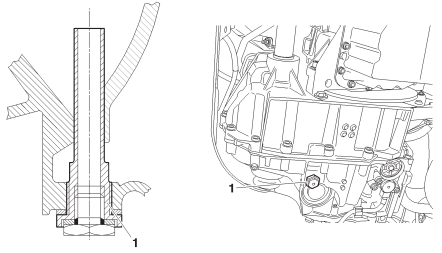
NOTE: The **«shift lock»** is a system that locks the gear selection lever in position **«P».**

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

Impossible to unlock the «shift lock»:

Probable causes of the fault.
The fault may originate from one of the following components:
- Battery voltage.
- Electro-magnet on the gear engagement lever housing.
- Gear lever position switch.
- Automatic gearbox ECU.
- Electrical harness.
- Brake pedal switch.

Breakdown solution.
Detach the gear control embellisher (**1**) commencing from the bottom.
Release the **«shift lock»** with a screwdriver.



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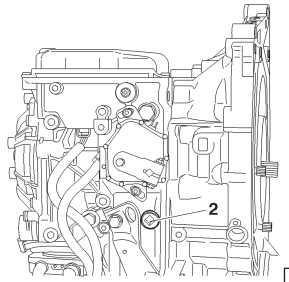


B2CP31GC

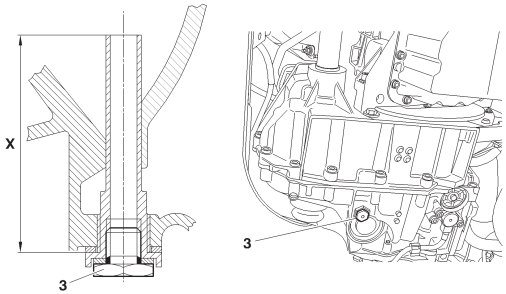
Engines: 6FZ RFN RHS RHZ RHM

Tools.
[1] Filling cylinder : **(-).0341**

Draining.
IMPERATIVE: The gearbox should be drained when the oil is warm (at least 60°C), to eliminate the impurities in suspension in the oil.
NOTE: Draining is partial, the converter cannot be completely emptied.
Remove the drain plug (**1**).
NOTE: Approx. **3 litres** of oil should flow out.
Filling.
Refit the drain plug (**1**) (equipped with a new seal), tighten to **4 ± 0,8 m.daN.**
Remove the oil filler cap (**2**).
Use tool **[1].**
Oil capacity for dry gearbox:
EW engine: **5,85 litres**
DW engine: **5,40 litres**
Oil remaining after draining: **3 litres** (approx.)
Quantity of oil to be put in: **3 litres** approx.)
Refit the oil filler cap (**2**) (equipped with a new seal), tighten to **2,4± 0,2 m.daN.**
Initialise the oil wear counter (follow the diagnostic tool procedure).

DRAIN/REFILL/TOP-UP: AL4 GEARBOX

Engines: 6FZ RFN RHS RHZ RHM



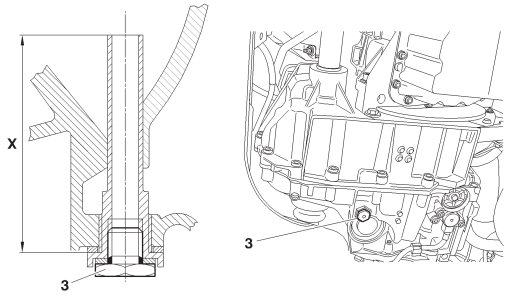
B2CP3AZD

Checking the oil level.

Prior conditions:

- Vehicle in horizontal position.
- Check gearbox is not in back-up mode.
- Remove the oil filler cap (**2**).
- Add **0.5 litres** extra oil into the gearbox.
- Foot on the brake, change through all the gears.
- Selection lever in position "**P**".
- Engine running, at idle.
- Oil temperature: **60°C (+8°C; -2°C).**
- Remove the oil level plug (**3**).

C5	EW10 and DW10 engines	**Dimension «X» = 81 mm**
C8	EW10 and DW10 engines	**Dimension «X» = 81 mm**



B2CP3AZD

Engines: 6FZ RFN RHS RHZ RHM

Thread of oil then "drip-drip"

Refit the plug (**3**). Tighten to **2,4± 0,2 m.daN.**

"Drip-drip" or nothing
Refit the oil level plug (**3**).
Stop the engine.
Add **0.5 litres** extra oil into the gearbox.
Repeat the oil level procedure.

NOTE: The level is correct at the moment the thread of oil becomes drip-drip.

Refit the oil level plug (**3**) (equipped with a new seal), tighten to **2,4± 0,2 m.daN.**

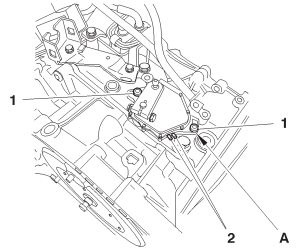
Checking the oil level (continued).
Refit the oil filler plug (**3**) (equipped with a new seal), tighten to **2,4± 0,2 m.daN.**
An excessive level of oil can lead to the following consequences:
- Oil heating up abnormally,
- Oil leaks.

A level that is too low will result in the destruction of the gearbox.

AL4 GEARBOX CHECKS AND ADJUSTMENTS: MULTIFUNCTION SWITCH

Engines: 6FZ RFN RHS RHZ RHM

Adjustment of MULTIFUNCTION SWITCH



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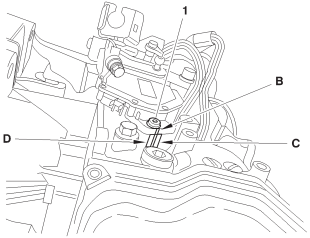


B2CKU1ED

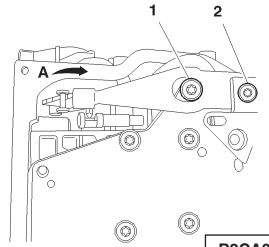
- Place the selection lever in position «**N**».
- Slacken the screws (**1**).
- Place the multifunction switch as far out as possible on the screw at «**A**».
- Connect a multimeter in the ohmmeter position on the electrical contacts (**2**).
- Turn the multifunction switch to close the circuit between the electrical contacts: **R = 0** Ω.
- Mark the position of the multifunction switch at «**B**» in relation to the gearbox casing at «**C**».
- Continue to turn the multifunction switch to open the circuit between the electrical contacts.
- Mark the position of the multifunction switch at «**B**» in relation to the gearbox casing at «**D**».
- Bring the switch back to position the mark «**B**» at midway between marks «**C**» and «**D**».

- Tighten the screws (**1**) to **1,5 ± 0,1 m.daN**.

- Check the correspondance between the position of the gear selector and the indication on the instrument panel.

Engines: 6FZ RFN RHS RHZ RHM

Adjustment of INTERNAL SELECTION CONTROL



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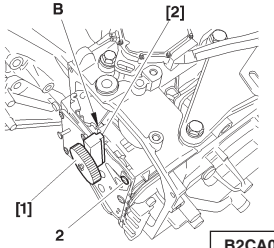


B2CA08NC

Tools.

[1] Locking screw : **(-).0338-M1**.
[2] Indexing roller adjustment shim : **(-).0338-M2**.

Adjustment.
Prior conditions: Hydraulic block in place.
- Place the gear selection lever in position **2** (**A**).
- Remove the screw (**1**)
- Slacken the screw (**2**).
- Fit tools [**1**] and [**2**].
- Position the indexing roller on the notched sector (**B**).
- Lock tool [**2**], using tool [**1**].
- Tighten the screw (**2**) to **0,8 ± 0,1 m.daN**.
- Check that the gear engagement lever is securely locked.
- Check the operation of the gear selection lever in all the positions.

IMPERATIVE: There must not be any excessive travel on the gear selection lever when it is in position 2. Adjust the multifunction switch.

C5 C8	RECOMMENDATIONS - PRECAUTIONS: 4 HP 20 AUTOMATIC GEARBOX

Engines: XFX 4HX XFW

Procedure to be followed prior to carrying out repairs on 4HP20 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.**

Customer reception.

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

Oil quality – Oil level.

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

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

ESSENTIAL: The gearbox must be replaced.

Oil 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: XFX 4HX XFW

Precautions to be taken

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

IMPERATIVE: - Put gear lever in position «N».
- Do not add any oil.
- Do not exceed 45 mph over a distance of 60 miles maximum.

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.

Repairs on electrical components

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

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

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

C5 C8	RECOMMENDATIONS - PRECAUTIONS: 4 HP 20 AUTOMATIC GEARBOX

Engines: XFX 4HX XFW

Precautions to be taken

Repairs on mechanical components

Never place the gearbox on the ground without protection.

In order to avoid breaking the input shaft ring, it is **imperative** that the converter retaining bracket should be in place when handling the gearbox.

It is **imperative** to use the centring peg and the converter retaining bracket to couple the gearbox on the engine.

After coupling the gearbox on the engine, remove the centring peg.

Modification of the oil usage counter value.

Exchanging the gearbox ECU:

Note down the gearbox counter value.
Transfer the value read into the the new gearbox ECU.

Exchanging the gearbox:

Initialise the oil usage counter to **0.**

Draining the gearbox:

Initialise the oil usage counter.
(follow the diagnostic tool procedure).

Procedure for initialising the automatic gearbox ECU

Downloading

Updating the gearbox ECU by downloading:
Follow the procedure using the diagnostic tool.

The downloading operation enables the automatic gearbox to be updated, or adapted to an evolution of the engine ECU.
Before commencing the downloading, take the value of the oil usage counter present in the automatic gearbox ECU.

After the downloading operation, carry out the following:

- A clearing of faults.
- A pedal initialisation.
- A re-initialisation of the auto-adaptives.
- A downloading (if necessary).
- A writing of the value of the oil usage counter previously read.
- A road test.

ESSENTIAL: Every update of the automatic gearbox ECU should be accompanied by an update of the engine ECU.

Procedure for initialising the automatic gearbox ECU

Updating the value of the oil usage counter

Using PROXIA

Access to reading and recording of the oil counter is via the menu:

«Configuration (integrated circuit button)/Oil counter».

Adjustment of the oil counter value is done in incremental steps of **2750 units.**

Using LEXIA or ELIT

Access to reading and recording of the oil counter is via the menu:

«Oil counter».

Adjustment of the oil counter value is done by entering directly the **5 figures** of the oil counter.

Downloading

ECU downloading procedure:
- Follow the diagnostic tool procedure.

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

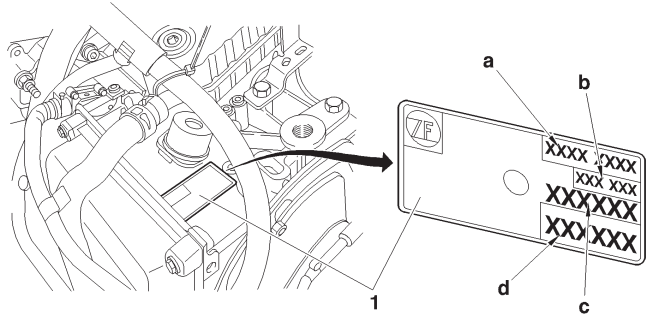
- SHIFT LOCK gear selection lever position.
- Without OBD outlet (depollution L4).

If the ECU is to be fitted to a vehicle with depollution **L4** or not equipped with gear lever locking safety:
Perform a downloading operation.

Pedal initialisation.

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 butterfly potentiometer.

Engines: XFX 4HX XFW



B2CP3CYD

Identification.

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

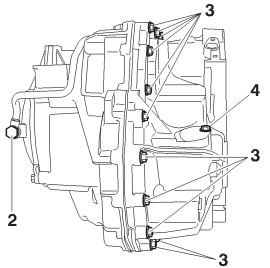
(a) Serial no..

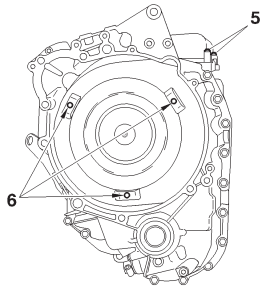
(b) ZF number.
(last digits taken into account)

(c) Type of automatic gearbox.

(d) Component reference

Engines: XFX 4HX XFW



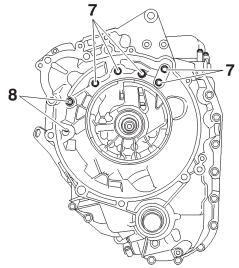


Tightening torques m.daN.

Gearbox exterior.

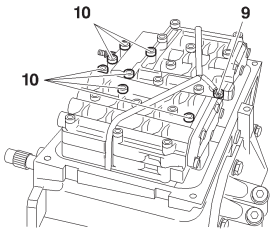
(2) Oil channel union fixing	**2,5 ± 0,5**
(3) Exterior fixing of converter cover on clutch housing	**2,3 ± 0,5**
(4) Speedometer take-off aperture plug	**1 ± 0,1**
(5) Steel casing fixing	**0,6 ± 0,1**
(6) Converter fixing on engine	**6 ± 1**
(7) Interior fixing of converter cover on clutch housing	**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**

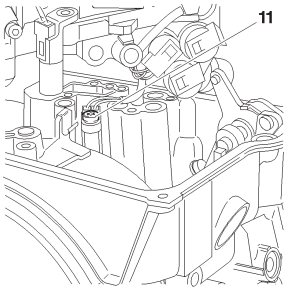
B2CP3CZC | B2CP24BC



B2CP24CC

Engines: XFX 4HX XFW



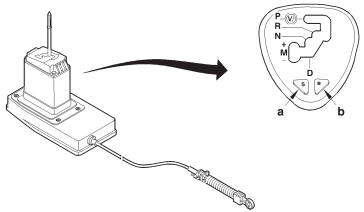


Tightening torques m.daN.

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



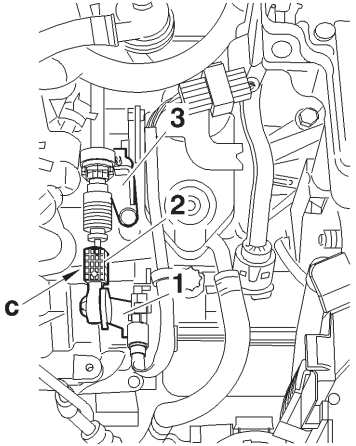
Selection control.

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

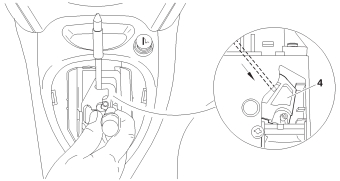


Selection control (continued).

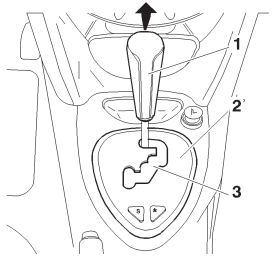
In position **M**, selection is by an electronic sensor located close to the gear lever.
The variation of flux necessary to the movement of the sensor cells is obtained by a magnet located on the lever itself. This enables the change of status. The information is transmitted to the gearbox ECU.
Two switches 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 a cable.

B2CP3DLC



C5FP0CUD



C5FP0CTC

Engines: XFX-4HX

SHIFT LOCK

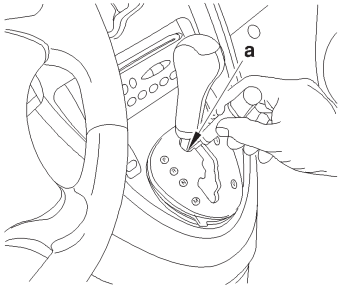
The **shift lock** is a system which locks the gear selection lever in the park position «**P**».

Unlocking the «shift lock» (*normal operation*).
Switch on the ignition.
Apply the brake pedal and keep it pressed.
Using the selection lever, disengage from position «**P**».

Unlocking the «shift lock» (with a fault).
If it should be 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.
Move the selection lever to disengage from position «**P**».



B2CPN8C

Engine: XFW

SHIFT LOCK

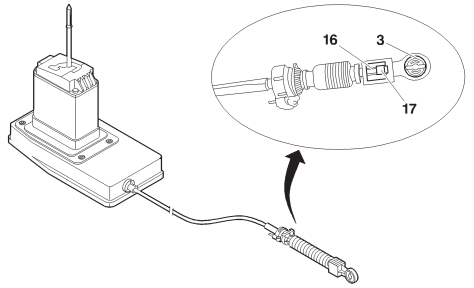
The **shift lock** is a system which locks the gear selection lever in the park position «**P**».

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).
If it should be 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:
Unlock the «**shift lock**» by pressing at **«a»** with a screwdriver placed in the aperture of the gear selection control grid.

Move the selection lever to disengage from position «**P**».



B2CP3DWD

Engines: XFX-4HX

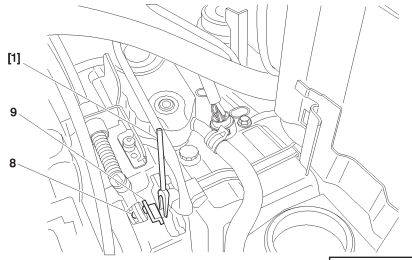
On refitting.
New gear selection control

- Couple the ball-joint (**3**).
- Push in the component (**16**) without bending the cable.
- Release the component (**16**).
- Lock the adjustment by means of component (**17**).
- Check all the gear selection control positions.

Re-used gear selection control.

- Unlock component (**17**).
- Release the component **16**).
- Couple the ball-joint (**3**).
- Push in the component (**16**) without bending the cable
- Release the component (**16**).
- Lock the adjustment by means of component (**17**).
- Check all the gear selection control positions.

Complete the fitting in the opposite order to removal (see corresponding procedure).



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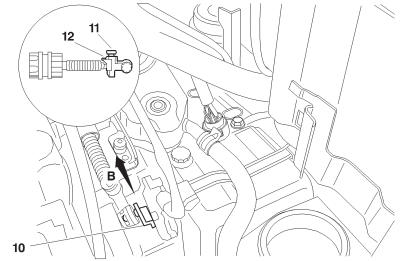


B2CKUBYD

Engine: XFW

On refitting.

IMPERATIVE: Fit new clips and collars.

WARNING: Check that the gear control cables are correctly routed.

Proceed in opposite order to removal.

IMPERATIVE: To clip the ball-joint (8) position tool [1] (Ball-joint extractor (-).0338.E) under the selection lever (9).

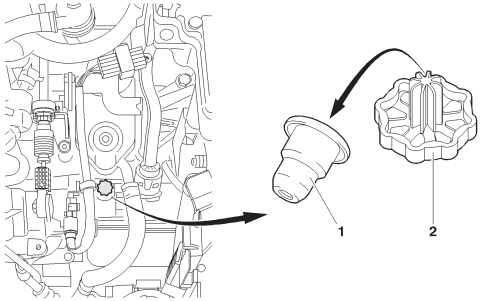
If necessary, adjust the selection control (if new or maladjusted).

Adjusting the selection control.

Selection lever in position **«P».**
Engagement lever (**10**) as far as possible towards the rear of the vehicle (**B**).
Lock the adjustments of the gears by pressing on the plastic component (**11**).
The adjustment is complete.
Check all the gear selection control positions.

NOTE: to unlock the gear control adjustment system, press on the plastic component (**12**).

