

PRIVATE CARS

SAXO-XSARA-XSARA PICASSO BERLINGO

2002

«The technical information contained in this document is intended for the exclusive use of the trained personnel of the motor vehicle repair trade. In some instances, this information could concern the security and safety of the vehicle. The information is to be used by the professional vehicle repairers for whom it is intended and they alone would assume full responsibility to the exclusion of that of the manufacturer».

«The technical information appearing in this brochure is subject to updating as the characteristics of each model in the range evolve. Motor vehicle repairers are invited to contact the CITROËN network periodically for further information and to obtain any possible updates».

***CAR 050011
Volume 1***



PRESENTATION

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

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

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

In each section, the vehicles are dealt with in the following order : SAXO - XSARA - XSARA PICASSO - BERLINGO and all models where applicable.

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

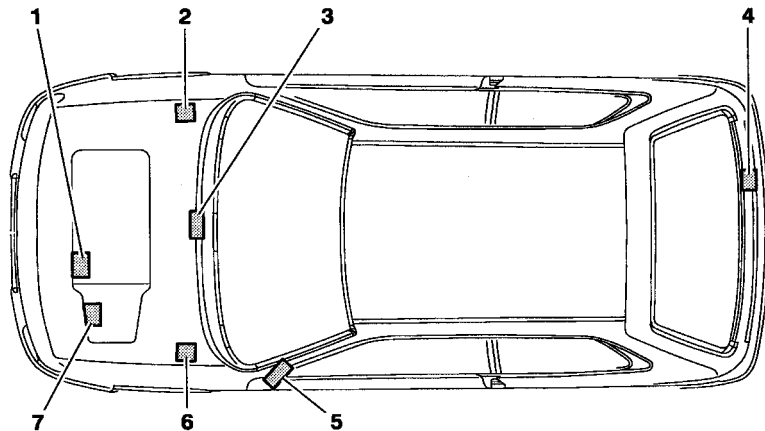
IMPORTANT

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.
221, Bath Road,
SLOUGH,
SL1 4BA.
U.K.



- ① Engine legislation type
- ② RP organisation no.
- ③ Chassis stamp
- ④ Manufacturer's name plate
- ⑤ 01/02/99 → Label :
 - Tyre pressures.
 - RP organisation no.
 - Paint code.
- ⑥ Paint code.
- ⑦ Gearbox ident. reference

SAXO - All Types	IDENTIFICATION OF VEHICLES						
	Saxo petrol 3-door.						
	1.1 i		1.4 i			1.6 i	1.6i 16V
		Auto.					
	X-SX	A-X-SX Administration Exclusive	SX Exclusive	VTS	SX Exclusive VTS	VTS	VTS
Emission standard	IFL5	L4	L4			L4	L4
Type code	SO HFX1	SO HFXB	SO KFWL	S6 KFWB	SO KFWB	S6 NFTB	N6 NFXB
Engine type	HFX		KFW			NFT	NFX
Cubic capacity (cc)	1124		1360			1587	
Fiscal rating (hp)	4		6	5		5	8
Gearbox type	MA/5		MB3	MA/5		MA/5	
Gearbox ident. plate	20 CF 03		312	20 CF 12	20 CF 11	20 CN 05	20 CN 03

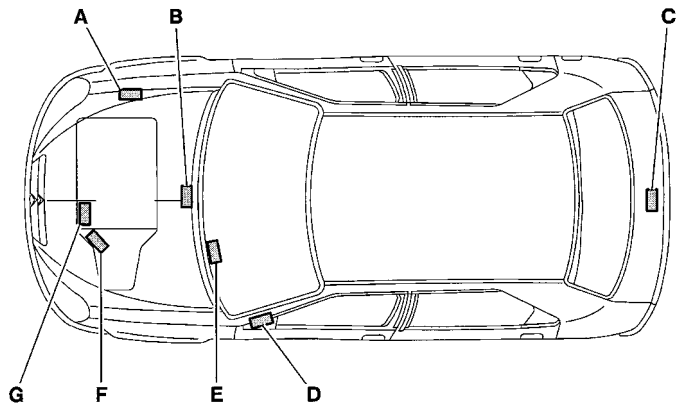
IDENTIFICATION OF VEHICLES			SAXO - All Types	
	Saxo petrol 5-door.			
	1.1i		1.4i	
	X-SX	A-Administration Driving school -X-SX Exclusive	Auto.	SX-Exclusive
Emission standard	IFL5	L4	L4	
Type code	S1 HFX1	S1 HFXB	S1 KFWL	S1 KFWB
Engine type	HFX		KFW	
Cubic capacity (cc)	1124		1360	
Fiscal rating (hp)	4		6	5
Gearbox type	MA/5		MB3	MA/5
Gearbox ident. plate	20 CF 03		312	20 CF 12

GENERAL

SAXO - All Types	IDENTIFICATION OF VEHICLES			
	Diesel		Entreprise	
	3-door.	5-door.	Petrol 3-door.	Diesel 3-door.
	1.5 D		1.1i	1.5 D
	A- Administration X-SX-VTS -Exclusive	A-Administration Driving school X-SX-Exclusive	A Administration Poste-X-SX	A Administration Poste-X-SX
Emission standard	L4		L4	
Type code	SO VJXB	S1 VJXB	S3 HFXB	S3 VJXB
Engine type	VJX		HFX	VJX
Cubic capacity (cc)	1527		1124	1527
Fiscal rating (hp)	4		6	6
Gearbox type	MA/5		MA/5	MA/5
Gearbox ident. plate	20 CF 02		20 CF 03	20 CF 02

IDENTIFICATION OF VEHICLES

XSARA - All Types → 09/2000



A - Manufacturer's name plate (Estate).

B - Chassis stamp, cold stamp.

C - Manufacturer's name plate (Saloon).

D - Label :
(label affixed to the front pillar on driver's side)

- Tyre pressures.
- RP organisation no.
- Paint code.

E - Serial number. (visible through the windscreen)

F - Engine legislation type.
Factory serial no

G - Gearbox ident. reference.
Factory serial no.

E1AP08WD

GENERAL

XSARA - All Types 09/2000 →

IDENTIFICATION OF VEHICLES

Saloon petrol 3-door.

1.4 i

1.6i 16V

Auto.

Auto.

X-SX
VTR

X-VTR

X-SX-VTR
VTS

SX-VTR

VTR-VTS

VTR

Emission standard

L4

IFL5

L4

IFL5

Type code

NO KFWB

NO KFW1/IF

NO NFUB

NO NFUN

NO NFU1/IF

NO NFU3/IF

Engine type

KFW

NFU

Cubic capacity (cc)

1360

1581

Fiscal rating (hp)

5

7

Gearbox type

MA/5

MA/5

AL4

MA/5

AL4

Gearbox ident. plate

20 CF 13

20 CN 28

20 TP 49

20 CN 28

20 TP 49

GENERAL

IDENTIFICATION OF VEHICLES				XSARA - All Types 09/2000 →			
	Saloon petrol 3-door.			Saloon diesel 3-door.			
	20i.16V			1.9 D	2.0 HDi		
	Auto.				Auto.		
	VTS			X-SX VTR	X-SX-VTR VTS	SX-VTR VTS	SX
Emission standard	IFL5	L4		L4			
Type code	NO RFN1/IF	NO RFNN/IF	NO RFSB	NO WJYB	NO RHYB	NO RHZB	NO RHZN
Engine type	RFN		RFS	WJY	RHY	RHZ	
Cubic capacity (cc)	1998			1868	1997		
Fiscal rating (hp)	8		11	5		6	
Gearbox type	BE4/5	AL4	BE3/5	BE4/5			AL4
Gearbox ident. plate	20 DL 40 20 DM 03 (1)	20 TP 47	20 TE 47	20 DL 41 20 DM 05 (1)	20 DL 42 20 DM 07 (1)	20 DM 10 20 DM 11 (1)	20 TP 48
<p>(1) = Right hand drive : Hydraulic clutch control.</p>							

GENERAL

XSARA - All Types → 09/2000

IDENTIFICATION OF VEHICLES

Saloon 3-door versions

Petrol

Diesel

1.4i

1.9 D

2.0 HDi

X

X

Emission standard

L4

L4

Type code

NO KFWB/T (1)

NO WJYB/T (1)

NO RHYB/T (1)

Engine type

KFW

WJY

RHY

Cubic capacity (cc)

1360

1868

1997

Fiscal rating (hp)

8

7

6

Gearbox type

MA/5

BE4/5

Gearbox ident. plate

20 CF 13

20 DL 41

20 DL 42

(1) /T = The vehicle cannot be converted back into a private vehicle.

GENERAL

XSARA - All Types 09/2000 →		IDENTIFICATION OF VEHICLES				
	Saloon petrol 5-door					
	1.4i			1.6i 16V		
	X-SX			SX	X-SX Exclusive	
Emission standard	K'	L4	IFL5	K'		L4
Type code	N1 KFWG	N1 KFWB	N1 KFW1/IF	N1 NFUG	N1 NFUU	N1NFUB
Engine type	KFW			NFU		
Cubic capacity (cc)	1360			1587		
Fiscal rating (hp)	5			7		
Gearbox type	MA/5			MA/5	AL4	MA/5
Gearbox ident. plate	20 CN 30	20 CF 13		20 CN 29	20 TP 49	20 CN 28

GENERAL

XSARA - All Types 09/2000 →

IDENTIFICATION OF VEHICLES

Saloon petrol 5-door.

16i 16V

2.0i 16V

Auto.

Auto.

Auto.

SX
Exclusive

X-SX
Exclusive

SX
Exclusive

Exclusive

Emission standard

L4

IFL5

IFL5

L4

Type code

N1 NFUN

N1 NFU1/IF

N1 NFU3/IF

N1 RFN1/IF

N1 RFNN

Engine type

NFU

RFN

Cubic capacity (cc)

1587

1998

Fiscal rating (hp)

7

11

Gearbox type

AL4

MA/5

AL4

BE4/5

AL4

Gearbox ident. plate

20 TP 49

20 CN 28

20 TP 49

20 DL 40

20 DM 03 (1)

20 TP 47

(1) = Right hand drive : Hydraulic clutch control.

GENERAL

IDENTIFICATION OF VEHICLES					XSARA - All Types 09/2000 →		
	Saloon diesel 5-door.						
	1.9 D		2.0 HDi				
					Auto.		
	X-SX		X-SX-Exclusive		SX-Exclusive		SX Exclusive
Emission standard	L4		L4				
Type code	N1 WJYB		N1 RHYB		N1 RHZB		N1 RHZN
Engine type	WJY		RHY		RHZ		
Cubic capacity (cc)	1868		1997				
Fiscal rating (hp)	5		5		6		
Gearbox type	BE4/5		BE4/5				AI4
Gearbox ident. plate	20 DL 41	20 DM 05 (1)	20 DL 42	20 DM 07 (1)	20DM 10	20 DM 11 (1)	20 TP 48
<p>(1) = Right hand drive : Hydraulic clutch control.</p>							

GENERAL

XSARA - All Types → 09/2000

IDENTIFICATION OF VEHICLES

Saloon diesel Entreprise 5-door.

1.9 D

2.0 HDi

X

X

Emission standard

L4

L4

Type code

N1 WJYB/T (1)

N RHYB

N1 RHYB/T (1)

Engine type

WJY

RHY

Cubic capacity (cc)

1868

1997

Fiscal rating (hp)

7

5

Gearbox type

BE4/5

BE4/5

Gearbox ident. plate

20 DL 41

20 DL 42

(1) /T = The vehicle cannot be converted back into a private vehicle.