DRAIN/REFILL/TOP-UP: 4 HP 20 GEARBOX



B2CP3DXD

Engines: XFX 4HX XFW

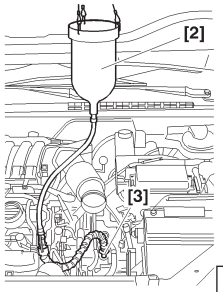
IMPERATIVE: Respect the precautions to be taken before any repair (refer to the procedure «RECOMMENDATIONS – PRECAUTIONS»).
Tools.
[1] Circlip pliers : **4517-T** Toolkit **4507-T**
[2] Filling cylinder : **(-).0341**.
[3] Specific adaptor : **(-).0341.B.**

NOTE:
- The **4 HP 20** automatic gearbox is lubricated for life.
- Top up the oil **every 37,000/40,000 miles.**

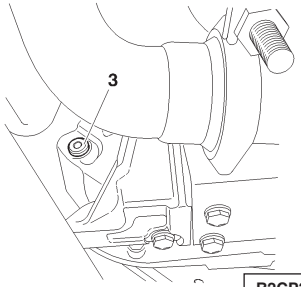
Filling.
Oil capacities.

Oil capacity, gearbox dry	: **7,7 Litres** (minimum).
	: **8,3 Litres** (maximum).
Oil remaining after draining	: **4,7 Litres** (minimum).
	: **5,3 Litres** (maximum).
Quantity of oil to be added	: **3 Litres** (approx.).

Remove:
- The air filter housing.
- The air vent assembly (**1**) and (**2**) of the gearbox, using tool **[1].**



B1BP2AGC



B2CP3DYC

Engines: XFX 4HX XFW

Fill with oil, using tools **[2]** and **[3].**

Refit the metallic component (**1**) of the air vent, using a punch of **Ø 18 mm** and a mallet.

Clip on the plastic component (**2**) of the air vent.

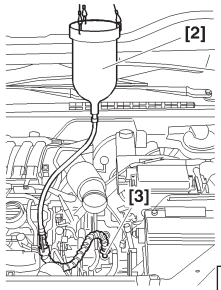
NOTE: The air vent for the gearbox is available from Replacement Parts.

Oil top-up.

Prior conditions.

Vehicle on level ground, handbrake off.
Engine running at idle, without any power consumers operating (aircon, heating, etc.)
Check the absence of gearbox back-up mode, using a diagnostic tool.
Pressing on the brake, change through all the gears.
Gear selection lever in position **«P».**
The check should be done when the oil has reached a temperature of **55°C ± 1°C**, using a diagnostic tool.
Remove the top-up plug (**3**).

DRAIN/REFILL/TOP-UP: 4 HP 20 GEARBOX



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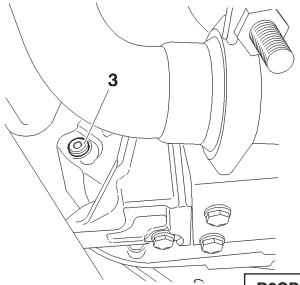


B2CP3DYC

Engines: XFX 4HX XFW

Oil should flow out through the oil top-up orifice.
As soon as the oil temperature reaches **60°C ± 1°C,** refit the top-up plug (**3**).

NOTE:The oil level is correct.

Tighten the plug (**3**) to **2,5 ± 0,2 m.daN.**

If oil does not flow out through the oil top-up orifice.

Refit the top-up plug (**3**).
Stop the engine.
Remove the gearbox air vent assembly, using tool **[1].**
Add **0,5 litre** extra oil into the gearbox, using tools **[2]** and **[3].**
Repeat the top-up procedure.
Remove tools **[2]** and **[3].**
Refit the metallic component (**1**) of the air vent, using a punch of **Ø 18 mm** and a mallet.
Clip on the metallic component (**2**) of the air vent.
Refit the air filter housing.

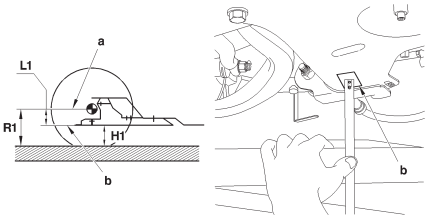
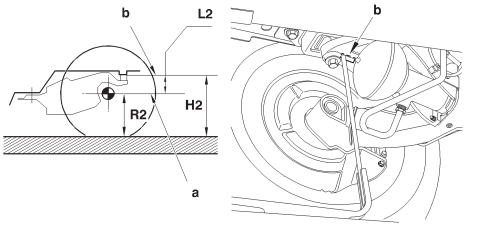
			Tightening torques (m.daN)		Gearbox oil seal mandrels		
Vehicles	Gearbox	Engines	Driveshaft bearing	Driveshaft nut	Right	Left	Tool kit
C5 C8	BE4/5	6FZ-RFN-RLZ RHY	C5		7114-T.W	7114-T.X	7116-T
	ML/5	XFX-RHS-RHZ 3FZ-RHT-RHW	2 ± 0,2	32,5 ± 1,5	9017-T.C	5701-T.A	9017-T
	ML/6	4HX-4HW					
	AL4	6FZ-RFN-RHS RHZ-RHM	C8		0338 J1 0338 J3	0338 H1 0338 H2	0338
	4 HP20	XFX-XFW-4HX	1 ± 0,1	10 + 60°	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
	C8		10 ± 0,5

C5 + CARLSON	AXLE GEOMETRY

This method eliminates all the variations in measurements due to the following parameters:
Type of wheels fitted. Vehicle load. Wear or incorrect inflation of tyres

Measuring front height	Measuring rear height
 B3BP166D	 B3BP168D
H1 = R1 – L1	**H2 = R2 + L2**
H1 = Front height (**± 6mm**). **R1** = Wheel radius (mm). **L1** = Theoretical dimension between the level of the front subframe and the wheel axis.	**H2** = Rear height **(± 6mm).** **R2** = Wheel radius (mm). **L2** = Theoretical dimension between the measuring zone on the crossmember support and the wheel axis.
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).	The measurement of the rear dimension «H2» is between ground level and the measuring zone on the rear axle crossmember (forward of the rear fixing of the rear axle crossmember on the body).
L1 = 140 mm	**L2 = 73 mm**
The dimension L1 for checking front height is between the level **"b"** of the front subframe and the wheel axis **"a"**.	The dimension **L2** for checking rear height is between the measuring zone **"b"** and the wheel axis **"a"**.

AXLE GEOMETRY

C5

Front axle

All types (except CARLSSON)

Vehicle	Tracking	Castor	Camber	King pin inclination
	Adjustable	Non adjustable		
All types	0 à - 3 mm 0° à - 0° 27'	3° 03' ± 30'	0° ± 30'	12° 56' ± 30'

→ RPO 9435

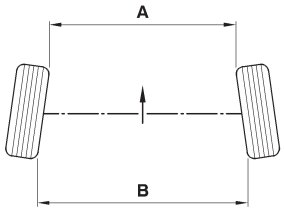
Rear axle

Tracking	Camber
Non adjustable	
5,4 ± 1,3 mm 0° 49' ± 0° 12'	- 1° ± 20'

RPO 9436 →

Rear axle

Tracking	Camber
Non adjustable	
4,5 ± 1,3 mm 0° 41' ± 0° 12'	- 1° ± 20'

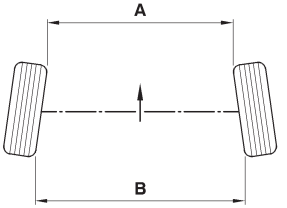


NOTE: Front of the vehicle indicated by the arrow

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

B3CP02UC

C5 CARLSON	AXLE GEOMETRY					
	Front axle				Rear axle	
	CARLSSON					
Vehicle	Tracking	Castor	Camber	King pin inclination	Tracking	Camber
	Adjustable	Non adjustable			Non adjustable	
All types	0 à - 2 mm 0° à - 0° 15’	3° 03’ ± 30’	-0° 04’ ± 30’	12° 56’ ± 30’	5,1 ± 1,3 mm 0° 41’ ± 0° 12’	- 1° 03’ ± 20’



NOTE: Front of the vehicle indicated by the arrow

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

B3CP02UC

AXLE GEOMETRY: CHECKING AND ADJUSTING VEHICLE HEIGHT | C5 + CARLSON

Tools.

[1] Gauge for measuring radius of wheels (4 bolts)	**: 8006-T**
[2] Gauge for height under bodyshell	**: 2305-T**
[3] **LEXIA** station	**: 4171-T**
[4] **PROXIA** station	**: 4165-T**

Preliminary operations.

Check the level of LDS fluid (see corresponding operation).

Check the tyre pressures.

Place the vehicle on a **4 column lift.**

Put the vehicle in the normal position.

Release the handbrake.

Start the engine.

Checks by axle.

Lift the vehicle by hand.

Release when the weight becomes too great

The vehicle descends, then re-ascends and stabilises

Measure the height.

Push down the vehicle by hand.

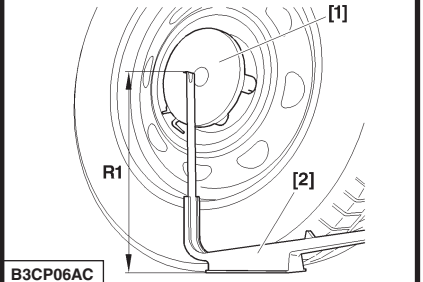
Hold the vehicle in this position, release when it rises

The vehicle ascends, then descends and stabilises.

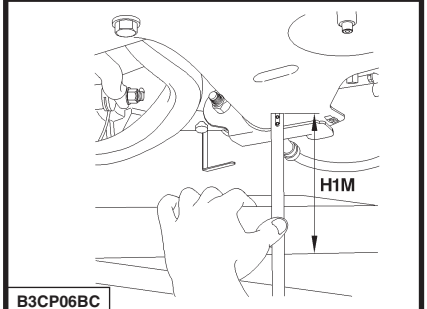
Measure the height.

Take the average of the **2 measures.**

AXLE GEOMETRY: CHECKING AND ADJUSTING VEHICLE HEIGHT



B3CP06AC



B3CP06BC

Measuring of heights.

Measuring the wheel radius

To determine the centre of the wheel, place tool **[1]** on the heads of the wheel bolts.
Meaure the radius **R1** using tool **[2]** (distance from ground to centre of wheel).

Measuring the front height H1M.

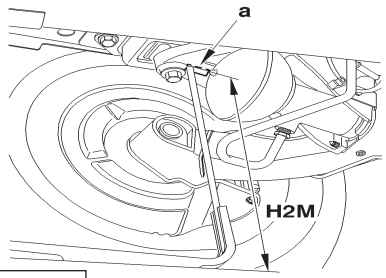
The front height **H1M** is measured between the ground and the subframe, to the rear of the front fixing yokes of the suspension tripod.

Calculating the front height H1C

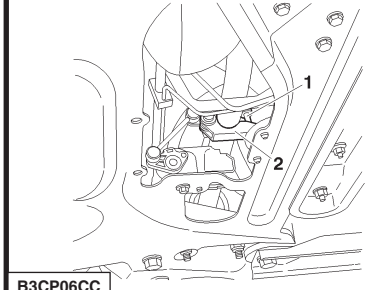
H1C = **R1 – 140 mm**
R1 = Radius of front wheel (mm).

Compare:
The value measured **H1M.**
The value calculated **H1C**
Adjust the front height if necessary.

AXLE GEOMETRY: CHECKING AND ADJUSTING VEHICLE HEIGHT



B3DP08HC



B3CP06CC

Measuring the rear height H2M

The rear height **H2M** is measured between the ground and zone **«a»** on the crossmember.

Calculating the rear height H2C.

H2C = **R2** + **73 mm.**
R2 = Radius of rear wheel (mm).

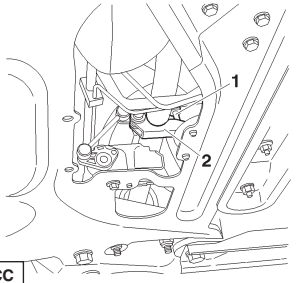
Compare:
The value measured **H2M.**
The value calculated **H2C**
Adjust the front height if necessary.

Adjustment of heights.

Adjustment using a diagnostic tool.
This adjustment is done when the heights measured are within the tolerance of the heights calculated.

Mechanical pre-adjustment.
This adjustment is done when the heights measured are not within the tolerance of the heights calculated.
(± 10 mm).

AXLE GEOMETRY: CHECKING AND ADJUSTING VEHICLE HEIGHT



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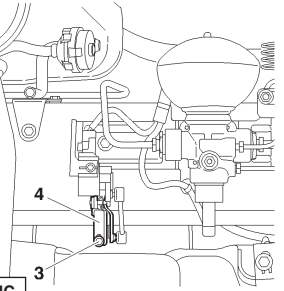


B3DP08JC

Front height.

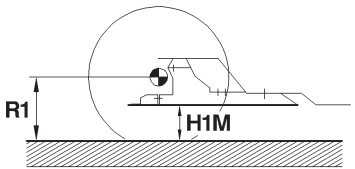
Slacken by one turn the screw (**1**) on the collar **(2)**.
Retighten the screw by hand.
To decrease the height, turn the collar **(2)** towards the front of the vehicle.
To increase the height, turn the collar **(2)** towards the rear of the vehicle.
Repeat the operation to obtain the dimension calculated **H1C (± 10 mm)**.
Tighten the screw (**1**) to: **0,6 m.daN.**
Adjust using tool **[3]** or tool **[4].**

Rear height

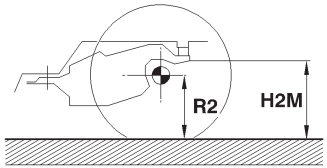
Slacken by one turn the screw (**3**) on the collar (**4**).
Retighten the screw by hand.
To decrease the height, turn the collar (**4**) towards the front of the vehicle.
To increase the height, turn the collar (**4**) towards the rear of the vehicle.
Repeat the operation to obtain the dimension calculated **H2C (± 10 mm**).
Tighten the screw (**3**) to: **0,6 m.daN.**
Adjust using tool **[3]** or tool **[4].**

AXLE GEOMETRY: CHECKING AND ADJUSTING VEHICLE HEIGHT

C5 + CARLSON



B3BP164C



B3BP165C

Adjustment of heights using tool [3] or tool [4].
Connect either tool **[3]** or **[4]** to the vehicle's diagnostic socket.
Go into the menu:
Adjustment of reference heights.
Configuration

NOTE: **H1M** = Front measured height, in mm.
Calculate **280 - (R1 - H1M)**
Enter this value in the diagnostic tool.

NOTE: H2M = Rear measured height, in mm.
Calculate (**R2 – H2M**)
Enter this value in the diagnostic tool.

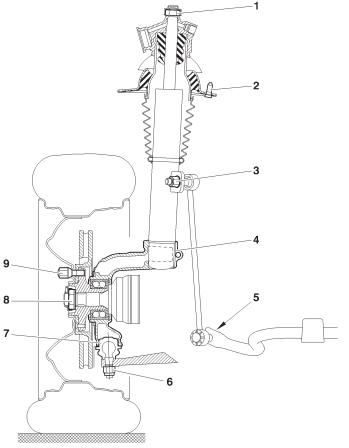
Wait for the vehicle height to correct itself.

Measure the front height (**H1M**).
Check that: **H1M = H1C ± 2 mm.**

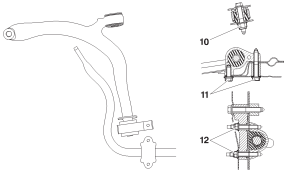
Measure the rear height (**H2M**).
Check that: **H2M = H2C ± 2 mm**

C5 + CARLSON

FRONT AXLE



B3CP05VP



B3CP05WD

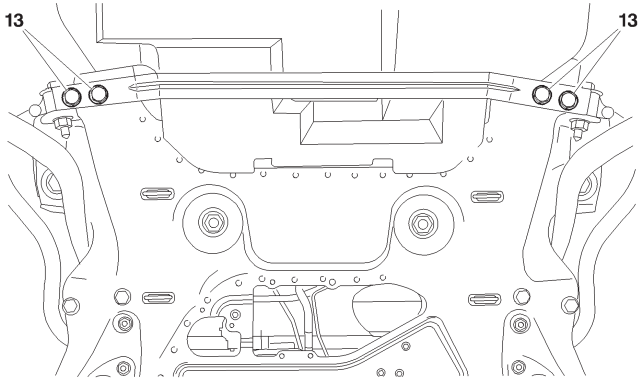
Tightening torques m.daN.

(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) Suspension leg fixing on pivot	: **5,4 ± 0,5**
(5) Anti-roll bar link rod lower fixing	: **6,4 ± 0,6**
(6) Ball-joint fixing	: **4,5± 0,4**
(7) Ball-joint fixing on pivot	: **25 ± 2,5**
(8) Hub nut	: **32,5± 2,6**
(9) Wheel bolt	: **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**

WARNING: From **RPO 9429**, evolution of head of fixing screw for steel and aluminium wheels.
Dimension on flat **17mm** (instead of **19mm**).

FRONT AXLE

C5 + CARLSON



B3CP071D

The front subframe is equipped with a stabiliser bar linking between the two front extensions.

Tightening torque for screws (**13**) **: 6,6 ± 0,6 m.daN.**

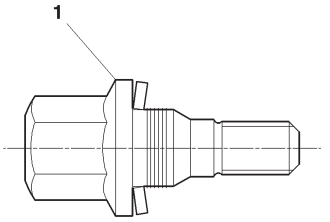
Saloons and estates and CARLSSON

	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
All types and CARLSSON (except ES9J4)	**23,5**	**Yellow**
ES9J4	**24,5**	**White**

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

C5	FRONT / REAR AXLE

Evolution: Wheels – Wheel bolts

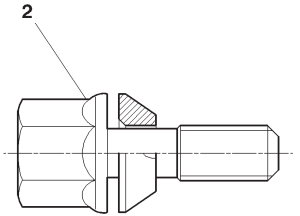


B2GP018C

Old fitting

Alu-steel wheels (with **flat** seat fixing)

(**1**) Wheel bolt with flat seat fixing.



B2GP019C

New fitting : RPO 9682 →

Alu-steel wheels (with **conical** seat fixing)

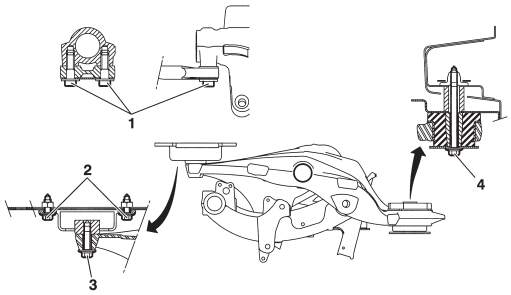
(**1**) Wheel bolt with conical seat fixing.

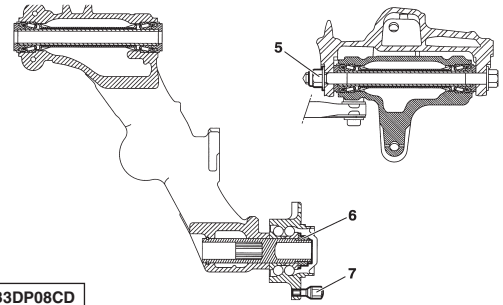
WARNING: New tightening torque **: 10 ± 0,1 m.daN.**

IMPERATIVE: Swapping of old and new parts is prohibited. Mixing of parts of both designs (new and old) is prohibited on the same vehicle.

REAR AXLE

C5 + CARLSON





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 bolt	

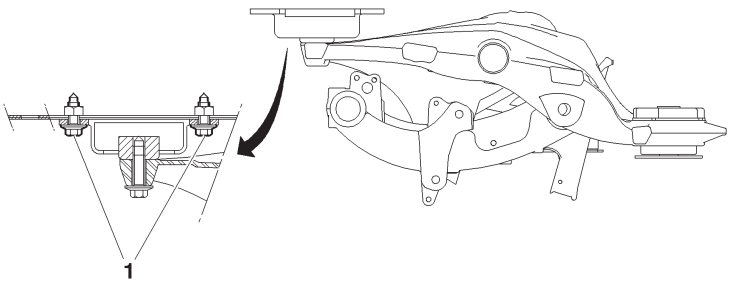
NOTE : **(3)** and **(4)** Face and threads **not greased**.

	Anti-roll bar	
Engines	**Diameter (mm)**	**Colour ref.**
All types (except ES9J4)	**21,5**	**Blue**
ES9J4	**22,5**	**Yellow**
Estates all types CARLSSON		

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

C5	REAR AXLE

Evolution: Fixing of rear axle rear rubber bushes



B3DP0B2D

(1) Fixing bolt **M12 x175 L 55**

RPO 9606 →

Evolutions:
New bolts.
New tightening torque.

IMPERATIVE: The types of fixing bolts should be identical, on RH and LH sides.

IMPERATIVE: Respect the tightening torques.

Replacement Parts.

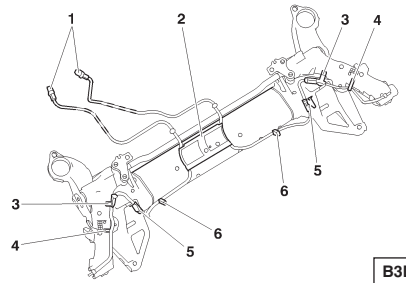
The new bolts replace the old bolts.

RPO N°	Description (mm)	Tighten (mdaN)
→ 9605	Fixing bolts x175 L 35	8,5 ± 1,2
9606 →	Fixing bolts M12 x175 L 55	9 ± 1,3

REAR AXLE

C5

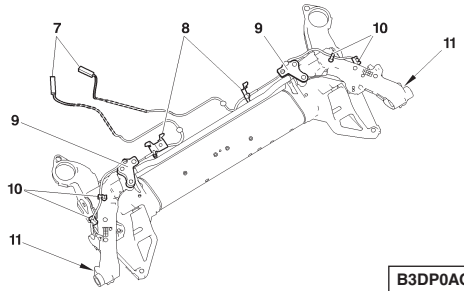
Evolution: Rear axle crossmember – Rear wheel sensors (Application RPO 9528 →)



B3DP0APD

Old fitting (→ RPO 9527)

(1) Rear wheel sensors.
(2) Support
(3) Support.
(4) Clips.
(5) Support
(6) Clips



B3DP0AQD

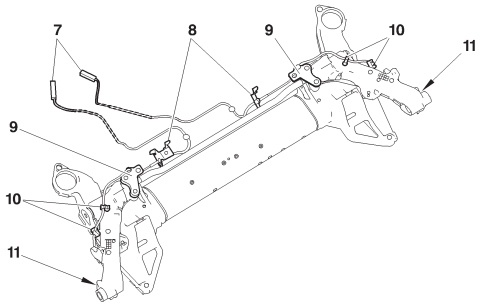
New fitting (RPO 9528 →)

Evolutions.

New installation of electrical harnesses for rear wheel sensors.
Suppression of fixing holes for supports (**2**) and (**5**), on the rear axle crossmember.
Suppression of supports (**2**) and (**5**).
New rear wheel sensors (length **1670 mm** instead of **1767 mm**).

C5	REAR AXLE

Evolution: Rear axle crossmember – Rear wheel sensors (Application RPO 9528 →)



B3DP0AQD

New fitting (RPO 9528 →)

(**7**) Rear wheel sensors.
(**8**) Support.
(**9**) Support.
(**10**) Clips.
(**11**) Clips.

Replacement Parts.
The Replacement Parts service currently markets:
The new rear axle crossmembers.
The components for the new fitting.
The components for the old fitting.

Fitting of a new rear axle crossmember (Vehicle → RPO 9527).

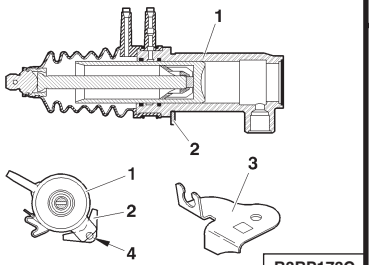
WARNING: Identify the type of fitting, before any repair.

It is necessary to carry out the following operations:
Use a template to drill the rear axle crossmember.
Prepare the rear axle crossmember.

NOTE: See procedure: Preparation of rear axle.

REAR AXLE	C5

Evolution: Rear suspension cylinder fixing flange



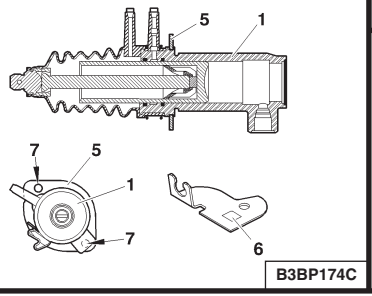
Old fitting

(**1**) Rear suspension cylinder.

(**2**) Rear suspension cylinder fixing flange.

(**3**) ABS sensor fixing bracket.

(**4**) Screw



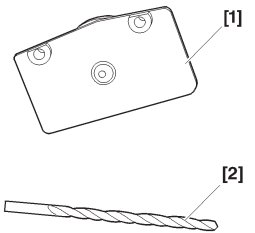
New fitting

Evolutions.

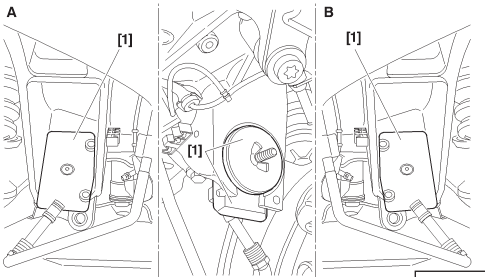
(**1**) Rear suspension cylinder
(**5**) Rear suspension cylinder fixing flange.
(**6**) ABS sensor fixing bracket.
(**7**) Screw : **Tighten to 2 ± 0,2 m.daN.**

C5	REAR AXLE

Evolution: Rear suspension cylinder fixing flange (continued)



E5AP1YWC



B3BP175D

Repair
WARNING: Identify the type of fitting, before attempting any operation.
IMPERATIVE: Swapping of old and new components is prohibited.
Tools.
[1] Positioning tool for drilling of the rear suspension arm.
[2] Drill **Ø 6,75 mm.**

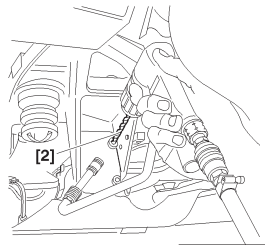
Removing

IMPERATIVE: Respect the precautions to be taken before a repair (see brochure BRE 0747)

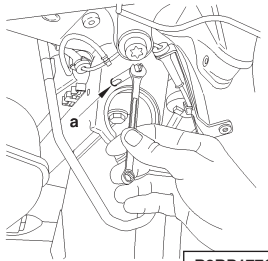
IMPERATIVE: Refer to the instructions for the operation «depressurising of suspension circuits» (see brochure BRE 0755)

Raise and support the vehicle, rear wheels hanging.
Remove the rear suspension cylinder (see brochure **BRE 0755**).
Remove the ABS sensor fixing bracket (**3**).
A = Drilling at top RH for the LH suspension cylinder fixing.
B = Drilling at top LH for the RH suspension cylinder fixing.
Position the tool **[1].**

Evolution: Rear suspension cylinder fixing flange (continued))



B3BP176C



B3BP177C

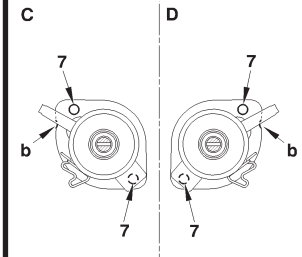
Drill the suspension crossmember, using tool **[2]**.
NOTE: Use a small air drill (maximum length excluding bit: **145 mm**)
Tap the hole, using a tap **M 8x125** (at **«a»**).
Clean the threads.

Refitting
Refit the rear suspension cylinder (new fitting) (see brochure **BRE 0755**)

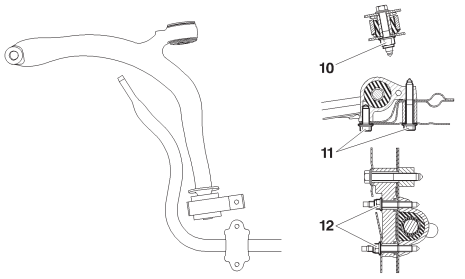
C = LH side, LH rear suspension cylinder
D = RH side, RH rear suspension cylinder

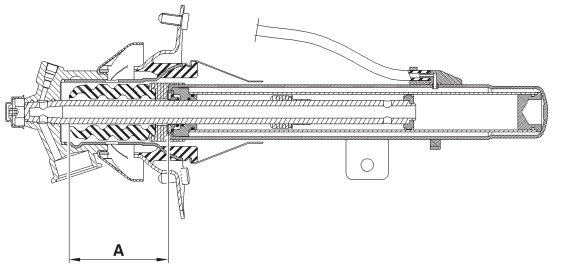
«a» notch for direction of fitting of the rear suspension cylinder fixing flange.
Refit the ABS sensor fixing bracket **(6).**
Tighten the screws **(7)** to **: 2 ± 0,2 m.daN.**

Replacement Parts.
The Replacement Parts service now only markets the new components.



B3BP178C





B3CP05WD | B3BP167D

Front suspension

Tightening torques m.daN.

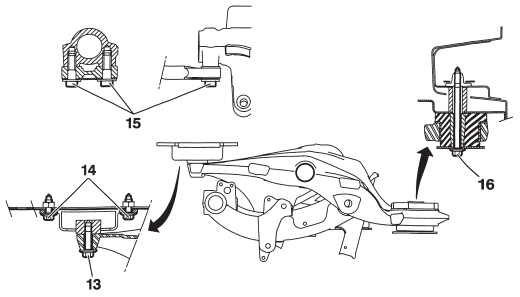
(10) Arm front fixing	**: 13 ± 1,3**
(11) Arm rear fixing	**: 8 ± 0,8**
(12) Anti-roll bar bearing fixing on subframe	**: 4,2 ± 0,6**

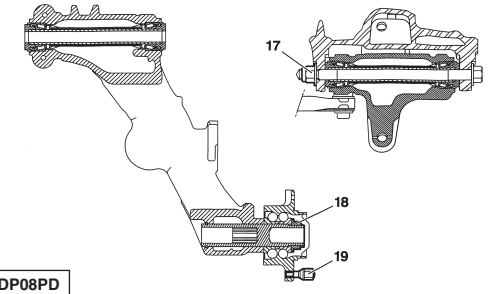
Hydractive 3 hydraulic suspension.

Steering:	: Power-assisted
Engine versions	: EW7J4 DW10TD DW10TED DW10ATED
Suspension piston diameter	
Saloon	**: 37 mm.**
Estate	**: 40 mm.**

Hydractive 3+ hydraulic suspension

Steering:	: Power-assisted
Engine versions	: EW10D EW10J4 ES9J4S DW12TED4
Suspension piston diameter	
Saloon	**: 37 mm.**
Estat	**: 40 mm.**
CARLSSON	**: 40 mm.**
Suspension leg.	
Bump stop, height	**«A» = 97 mm.**





B3DP08ND | B3DP08PD

Rear suspension

Tightening torques m.daN.

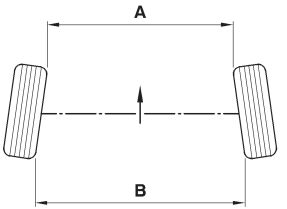
(13) Subframe rear fixing	**11,5 ± 1,1**
(14) Rear rubber mounting fixing on bodyshell	**8 ± 1,2**
(15) Anti-roll bar fixing	**13,1 ± 1,4**
(16) Front fixing of subframe on bodyshell	**11,5 ± 1,1**
NOTE: (13) and **(16)** Face and threads greased.	
(17) Arm shaft fixing	**14,9 ± 1,3**
(18) Hub nut	**25 ± 2,5**
(19) Wheel fixing	**9 ± 1**
Stabiliser bar fixing on subframe	**6,6 ± 0,6**

Hydractive 3+ hydraulic suspension (power-assisted steering)

Suspension piston diameter	**= 37 mm.**
Anti-roll bar diameter	
- Saloon	**= 21,5 mm**
- Estate and CARLSSON	**= 22,5 mm.**
Anti-roll bar colour reference	
- Saloon	**= Blue**
- Estate	**= Yellow**

C5	SUSPENSION					
	Front axle				Rear axle	
Vehicle	Tracking	Castor	Camber	King pin inclination	Tracking	Camber
	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'

RPO 9436 →	
Rear axle	
Tracking	Camber
Non adjustable	
4,5 ± 1,3 mm 0° 41' ± 0° 12'	- 1° ± 20'



NOTE: Front of the vehicle (following arroow)

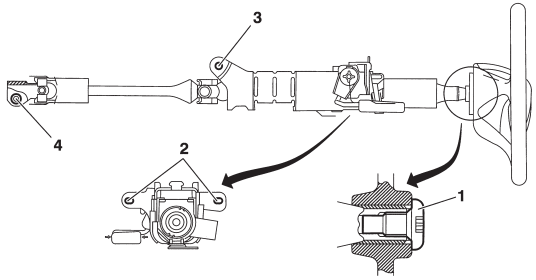
	WARNING	
A < B = Positive figure:	+ =	TOE-IN
A > B = Negative figure:	– =	TOE-OUT

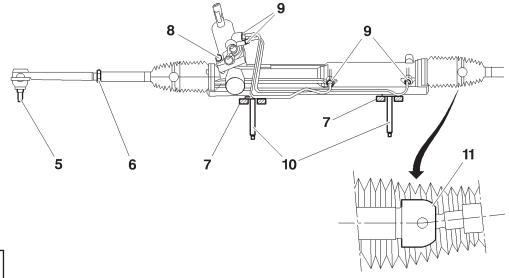
B3CP02UC

POWER-STEERING SPECIFICATIONS

C5

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





B3EP124D | B3EP12YD

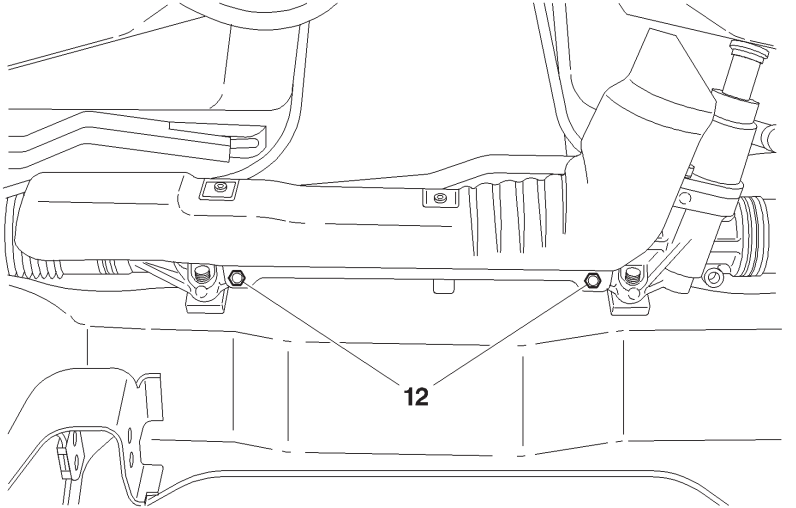
Tightening torques m.daN.

(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 locking 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**

(7) Adjustment shim:
Saloon : thickness **3 mm.**
Estate : thickness **2 mm.**

Quantity of oil = **4,3 litres**
Quality of oil = **TOTAL FLUIDE LDS**

C5	POWER-STEERING SPECIFICATIONS



B3EP12ZD

Tightening torque m.daN.

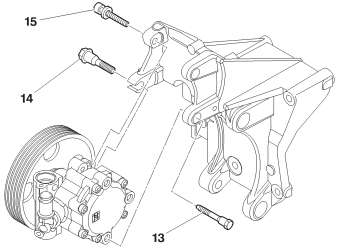
(12) Heat shield fixing on casing: **1,2 ± 0,2**

POWER-STEERING SPECIFICATIONS			C5
Engines: 6FZ-RFN-RLZ-XFX-RHY-RHS-RHZ-4HX			
	Saloons		Estates
Vehicles	6FZ RFN RLZ RHY RHS RHZ	XFX 4HX	All Types
Steering rack			
Number of teeth	33		
Steering rack travel	2x83	2x74	
Steering rack pinion			
Number of teeth	9		
Left hand drive	LH helix		
Left hand drive	RH helix		
No. of steering wheel rotations (lock to lock)	3,3	3	
Steering reduction ratio	50,4/1		
Angle of lock for inside wheel	39,74°	34,29°	
Angle of lock for ouside wheel	35,65°	31,58°	
Diameter at full lock between walls	11,39 m	12,46m	

NOTE: On **XFX** engine, a proportional electrovalve, integral to the steering valve, modulates power-assistance as a function of vehicle speed.

C5 POWER-STEERING SPECIFICATIONS

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



B3EP130D

Power steering pump – Saloons and Estates		
Vehicles	**6FZ RFN RLZ RHY-RHS RHZ 4HX**	**XFX**
Supplier	**ZF**	**SAGINAW**
Type of flow	**Falling**	**Constant**
Regulation pressure	**100 Bars**	
Diameter of pulley	**129 mm**	

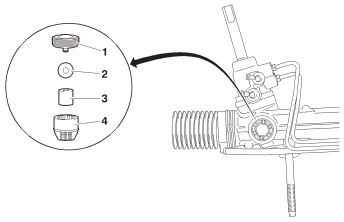
Tightening torque: m.daN		
	6FZ RFN RLZ RHY-RHS RHZ 4HX	**XFX**
(13)	**2,2 ± 0,3**	**2,5 ± 0,6**
(14)		
(15)		

Power steering pump (XFX engine**).**
Hand-tighten the screws **(13), (14), (15)**
Tighten to the torque **:** screws **(14)** and **(15)**
Tighten to the torque **:** screw **(13).**

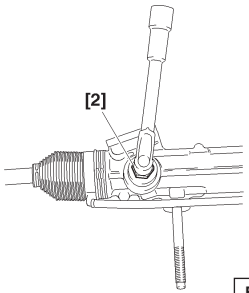
Power-assisted steering pressure switch (petrol engine)
A power-assisted steering pressure switch is installed on the hydraulic piping, between the high pressure pump and the steering valve:
Opening pressure : **35 (+ 0-5) Bars**
Closing pressure : **Higher than or equal to 25 Bars**
Pressure switch - tighten to : **2 ± 0,2**

STEERING ADJUSTMENT BUTTON

C5



B3EP12KD



B3EP12LC

Tools.