GENERAL

IDENTIFICATION OF VEHICLES					XSARA - All Types 09/2000 →			
	Estate petrol							
	1.4i			16. 16V				
	X-SX			SX	Auto.		Auto.	
					SX Exclusive		SX Exclusive	
Emission standard	L4		IFL5	K'	L4		IFL5	
Type code	N2 KFWB KFW1/IF		N2 NFUG	N2 NFUB	N2 NFUN	N2 NFU1/IF	N2 NFU3/IF	
Engine type	KFW			NFU				
Cubic capacity (cc)	1360			1587				
Fiscal rating (hp)	5			7				
Gearbox type	MA/5		MA/5		AL4	MA/5	AL4	
Gearbox ident. plate	20 CN 21		20 CN 29	20 CN 28	20 TP 49	20 CN 28	20 TP 49	

GENERAL

XSARA - All Types → 09/2000

IDENTIFICATION OF VEHICLES

GENERAL

	Estate petrol		Estate diesel	
	2.0i 16V		1.9 D	
	Auto.			
	Exclusive		X - SX	
Emission standard	IFL5		L4	
Type code	N2 RFN1/IF		N2 RFNN	
Engine type	RFN		WJY	
Cubic capacity (cc)	1998		1868	
Fiscal rating (hp)	11		5	
Gearbox type	BE4/5		AL4	
Gearbox ident. plate	20 DL 40		20 DM 03 (1)	20 DL 41
				20 DM 05 (1)

(1) = Right hand drive : Hydraulic clutch control.

IDENTIFICATION OF VEHICLES				XSARA - All Types → 09/2000	
	Estate diesel				
	2.0 HDi				
	X-SX-Eclusive				Auto. SX Exclusive
Emission standard	L4		IFL5		
Type code	N2 RHYB		N2 RHYB/IF		N2 RHZN
Engine type	RHY				RHZ
Cubic capacity (cc)	1997				
Fiscal rating (hp)	5		6		
Gearbox type	BE4/5				AL4
Gearbox ident. plate	20 DL 42	20 DM 07 (1)	20 DM 10	20 DM 11 (1)	20 TP 48
(1) = Right hand drive : Hydraulic clutch control.					

GENERAL

XSARA - All Types → 09/2000

IDENTIFICATION OF VEHICLES

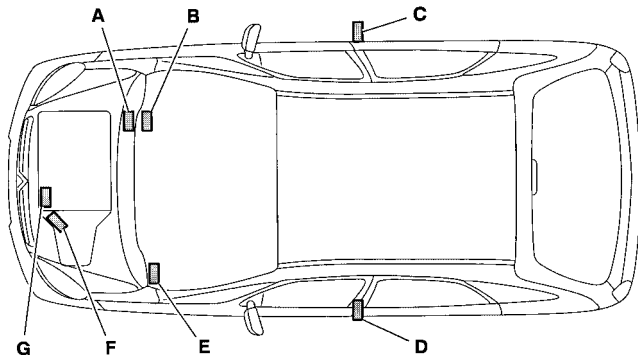
GENERAL

	Estate petrol versions		Estate diesel versions	
	1.4i	1.9 D	2.0 HDi	
	X		X	
Emission standard	L4		L4	
Type code	N2 KFWB/T (1)	N2 WJYB/T (1)	N2 RHYB/T (1)	
Engine type	KFW	WJY	RHY	
Cubic capacity (cc)	1360	1868	1997	
Fiscal rating (hp)	8	7	6	
Gearbox type	MA/5	BE4/5	BE4/5	
Gearbox ident. plate	20 CN 21	20 DL 41	20 DL 42	

(1) /T = The vehicle cannot be converted back into a private vehicle.

IDENTIFICATION OF VEHICLES

XSARA PICASSO - All Types



- A** - Chassis stamp
(Cold stamp on bodywork)
- B** - Chassis no. reminder
(Label located at bottom of windscreen right hand side)
- C** - Manufacturer's data plate.
(Located at bottom of RH central pillar)
- D** - Label :
Tyre pressures.
Tyre identification.
Spare wheel identification.
(Located on front LH door inner panel).
- E** - Label
Factory code.
A-S / RP N°
Paint code.
(Located on fuse box cover)
- F** - Gearbox identification ref.
- G** - Engine legislation type.
Factory serial number.

E1AP088D

GENERAL

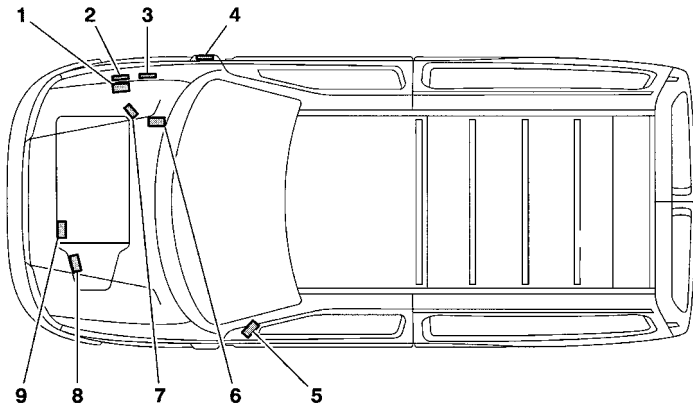
XSARA PICASSO - All Types**IDENTIFICATION OF VEHICLES****GENERAL**

	Petrol			Diesel
	1.6i	1.8i 16 V		2.0 HDi
Emission standard	L3	L4	IFL5	L4
Type code	CH NFVB	CH 6FZB	CH 6FZ/IF	CH RHY
Engine type	NFV	6FZ		RHY
Cubic capacity (cc)	1587	1749		1997
Fiscal rating (hp)	6	7		5
Gearbox type	BE4/5/ J (*)	BE4/5 V (*)		BE4/5 L (*)
Gearbox ident. plate	20 DL 66	20 DL 68		20 DL 64

(*) L.J V = Corresponds to the stepping of the gears.

IDENTIFICATION OF VEHICLES

BERLINGO - All Types



- ① Chassis stamp
- ② Manufacturer's name plate.
- ③ Supplementary plate
- ④ Weights label
- ⑤ 01/02/99 → Label :
 - Tyre pressures.
 - RP organisation no.
 - Paint code.
- ⑥ Paint code
- ⑦ RP organisation no.
- ⑧ Gearbox ident. reference
- ⑨ Engine legislation type

E1AP07AD

GENERAL

BERLINGO - All Types		IDENTIFICATION OF VEHICLES				
	Berlingo petrol 5-seater					
	1.1i		1.4i			
	X		X	X-SX	Multispace	X-SX
Emission standard	L3/W3	L4/W4	K'	L3/W3		L4/W4
Type code	MF HDZF	MF HFX	MF KFXG	MF KFXF	MF KFXF/A	MF KFWB
Engine type	HDZ	HFX	KFX			KFW
Cubic capacity (cc)	1124		1360			
Fiscal rating (hp)	5		6			
Gearbox type	MA/5		MA/5			
Gearbox ident. plate	20 CN 02		20 CN 12		20 CN 13	20 CN 12

GENERAL

IDENTIFICATION OF VEHICLES					BERLINGO - All Types	
	Berlingo petrol 5-seater					
	1.4i			1.6i 16V		
	Dual fuel					
	Multispace	X	Multispace	SX	Multispace	SX
Emission standard	L4/W4	L4		L4/W4		IFL5
Type code	MF KFWB/A	MF KFWB /MOD GL (1)	MF KFWB /A MOD GL (1)	MF NFUB	MF NFUB/A	MF NFU1/IF
Engine type	KFW			NFU		
Cubic capacity (cc)	1360			1581		
Fiscal rating (hp)	6			7		
Gearbox type	MA/5			BE4/5		
Gearbox ident. plate	20 CN 13	20 CN 12	20 CN 13	20 TL 37	20 TL 38	20 TL 37
<p>(1) /MOD GL = MOD, Modified ; GL = LPG = (Liquified Petroleum Gas), with ring-shaped tank.</p>						

GENERAL

BERLINGO - All Types		IDENTIFICATION OF VEHICLES				
	Berlingo petrol 5-seater			Berlingo diesel 5-seater		
	16i 16V	1.8i		1.9 D		
		(1)				
	Multispace	SX	Multispace	X-SX	Multispace	X-SX
Emission standard	IFL5	L3/W3		L3/W3		L4/W4
Type code	MF NFU1/A IF	MF LFXF	MF LFXF/A	MF WJZF	MF WJZF/A	MF WJYB
Engine type	NFU	LFX		WJZ		WJY
Cubic capacity (cc)	1581	1761		1868		
Fiscal rating (hp)	7	7		5		
Gearbox type	BE4/5	BE3/5		BE3/5		
Gearbox ident. plate	20 TL 38	20 TE 25	20 TE 26	20 TE 22	20 TE 24	20 TE 49
(1) = Marketed in MERCOSUR countries.						

IDENTIFICATION OF VEHICLES					BERLINGO - All Types	
	Berlingo diesel 5-seater					
	1.9 D		2.0 HDi			
	Multispace	SX Multispace	X-SX	Multispace	X-SX	Multispace
Emission standard	L4/W4		L3/W3		L4/W4	
Type code	MF WJYB/A	MF WJYB /PMF (1)	MF RHYF	MF RHYF/A	MF RHYB	MF RHYB/A
Engine type	WJY		RHY			
Cubic capacity (cc)	1868		1997			
Fiscal rating (hp)	5		6			
Gearbox type	BE3/5		BE3/5			
Gearbox ident. plate	20 TE 24		20 TE 28	20 TE 29	20 TE 28	20 TE 29
(1) /PMF = Multifunction roof						

GENERAL

ALL TYPES

CAPACITIES (in litres)

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.

SAXO - All Types	CAPACITIES (in litres)					
	SAXO					
	Petrol				Diesel	
	Ecological oil filter capacity 0.15 litre.					
	1.1l	1.4l Auto.		1.6l 16V	1.6l	1.5D
Engine type	HFX	KFW		NFX	NFT	VJX
Engine with filter change	3			3.5	4.5	
Between Min. and Max.	1.5			1.5	2	
5-speed gearbox	2		2			
Automatic gearbox			4.5			
after drainage			2			
Hydraulic or brake circuit	With ABS = 0.45 - Without ABS = 0.36					
Cooling system	6.1					
Fuel tank capacity	45					
ESSENTIAL : systematically check the oil level using the oil dipstick.						

GENERAL

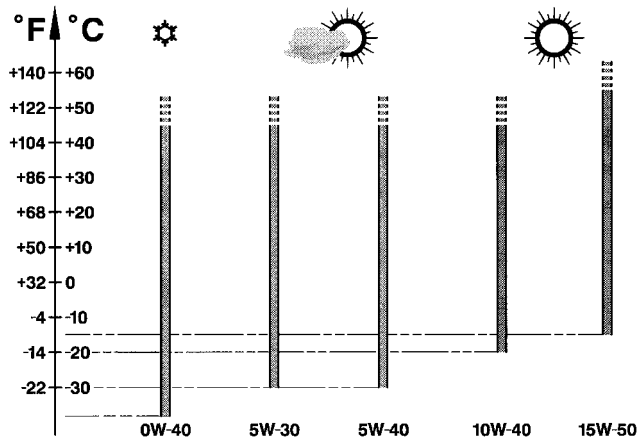
XSARA - All Types		CAPACITIES (in litres)					
		XSARA					
		Petrol			Diesel		
		Ecological oil filter capacity 0.15 litre.					
		1.4l	1.6l 16V Auto.	2.0l 16V Auto.	1.9D	2.0 HDI Auto.	
Engine type	KFW	NFU	RFN	RFS	WJZ	RHY	RHZ
Engine with filter change	3	3.25	4.25		4.75		4.5-4.25 (1)
Between Min. and Max.	1.4	1.5	1.7	1	1.6	1.4	
5-speed gearbox	2		1.9	1.9	1.8		
Automatic gearbox		6	6				8.3
after drainage		3	3				5.3
Hydraulic or brake circuit	With ABS = 0.50 - Without ABS = 0.55						
Cooling system	7 6.5 (1)				9	8.5 11 (1)	
Fuel tank capacity	54						
(1) = With aircon - ESSENTIAL : <u>systematically check the oil level using the oil dipstick.</u>							

CAPACITIES (in litres)		XSARA PICASSO - All Types	
	XSARA PICASSO		
	Petrol		Diesel
	Ecological oil filter capacity 0.15 litre.		
	1.6l	1.8l 16 V	2.0 HDI
Engine type	NFV	6FZ	RHY
Engine with filter change	3	4.25	4.5
Between Min. and Max.	1.5	1.7	1.4
5-speed gearbox	1.8		
Automatic gearbox			
after drainage			
Hydraulic or brake circuit	0.58 litres		
Cooling system	5.8 (1) and (2)	6.5 (1) and (2)	11 (1) and (2)
Fuel tank capacity	55		60
<p>(1) = With aircon (2) = Without aircon ESSENTIAL : <u>systematically check the oil level using the oil dipstick.</u></p>			

GENERAL

BERLINGO - All Types				CAPACITIES (in litres)									
	BERLINGO												
	Petrol						Diesel						
						Ecological oil filter capacity 0.15 litre.							
	1.1i		1.4i		1.8i	1.1i	1.4i		1.6i 16V	1.9 D		2.0 HDi	
GENERAL	Engine type	HDZ	HFX	KFX	KFW	LFX	HFX	KFX	KFW	NFU	WJZ	WJY	RHY
	Engine with filter change	3.5				4.75 4.5 (1)	3			3.25	4.75 4.5 (1)		4.5 4.25 (1)
	Between Min. and Max.	1.5				1.3	1.5			1.5	1.5		
	5-speed gearbox	2				1.8	2			1.8			
	Hydraulic or brake circuit	With ABS = 0.62 - Without ABS = 0.525									With ABS = 0.62 Without ABS = 0.525		
	Cooling system	6.5		6.5-7 (1)		8	6.5		6.5-7 (1)		10.5		
	Fuel tank capacity	55									60		
	<p>(1) With aircon ESSENTIAL : <u>systematically check the oil level using the oil dipstick.</u></p>												

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



ALL TYPES

LUBRICANTS - TOTAL recommended oils

Factory evolutions in 2001 model year

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

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

Features of CITROËN C5 :

2.0 and 2.2 HDi engines have a particle filter.