[1] Adaptor : **ALLEN FACOM ST.17**
[2] Tap for steering mechanism : **8612-T**

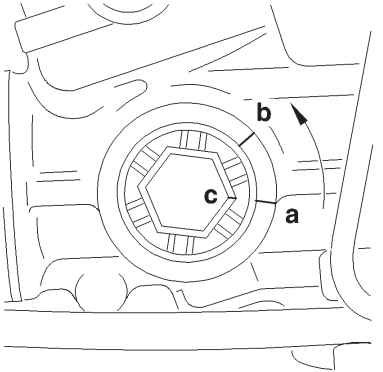
Removing.

Remove the steering (see corresponding operation).
Immobilise the steering mechanism in a vice.
Remove the assembly composing the following components, using tool **[1]**:
Plug **(1)**.
Washer **(2)**.
Rubber spacer **(3)**
Push-button **(4)**.
Tap the threads of the steering casing, using tool **[2]**, until the tight spots disappear.

WARNING: Operate with care to prevent entry of polluting particles.

Clean the components as well as the seating of the push-button in the steering.

C5	STEERING ADJUSTMENT BUTTON



B3EP12MC

Refitting.

Position the steering rack at the mid point.
Remove the assembly composing the following components:
Plug (**1**).
Washer (**2**).
Rubber spacer (**3**).
Push-button (**4**).

Grease the push-button (**TOTAL N 3924** grease).

Tighten to **1 ± 0,1 m.daN,** using tool **[1].**

Make marks **«a»** and **«b»** on the steering casing.
Make a mark **«c»** on the plug (**1**) opposite the mark **«a»**.
Slacken the plug (**1**), until the mark **«c»** lines up with the mark **«b»** (position **60**°).
Peen the plug (**1**) in relation to the steering casing, by striking it with a punch.
Check the absence of tight spots throughout the travel of the steering rack.
Refit the steering (see corresponding operation).

AXLE GEOMETRY

C8

Setting at reference height

Requirements prior to setting at reference height

WARNING: The checks of the front and rear axle geometry values, as well as the adjusting of the front suspension should be carried out at precise positions of suspension compression (reference height) on a suspension test bed

Check the pressures in the tyres.
Check the conformity of the tyres.
Remove the wheel trims.
Lock the steering rack at point zero: straight ahead (See corresponding operation).

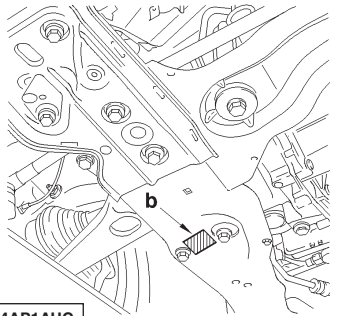
Tooling required

[1] Set of two compressors	**: 9511-T.A**
[2] Set of two shackles	**: 9511-T.C**
[3] Set of four straps	**: 9511-T.B**
[4] Set of two slings	**: 9511-T.D**
[5] Under body height gauge	**: 2305-T**

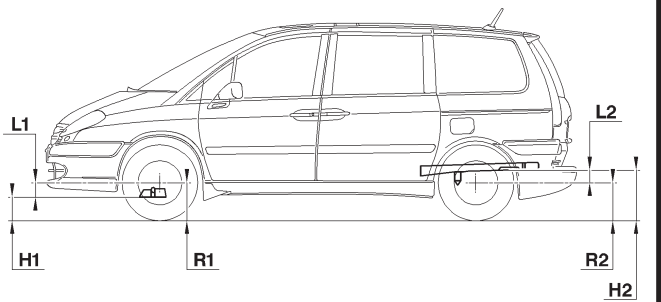
C8	AXLE GEOMETRY

Setting at reference height (continued)

Measuring front height (H1)

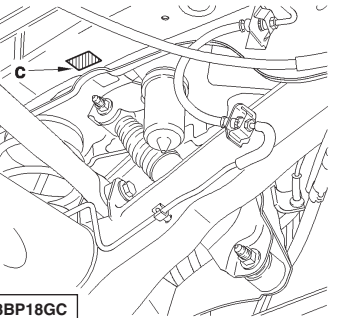


C4AP1AUC



E1AP0AYD

Measuring rear height (H2)



B3BP18GC

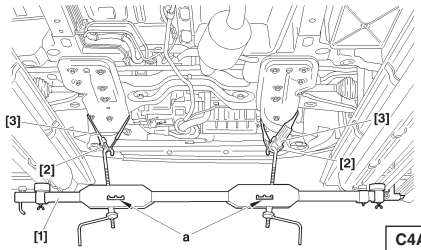
Front height	Rear height
H1 = R1 - L1	**H2 = R2 + L2**
H1 = Measurement between the bottom of the subframe (**b**) at the front fixing of the suspension wishbone, and the ground. **R1 =** Radius of front wheel under load. **L1 =** Distance between the centre of the wheel and the bottom of the subframe at the front fixing of the suspension wishbone.	**H2 =** Measurement between bottom of longeron (**c**) and the ground. **R2 =** Radius of rear wheel under load. **L2 =** Distance between the centre of the wheel and the bottom of the longeron.

FRONT AXLE GEOMETRY

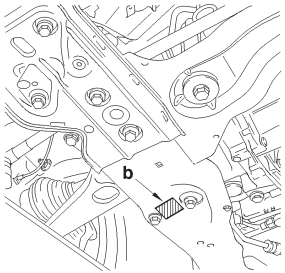
C8

Setting at reference height (continued)

Height of the vehicle at the front at reference height (H1 = R1 - L1)



C4AP1ATD



C4AP1AUC

Engage the straps **[3]** with their shackles **[2]** on the subframe.
Position the suspension compressor **[1]**, selecting the separation (**a**) most suited to pull the straps as far upwards as possible.

Compress the suspension so as to obtain, on the RH and LH sides, the bodyshell height **H1** (reference height), to be measured between the bottom of the subframe (**b**) at the front fixing of the wishbone, and the ground.

WARNING: take account of pivoting surfaces when measuring the reference height **H1**.

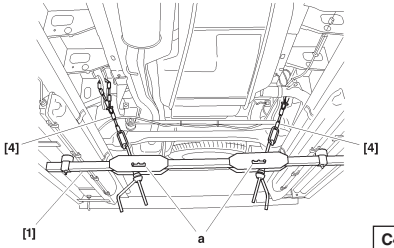
NOTE: Only the tracking is adjustable.

WARNING: The tracking value varies as a function of the vehicle height.

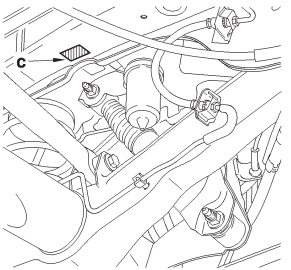
C8	REAR AXLE GEOMETRY

Setting at reference height (suite)

Height of the vehicle at the rear at reference height (H2 = R2 + L2)



C4BP1CND



B3BP18GC

Engage the slings **[4]** on the rear longerons.

Position the suspension compressor **[1]** selecting the separation (**a**) most suited to pull the straps as far upwards as possible.

Compress the suspension so as to obtain, on the RH and LH sides, the bodyshell height **H2** (reference height), to be measured between the bottom of the longeron **«c»** and the ground.

WARNING: take account of pivoting surfaces when measuring the reference height **H2**.

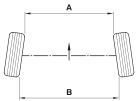
Check that the height H1, measured already at the front, has not changed.

WARNING: The rear axle angles are not adjustable.

AXLE GEOMETRY — C8

Values for front suspension angles			
Engines	**RFN**	**3FZ-RHT-RHW RHM-4HW**	**XFW**
Tyres	205x65 R15	215x65 R15	215x60 R16
L1 (mm)	**126**		
L2 (mm)	**94**		
Adjustable			
Tracking (mm)	**2 ± 1**		
Tracking (degrees)	**0° 17' ± 0° 08'**		
Non adjustable			
Camber	**0° 0' ± 30'**		
Castor	**3° 30' ± 30'**		
Angle of pivot	**12° 24' ± 30'**		

Values for rear suspension angles			
Engines	**RFN**	**3FZ-RHT-RHW RHM-4HW**	**XFW**
Tyres	205x65 R15	215x65 R15	215x60 R16
L1 (mm)	**126**		
L2 (mm)	**94**		
Non adjustable			
Tracking (mm)	**5 ± 1**		
Tracking (degrees)	**0° 45' ± 0° 08'**	**0° 42 ± 0° 08'**	
Non adjustable			
Camber	**1° ± 30'**		

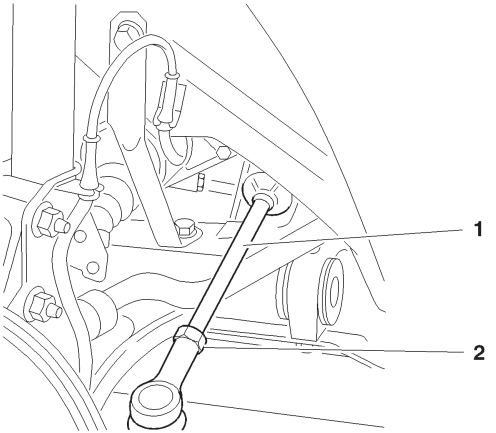


B3CP02UC

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

C8	AXLE GEOMETRY

Adjusting the rolling axles



B3BKAELD

NOTE: Only the tracking is adjustable (at the front).

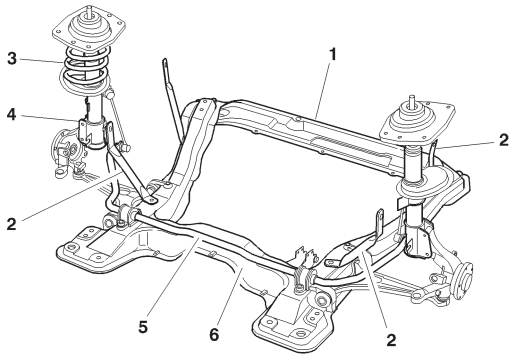
If the value is incorrect, adjust the track rods (**1**)

One turn of the rod = **2 mm approx**.

Tighten the nuts (**2**), tighten to **4 ± 0,4 m.daN**.

FRONT AXLE

C8



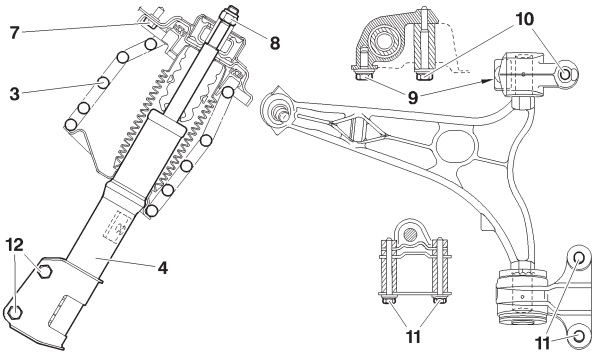
B3CK09JD

Identification

(1) Crossmember
(2) Tie-rods
(3) Springs
(4) Front suspension leg
(5) Anti-roll bar
(6) Subframe

	Anti-roll bar
Engines	**Diameter (mm)**
RFN-3FZ-RHT-RHW-RHM-4HW	**21,5**
XFW	**22**

C8 FRONT AXLE



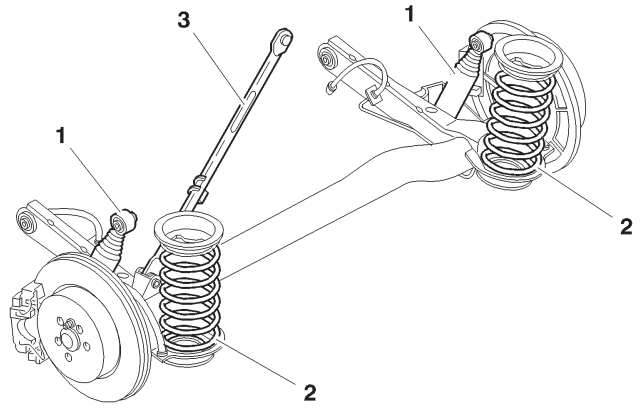
B3BP18FD

Tightening torques (m.daN)

Fixing of subframe on body	**: 10,7 ± 1**
Fixing on tie-rod on body	**: 6,3 ± 0,6**
Fixing of crossmember on body	**: 8 ± 0,8**
Fixing of tie-rod on front subframe	**: 6,3 ± 0,6**
Fixing of damper on pivot	**: 9 ± 0,9**
(12) Fixing of damper on pivot	**: 9,2 ± 0,9**
(8) Fixing of damper rod on upper cup	**: 9 ± 0,9**
(7) Fixing of upper cup on body	**: 4,5 ± 0,4**
Fixing of anti-roll bar on subframe	**: 10,5 ± 1**
Driveshaft nut	**: 10 ± 1**
(9) Front fixing of wishbone on subframe (screw length 30 mm)	**: 10,5 ± 1**
(10) Front fixing of wishbone on subframe (screw length 85 mm)	**: 12,5 ± 1**
(11) Rear fixing of wishbone on subframe	**: 10,5 ± 1**
Fixing of ball-joint on pivot	**: 7 ± 0,7**
Fixing of steering track rod on pivot	**: 3,8 ± 0,3**
Fixing of track rod on damper body	**: 5,5 ± 0,5**
Fixing of track rod on anti-roll bar	**: 5,5 ± 0,5**

REAR AXLE

C8



B3DK0AFD

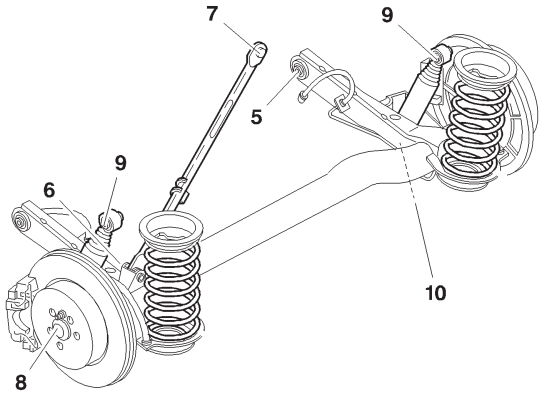
Identification

(1) Damper.

(2) Spring.

(3) Stabiliser bar.

C8 REAR AXLE



B3DP0AGD

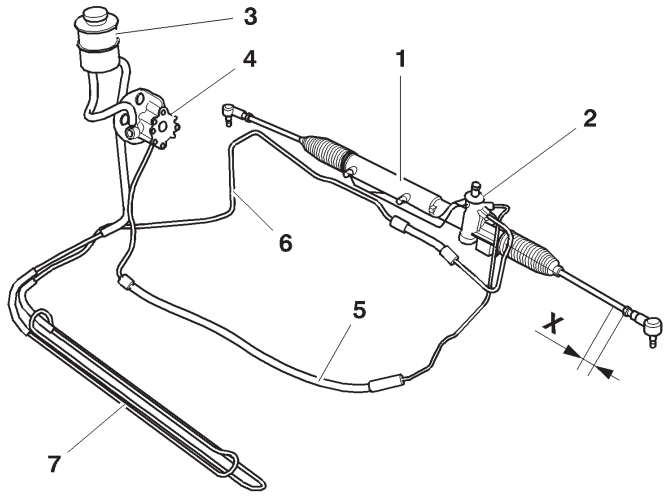
Tightening torques (m.daN)

(4) Fixing of damper on body	: **9 ± 0,9**
(5) Fixing of stabiliser bar on rear axle	: **8 ± 0,8**
(6) Fixing of stabiliser bar on body	: **6 ± 0,6**
(7) Fixing of rear axle on body.	: **8 ± 0,8**
(8) Fixing of damper on rear axle	: **9 ± 0,9**
(9) Hub nut	: **38 ± 3,8**

POWER-STEERING SPECIFICATIONS

C8

Engines: RFN 3FZ XFW RHT RHW RHM 4HW



B3EK0J9D

Identification

(X) Pre-adjustment.

(1) Steering mechanism.

(2) Distributor valve.

(3) Power steering reservoir.

(4) Power steering pump.

(5) High pressure union.

(6) Low pressure union

(7) Steering oil radiator fitted on the front panel. (according to equipment)

C8	POWER-STEERING SPECIFICATIONS

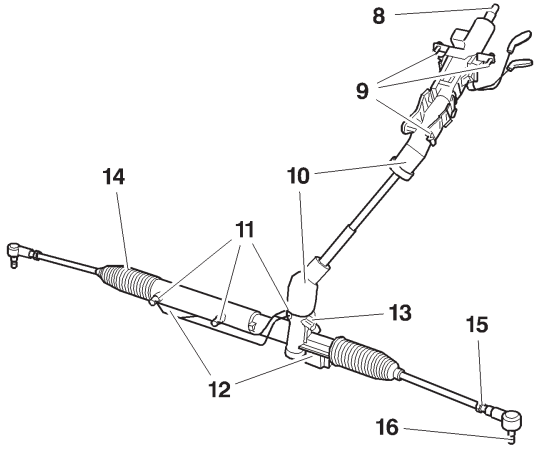
Engines: RFN 3FZ XFW RHT RHW RHM 4HW

Engine type	RFN	3FZ	XFW	RHT - RHW - RHM	4HW
Features	Power steering with integral ram				
Travel (mm)	166		156	162	
Angle of lock for inside wheel	40°48’		37°18’	39°24’	
Angle of lock for outside wheel	34°36’		32°24’	33°42’	
Type of pump	Falling flow				
Pump pressure (bars)	100	110			
Circuit capacity (litres)	1,3				
Number of steering wheel rotations	3,25		3,05	3,17	
Number of teeth on drive pinion	9				

POWER-STEERING SPECIFICATIONS

C8

Engines: RFN 3FZ XFW RHT RHW RHM 4HW



B3EK0K0D

Tightening torques (m.daN)

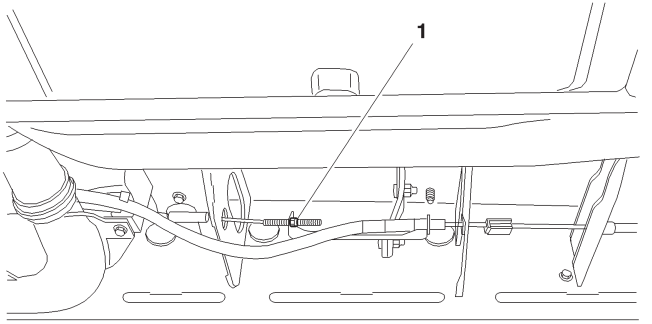
(8) Steering wheel fixing nut	**: 2 ± 0,2**
(9) Fixing of steering column to support	**: 2 ± 0,2**
(10) Fixing of upper and lower shafts to steering column	**: 2,5 ± 0,2**
(11) Fixing of ram valve supply unions	**: 1 ± 0,1**
(12) Fixing of steering mechanism	**: 14,5 ± 1,4**
(13) Fixing of pump/valve supply unions	
Pump	**: 2 ± 0,2**
Valve	**: 2,5 ± 0,2**
(14) Fixing of ball-joint housing on steering rack:	**: 9 ± 0,9**
(15) Steering rod locking nut	**: 6 ± 0,6**
(16) Steering ball-joint nut	**: 4 ± 0,4**

C5				BRAKE SPECIFICATIONS				
				1.8i 16V		2.0i 16V	2.0 HPi	3.0i V6
				Saloon	Estate			
Engine type				6FZ		RFN	RLZ	XFX
FT	Ø mm	Master cylinder		22,2 (Valve type)				
		Master-vac		254				
		Caliper/piston makes		BOSCH ZO 54/22 BIR 54	BOSCH ZO 54/26 BIR 57	BOSCH ZO 57/26 BIR 57		BOSCH ZO 57/28 BIR 57
		Disc	Ventilated	266	283	283		288
	Disc thickness/min. thickness			22/20	26/24	26/24		28/26
	Brake pad thickness			17,3/2,5	17,8/2,5	17,8/2,5		
	Brake pad grade			ABEX 949/1		TEXTAR T 4110		
RR	Ø mm	Cylinder or caliper		PSA - 32 (Double piston)				
		Disc	Plain	276				
	Disc thickness/min. thickness			14/12				
	Brake pad thickness			11,9/3				
	Supplier			ABEX		or	TEXTAR	
	Grade			949/1		or	T 4110	

BRAKE SPECIFICATIONS						C5
			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
		Disc Ventilated	283			288
	Disc thickness/min. thickness		26/24			28/26
	Brake pad grade		TEXTAR T 4110			
RR	Ø	Cylinder or caliper	PSA - 32 (Double piston)			
	mm	Disc Plain	276			
	Disc thickness/min. thickness		14/12			
	Supplier		TEXTAR	or	ABEX	
	Grade		T 4110	or	949/1	

C5	BRAKE SPECIFICATIONS

Braking circuit	Braking system specifications



B3FP12WD

- Braking circuit at «**X**».

- Front brakes with ventilated discs.

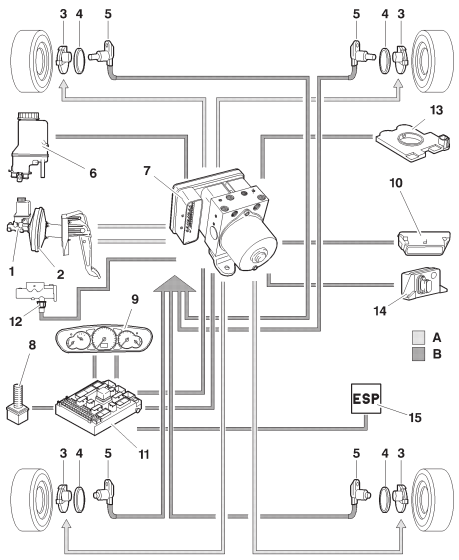
- Rear brakes with non-ventilated discs.

- 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

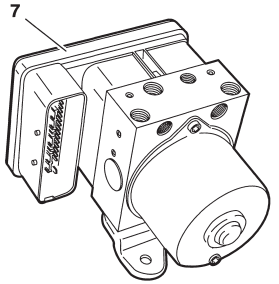
Braking circuit diagram



(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**).
(12) Brake fluid pressure sensor
(13) Steering wheel angle sensor.
(14) Gyrometer/accelerometer sensor.
(15) Switch.

B3HP003P

C5	BRAKE SPECIFICATIONS



(7) Hydraulic block « ESP » (Reference MK60 ESP)

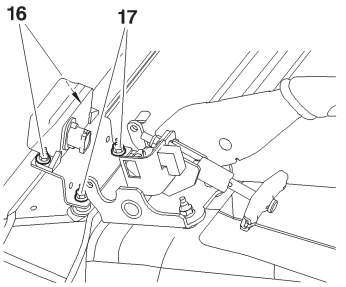
B3FP12XC

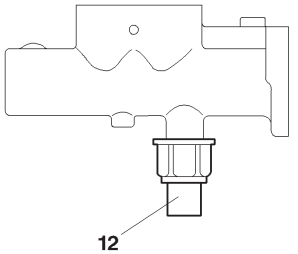
Electrical circuit

Elements	Ref.	Supplier	Part No.	Observations
Hub bearing.	4	SNR		Hub equipped with a bearing with an integral magnetic wheel *(**48** pairs of poles).*
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**
ECU	7	TEVES	94 045 426 88 94 045 427 68	**47** way connector. Integral to the hydraulic block. Change of the ECU alone is authorised.
Hydraulic block.			94 045 416 38 94 045 417 18	Installed on the brake tandem master cylinder: **4** adjustment channels.

BRAKE SPECIFICATIONS				C5
Electrical circuit				
Elements	**Ref.**	**Supplier**	**Part No.**	**Observations**
Brake fluid pressure sensor	**12**	TEVES		Integral to the master-cylinder. 3 way connector.
Steering wheel angle sensor	**13**	BOSCH		Integral to the control unit under the steering wheel. 6 way blue connector.
Gyrometer/accelerometer sensor	**14**	TEVES		Installed under the central console. 6 way connector.

C5	BRAKE SPECIFICATIONS





Tightening torques: m.daN.

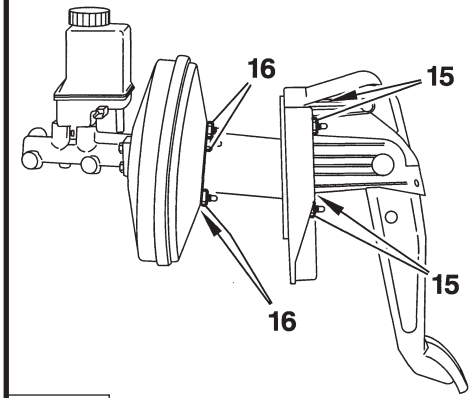
(16) Fixing of gyrometer/accelerometer sensor on support	**: 0,9 ± 0,1.**
(17) Fixing of support on body	**: 0,9 ± 0,1.**
(12) Brake fluid pressure sensor on master-cylinder	**: 2,5 ± 0,5**
Piping on master-cylinder	**: 1,5 ± 0,3**

B3FP79ZC | B3FP7A0C

BRAKE SPECIFICATIONS

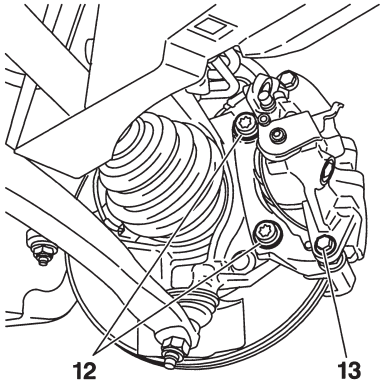
C5

Brake pedal carriage



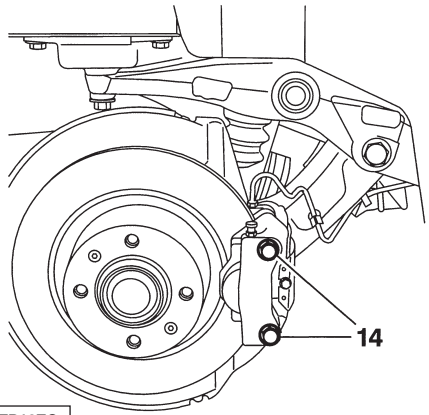
B3FP130C

Front brakes



B3FP12YC

Rear brakes

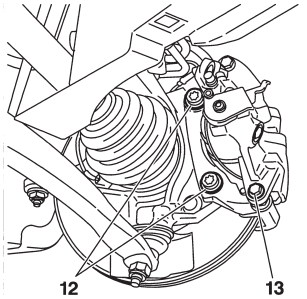


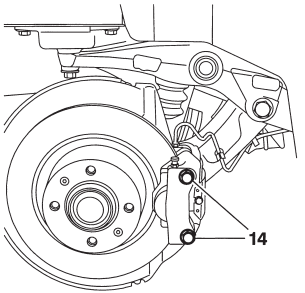
B3FP12ZC

Tightening torques: m.daN.

(15) Fixing on bodyshell	**1,8 ± 0,25.**	**(12)** Caliper fixing on pivot	**12± 1,8**	**(14)** Rear caliper fixing on suspension arm	**7 ± 0,7**
(16) Servo fixing	**2,1 ± 0,1.**	**(13)** Yoke fixing on caliper	**3,1± 0,1**		

C5	SPECIAL FEATURES: FRONT AND REAR BRAKE CALIPERS





Front brakes

Brake caliper

Floating brake caliper with handbrake control equipped with an automatic wear compensation mechanism **(BOSCH SVZO)**.
Automatic handbrake adjustment mechanism: **BIR** (Ball In Ramp).

WARNING: To push back the front brake caliper pistons, the direction of rotation differs between the RH side and the LH side.

Front RIGHT HAND caliper:
Turn the brake piston **anti-clockwise** using tool **8603-T.D**.

Front LEFT HAND caliper:
Turn the brake piston **clockwise** using tool **8603-T.G.**

Rear brakes

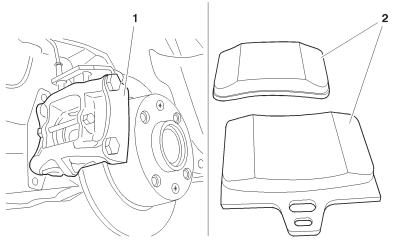
ESSENTIAL: When refitting the rear brake caliper, coat the face which will be in contact with the suspension arm with sealing product of type FORMAJOINT 510.

B3FP12YC	B3FP12ZC

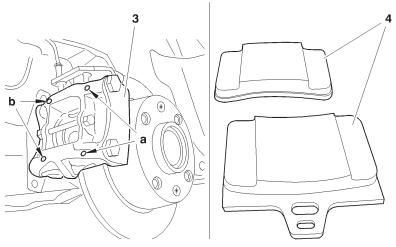
SPECIAL FEATURES: REAR BRAKE CALIPERS

C5

Old fitting



New fitting



Evolution.

New components:

Rear brake caliper (**3**).
Rear brake pads (**4**).

Old fitting.

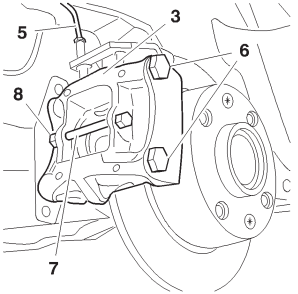
(1) Rear brake caliper.
(2) Rear brake pads

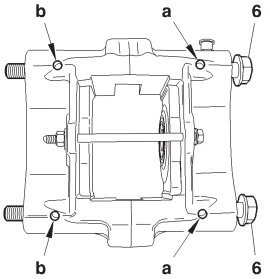
New fitting.

(3) Rear brake caliper; drilled with holes at **«a»** and at **«b»**.
(4) Rear brake pads.

B3FP146D | B3FP147D

C5	SPECIAL FEATURES: FRONT AND REAR BRAKE CALIPERS





Repair.

WARNING: Identify the type of fitting, prior to any operation.

Two types of fixing may be found on the new, drilled brake calipers.

IMPERATIVE: The type of fixing screws should be identical, on RH and LH sides.

Fixing screws not bonded.

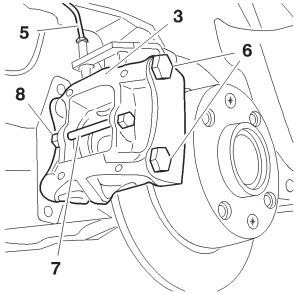
Do not bond during a repair (refer to the remove-refit method for the rear brake caliper).

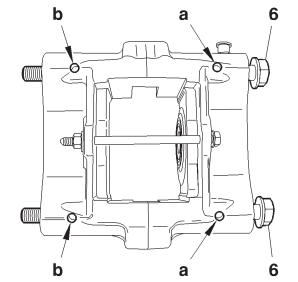
Fixing screws bonded.

Bond during a repair (refer to the remove-refit method hereafter).

IMPERATIVE: The fitting of brake pads (2) is prohibited.

B3FP148C | B3FP149C



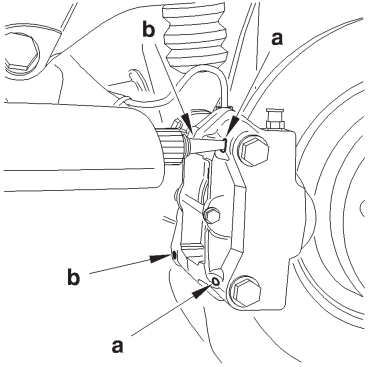


Removing.
Raise and support the vehicle, rear wheels hanging.
Remove:
The rear wheels.
The rear brake pads(see corresponding operation).
Fit the pin (**7**).
Tighten the nut (**8**) so as to keep the two half-calipers tight.
Uncouple the supply pipe (**5**).
Plug the union and the brake caliper.
Undo the screws (**6**).
Remove the brake caliper (**3**).
WARNING: The holes should be cleaned without damaging them.

On the bench:
Force out the screws (**6**), with a hammer, in order to remove the used bonding on the screw threads.
Remove the screws (**6**), using a punch.
Immobilise a **10 mm** drill bit in a vice.
Clean the brake caliper fixing screw holes, using the **10 mm** drill bit.
Remove the bonding plugs, at **«a»** and at **«b»**.

B3FP148C | B3FP149C

C5	SPECIAL FEATURES: FRONT AND REAR BRAKE CALIPERS



B3FP14AC

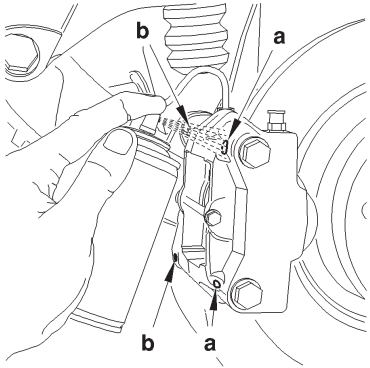
Cleaning.

IMPERATIVE: Do not use compressed air to clean the brakes.

1st possibility.
Clean the disc and the caliper using an approved cleaning product.
Leave to dry out.
Wipe with a cloth.
2nd possibility.
Use an approved de-dusting product (see Tools and Equipment catalogue).
Refitting.
WARNING: Systematically replace the brake caliper fixing screws.
On the screws (**6**) spray activation aerosol **LOCTITE 7649.**

IMPERATIVE: Coat the surface between the brake caliper and the rear arm with sealing product of type FORMAJOINT 510.

Position the brake caliper.
Tighten the screws (**6**) to **7 ± 0,7 m.daN.**
Couple the supply pipe (**5**).
Inject in the holes «a» product **LOCTITE 121078**, until product appears in holes «**b**».
WARNING: After injecting the product, clean the surfaces to avoid runs of product.



B3FP14BC

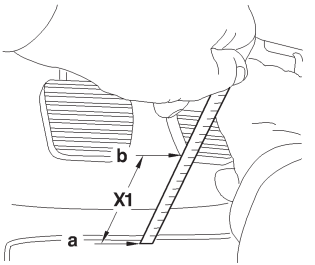
On product **LOCTITE 121078,** spray the activation aerosol **LOCTITE 7649**, at «**a**» and at «**b**».
Remove the pin (**7**).
Refit the new brake pads (see corresponding operation).
Bleed the braking circuit (see corresponding operation).

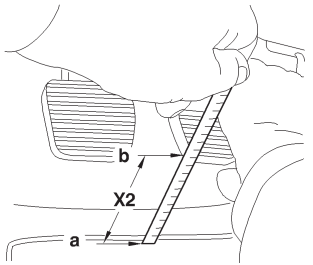
IMPERATIVE: Respect the times for setting of the product LOCTITE 121078. Respect the required distances, depending on the materials being used, in order to avoid any damage to surrounding components through heating.

Setting times:
Ambient temperature **75°C, 2 hours** (with application of heat).
Ambient temperature between **10°C and 25°C, 12 hours** (without application of heat).
Types of material to help setting (with application of heat):
TRISK short wave, model **ETS HH02-850W,** distance **20 cm** from the brake caliper.
TECALEMIT lamp with **8** bulbs of **2000W,** distance **45 cm** from the brake caliper.
This is not an exhaustive list (see Tools and Equipment catalogue).
Refit the rear wheels.
Lower the vehicle.
Tighten the wheel bolts to **9 ± 1 m.daN.**

Replacement parts.
The **Replacement Parts** service only markets the components for the new fitting.

C5	CHECKS: BRAKE PEDAL TRAVEL





Checking conditions.
Vehicle stationary.
Engine stopped.
Handbrake on.
For a better feel, all the operations should be done with the hand and not with the foot.

Draining the brake servo.
Press slowly by hand on the brake pedal (it should take **10 seconds** to press the brake pedal to the end of its travel).
Let the brake pedal return slowly, keeping your hand on it (let it move at the same speed as it travelled when being pressed down).
Perform this operation **5 times** (pressing the brake pedal down and allowing it to return as described).

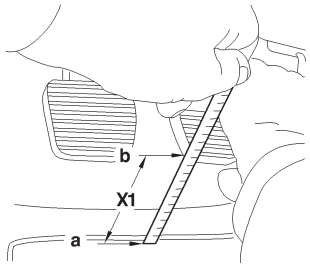
Checking the brake pedal travel.
Press the brake pedal down as rapidly as possible by hand, as far as the end of its travel.
Keep the brake pedal pressed at the end of its travel.
Place a ruler with its end on the floor carpet at **«a»** (mark the position **«a»**).
Measure the distance **X1** between the floor carpet at **«a»** and the edge of the pedal at **«b»** using the ruler.
NOTE: Note down the value **«X1».**

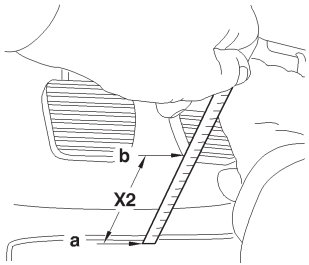
Let the brake pedal return slowly, keeping your hand on it.

B3FP14CC | B3FP14DC

CHECKS: BRAKE PEDAL TRAVEL

C5





Press extremely slowly by hand on the brake pedal (take **20 seconds** to press the brake pedal to the end of its travel).
Keep the brake pedal pressed at the end of its travel.

Measure the distance **X2** between the floor carpet at **«a»** and the edge of the pedal at **«b»** using the ruler.

NOTE: Note down the value **«X2».**

Let the brake pedal return slowly, keeping your hand on it.
Repeat this operation (slow pressing and measuring the brake pedal travel) **3 times**, measuring for each of the operations the distance **«X2»**.

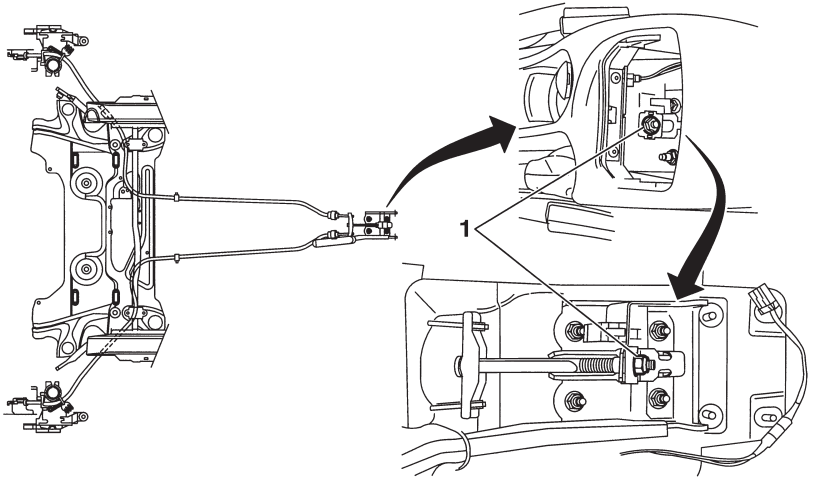
Interpretation of results.