The maintenance interval for normal operation is **30.000 km (20.000 miles)** for petrol engines.

WARNING : HDi engines are high technology engines which imperatively require use of quality SYNTHETIC OILS : TOTAL ACTIVA or TOTAL QUARTZ 5W40.

To maintain engine performances, all countries in Europe should observe this requirement.

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

ESSENTIAL : For all vehicles with a 30.000 km (20.000 miles) maintenance interval, use exclusively **TOTAL ACTIVA/QUARTZ 7000 or 9000** or any other oils offering identical specifications to these.

These oils offer specifications that are superior to those defined by norms **ACEA A3/98** or **API SJ**.

Failing this, it is essential to adhere to the maintenance programmes covering severe operating conditions.

5W30 cannot be used in the following engines:

XU10J4RS : XSARA VTS 2.0i 16V (3 doors).

SOFIM : RELAY 2.8 D and 2.8 TD.

1580 SPI : DISPATCH 1.6i.

2.0 and 2.2 HDi engines equipped with particle filter.

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

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

ACEA Norms

The first letter corresponds to the type of engine concerned :

A : petrol and dual fuel petrol / LPG engines.

B : diesel engines.

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

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

3 : high performance oils.

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

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

Example :

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

API Norms

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

S : petrol and dual fuel petrol / LPG engines.

C : diesel engines.

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

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

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

EC : **Energy Conserving**. reduction in fuel consumption.

Examples :

API SJ / CF : Blended oils for all engines.

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

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

ALL TYPES

LUBRICANTS - TOTAL recommended oils

Engine oil norms.**Norms in force.**

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

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

API : American Petroleum Institute.

ACEA : Association des Constructeurs Européens d'Automobiles.

Recommendations.

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

TOTAL ACTIVA (France only).

TOTAL QUARTZ (Outside France).

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

Summary

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

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

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

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

LUBRICANTS - TOTAL recommended oils			ALL TYPES
	S.A.E. grades	SPI norms	ACEA norms
Blended oils for all engines (petrol, dual-fuel petrol / LPG and diesel)			
TOTAL ACTIVA 9000 TOTAL QUARTZ 9000	5W-40	SJ / CF	A3-98 / B3-98
TOTAL ACTIVA 9000 (*) TOTAL QUARTZ 9000 (*)	5W-30	SJ / CF EC	A1-98 / B1-98
TOTAL ACTIVRAC	10W-40	SJ / CF	A3-98 / B3-98
(*) = Blended oils for all engines, permitting fuel economy.			
Oils specifically for petrol and dual-fuel petrol / LPG engines			
TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	10W-40	SJ	A3-98
TOTAL QUARTZ 9000	0W-40		
TOTAL ACTIVA 7000 TOTAL QUARTZ 7000	15W-50		
Oils specifically for diesel engines			
TOTAL ACTIVA DIESEL 7000 TOTAL QUARTZ DIESEL 7000	10W-40	CF	B3-98
TOTAL ACTIVA DIESEL 7000	15W-50		
TOTAL ACTIVA DIESEL 9000	5W-40		

GENERAL

ALL TYPES	LUBRICANTS - TOTAL recommended oils		
	FRANCE		
	Blended oils for all engines, supplied in bulk		
Metropolitan FRANCE	TOTAL ACTIVRAC	S.A.E : 10W-40 Norms	
	TOTAL ACTIVA		TOTAL ACTIVA DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Metropolitan FRANCE	9000 5W-40 9000 5W-30 (*)	7000 10 W-40	7000 10 W-40 9000 5W-40
New Caledonia Guadeloupe Saint-Martin La Réunion Martinique Guyane Tahiti Ile maurice Mayotte	9000 5W-40	7000 15W-50	7000 15W-50
(*) = Blended oils for all engines, permitting fuel economy			

LUBRICANTS - TOTAL recommended oils			ALL TYPES
EUROPE			
(*) = Blended oils for all engines, permitting fuel economy.	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Germany	9000 5W-40 9000 5W-30 (*)	7000 10W-40 9000 0W-40	7000 10W-40
Austria		7000 10W-40	
Belgium		7000 10W-40 9000 0W-40	
Bulgaria		7000 10W-40 7000 15W50	
Cyprus		7000 10W-40	
Croatia		7000 10W-40 9000 0W-40	
Denmark		7000 10W-40 7000 15W-50	
Spain		7000 10W-40	
Finland		7000 10W-40 9000 0W-40	
Great Britain		7000 10W-40	

GENERAL

ALL TYPES	LUBRICANTS - TOTAL recommended oils		
EUROPE (continued)			
(*) = Blended oils for all engines, permitting fuel economy.	TOTAL QUARTZ		TOTAL QUARTZ DIESEL
	Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
Greece	9000 5W-40 9000 5W-30 (*)	7000 10W-40 7000 15W-50	7000 10W-40
Holland		7000 10W-40	
Hungary		9000 0W-40	
Italy		7000 10W-40	
Ireland			
Iceland		7000 10W-40 9000 0W-40	
Latvia			
Lithuania		7000 10W-40	
Macedonia		7000 10W-40 7000 15W-50	
Malta		7000 10W-40	
Moldova		7000 10W-40 9000 0W-40	
Norway		7000 10W-40	
Poland		7000 10W-40	
Portugal			
Slovak Republic			

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

GENERAL

ALL TYPES		LUBRICANTS - TOTAL recommended oils		
		TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
		Australia Nouvelle-Zélande	OCEANIA	9000 5W-40
Ivory Coast Egypt Gabon Madagascar Morocco Senegal Tunisia	AFRICA	7000 5W-40		
Argentina Brazil, Chile Cuba Mexico Paraguay Uruguay	CENTRAL AND SOUTH AMERICA			

GENERAL

LUBRICANTS - TOTAL recommended oils			ALL TYPES	
(*) = Blended oils for all engines, permitting fuel economy		TOTAL QUARTZ		TOTAL QUARTZ DIESEL
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines
China	SOUTH EAST ASIA	9000 5W-40	7000 10W-40 7000 15W-50	7000 10W-40
South Korea			7000 10W-40	
Hong Kong India Indonesia			7000 15W-50	
Japan		9000 5W-40 9000 5W-30	7000 10W-40 7000 15W-50	
Malaysia Pakistan Philippines Singapore		9000 5W-40	7000 15W-50	
Taiwan			7000 10W-40 7000 15W-50	
Thailand			7000 15W-50	
Vietnam				

GENERAL

ALL TYPES		LUBRICANTS - TOTAL recommended oils			
		TOTAL QUARTZ		TOTAL QUARTZ DIESEL	
		Blended oils for all engines	Oils specifically for petrol and dual-fuel petrol / LPG engines	Oils specifically for diesel engines	
GENERAL	Saudi Arabia	MIDDLE EAST	9000 5W-40	7000 15W-50	7000 10W-50
	Bahrain				
	Dubai				
	United Arab Emirates				
	Iran				
	Israel				
	Jordan				
	Kuwait				
	Lebanon				
	Oman				
Qatar					
Yemen					

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

GENERAL

ALL TYPES		LUBRICANTS - TOTAL recommended oils		
Engine coolant fluid				
All countries	CITROEN Fluid Protection : - 35°C	Packs	CITROEN reference	
			GLYSANTIN G 33	REVCOGEL 2000
		2 litres	9979 70	9979 72
		5 litres	9979 71	9979 73
		20 litres	9979 76	9979 74
	210 litres	9979 77	9979 75	
Synthetic brake fluid				
All countries	CITROEN Fluid	Packs	CITROEN reference	
		0.5 litre	9979 05	
		1 litre	9979 06	
		5litres	9979 07	
CITROEN hydraulic circuit fluid				
All countries		Norm	Pack	CITROEN reference
	TOTAL LHM PLUS	ISO 7308-7309 Green in colour	1 litre	ZCP 830 095 9979.20 (Scandinavia)
	TOTAL FLUIDE LDS	Orange in colour		9979.69

LUBRICANTS - TOTAL recommended oils			ALL TYPES	
All countries	WARNING: TOTAL LDS fluid cannot be blended with TOTAL LHM PLUS			
	WARNING: CITROËN C5 : Use only TOTAL FLUIDE LDS suspension fluid.			
	Hydraulic circuit rinsing fluid- green in colour			
All countries	TOTAL HYDRAURINCAGE			
Wash/wipe fluid				
All countries	Packs	CITROEN reference		
	Concentrated : 250 ml	9980 33	ZC 9875 953 U	9980 56
	Liquid ready to use: 1 litre	9980 06	ZC 9875 784 U	
	Liquid ready to use: 5 litres	9980 05	ZC 9885 077 U	ZC 9875 279 U
Grease				
All countries			Norms NLGI (1)	
	TOTAL MULTIS EP2		2	
	TOTAL MULTIS COMPLEX EP2		2	
	TOTAL MULTIS N4128		1	
TOTAL SMALL MECHANISMS				
(1) NLGI = National Lubricating Grease Institute.				

GENERAL

ALL TYPES

ENGINE OIL CONSUMPTION

- I - Oil consumption depends on :
- the engine type.
 - how run-in or worn it is.
 - the type of oil used.
 - the driving conditions.
- II - An engine can be considered **RUN-IN** after:
- **3.000 miles** (5.000 km) for a **PETROL** engine.
 - **6.000 miles** (10.000 km) for a **DIESEL** engine.
- III - **MAXIMUM PERMISSIBLE** oil consumption for a **RUN-IN** engine.
- **0.5 litres per 600 miles** (1.000 km) for a **PETROL** engine
 - **1 litre per 600 miles** (1.000 km) for a **DIESEL** engine.
- DO NOT WORK BELOW THESE VALUES.**
- IV - **OIL LEVEL** : The level should **NEVER** be above the **MAX.** mark on the dipstick after changing or topping up the oil.
- This excess oil will be used up rapidly.
 - It will reduce the engine output and adversely affect the operation of the air circuits and gas recycling.

ENGINE SPECIFICATIONS							ALL TYPES	
	Engines : HDZ - HFX - KFX – KFW – NFT – NFV – NFU - NFX							
	Petrol							
	All Types							
	1.1i		1.4i		1.6i		1.6i 16V	
Engine type	HDZ	HFX	KFX	KFW	NFT	NFV	NFU	NFX
Cubic capacity (cc)	1124		1360		1587			
Bore / Stroke	72/79		75/77		78.5/82			
Compression ratio	9.7/1	10.5/1	10.2/1		10.5/1		11.1	10.8/1
Power ISO or EEC KW - rpm	44.1-6200	44.1-5500	55-5500		72-5700	70-5700	80-5800	87-6600
Power DIN (HP - rpm)	60-6200	60-5500	75-5500		98-5700	95-5700	11-5800	120-6600
Torque ISO or EEC (m.daN - rpm)	8.75-3800	9.4-3500	11.1-3400		13.5-3500	13.5-3000	14.7-4000	14.5-5200

ALL TYPES	ENGINE SPECIFICATIONS			
	Engines : LFX – 6FZ - RFN - RFS			
	Petrol			
	All Types			
	1.8i	1.8i 16V	2.0i 16V	
Engine type	LFX	6FZ	RFN	RFS
Cubic capacity (cc)	1761	1749	1997	1998
Bore / Stroke	83/81.5	82.7/81.4	85/88	86/86
Compression ratio	9.5/1	10.8/1	10.8/1	
Power ISO or EEC KW - rpm	66-5000	85-5500	99-6000	12-6500
Power DIN (HP - rpm)	90-5000	115-5500	136-6000	167-6500
Torque ISO or EEC (m.daN - rpm)	14.7-2600	16.3-4000	19-4100	19.3-5500

ENGINE SPECIFICATIONS				ALL TYPES	
	Engines : VJX - WJZ – WJY – RHY - RHZ				
	Diesel				
	All Types				
	1.5 D	1.9 D		2.0 HDi	
Engine type	VJX	WJZ	WJY	RHY	RHZ
Cubic capacity (cc)	1527	1868		1997	
Bore / Stroke	77/82	82.2/88		85/88	
Compression ratio	23/1	23/1		17.6/1	
Power ISO or EEC KW - rpm	42-5000	51-4600		66-4000	80-4000
Power DIN (HP - rpm)	58-5000	70-4600	71-4600	90-4000	110-4000
Torque ISO or EEC (m.daN - rpm)	9.5-2250	12.5-2500		20.5-1900	25-1750

ALL TYPES		SPECIAL FEATURES - TIGHTENING TORQUES (m.daN)								
CYLINDER HEAD (mm)										
Engine type		HDZ	HFX	KFW	KFX	NFT	NFV	NFX	NFU	VJX
Maximum permissible bow		0.05								
Gasket surface regrinding		- 0.20								
TIGHTENING TORQUES (m.daN)										
Crankshaft bearing screws	Pre-tightening Angular tightening	2 ± 0.2 45°				2 ± 0.2 50° ± 5°				
Connecting rod screws	Tightening	3.8 ± 0.4								
Flywheel screw	Tightening	6.5 ± 0.7								
Crankshaft pinion screw	Pre-tightening Angular tightening	10 ± 1								7 ± 0.7 45° ± 4°
Camshaft pulley screw	Pre-tightening Angular tightening	8 ± 0.8								4 ± 0.4 20° ± 2°
Camshaft hubs						8 ± 0.8				
Camshaft hub screw	Tightening					1 ± 0.1				2.5 ± 0.2

SPECIAL FEATURES - TIGHTENING TORQUES (m.daN)							ALL TYPES	
CYLINDER HEAD (mm)								
Engine type	LFX	6FZ	RFN	RFS	WJZ	WJY	RHY	RHZ
Maximum permissible bow	0.05				0.03			
Gasket surface regrinding	- 0.20	- 0.30		- 0.20			- 0.40	
TIGHTENING TORQUES (m.daN)								
Crankshaft bearing screws	Pre-tightening		(1) $\varnothing 11 : 1 \pm 0.1$ (2) $\varnothing 6 : 1 \pm 0.1$ $\varnothing 11$ (only)	2 ± 0.1			2.5 ± 0.3	
	Slackening							
	Tightening Angular tightening Tightening	5.5 ± 0.5	$\varnothing 11$ to $1 \pm 0,1$ then to $2 \pm 0,1$ $\varnothing 11$ to $70^\circ \pm 5^\circ$ $\varnothing 6$ to $1 \pm 0,1$	$60^\circ \pm 6^\circ$	8.5 ± 0.8	7 ± 0.7		$60^\circ \pm 6^\circ$
Connecting rod screws	Pre-tightening	4 ± 0.4	1 ± 0.1		4 ± 0.4	2 ± 0.2		
	Slackening		180° (1/2 turn)					
	Tightening Angular tightening	2 ± 0.2 $70^\circ \pm 7^\circ$	2.3 ± 0.2 $46^\circ \pm 5^\circ$	2.3 ± 0.2 $46^\circ \pm 4.6^\circ$	2 ± 0.2 $70^\circ \pm 7^\circ$	$70^\circ \pm 7^\circ$		

TUD - XU

SPECIAL FEATURES - TIGHTENING TORQUES (m.daN)

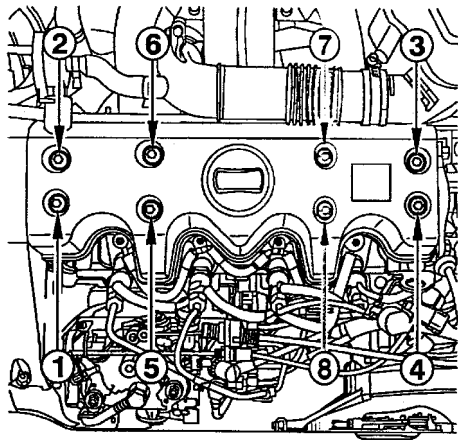
Engines : RFS - VJX

SAXO

VJX

- Pre-tighten 0.4

- Tighten to 0.7



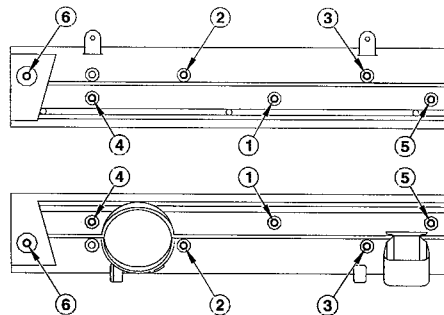
B1DP03BC

XSARA

RFS

- Pre-tighten 0.5

- Tighten to 1



B1DP01YD

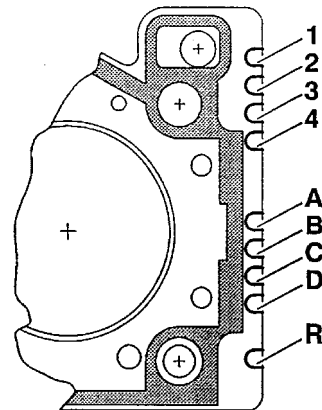
CYLINDER HEAD

TU - TUD- All Types

Engines : HDZ - HFX - KFW - KFX - NFT - NFV - NFX - NFU - VJX

Identification of the cylinder head gasket

Engine type		HDZ - HFX	KFW - KFX	NFT - NFV	NFX - NFU	VJX	
Identification marks		(Notch on cylinder head gasket) *					
Thickness	1	1		1	1	1	
	2	0		0	1	1	
	3	0		0	1	1	
	4	0		1	1	0	
Suppliers	CURTY	A	0				
		B	0				
		D	0				
	MEILLOR	A	1				1
		B	1				1
		D	0				0
	ELRING	A	1				
		B	0				
		D	1				
	REINZ	A		1			
		B		0			
		D		0			
Material	C	0 (With asbestos) - 1 (Without asbestos)					
Repairs	R	0 (Standard gasket) - 1 (Repair gasket)					



* 0 = Without notch
1 = One notch

B1BP10KC

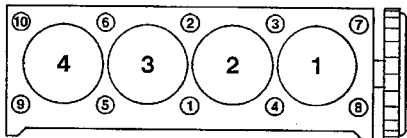
TU - TUD - All Types

CYLINDER HEAD (continued)

Engines : HDZ – HFX – KFX - KFW - NFT – NFV - NFX – NFU – VJX

Cylinder head tightening (m.daN)

Cylinder head bolts



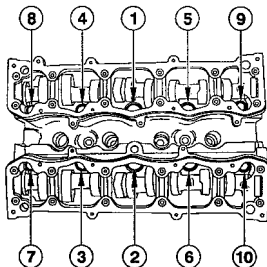
B1BP10LC

HDZ-HFX-KFX-KFW
NFV-NFT

- Pre-tightening 2
- Angular tightening $240^\circ \pm 5^\circ$

VJZ

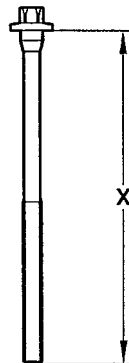
- Pre-tightening 4
- Angular tightening $300^\circ \pm 5^\circ$



B1DP13NC

NFU - NFX

- Pre-tightening 2
- Angular tightening $260^\circ \pm 5^\circ$



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

B1DP059C

X = MAXIMUM reusable length

HDZ-HFX-KFX-KFW
NFV-NFT

VJX

NFU-NFX

X= 175.5 ± 0.5 mm

X = 197.1 mm

X = 122.6 mm

CYLINDER HEAD

XU - All Types

Engine : 6FZ

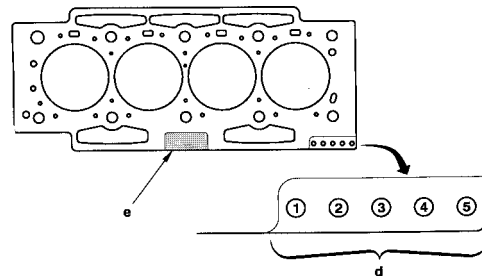
Identification of the cylinder head gasket

	Nominal dimension	Repair dimension		
Marking zone "d"	4 - 5	2 - 4 - 5		
Marking zone "e"		R1	R2	R3
Gasket thickness (mm)	0.8	1	1.1	1.3
Supplier	MEILLOR			

Marking

" d " Marking zone

" e " Marking zone



NOTE : 3 layer metallic gasket.

B1DP183D

EW 10 - All Types

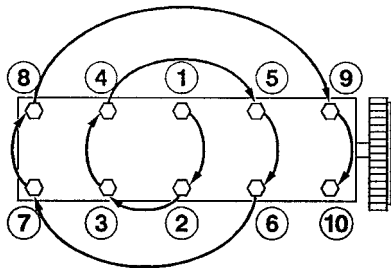
CYLINDER HEAD (continued)

Engine : 6FZ

Cylinder head tightening (m.daN)

6FZ

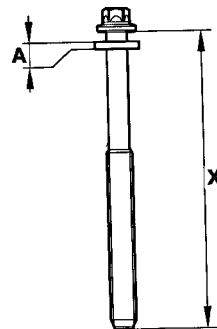
Pre-tightening	1.5 ± 0.2
Tightening	5 ± 0.2
Loosening	360° (1 turn)
Tightening	2 ± 0.2
Angular tightening	$285^\circ \pm 5^\circ$



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

B1DP05BC

Cylinder head bolts



B1DP16FC

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

X = MAXIMUM reusable length

6FZ

X= 147 mm

CYLINDER HEAD (continued)

EW 10 - All Types

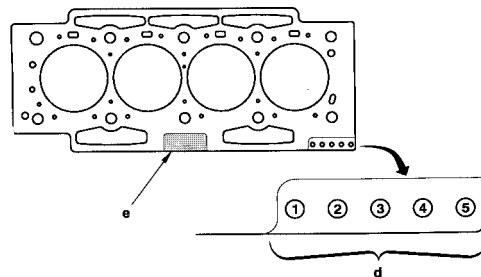
ENGINE

Engine : RFN

Identification of the cylinder head gasket

	Nominal dimension	Repair dimension	
Marking zone "d"	4 - 5	2 - 4 - 5	
Marking zone "e"		R1	R2
Gasket thickness (mm)	0.8	1.1	1.4
Supplier	MEILLOR		

Multilayer metallic gasket



B1DP183D

EW 10 - All Types

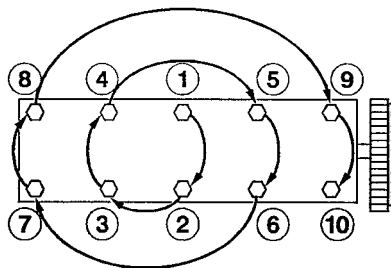
CYLINDER HEAD (continued)

Engine : RFN

Cylinder head tightening (m.daN)

RFN

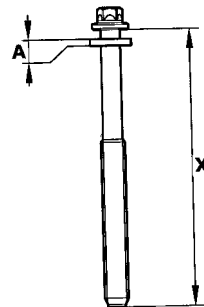
Pre-tightening	1.5 ± 0.1
Tightening	5 ± 0.1
Loosening	$360^\circ \pm 2^\circ$
Tightening	2 ± 0.75
Angular tightening	$285^\circ \pm 5^\circ$