If, for each of the **3 measures of «X2»** the difference between **«X1»** and **«X2»** **is less than 10mm**, the brake master-cylinder is **in conformity.**

If, for at least one of the **3 measures of «X2»** the difference between **«X1»** and **«X2» is greater than 10mm**, the brake master-cylinder is **not in conformity.**

B3FP14CC | B3FP14DC

C5	HANDBRAKE (Adjustment)

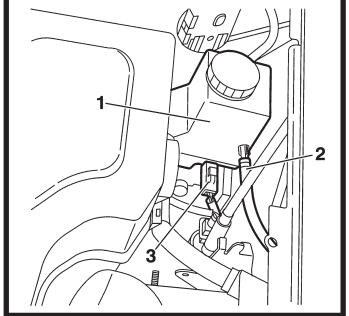


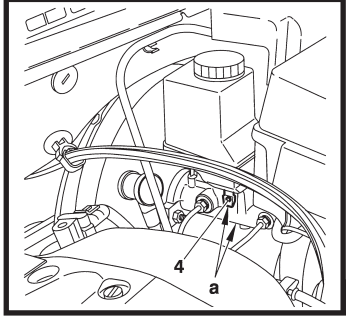
B3FP12JD

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 — C5





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.

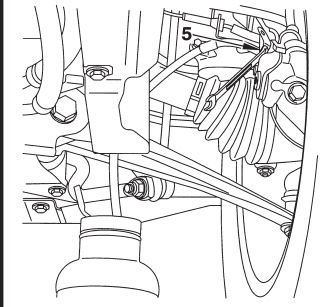
- Drain the brake fluid reservoir (**1**) to the maximum (if necessary, use a clean syringe).
- Disconnect the connector **(3).**
- Uncouple the pipe **(2).**
- Remove the reservoir (**1**) by separating the lugs **«a»** from the shaft **(4).**
- Empty the brake fluid reservoir **(1).**
- Clean the brake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

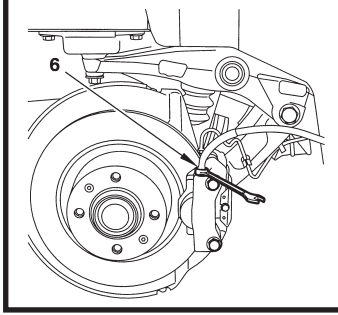
Remove:

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

B3FP139C | B3FP13AC

C5	BLEEDING AND FILLING THE BRAKING SYSTEM





Bleeding, filling (continued).

Filling the braking system.

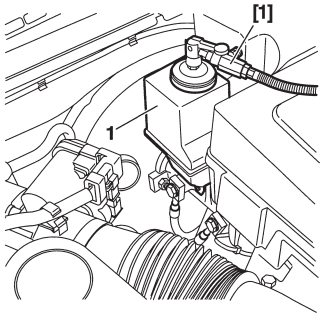
WARNING: Use only those hydraulic fluids that are approved and recommended.
- Fill the brake fluid reservoir **(1).**

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 | B3FP13CC



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, 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				C8			
				2.0i 16V	2.2i 16V	3.0i 24V	2.0 HDi	2.2 HDi
Engine type				RFN	3FZ	XFW	RHT - RHW - RHM	4HW
FT	Ø mm	Master cylinder		22,2 (valve type)		23,8 (valve type)	22,2 (valve type)	
		Master-vac		254		203.2 + 228.6	254	
		Caliper/piston makes		LUCAS 60		BREMBO 40 + 44	LUCAS 60	
		Disc	Ventilate	285		310	285	
	Disc thickness/min. thickness			28/26		32/30	28/26	
	Brake pad grade			GALFER 3366 (8)		-	FERODO 782 (2)	
RR	Ø mm	Caliper/piston makes		LUCAS C38HR 38				
		Disc	Ventilate	272				
	Disc thickness/min. thickness			12/10				
	Make			TEXTAR				
	Brake pad grade			T 4131				

C8	BRAKE TIGHTENING TORQUES (m.daN)

Engines: RFN 3FZ XFW RHT RHW RHM 4HW

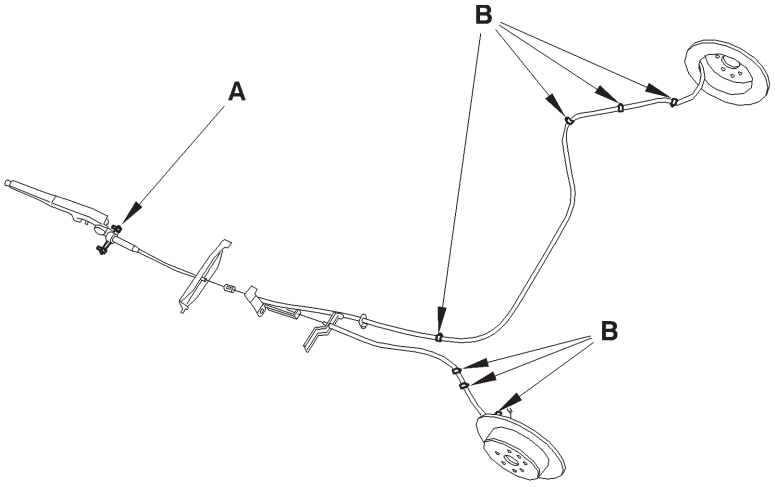
Tightening torques (m.daN)

Fixing of disc on hub	: **1,5 ± 0,1**
Fixing of front brake caliper on support	: **3,5 ± 0,3**
Fixing of front brake caliper support on pivot	: **16 ± 1,6**
Fixing of brake pipe unions	: **1,5 ± 0,1**
Fixing of rear brake caliper on support	: **3,5 ± 0,3**
Fixing of rear brake caliper support on pivot	: **9,5 ± 0,9**
Fixing of brake servo on pedal gear	: **2 ± 0,2**
Fixing of master-cylinder on servo	: **2 ± 0,2**
Fixing of handbrake lever on body	: **4 ± 0,4**

ADJUSTING THE HANDBRAKE

C8

Identification



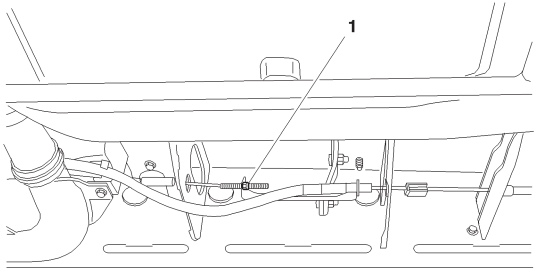
(A) Zone for fixing on floor.

(B) Clips for retaining on bodyshell.

B3FK263D

C8	ADJUSTING THE HANDBRAKE

Adjustment



Raise and support the vehicle, wheels hanging.

WARNING: Bleed the braking circuit.

Detension the secondary brake cables by slackening the nut **(1).**
With the engine running and the handbrake released, press **40 times** on the brake pedal.
Carefully tighten the nut (1), until the brake cables begin to come under tension.
Pull the handbrake lever about ten times in a normal fashion.
Engage the handbrake lever at the **2nd notch** of its travel relative to its position of rest.
Turn the nut (**1**) until the brake pads start touching.
Check that:

- The normal travel of the handbrake lever does not exceed **6 notches.**
- The two secondary brake cables on the slide are moving together.

With the handbrake slackened, make sure that the road wheels turn freely when moved by hand.

Check that the handbrake warning lamp lights up from the **1st notch** of the lever's total travel.

B3FK264D

Tools.

[1] Filler plug	**: (-).0810**
Generic bleeding apparatus	**: «LURO» or similar**
PROXIA diagnostic tool	**: 4165-T**
LEXIA diagnostic tool	**: 4171-T**

Draining.

Remove the pollen filter.
Take out the filter from the brake fluid reservoir.
Drain the brake fluid reservoir with the aid of a syringe.
Refit the filter in the brake fluid reservoir.

Filling.

IMPERATIVE: Use only new, clear brake fluid, avoiding any ingress of impurities into the hydraulic circuit.

WARNING: Use only hydraulic fluid(s) that are approved and recommended: DOT 4.
Renew the brake fluid in the calipers, bleeding the circuit until clean fluid flows out.

WARNING: During the bleed operations, take care to maintain the level of brake fluid in the reservoir, topping up if necessary.

C8	DRAINING, FILLING AND BLEEDING THE BRAKING SYSTEM

Precautions to be taken before bleeding a braking circuit.
Precautions:
After a repair on the master cylinder or ABS block, bleed in the following order:
Front LH wheel.
Front RH wheel.
Rear LH wheel.
Rear RH wheel.
After a repair on a caliper or on a wheel cylinder, bleed in this order:
Front LH wheel.
Front RH wheel.
Rear LH wheel.
Rear RH wheel.
NOTE: If removing/refitting the master cylinder, complete the automatic bleed with a manual bleed.
ABS requirements:
The hydraulic valve blocks are delivered pre-filled; it is thus possible to perform:
- a manual bleed (using the pedal),
- an automatic bleed.

Should the bleed of the circuit prove unsatisfactory, it is possible to bleed the ABS block using a diagnostic tool, following the instructions given by the diagnostic tool.
Use of the diagnostic tool is necessary if not all of the following conditions apply at the same time:
Air in the circuit.
Regulation block active.
Action on the brake pedal.

Bleeding.

IMPERATIVE: Start the engine.

WARNING: Respect the order of opening of the bleed screws.

Automatic bleed:

Position tool **[2]** on the brake fluid reservoir.
Connect tool **[2]** to an approved automatic bleed apparatus (See Tools).
Bleed the circuit, referring to the user instructions provided with the apparatus.

Manual bleed (using the pedal):

NOTE: Two operators are necessary.
Connect a transparent pipe on the bleed screw.
Press slowly on the brake pedal.
Open the bleed screw.
Keep the pedal pressed fully down.
Close the bleed screw.
Allow the brake pedal to rise gradually.
Repeat the operation until the brake fluid flows out clean and free of air bubbles.
Proceed in an identical fashion in the case of all the other wheels.

C5 SAFETY REQUIREMENTS: HYDRACTIVE 3 HYDRAULIC SUSPENSION

All operations on the **Hydractive 3** hydraulic circuit must be performed in conformity with the following requirements and regulations:
Authorities competent in matters of health:
- Accident prevention
- Environmental protection

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

Safety requirements

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

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

Wheels hanging	Wheels not hanging		
2-column lift or secure the vehicle on 4 axle stands	Vehicle on the ground	Vehicle 4-column lift	
	Depressurisation of the circuit (see corresponding operation)	Checking and adjusting of heights (switch on ignition)	Other operations (depressurisation of the hydraulic circuit)

During the operation.

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

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

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

NOTE: In the event of contact of **LDS** fluid with the eyes, rinse them with copious amounts of water and seek specialist advice.
NOTE: In the event of lengthy contact of **LDS** fluid with the skin, wash it with soap and water.
WARNING: After the engine has stopped, wait **30 seconds** before commencing any operation.

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

Cleanliness requirements.

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

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

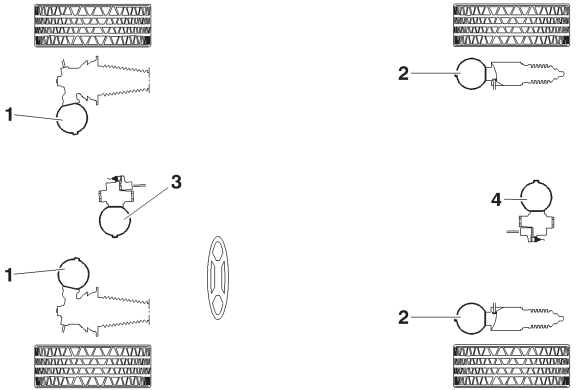
IMPERATIVE: Approved cleaner: SODIMAC degreaser.

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

Any component that has been removed must be plugged and placed in a clean plastic bag.

IMPERATIVE: After a dismantling, any cleaning using compressed air or products is strictly prohibited. Any LDS fluid that is collected must not be re-used. Ny top-up must be done with new fluid.

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

Special features

Identification.

The **«slimline»** spheres are grey in colour, with multilayer membranes.

IMPERATIVE: It is impossible to recharge or overhaul the «slimline» spheres with nitrogen.

The number marked on the suspension sphere is the component reference and not the Replacement Parts No.
The **two-figure** number marked on the suspension sphere indicates the initial pressure rating value.

Example:

Suspension sphere marking	Day in year of manufacture	Year of manufacture	Time of manufacture	Pressure rating (Bars)
HF	066	00	13h59	57

The pressure rating of this type of suspension sphere is given merely as a guide.
When checking, the value read could be higher than the nominal value.
Suspension cylinders on the same axle should be equipped with the same type of suspension spheres.

IMPERATIVE: Tightening torques for suspension spheres : 2,7 ± 0,5 m.daN.

C5	SPECIFICATION - IDENTIFICATION: SUSPENSION SPHERES			
Hydractive 3 hydraulic suspension				
		(1) Front suspension spheres.		
Engines		Suspension sphere marking	Volume (cc)	Pressure rating (Bars)
All Types	6FZ	HF	385	57
	RHY-RHS-RHZ	HG		
		(2) Rear suspension spheres.		
Engines		Suspension sphere marking	Volume (cc)	Pressure rating (Bars)
Saloon	6FZ RHY-RHS-RHZ	HJ	385	31
		KA		
Estate		HP		44
		HT		

SPECIFICATION - IDENTIFICATION: SUSPENSION SPHERES

Hydractive 3+ hydraulic suspension

		(1) Front suspension spheres.		
Engines		Suspension sphere marking	Volume (cc)	Pressure rating (Bars)
All Types	RFN-RLZ	HH	385	44
	XFX-4HX	HI		52
		(2) Rear suspension spheres.		
Engines		Suspension sphere marking	Volume (cc)	Pressure rating (Bars)
Saloon	RFN-RLZ-XFX-4HX	HE	385	25
		HZ		
Estate	RFN-RLZ-XFX-4HX	HO		44
		HW		
	CARLSSON	HT		

SPECIFICATION - IDENTIFICATION: SUSPENSION SPHERES

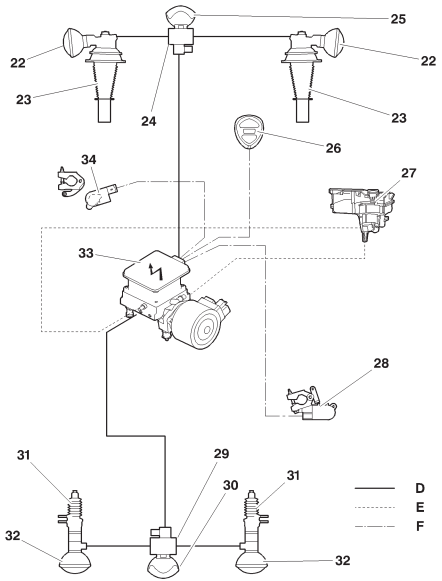
Hydractive regulator accumulators

		(3) Front hydractive regulator accumulator.		
Engines		**Suspension sphere marking**	**Volume (cc)**	**Pressure rating (Bars)**
All Types except CARLSSON	**RFN-RLZ-4HX**	**HD**	**385**	**62**
	XFX	**HQ**		
CARLSSON		**HT**		**44**

		(4) Rear hydractive regulator accumulator.		
Engines		**Suspension sphere marking**	**Volume (cc)**	**Pressure rating (Bars)**
All Types	**RFN-RLZ-4HX**	**GP**	**385**	**45**
CARLSSON	**XFX**	**HR**		**44**

NOTE: The dampers are integral to the hydractive regulators, depending on the versions of hydractive accumulator.

HYDRAULIC SPECIFICATIONS



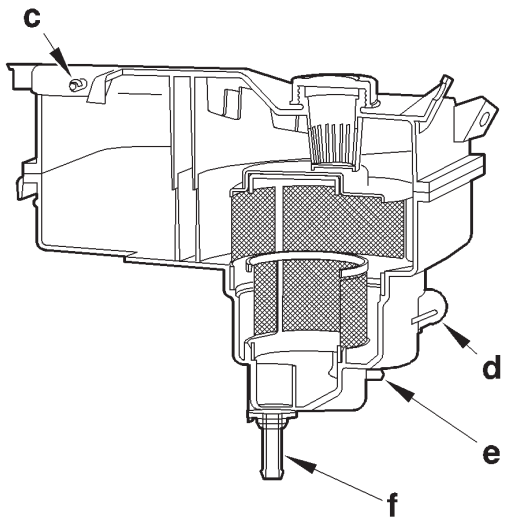
Location of components

(D) High pressure hydraulic circuit
(E) Low pressure hydraulic circuit
(F) Electric circuit
(22) Front **«slimline»** suspension sphere
(23) Front suspension cylinder
(24) Front **hydractive 3**+ regulator
(25) Front **hydractive 3**+ regulator accumulator
(26) Sequential control suspension switch
(27) LDS fluid reservoir
(28) Rear height sensor
(29) Rear **hydractive 3**+ regulator
(30) Rear **hydractive 3**+ regulator accumulator
(31) Rear suspension cylinder
(32) Rear **«slimline»** suspension sphere
(33) Built-in Hydro-electronic Interface (BHI).
(34) Front height sensor

NOTE: LDS = Liquide direction suspension (fluid for steering/suspension)

B4CP01GP

HYDRAULIC SPECIFICATIONS



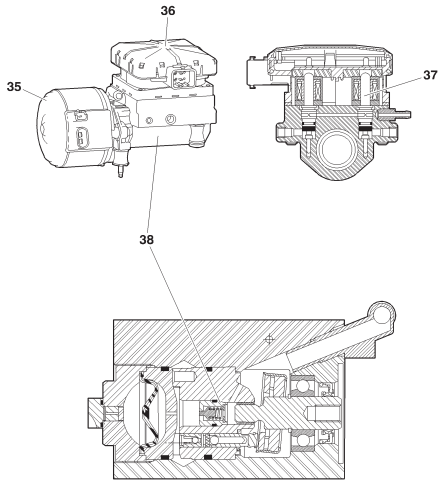
B4BP01BC

Hydraulic fluid		
Type of suspension	**Type of steering**	**Capacity (litres)**
Hydractive 3	Left hand drive	**4,5**
Hydractive 3	Right hand drive	**4,7**
Hydractive 3 + All engines except XFX	Left hand drive	**5,2**
Hydractive 3 + All engines except XFX	Right hand drive	**5,4**
Hydractive 3 + Engine XFX	Left hand drive	
Hydractive 3 + Engine XFX	Right hand drive	**5,6**

(LDS suspension fluid is orange in colour and 100% synthetic (TOTAL LDS)

Hydraulic fluid reservoir		
Reference	**Function**	**Component**
«c»	**Return**	Suspension cylinders
«d»	Induction	Built-in Hydro-electronic Interface Power steering pump
«e»	Return	Built-in Hydro-electronic Interface
«f»		Power steering pump

The LDS fluid level is checked with the vehicle in the low position (see corresponding operation).