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

B1DP05BC

Cylinder head bolts



B1DP16FC

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

RFN

X= 147 mm

CYLINDER HEAD

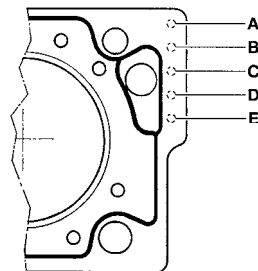
XU - All Types

ENGINE

Engines : LFX - RFS

Identification of the cylinder head gasket

Engine type		LFX	RFS	
Identification marks		(Notch on cylinder head gasket) *		
Suppliers	CURTY	A	1	
		B	0	
		C	0	
		D	0	
		E	0	
	MEILLOR	A	0	1
		B	1	0
		C	0	1
		D	0	0
		E	0	0



* 0 = Without notch

1 = One notch

B1BP004C

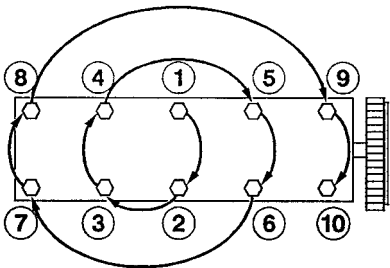
XU - All Types

CYLINDER HEAD (continued)

Engines : LFX - RFS

Cylinder head tightening (m.daN)

Cylinder head bolts



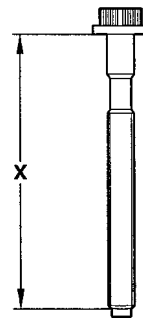
LFX

- Pre-tightening 6
- Loosening YES
- Tightening 2
- Angular tightening 300°

RFS

- Pre-tightening 3.5
- Loosening NO
- Tightening 7
- Angular tightening 160°

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



B1DP13PC

X = MAXIMUM reusable length

LFX

RFS

171.5 mm

112 mm

B1DP05BC

CYLINDER HEAD

DW8 - All Types

ENGINE

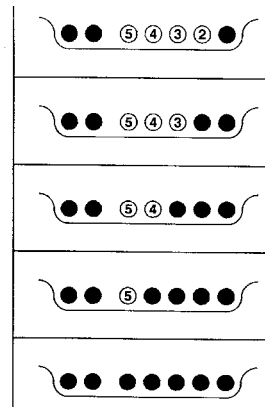
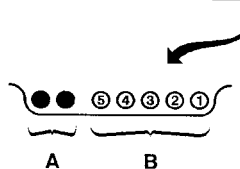
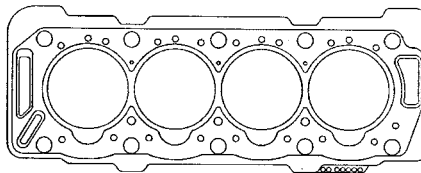
Engine : WJZ - WJY

Identification of the cylinder head gasket

Engine type	Piston stand-proud (mm) (*)	Thickness (mm) ± 0.04	Number of holes at A	Number of holes at B
WJZ WJY	0.51 to 0.55	1.26	2	1
	0.55 to 0.59	1.30		2
	0.59 to 0.63	1.34		3
	0.63 to 0.67	1.38		4
	0.67 to 0.71	1.42		5

- (A) = Engine identification.
 (B) = Thickness identification.
 (*) = Take the highest piston as a reference point.

WJZ - WJY



B1DP14QD

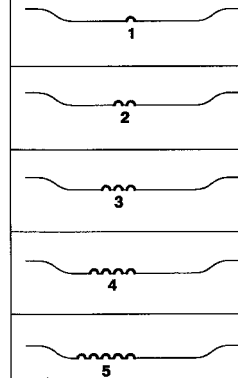
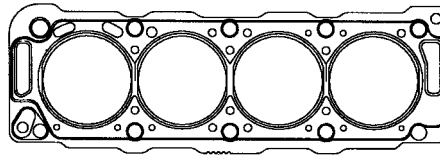
DW10 - All Types

CYLINDER HEAD

Engines : RHY - RHZ

Identification of the cylinder head gasket

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



B1DP15AD

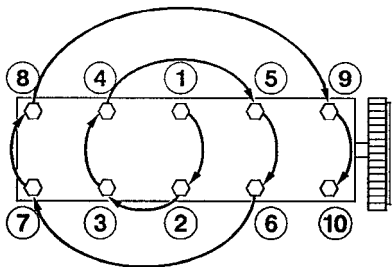
CYLINDER HEAD (continued)

XUD - DW8 - DW10 - All Types

ENGINE

Engines : WJZ – DHY - RHY

Cylinder head tightening (m.daN)



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

B1DP05BC

B1DP13PC

B1DP14NC

B1DP15EC

WJZ - WJY

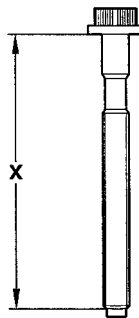
- Pre-tightening 2
- Tightening 6
- Angular tightening 180°

RHY - RHZ

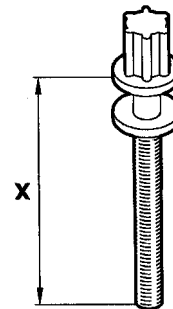
- Pre-tightening 2
- Tightening 6
- Angular tightening 220°

Cylinder head bolts

WJZ - WJY



RHY - RHZ



X = MAXIMUM reusable length

WJZ - WJY

125.5 mm

RHY - RHZ

133.3 mm

ALL TYPES

BELT TENSION/SEEM UNITS CORRESPONDENCE TABLE





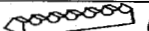

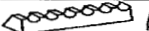

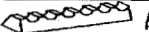







↓ 4099-T (C.TRONIC.105)



Tools



4122-T (C.TRONIC.105.5) ↓

		1 daN = 1 Kg																														
TYPE DE COURROIES		daN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	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																			

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 90.

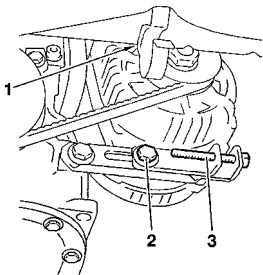
ESSENTIAL.

- **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.

SAXO

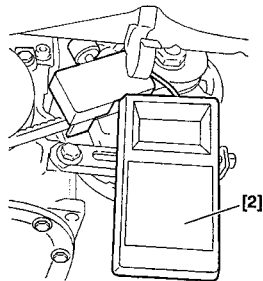
AUXILIARY EQUIPMENT DRIVE BELT

Engines : HDZ – HFX – (KFX – KFW – NFT) saxo



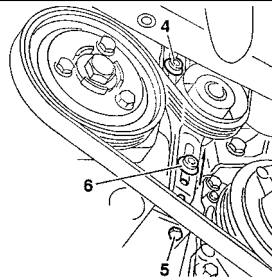
Without air conditioning

- Fit the tool **4122-T**.
- Tighten the tensioning screw **(3)** to obtain :
55 ± 3 SEEM units.



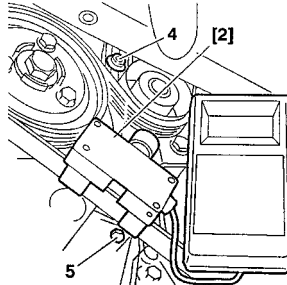
- Tighten the screws **(2)** and **(1)**.
- Remove the tool **4122-T**.

B1BP10UC B1BP10WC



With air conditioning

- Fit the tool **4122-T**.
- Tighten the tensioning screw **(5)** to obtain :
120 ± 3 SEEM units.

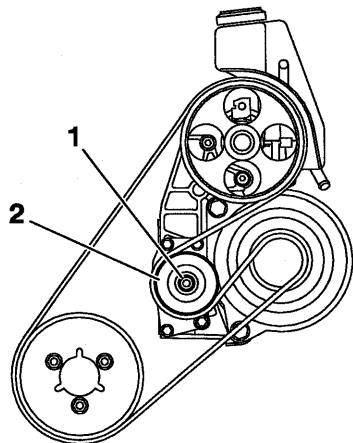


- Tighten the screws **(6)** and **(4)**.
- Remove the tool **4122-T**.

B1BP10VC B1BP10XC

Engine : NFV (Xsara Picasso)

Without air conditioning.



Tools.

- | | |
|---------------------------------------|------------|
| [1] Pliers for removing plastic pegs | : 7504 -T. |
| [2] Belt tension measuring instrument | : 4122 -T. |
| [3] TORX spanner. | |

Remove.

- Release the central screw (1).tool [3].
- Detension the tensioner roller (2), (flat spanner 27 on flat).
- Remove the belt.

Refit.

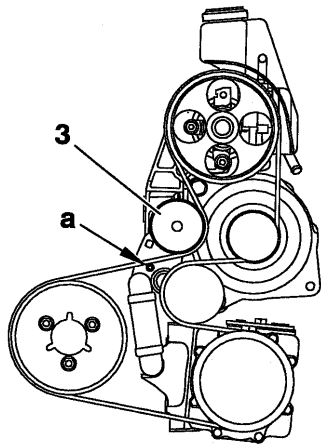
- Position the belt.
- Hold the belt in position using the tensioner roller (2).
- Pre-tension the belt **120 SEEM units**, tool [2].
- Lock the central screw (1) tool [3].
- Remove the tool [2].
- Rotate the crankshaft **2 to 4** times.
- Check the tension, **120 SEEM units**.
- If not, restart the operation.

XSARA PICASSO

AUXILIARY EQUIPMENT DRIVE BELT

Engine : NFV (Xsara Picasso)

With air conditioning.



Tools.

- | | |
|--|------------|
| [1] Pliers for removing plastic pegs | : 7504 -T. |
| [2] Belt tension measuring instrument | : 4122 -T. |
| [3] 10 mm square (<i>drain spanner</i>). | |
| [4] TORX spanner. | |

Remove.

- Detension the automatic tensioner, tool [3].
- Place a $\varnothing 6$ mm peg at (a) to immobilise the automatic tensioner.
- Remove the belt

REFIT

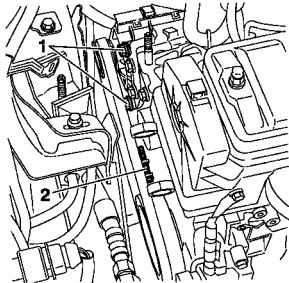
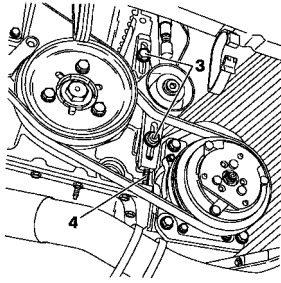
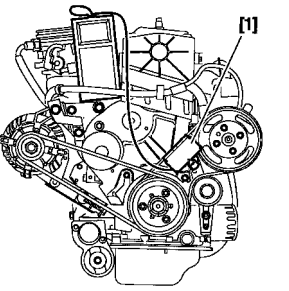
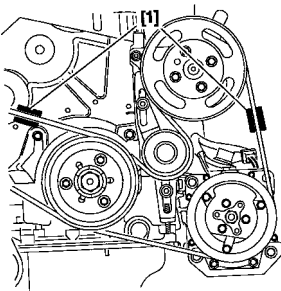
- Position the belt
- Detension the automatic tensioner, tool [3].
- Remove the $\varnothing 6$ mm peg.
- Release the automatic tensioner.
- Remove the tool [3].

B1BP235C

AUXILIARY EQUIPMENT DRIVE BELT

XSARA

Engine : KFW (Xsara)

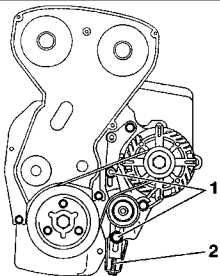
	<p style="text-align: center;">Alternator</p> <p>[1] Belt tension measuring instrument : 4122-T</p> <ul style="list-style-type: none"> - Tension the belt using the screw (2). - Tension should be : 102 ± 7 unites SEEM. - Tighten the screws (1). 		<p style="text-align: center;">With air conditioning.</p> <p>[1] Belt tension measuring instrument : 4122-T</p> <ul style="list-style-type: none"> - Tension the belt using the screw (4). - Tension should be : 102 ± 7 unites SEEM. - Tighten the screws (3).
	<p style="text-align: center;">Power-assisted steering</p> <ul style="list-style-type: none"> - New belt 100 SEEM units. - Reused belt 75 SEEM units. <p>B1BP1B2C B1BP122C</p>		<p style="text-align: center;">Power steering and air con.</p> <ul style="list-style-type: none"> - New belt 100 SEEM units. - Reused belt 75 SEEM units. <p>B1BP1B3C B1BP124C</p>

SAXO - XSARA

AUXILIARY EQUIPMENT DRIVE BELT

Engines : NFX - NFU

Without air conditioning.



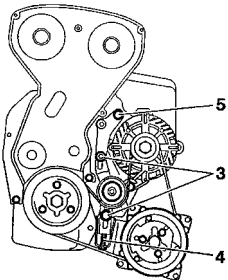
B1BP1AMC

(1) Tensioner roller fixing screw

(2) Tensioning screw

- New belt : **120 SEEM units.**- Reused belt : **86.5 ± 3.5 SEEM units.**

With air conditioning.



B1BP1ANC

(3) Tensioner roller fixing screw

(4) Tensioning screw

- New belt : **120 SEEM units.**- Reused belt : **86.5 ± 3.5 SEEM units.****NOTE :** Removal of the tensioner roller makes it necessary to remove the plate with the upper fixing screw (5).

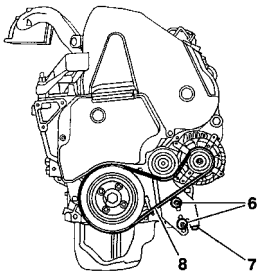
AUXILIARY EQUIPMENT DRIVE BELT

SAXO- XSARA

ENGINE

Engine : VJX

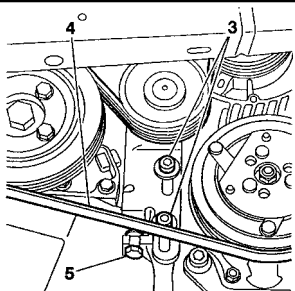
Without air conditioning.



- (6) Roller support fixing screw.
- (7) Tensioning screw
- Pre-tension the belt (8) to : **120 SEEM units.**
- Rotate the crankshaft by **3 turns** (Direction of rotation).
- Adjust the belt (8) tension to : **120 SEEM units.**
- Tighten the screws (6) to : **2.5 m.daN.**
- Run the engine for **10 min.**
- Check the tension.

B1BP11EC

With air conditioning.



- (3) Roller support fixing screw
- (5) Tensioning screw
- Pre-tension the belt (4) to : **120 SEEM units.**
- Rotate the crankshaft by **3 turns** (Direction of rotation).
- Adjust the belt (4) tension to : **120 SEEM units.**
- Tighten the screws (3) to : **2.5 m.daN.**
- Run the engine for **10 min.**
- Check the tension.

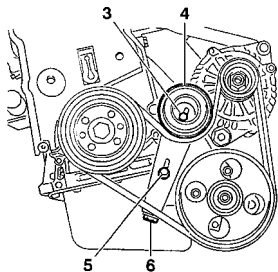
B1BP11DC

XSARA

AUXILIARY EQUIPMENT DRIVE BELT

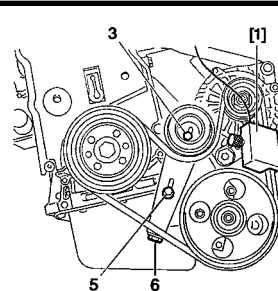
Engine : LFX

Without air conditioning.



- **(3)** and **(5)** Roller support fixing screws
- **(6)** Tensioning screw
- Tighten the belt, by loosening the screw **(6)** to : **In SEEM units.**

LFX

 100 ± 10 

- Tighten the screws **(3)** and **(5)**.
- Rotate the crankshaft by **4 turns** (Direction of rotation).
- Loosen the screws **(3)** and **(5)**.
- Tighten the belt, by loosening the screw **(6)** to : **In SEEM units.**

LFX

 115 ± 5

- Tighten the screws **(3)** and **(5)** to **2 m.daN.**

B1BP00HC

B1BP00IC

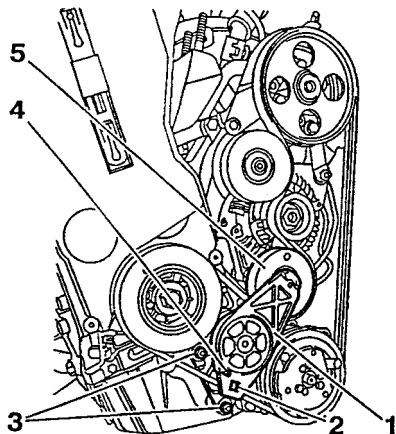
AUXILIARY EQUIPMENT DRIVE BELT

XSARA

ENGINE

Engines : LFX - RFS

With air conditioning.



- Fit the drive belt.
- The tensioner roller (1).
- Tighten the screws (3) to 2 m.daN.
- Move the tensioner roller (1) using the tool (*9.52 mm square drive (3/8)*) at (2), in order to remove the tool or locking peg ($\varnothing 4$ mm) at (4).
- Slowly release the tensioner roller (1) so that the roller (5) presses against the belt.

B1BP1HJC

AUXILIARY EQUIPMENT DRIVE BELT

XSARA

Engine : RFS

Without air conditioning.

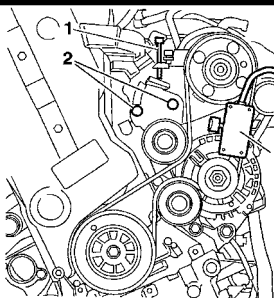
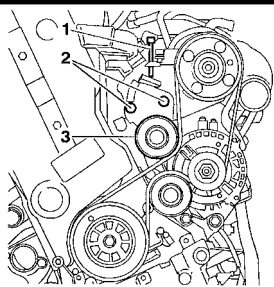
TOOLS

[1] Belt tension measuring instrument

4122-T

- (1) Tensioning screw.
- (2) Roller support fixing screw (3).

- Lightly tighten the screws (2).
- Place the tool [1] on the belt.
- Tension the belt using the screw (1).
 - Reused belt **90 SEEM units**.
 - New belt **120 SEEM units**.
- Tighten the screws (2) to **2 m.daN**.
- Remove the tool [1].
- Rotate the crankshaft by **3 turns** (direction of rotation).
- Check the belt tension using the tool [1], and adjust (*if necessary*).



B1EP12XC

B1EP12YC

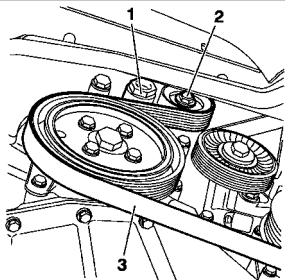
AUXILIARY EQUIPMENT DRIVE BELT

XSARA - XSARA PICASSO

Without air conditioning.

Engines : 6FZ – RFN

With air conditioning.



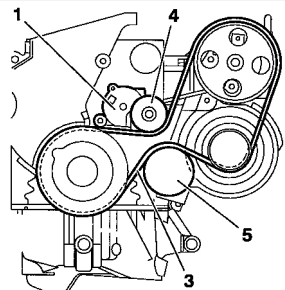
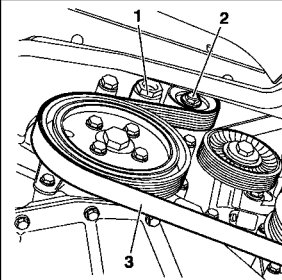
Tools

[1] Pliers for removing plastic pegs

7504-T

Remove the belt.

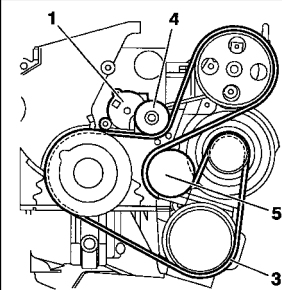
- Detension the belt (3) by turning the screw (2) of the tensioner roller (1) (anti-clockwise).



- The screw (2) (**WARNING** : not left hand screw).
- Remove the belt (3), while keeping the tensioner roller (1) tight.

Refit the belt.

- Refit the belt (3), while keeping the tensioner roller (1) tight.
- Release the tensioner roller (1).



B1BP23PC

B1BP23QC

B1BP23PC

B1BP23RC

XSARA

AUXILIARY EQUIPMENT DRIVE BELT

Engines : WJX

Without power-assisted steering

Tools :

[1] Belt tension measuring instrument

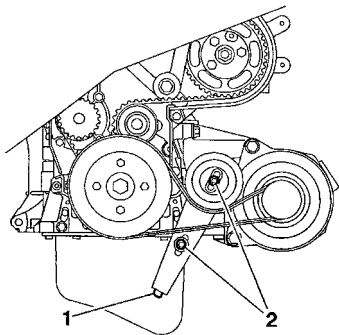
4122-T.

Remove.

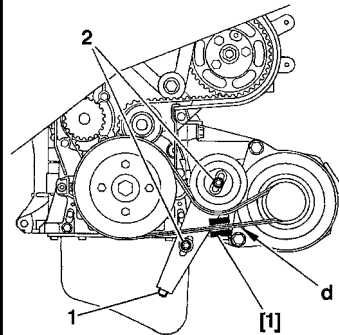
- Loosen the screws (2).
- Tighten the screw (1) until it is against its stop.
- Remove the belt.

Refitting.

- Refit the belt.
- Fit the tool [1] on the belt at "d".
- Tighten the screw (1) to obtain : 106 ± 10 SEEM units.
- Tighten the screws (2) to 2 m.daN.
- Remove the tool [1].



B1BP1SDC



B1BP1SEC

AUXILIARY EQUIPMENT DRIVE BELT

XSARA

ENGINE

Engines : WJZ - WJY

Without power-assisted steering, with air conditioning

Tools :

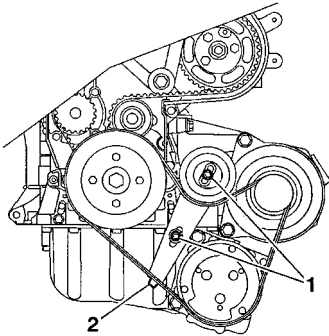
[1] Belt tension measuring instrument : 4122-T.

Remove.

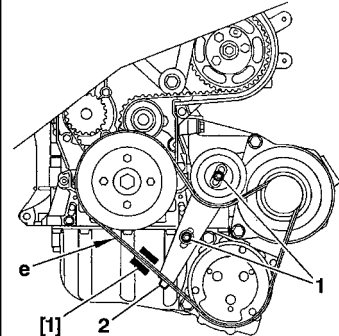
- Loosen the screws (1).
- Tighten the screw (2) until it is against its stop.
- Remove the belt.

Refitting.

- Refit the belt.
- Fit the tool [1] at "e".
- Tighten the screw (2) to obtain : 106 ± 10 SEEM units.
- Tighten the screws (1) to 2 m.daN.
- Remove the tool [1].



B1BP1SFC



B1BP1SGC

XSARA

AUXILIARY EQUIPMENT DRIVE BELT

Engines : WJZ - WJY

Power-assisted steering, without air conditioning

Tools :

[1] Belt tension measuring instrument :

4122-T.

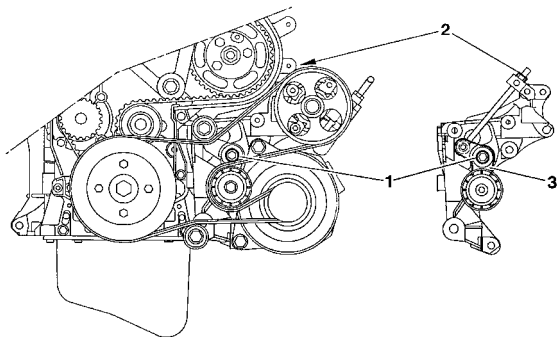
Removal.

WARNING : If the belt is to be reused, measure the tension before removal.

- Loosen :
- the screw (1).
- the nut (2).

NOTE : The tensioner arm (3) must be against the alternator.