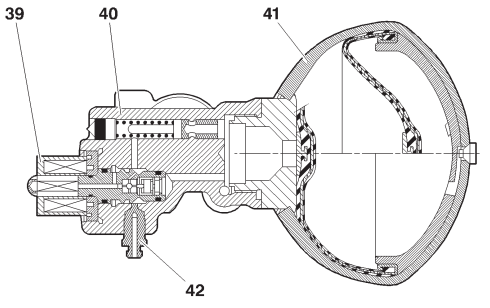


Built-in Hydro-electronic Interface (BHI).

Ref.	Component	Specifications
(36)	Electronic control unit	
(38)	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**
(35)	Electric motor	**2350 ± 150 rpm**
(37)	Suspension inlet electrovalve (front) Suspension inlet electrovalve (rear) Suspension exhaust electrovalve (front) Suspension exhaust electrovalve (rear)	The vehicle's anti-sink function is assured by the exhaust electrovalves.

C5 + CARLSSON	HYDRAULIC SPECIFICATIONS

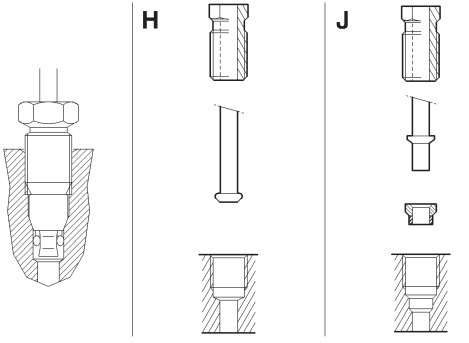
Hydractive 3+ regulator



B4BP01KD

(39) Electrovalve.
(40) Hydractive regulator.
(41) «**Slimline**» suspension sphere.
(42) 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

IMPERATIVE: At each operation, it is necessary to change the hydraulic seals.
WARNING: Each time you remove a hydraulic union, reference G: Remove the O-ring seal from its housing.

DE-PRESSURISING THE HYDRAULIC SUSPENSION CIRCUIT

Tools.

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

De-pressurisation.

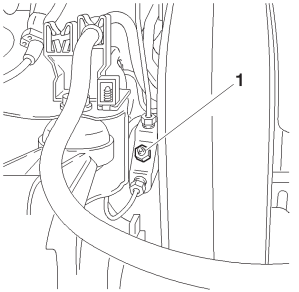
NOTE: It is possible to de-pressurise the suspension by individual axle.

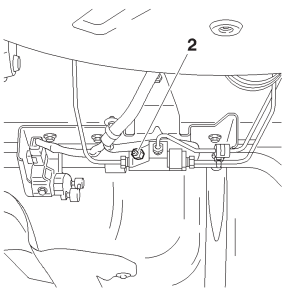
Using a diagnostic tool

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

Select and validate the electrovalves line for front descent.
Wait for the vehicle's front suspension to sink completely.
Select and validate the electrovalves line for rear descent.
Wait for the vehicle's rear suspension to sink completely.

DE-PRESSURISING THE HYDRAULIC SUSPENSION CIRCUIT





Without using a diagnostic tool.

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

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

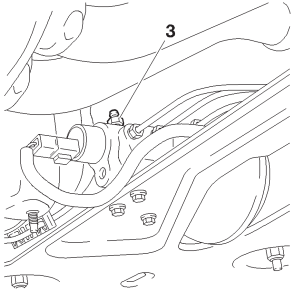
Start the engine.
Place the height control in the **«LOW»** position.
Stop the engine.

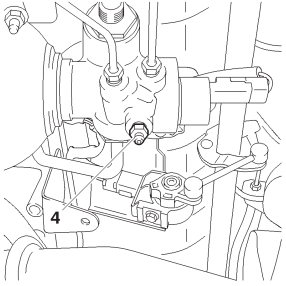
Vehicle with suspension Hydractive 3

Front suspension: undo the pressure release screw (**1**) by one turn.
Wait for the pressure in the hydraulic circuit to drop fully.

Rear suspension: undo the pressure release screw (**2**) by one turn.
Wait for the pressure in the hydraulic circuit to drop fully.

B3BP16GC	B3BP16HC





Vehicle with suspension Hydractive 3 +

Front suspension: undo the pressure release screw (**3**) by one turn.

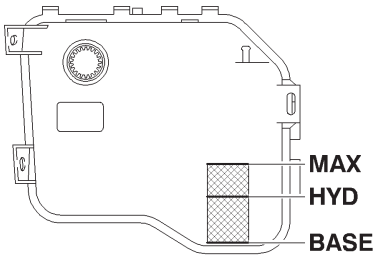
Wait for the pressure in the hydraulic circuit to drop fully.

Rear suspension: undo the pressure release screw (**4**) by one turn.

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

B3BP16JC | B3BP16KC

C5	CHECK AND TOP-UP: LDS FLUID LEVEL



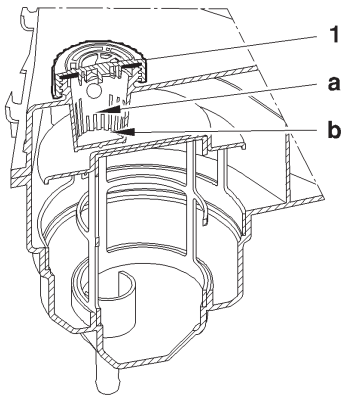
B4BP01GC

IMPERATIVE: Respect the safety and cleanliness requirements (refer to brochure: «RECOMMENDATIONS-PRECAUTIONS»).
NOTE: LDS = Liquide direction suspension (fluid for steering/suspension).

Tools.
[1] PROXIA station **: 4165-T**
[2] LEXIA station **: 4171-T**
Evolutions:
The window for checking the **LDS** fluid level (BASE, HYD, MAX) is discontinued.
Checking the **LDS** fluid level is done via the reservoir filler cap.

Checking and topping up the LDS fluid level.
Start the engine.
Place the height control in the **«LOW»** position.
Wait for the vehicle height to reach the position required.
Stop the engine.
Connect the diagnostic tool **[1]** or **[2]** to the vehicle's diagnostic socket.
Switch on the ignition.
Go into the menus:
- Suspension.
- Actuator tests.

Select and validate the electrovalves line for front descent.
Wait for the vehicle's front suspension to sink completely.
Select and validate the electrovalves line for rear descent.
Wait for the vehicle's rear suspension to sink completely.
Remove the engine cover.



B4BP01LC

LDS fluid reservoir (<u>new type</u>)

Open the cap (**1**).

If the **LDS** fluid level is below the min. mark **«b»**:

Add **LDS** fluid to bring the level to between the min. mark **«b»** and the max. mark **«a»**.

LDS fluid reservoir (<u>old type</u>)

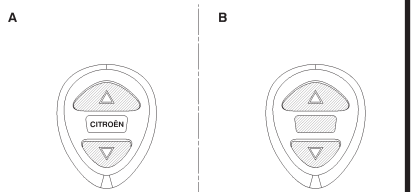
Open the cap (**1**).

If the **LDS** fluid level is below the min. mark **«b»:**

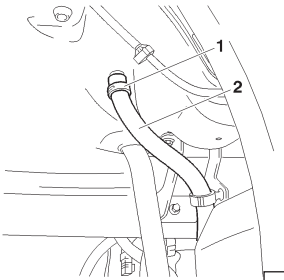
Add **LDS** fluid to bring the level to **10 mm** above the min. mark **«b».**

IMPERATIVE: A container of LDS fluid that has been opened should be re-capped and carefully stored in a clean place. A container of LDS fluid should be used up within 2 weeks of first opening. After this date, unused LDS fluid should be disposed of.

C5	FILLING – BLEEDING: HYDRAULIC SUSPENSION/STEERING CIRCUIT



B4BP01ED



C4CP0SDC

IMPERATIVE: Respect the safety and cleanliness requirements (refer to brochure «RECOMMENDATIONS-PRECAUTIONS»).

Tools.

[1] Pliers for CLIC clips **: 4121-T.**

Identification:

Sequential control suspension switch.

A: Suspension **Hydractive 3**

B: Suspension **Hydractive 3 +**

Draining.

Start the engine.

Place the vehicle in the low position.

Stop the engine.

Raise and support the vehicle, wheels hanging.

WARNING: The **LDS** fluid reservoir is pressurised.

Open the cap of the **LDS** fluid reservoir.

Remove:

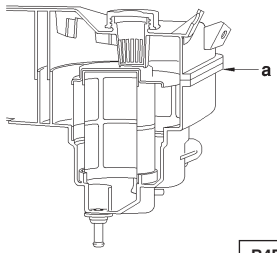
- The front RH wheel.
- The front RH splash-shield.

Release the clip (**1**), using tool **[1]**.

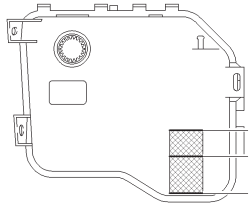
Disengage the hose (**2**) from the **LDS** fluid reservoir.

Drain the **LDS** fluid reservoir.

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



B4BP01FC



B4BP01GC

Filling.
Refit:
- The hose (**2**).
- The clip (**1**)
- The front RH splash-shield.
- The front RH wheel.

Lower the vehicle.
Fill the **LDS** fluid reservoir up to the **MAX**. mark.
Bleeding.
Apply a pressure of **0,5 Bars** in the **LDS** fluid reservoir (using tool: **FACOM 920**).
Start the engine
Wait for the vehicle height to stabilise.
Place the vehicle in the high position.
Place the vehicle in the low position.
Move the steering in both directions, from lock to lock.
Stop the engine.
Check the **LDS** fluid level.
Check and if necessary top up the **LDS** fluid level.
NOTE: Checking the **LDS** fluid level is done with the vehicle in the low position.
«a» minimum level of **LDS** fluid.
If the level is below the mark **«a»**, add **1 litre** of **LDS** fluid.
MAX. mark on the **LDS** fluid reservoir:
Maximum level of **LDS** fluid:
Suspension **Hydractive 3** : Mark **«BASSE».**
Suspension **Hydractive 3 +** : Mark**«HYD».**

Abbreviations and definitions

Coding of climates is as follows:

CLIMATES:

C	**Hot**	: Starting possible as low as -18°C
T	**Temperate**	: Starting possible as low as -18°C
F	**Cold**	: Starting possible as low as -25°C
GF	**Very cold**	: Starting possible as low as -30°C

Meaning of abbreviations:

BV	: Gearbox
BVM	: Manual gearbox
BVA	: Automatic gearbox
MAP	: Piloted manual gearbox
DA REFRI	: Mechanical power steering, aircon

STARTER MOTORS				C5
Vehicles / models		Gearbox	Class	Climate
C5	1.i 16V	M	3	C
				T
				F
			4	GF
	2.0i 16V		3	C
				T
			4	F
				GF
		A	3	C
				T
			4	F
				GF
	3.0i 24V	M	4	C
				T
				F
				GF
		A		C
				T
				F
				GF

C5		STARTER MOTORS		
Vehicles / models		Gearbox	Class	Climate
C5	2.0 HDi	M	4	C
				T
			6	F
				GF
			5	C
				T
			6	F
				GF
		A	6	C
				T
			6+	F
				GF
	2.2 HDi	M	5	C
				T
			6+	F
				GF
		A	5	C
				T
			6+	F
				GF

STARTER MOTORS				C8
Vehicles / models		Gearbox	Class	Climate
C8	2.0i 16V	M-A	3	C
				T
			4	F
				GF
	2.2 16V HPi	M	3	C
				T
			4	F
				GF
	3.0i 24V	A	4	C
				T
				F
				GF

C8	STARTER MOTORS			
Vehicles / models		Gearbox	Class	Climate
C8	2.0 16V HDi	M	5	C
				T
			6+	F
				GF
		A	6	C
				T
			6+	F
				GF
	2.2 HDi	M	5	C
				T
			6+	F
				GF

Abbreviations and definitions

Coding of climates is as follows:

CLIMATES:

C : Hot
T : Temperate
F : Cold
GF : Very cold

Meaning of abbreviations:

BV : Gearbox
BVM : Manual gearbox
BVA : Automatic gearbox
BVMP : Piloted manual gearbox
NON REFRI : Without air conditioning
REFRI : With air conditioning
DA : Power-assisted steering
GEP : Electro-pump motor
DP : Double lug
3 Pts : 3-Point
NC : Not marketed
TT : All Types
N : Level
SOP : Without Option
TOP : All Options
L.C. : Heated rear screen
DAG : Left hand drive
DAD : Right hand drive

C5	ALTERNATORS														
Engine/ Gearbox	Climate	Without hi-fi pack						With hi-fi pack					
		Without heated seat			With heated seat			Without heated seat			With heated seat		
		Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.
1.8i 16V 2.0i 16V 2.0i 16V HPi BVM	C	12						12					
	T	9											
	F							9					
	GF												
1.8i 16V BVA	C	12						12		15	12		15
	T									12			12
	F	9						9					9
	GF												12
2.0i 16V BVA	C	12						15					
	T							12					12
	F	9				9		9		9			
	GF					12				12			

Meaning of abbreviations, see page: **409**

ALTERNATORS — C5

Engine/ Gearbox	Climate	Without hi-fi pack						With hi-fi pack					
		Without heated seat			With heated seat			Without heated seat			With heated seat		
		Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.	Base	Mono Navig.	Colour Navig.
3.0i 24V BVM BVA	C	15						15					
	T												
	F												
	GF												
2.0 16V HPi BVM	C	12	12		12	12		12					
	T	9			9								
	F		9			9							
	GF												
2.0 HDi 2.0 16V HDi BVM	C	15											
	T												
	F												
	GF												
2.0 HDi BVA	C	15											
	T												
	F												
	GF												

Meaning of abbreviations, see page: **409**

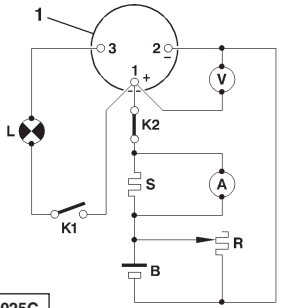
C8		ALTERNATORS											
Engine/ Gearbox	Climate	REFRI											
		Level 1						Level 2 or 3					
		Without heated seats			With heated seats			Without heated seats			With heated seats		
		Base	RT3		Base	RT3		Base	RT3		Base	RT3	
			N1 N2	N3		N1 N2	N3		N1 N2	N3		N1 N2	N3
2.0i 16V BVM	C	9											
	T												
	F												
	GF												
2.0i 16V BVA	C	15											
	T												
	F	9											9
	GF												15
2.2 16V HPi BVM	C	9											
	T												
	F												
	GF												

Meaning of abbreviations, see page: **409**

Engine/ Gearbox	Climate	REFRI											
		Level 1						Level 2 or 3					
		Without heated seats			With heated seats			Without heated seats			With heated seats		
		Base	RT3		Base	RT3		Base	RT3		Base	RT3	
			N1 N2	N3		N1 N2	N3		N1 N2	N3		N1 N2	N3
3.0i 24V BVA	C	15											
	T												
	F												
	GF												
2.0 16V HDi BVA	C												
	T												
	F												
	GF												
2.0 16V HDi 2.2 HDi BVM	C												
	T												
	F												
	GF												

Meaning of abbreviations, see page: **409**

CHARGING CIRCUIT - ALTERNATOR WITH MONO-FUNCTION REGULATOR



D1AP025C

A: Ammeter
B: Battery
G: Generator
L: Warning lamp
K1 and **K2:** Switch
R: Electric charge
S: Shunt 200mV/200A
V: Voltmeter
1: Alternator.

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**.
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 **3000 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.

Method of reading the alternator speed

Fit a reflecting shim on the pulley of the alternator.
Adjust a stroboscope to the frequency equivalent to the control speed.
(**e.g. 2000 rpm = 2000/60 = 83 Hz**)
Adjust the engine speed so that the shim appears fixed.

CHARGING CIRCUIT - ALTERNATOR WITH MONO-FUNCTION REGULATOR

MINIMUM OUTPUTS (in A)

Alternator speed	Min. output	Class						
		6	7	8	9	12	15	18
1800 rpm	I 1	27	39	46	61	73	89	108
2000 rpm	I 2	34	46	54	68	80	105	123
3000 rpm	I 3	47	60	68.5	84	100	139	164
4000 rpm	I 4	55	65	75	92	110	145	176
6000 rpm	I 5	61	69	78.5	96	120	151	183
8000 rpm	I 6	63	70	80	97	123	157	188
15000 rpm	I 7	64	73	82	97	124	157	188

MINIMUM OUTPUTS (in A)

Alternator speed	Class						
	6	7	8	9	12	15	18
1800 rpm	49	50	52	57	58	60	61
2000 rpm	48	49	51	54	55	57	60
3000 rpm	45	46	48	51	52	54	56
4000 rpm	43	44	46	48	50	52	53
6000 rpm	39	40	42	43	48	50	50
8000 rpm	26	37	39	40	45	48	48
15000 rpm	24	25	27	29	34	38	38

	PRE-HEATING AND STARTING CIRCUITS			
Vehicles	**Engine**	**Pre-heater plugs**	**Pre-heater control unit**	**Pre-post-heating (Pre-heating time at 20°C)**
C5	**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: $0.4\ \Omega \leq R \leq 0.6\ \Omega$

AIR CONDITIONING R 134 a (HFC)						C5 - C8
Vehicle	Engine version	Date	Refrigerant refill	Compressor		
				Variable capacity	Oil quantity cc	Oil reference
C5	1.8i 16V - 2.0i 16V 2.0 HPi 3.0i 24V 16V 2.2 HDi	11/2000 →	650 +0 -50 gr	SD 7 V16	135	SP 10
	2.0 HPi			DELPHI V5 (1)	265 ± 15	PLANETELF 488
C8	All Types	06/2002	650 (± 20 gr)	SD 7 V 16	135	SP 10

(1) = HARRISON Division.

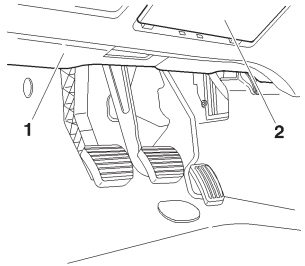
C5 - C8	SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134.a)

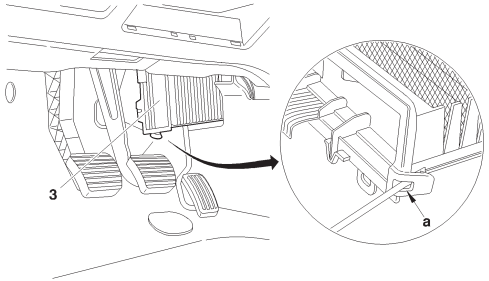
Summary table for presence of pollen filter

Vehicle	Equipment	RPO no.	Presence of filter	Observations
C5	Aircon all types		YES	Located under the dashboard.
C8				Located in the engine compartment.

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

Pollen filter





Remove:

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

- The cover (**2**).