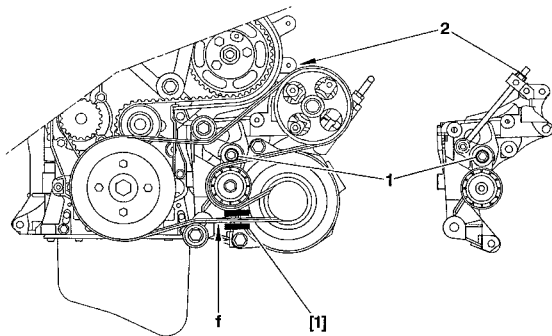
- Remove the belt.



B1BP1SHD

Engines : WJZ - WJY

Power-assisted steering, without air conditioning (continued)

**Refitting.**

- Refit the belt.
- Place the tool [1] on belt at "f".

WARNING : Position tool [1], with the knob downwards.

- tighten the nut (2) to obtain a value of :

Reused belt:

Keep the value taken at removal.

New belt:

Tension should be **110 SEEM units**.

- Tighten the screw (1) to **9.5 m.daN**.
- Check belt tension (tool [1]).

Tension should be **144 ± 3 SEEM units**.

- Remove the tool [1].
- Start the engine and run it for **10 seconds**.
- Stop the engine.
- Place the tool [1] on the belt at "f".
- Tension should be **130 ± 4 SEEM units**.
- Remove the tool [1].

B1BP1SJD

XSARA

AUXILIARY EQUIPMENT DRIVE BELT

Engines : WJZ - WJY

Power-assisted steering, with air conditioning

Tools :

- [1] Dynamic tensioner peg
 [2] Belt tension measuring instrument

(-) 0188 H.
 4122-T.

Removal.

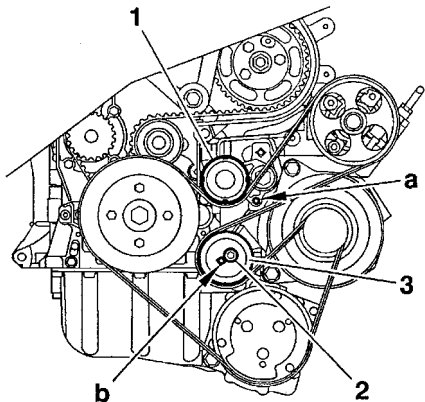
- Peg the dynamic tensioner (1) at "a", using tool [1].
- Loosen the screw (2) of the roller (3).
- Turn the roller (3) backwards.
- Remove the belt.

NOTE : If it can not be pegged at "a" :

- Loosen the screw (2) of the roller (3).
- Using a 7 mm square drive, turn the roller (3) at "b".
- Peg the tensioner (1) at "a", using tool [1].

NOTE : If the belt is broken :

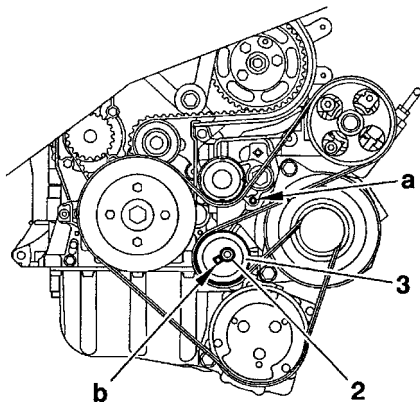
- Support the engine using a jack (*insert a wooden block between the housing and the jack*).
- Remove the right engine support.
- Using a square drive at (b) turn the tool (3) in the direction of the arrow "a", so that it can be pegged at "a" using the tool [1].



B1BP1SKC

Engines : WJZ - WJY

Power-assisted steering with air conditioning (continued)

**Refitting.**

- Refit the belt.
- Using a **7 mm** square drive at "**b**", turn the roller (**3**), until the tool [**1**] located at "**a**" becomes free.
- Tighten the screw (**2**).
- Remove the tool [**1**].

Engines : RHY - RHZ

Without air conditioning

Tools

[1] Belt tension adjusting square	: (-).0188 J2
[2] Ø 4 mm peg	: (-).0188.Q1
[3] Ø 2 mm peg	: (-).0188.Q2
[4] Levier de compression tendeur dynamique	: (-).0188.Z

Removal

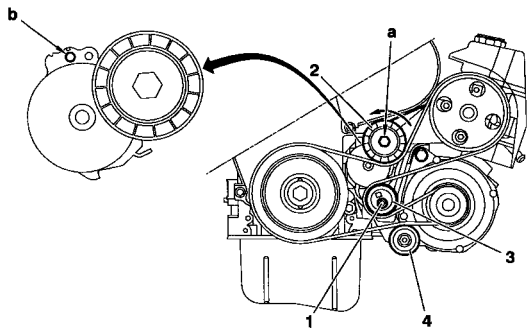
Re-use of belt

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.

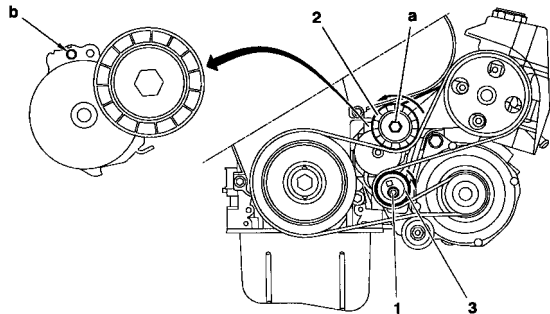
No re-use of belt

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



Engines : RHY - RHZ

Without air conditioning (continued)

**Refitting.****Re-used belt**

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

WARNING : Respect the belt-fitting direction.

- Remove the tool [4].

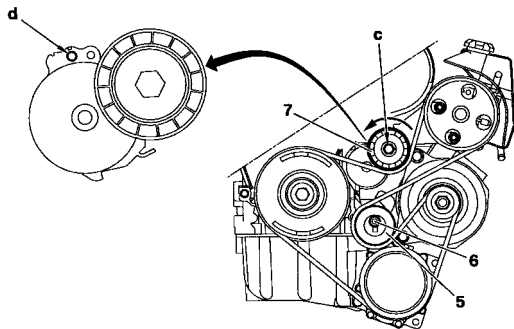
New belt

- 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 m.daN.
- Remove the tool [2].
- Rotate the crankshaft 4 times in the direction of rotation.
- Check that it is possible to peg at « b », tool [3].
- If not possible to peg, restart the adjustment.

B1BP1YMD

Engines : RHY - RHZ

With air conditioning



Tools

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

Removal

Re-use of belt

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

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

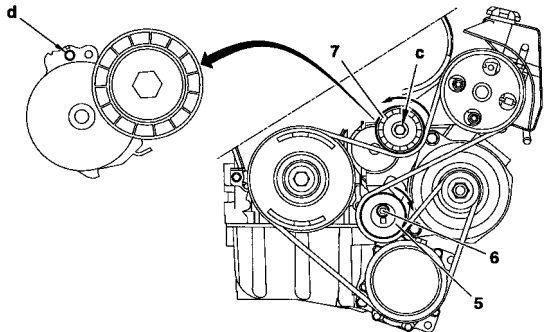
No re-use of belt

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

B1BP1YLD

Engines : RHY - RHZ

With air conditioning (continued)

**Refitting.****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 belt was 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 m.daN.
- Remove the tool [2].
- Rotate the crankshaft 4 times in the direction of rotation.
- Check that it is possible to peg at « d », tool [3].
- If not possible to peg, restart the adjustment.

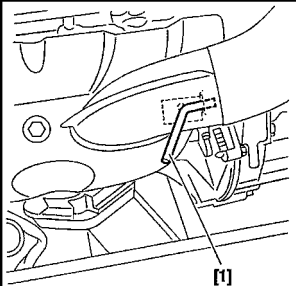
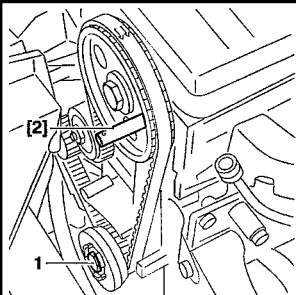
B1BP1YND

ALL TYPES	CHECKING AND SETTING THE VALVE TIMING (continued)											
	TU								XU	EW		XU
	1		3		5				7		10	
	M+	JP				JP4			JB	J4		J4RS
Engine type	HDZ	HFX	KFW	KFX	NFT	NFV	NFX	NFU	LFX	6FZ	RFN	RFS
SAXO		X	X		X		X					
XSARA			X					X			X	X
XSARA PICASSO						X				X		
BERLINGO	X	X	X	X				X	X			
See pages :	86 to 88					89 to 92			96 to 97	98 to 102		103 to 107

CHECKING AND SETTING THE VALVE TIMING (continued)					ALL TYPES
	TU	DW			
	5	8		10	
	B		B	TD	ATED
Engine type	VJX	WJZ	WJY	RHY	RHZ
SAXO	X				
XSARA			X	X	X
XSARA PICASSO				X	
BERLINGO		X	X	X	
See pages :	93 to 95	108 to 112		113 to 117	

CHECKING AND SETTING THE VALVE TIMING

Engines : HDZ - HFX - KFW - KFX - NFT - NFV



TOOLS

- | | | |
|---|------------|-------------------|
| - [1] Flywheel locating peg | : 4507-T.A | } Tool kit 4507-T |
| - [2] Camshaft pulley locating peg | : 4507-T.B | |
| - [3] Square drive | : 4507-T.J | |
| - [4] Belt tension measuring instrument | : 4122-T | |
| - [5] Rocker plate | : 4533-T.Z | |

CHECKING THE VALVE TIMING

- Peg the flywheel using the tool [1].
- Peg the camshaft pulley using the tool [2].

SETTING THE VALVE TIMING

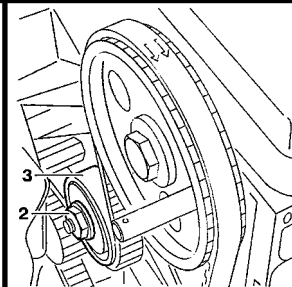
NOTE : Remove the spark plugs, to allow the crankshaft to rotate more freely.

- Rotate the engine by the crankshaft screw (1).
- Peg the camshaft gearwheel.
- Peg the flywheel.
- Loosen the nut (2).
- Totally slacken the belt by moving the tensioner roller.
- Remove the belt.

ESSENTIAL : Check that the tensioner roller rotates freely (*no stiffness*).

B1EP067C

B1EP066C



B1EP0668C

CHECKING AND SETTING THE VALVE TIMING

Engines : HDZ - HFX - KFW - KFX - NFT - NFV (continued).

REFITTING THE TIMING BELT

NOTE : Check that the pegs [1] and [2] are in place.

WARNING : Ensure the belt is fitted in the right direction : The arrows «a» signify the crankshaft direction of rotation.

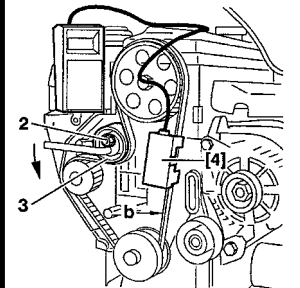
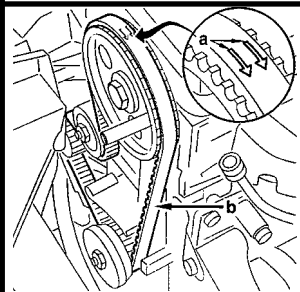
Fit :

- The timing belt, with the belt strip "b" well tightened, in the following order:
Crankshaft pinion, camshaft pulley, water pump pulley, tensioner roller.
- The tool [5] (*Ensure it is fitted in the right direction in relation to the timing*).
- Bring the tensioner roller into contact with the belt.
- Tighten the nut (2).

PRE-TENSIONING THE TIMING BELT.

- Fit the tool [4] on the tightened belt strip "b".
- Loosen the nut (2).
- Turn the roller (3) in an anti-clockwise direction using a square drive to obtain : **44 SEEM units**.
- Tighten the nut (2) to **2 m.daN**.
- Remove the tools [1] [2] and [4].
- Rotate the crankshaft by **4 turns** in the normal direction.

ESSENTIAL : Never turn the crankshaft backwards.



B1EP069C B1EP06AC

CHECKING AND SETTING THE VALVE TIMING

Engines : HDZ - HFX - KFW - KFX - NFT - NFV (continued).

PRE-TENSIONING THE TIMING BELT (Cont.)

- Ensure the timing is correctly set by refitting the pegs [1] and [2].
- Remove the cylinder head cover.
- Fit the tool [5] (*Ensure it is fitted in the right direction in relation to the timing*).