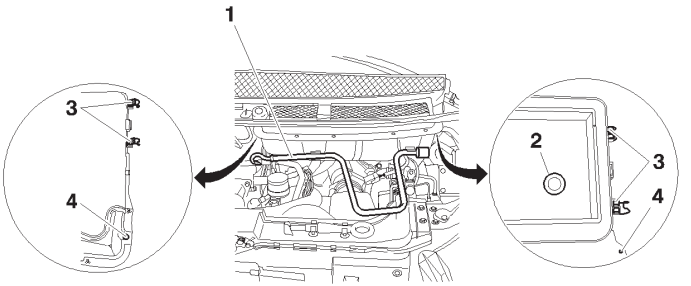
Unclip at **«a»** and pull out the pollen filter (**3**).

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

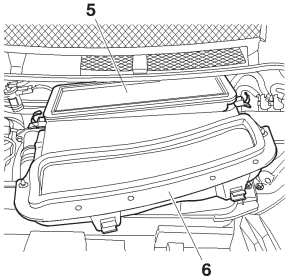
C5FP0C5C | C5FP0C6D

C8	SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134. a)

Pollen filter



C5HP182D



C5HP183C

NOTE: The pollen filter is located under the bonnet on the LH side.

Removing.

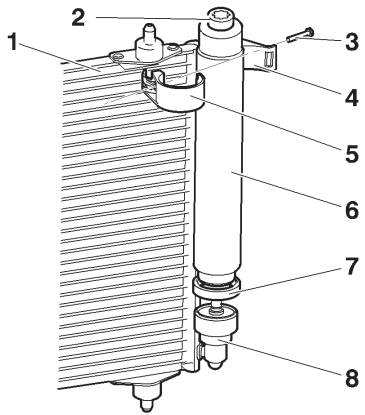
Remove the jack handle **(1).**
Disconnect the evacuation pipe **(2).**
Unlock at (**3**), on the right and on the left.
Undo by a _ turn the screws **(4)**, on right and on left.
Pull the assembly **(6)** towards the outside.
Remove the pollen filter **(5).**

Refitting.

Proceed in the opposite order to removal.

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

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

Removing the plastic bracket holding the reservoir (6):

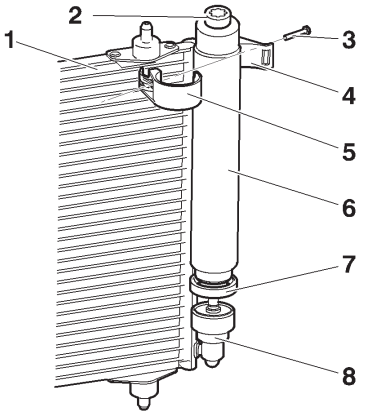
- Remove the screw (**3**) (*Torx 20*), from the bracket assembly/plastic counter-bracket (**4**) and (**5**)**.**
- Remove the counter-bracket (**5**).(*Rotate it round the hinge in a clockwise direction*).
- Disengage the bracket from the harness (**1**) (*Rotate it round the reservoir **(6)** anti-clockwise).*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

Unscrewing the reservoir (6).

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

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

Condenser with integral reservoir (continued)



C5HP16EC

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

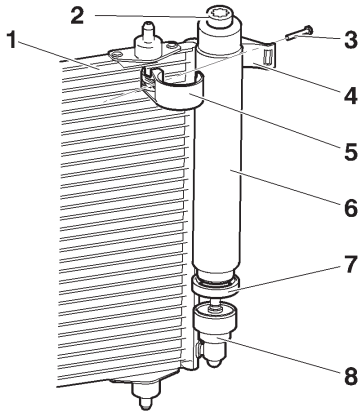
WARNING: This operation requires the greatest care, the base **(8)** should be kept clean prior to fitting the new reservoir.
- Remove the reservoir **(6)** and the protection skirt **(7),** avoiding **WITHOUT FAIL** any contact or collision with other items under the bonnet (*Risk of impurities entering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

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

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 on the reservoir (**6**) manually, until the neck of the reservoir (**6**) is in contact with the bottom of the base (**8**).

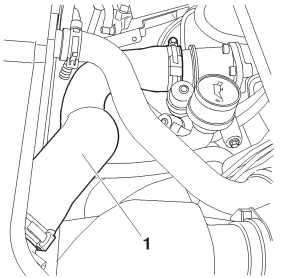
- Tighten with a torque spanner and tool **[2]** at **(2)** to **1,3 ± 0,1 m.daN.**

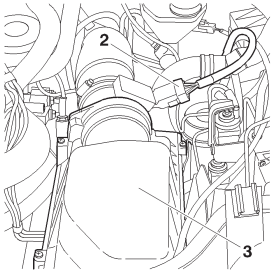
Fitting the plastic bracket. ***(New, from the Replacement Parts kit).***

Proceed in the opposite order to removal, tighten the screw (**3**) to **0,15 m.daN.**

C8	SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134.a)

Removing-refitting the drying cartridge





Removing.

Depressurise the air conditioning circuit.

Remove the hose (**1**).

Disconnect the connector (**2**).

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

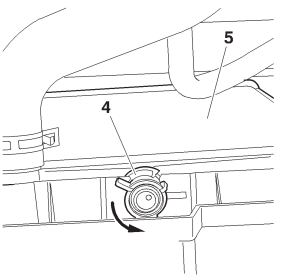
Turn the plastic pins (**4**) a quarter turn.

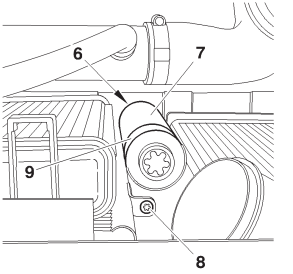
Move aside the condenser (**5**).

Clean the area of the skirt (**6**) of th reservoir (**7**).

Remove the screw (**8**) of the clip (**9**)

B1BP2MGC | B1BP2MHC

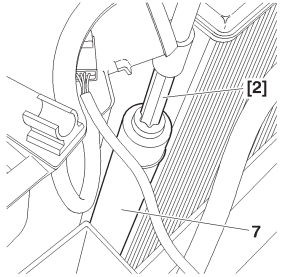




C5HP184C | C5HP185C

SPECIAL FEATURES: AIR CONDITIONING SYSTEM (R 134.a) — C8

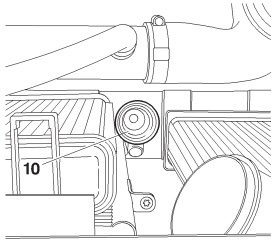
Removing-refitting the drying cartridge (continued)



Unscrew the reservoir (**7**) (using adaptor TORX 70 FACOM)

Unscrew the reservoir (**7**), and the protection skirt (**6**).

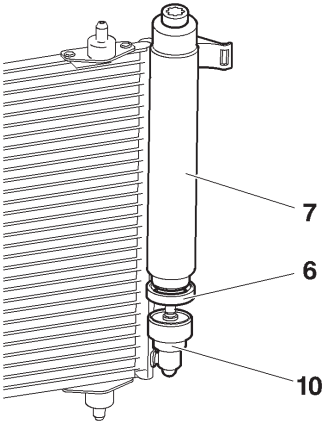
WARNING: Components must be kept clean prior to a new reservoir being fitted.



Plug the base (**10**).

WARNING: Do not allow more than 5 minutes to elapse between unpacking the cartridge (reservoir (**7**) and fitting it.

C5HP186C | C5HP187C



C5HP188C

Refitting.

Note: Before fitting the reservoir (**7**), make sure that the base is clean (**10**).
(If it is not, use paper towel to clean inside the base (**10**)).
Preparation of the new dryer reservoir.
Remove the protection plug from the neck of the reservoir **(7)**
Leave the protection in place on the end of the reservoir **(7)** until fitting.
Treatments:
- Grease the threads of the reservoir (**7**) (sachet of grease in the kit).
- Lubricate the two O-ring seals of the reservoir (**7**) (sachet of oil in the kit).

Remove:
- The protection plug fitted at the time of removal, from the base (**10**).
- The protection from the end of the reservoir (**7**).

Engage the reservoir (**7**) with its skirt (**6**) on the threads of the base (**10**).
Screw on the reservoir by hand (**7**), until the neck of the reservoir (**7**) makes contact with the base (**10**).
NOTE: Check that the bottom edge of the skirt (**6**) covers the base (**10**) all the way round.
Tighten the reservoir (**7**) (TORX 70 FACOM)

Tighten to 1,4 ± 0,1 m.daN

Fit the plastic clip (**9**) and the screw (**8**). (New, from exchange kit).
Complete the refitting, in reverse order to removal.
Proceed to:
- Recharge the circuit (see corresponding operation).
- Check that the air conditioning functions correctly (see corresponding operation).

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

Compressor lubricant.

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

Checking the compressor oil level.

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

1) Repairing a system without leaks.

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

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

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

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 — TOUS 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.

C8	CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

CHECKING TEMPERATURES (continued)

			Vehicle using R 134. a fluid (Compressor with variable capacity)					
	Ambient temperature in °C		40	35	30	25	20	15
	Vehicle	Engines						
Temperature at the central air vents in °C	C8 (1)	DW10 DW12	23 ± 2	18 ± 2	14 ± 2	11 ± 2	8 ± 2	7 ± 2

(1) For information: C8 (EW10-EW12 and ES9J4S) - Temperatures virtually identical.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM — C8

CHECKING PRESSURES

TOOLS - 1 charging station.
- 2 thermometers.

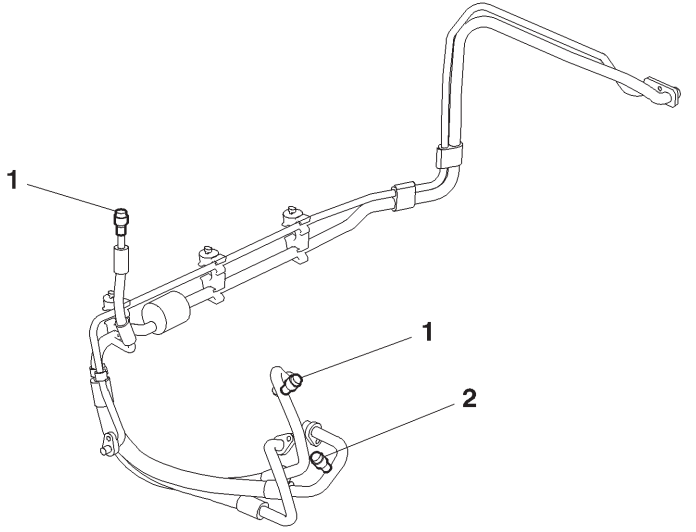
Once the preliminary conditions, vehicle equipment and checks have been fulfilled (see table).
After the air conditioning has been on for three minutes, record the following parameters:

- The temperature of the air coming from the central vents (see table).
- 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)					
Ambient temperature in °C			40	35	30	25	20	15
	Vehicle	Engines						
High pressure (Bars)	C8	All Types	26 ± 2	23 ± 2	20 ± 2	20 ± 2	20 ± 2	17 ± 2
Low pressure (Bars)			3,8 ± 2	3,4 ± 2	3 ± 2	2,7 ± 2	2,6 ± 2	2,7 ± 2
High pressure (Bars)								
Low pressure (Bars)								
High pressure (Bars)								
Low pressure (Bars)								
High pressure (Bars)								
Low pressure (Bars)								
High pressure (Bars)								
Low pressure (Bars)								

C5	AIR CONDITIONING SYSTEM R 134.a
Engines: 6FZ RFN RLZ XFX THY RHS RHZ 4HX	Evolution of the HP/LP filling valves



C5HP1A9D

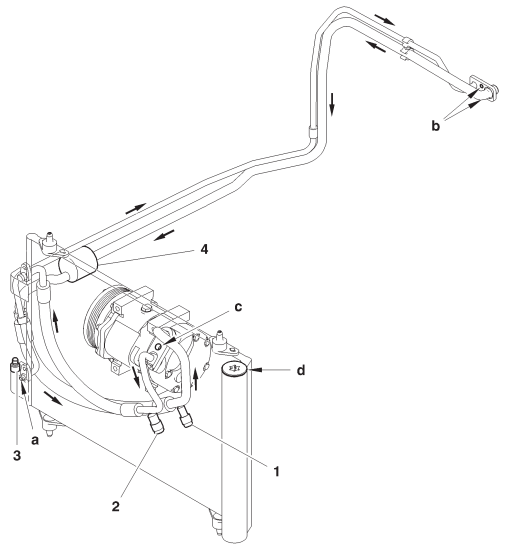
(1) High pressure valve. **(Two versions)**

(2) Low pressure valve. (**One version**)

AIR CONDITIONING SYSTEM R 134.a

C5

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**

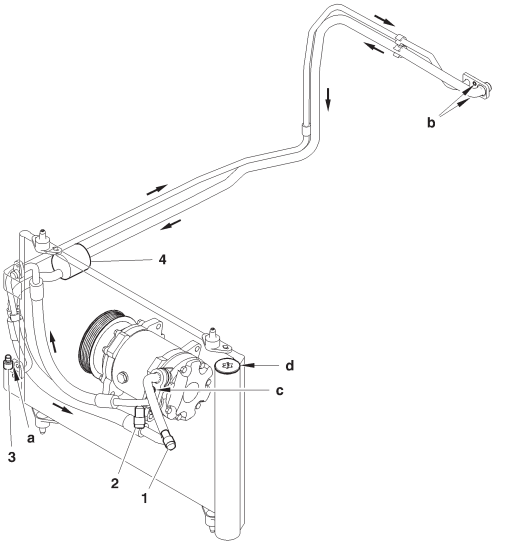
(b) Pressure control valve
Tighten to **0,8 m.daN**

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

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

C5	AIR CONDITIONING SYSTEM R 134.a

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**

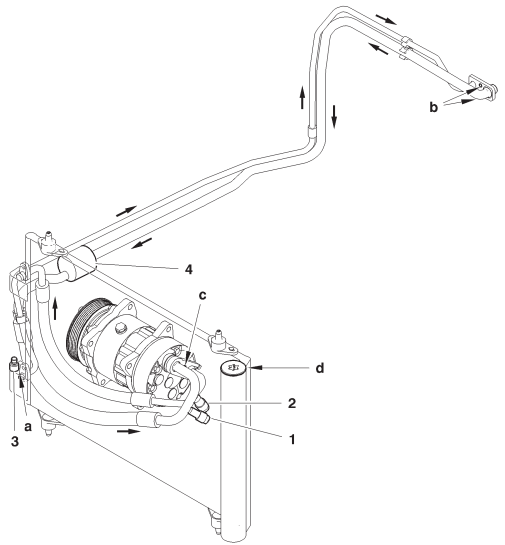
(c) Compressor bracket
Tighten to **2,5 ± 0,1 m.daN**

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

AIR CONDITIONING SYSTEM R 134.a

C5

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**

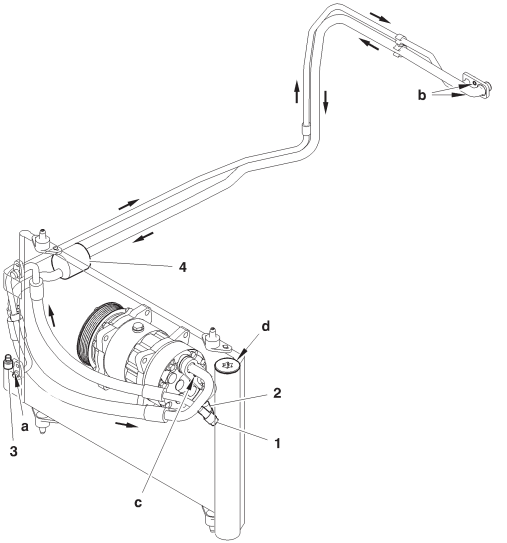
(b) Pressure control valve
Tighten to **0,8 m.daN**

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

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

C5	AIR CONDITIONING SYSTEM R 134.a

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**

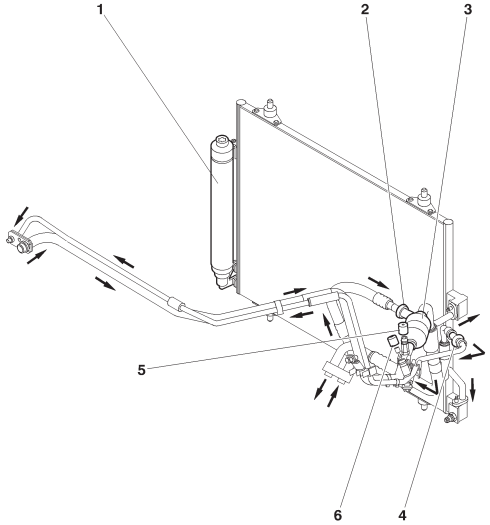
(c) Compressor bracket
Tighten to **2,5 ± 0,1 m.daN**

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

AIR CONDITIONING SYSTEM R 134.a

C8

Engines: RFN-3FZ



C5HP17TP

1 Drying cartridge.

2 Clickfit union. (Tool **8005-T.C**)

3 Buffer capacity.

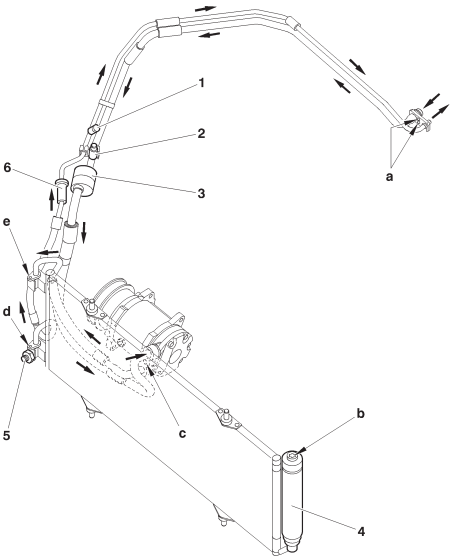
4 Clickfit union. (Tool **8005-T.A)**

5 High pressure valve.

6 Low pressure valve.

C8	AIR CONDITIONING SYSTEM R 134.a

Engine: XFW



C5HP18TP

1 High pressure valve

2 Low pressure valve

3 Buffer capacity.

4 Drying cartridge

5 Pressostat

6 Clickfit union. (Tool **8005-T.C**)

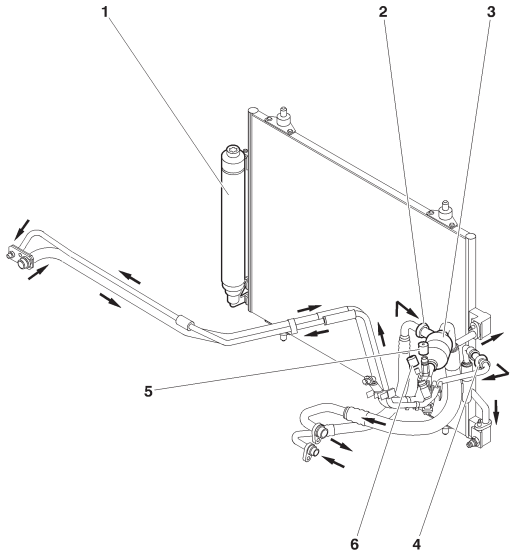
Tightening torques (m.daN)

a	**0,8**
b	**1,4**
c	
d	
e	**0,8**

AIR CONDITIONING SYSTEM R 134.a

C8

Engines: RHT-4HW



C5HP17UP

1 Drying cartridge.

2 Clickfit union. (Tool **8005-T.C**)

3 Buffer capacity.

4 Clickfit union. (Tool **8005-T.A**)

5 High pressure valve.

6 Low pressure valve.