ADJUSTING THE BELT FITTING TENSION

- Fit the tool [4] to the tightened belt strip.
- Loosen the nut (2).
- Slacken the belt (*not excessively*).
- Tighten the timing belt to obtain : **31 ± 2 SEEM units**.
- Tighten the nut (2) to **2.2 m.daN**.
- Remove the tools [1] [2] [4] and [5].

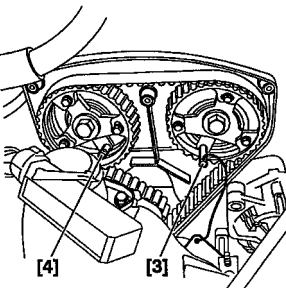
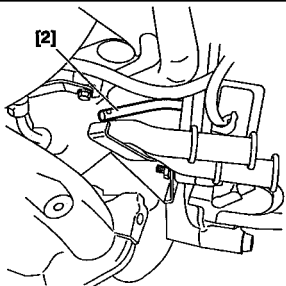
CHECKING THE BELT TENSION

- Rotate the crankshaft by **2 turns** in the normal direction of rotation.
- Check that the following components can still be pegged :
 - Flywheel.
 - Camshaft.

ESSENTIAL : If the components cannot be pegged, repeat the belt tensioning procedure.

CHECKING AND SETTING THE VALVE TIMING

Engines : NFX - NFU



- [1] Belt tension measuring instrument
- [2] Flywheel locating peg
- [3] Camshaft pulley locating peg, exhaust
- [4] Camshaft pulley locating peg, inlet
- [5] Tensioning tool

TOOLS

- : 4122-T
- : 4507-T.A.
- : 4533-T.A. C2
- : 4533-T.A. C
- : 4707-T.J.

} Tool kit 4507-T

CHECKING THE VALVE TIMING

- Peg the flywheel using the tool [2].
- Peg the exhaust camshaft pulley [3].
- Peg the inlet camshaft pulley [4].

SETTING THE VALVE TIMING

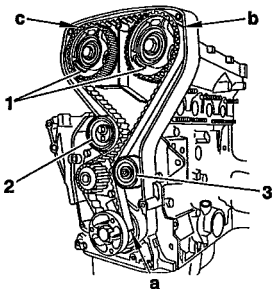
- Peg the flywheel using the tool [2].
- Peg the camshaft pulleys [3] and [4].

B1EP11BC

B1EP11CC

CHECKING AND SETTING THE VALVE TIMING

Engines : NFX - NFU (continued)

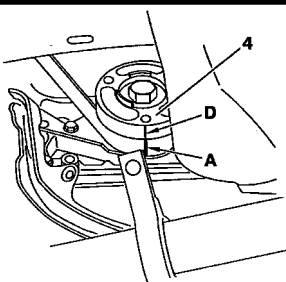


SETTING THE VALVE TIMING

- Loosen the screw **(2)**, remove the belt.
 - Loosen the **six pulley screws (1)** on the hubs.
- (There should be a slight amount of friction between the screws and the pinions).
- Check that the rollers **(2)** and **(3)** rotate freely.

NOTE : The belt bears three identification marks * **(a)**, **(b)** and **(c)**, facing its own teeth **(1)**, **(52)** and **(72)** respectively.

* (Identification marks = white paint lines on the back of the belt facing the corresponding teeth).



- Refit the belt.
- Line up mark **(A)** on the belt with groove **(D)** of the pinion **(4)**.
- Hold the belt against the pinion **(4)**.

CHECKING AND SETTING THE VALVE TIMING

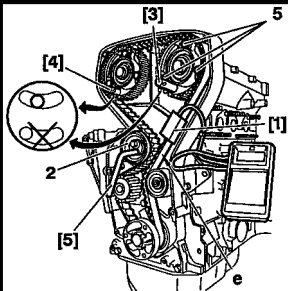
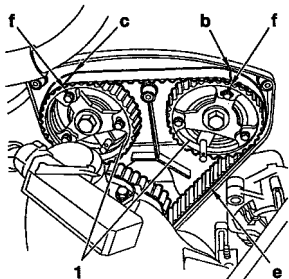
Engines : NFX - NFU (continued)

SETTING THE VALVE TIMING

- Turn the two pulleys **(1)** clockwise to the end of the slots.
- With the belt strip **(e)** fully tensioned, place the belt over the pulley, first exhaust side, then inlet side, while ensuring that marks **(b)** and **(c)** on the belt are aligned with marks **(f)** on the pulleys.
- Hold the belt in this position, and engage it over the water pump pinion and the tensioner roller.
- Fit the tool **[1]** on the belt strip **(e)**.
- Rotate the roller **(2)** (using tool **[5]**) in an anti-clockwise direction, to obtain: **63 SEEM units**.
- Tighten the roller **(2)** to **2 m.daN**.
- Tighten the six screws **(5)** to **1m.daN**.

ESSENTIAL : Check that :

- The camshaft pulleys **(1)** are not at the end of the slots (by removing a screw).
- The markings on the belt are aligned with the markings on the crankshaft and camshaft pulleys.
- If not, repeat the setting procedure.



B1EP11FC B1EP11GC

CHECKING AND SETTING THE VALVE TIMING

Engines : NFX - NFU (continued)

SETTING THE VALVE TIMING

- Remove the tools [1], [2], [3] and [4].
- Rotate the engine by four turns in the normal direction. (*do not turn backwards*).
- Peg the flywheel [2].
- Loosen the six screws (5), while ensuring there is still a slight amount of friction with the pulley.
- Peg the camshaft hubs using pegs [3] and [4].

WARNING : In certain cases, it may be necessary to slightly turn the camshaft using the hub fixing screw.

- Fit the tool [1].
- Loosen the tensioner roller screw (2).
- Rotate the roller (2) (*using tool [5]*) in an anti-clockwise direction to obtain : **37 SEEM units**.
- Tighten the tensioner roller screw (2) to **2 m.daN**.
- Tighten the six pulley screws (1) to **1m.daN**.
- Remove the tools.

CHECKING AND SETTING THE VALVE TIMING

Engine : VJX

TOOLS

- | | | |
|--------------------------------------|--------------------|-------------------|
| - Belt tension measuring instrument | : 4099-T or 4122-T | } Tool kit 4507-T |
| - Flywheel locating peg | : 4507-T.A. | |
| - Injection pump pulley locating peg | : 4527-T. S1 | |
| - Camshaft pulley locating peg | : 4527-T. S2 | |
| - Tensioning lever. | : 4507-T.J. | |
| - Pinion locking tool | : 6016-T. | |

CHECKING THE VALVE TIMING

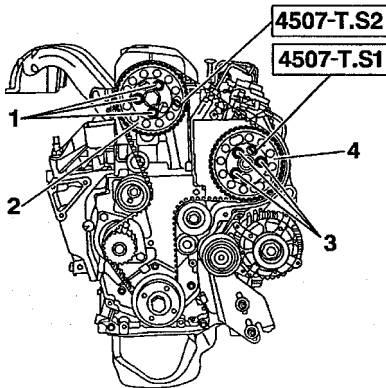
- Peg : the flywheel, the injection pump pulley, the camshaft pulley.

SETTING THE VALVE TIMING

- Peg : the flywheel, the injection pump pulley, the camshaft pulley.
- Loosen the tensioner roller, and remove the belt.

ESSENTIAL: Check that the tensioner and guide rollers rotate freely (*no stiffness*). If not, replace the roller(s).

- Loosen the screws (1) and (3) (lock the pulley with tool 6016 - T).
- Position pulleys (2) and (4) to the end of the slots (*without tightening the screws (1) and (3)*).

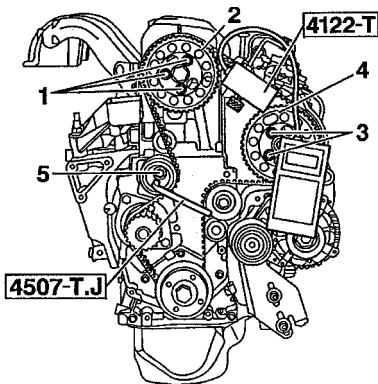


B1EP07PC

CHECKING AND SETTING THE VALVE TIMING

Engine : VJX (continued)

SETTING THE VALVE TIMING



- Fit the belt in the following order :
The crankshaft pinion, the injection pump pulley, the camshaft pulley, the water pump pinion.

WARNING : When positioning the belt on the injection pump and camshaft pulleys, they should be turned in the opposite direction of rotation so as to engage the nearest tooth.

- Pre-tension (*belt strip slightly tightened*).

NOTE : Check that the pulley fixings are not at the end of the slots (*adjust by one tooth if necessary*).

- Tighten the screws **(1)** and **(3)** to **0.5 m.daN**, loosen by **180°**.
(*Gently tighten the screws (1) and (3) by hand*).
- Loosen the tensioner roller.
- Tension to **100 SEEM units**.
- Tighten the tensioner roller to **2.3 m.daN**.

B1EP07QC

CHECKING AND SETTING THE VALVE TIMING

Engine : VJX (continued)

SETTING THE VALVE TIMING

- Tighten the screws **(1)** and **(3)** to **2.3 m.daN** (*lock the pulleys using tool 6016-T*).
- Remove the tools.
- Rotate the engine by **10 turns**.
- Peg : The flywheel, the pulleys **(2)** and **(4)**.

NOTE : If necessary, lightly slacken the belt (*with the tensioner roller*).

- Loosen the screws **(1)** and **(3)** by **360°** (*gently tighten the screws (1) and (3) by hand*).
- Set a final tension of **55 ± 5 SEEM units**.
- Tighten the tensioner roller, and the screws **(1)** and **(3)** to **2.3 m.daN** (*lock the pulleys using tool 6016-T*).
- Remove the tools.
- Rotate the engine by **two turns**.

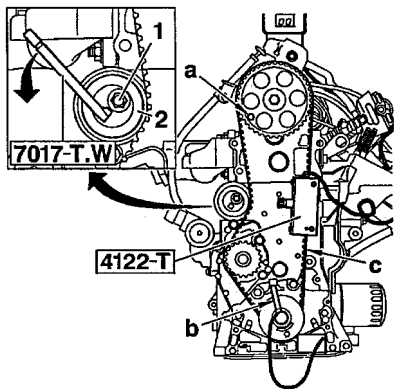
NOTE : If the belt is not correctly located on the pinions and pulleys, rotate it by an additional **two turns**.

- Peg the flywheel.
- Check that the camshaft and injection pump pulleys are correctly pegged.

WARNING : If the visual check is not correct, repeat the setting operation.

- Remove the tools.

CHECKING AND SETTING THE VALVE TIMING



Engine : LFX

TOOLS

- | | | |
|-------------------------------------|--------------------|-------------------|
| - Belt tension measuring instrument | : 4099-T or 4122-T | } Tool kit 7004-T |
| - Camshaft pulley locating peg | : 7004-T.G. | |
| - Crankshaft locating peg | : 7014-T.N. | |
| - Square drive | : 7017-T.W. | |

CHECKING THE VALVE TIMING

- Remove the protective covers.
- Peg the camshaft pulley at "a" using the tool 7004-T.G.
- Peg the crankshaft at "b" using the tool 7014 - T.N.

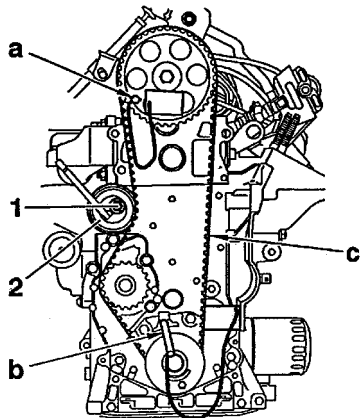
SETTING THE VALVE TIMING

- Check that the pegs can be engaged correctly at "a" and "b".
- Fit the belt in the following order : camshaft pulley, crankshaft pinion, water pump pinion, tensioner roller.
- Peg the camshaft pulley at "a" and the crankshaft pinion at "b" .
- Remove the peg at "b" only.
- Bring the tensioner roller (2) into contact with the belt.

B1EP07SC

CHECKING AND SETTING THE VALVE TIMING

Engine : LFX (continued)



SETTING THE VALVE TIMING

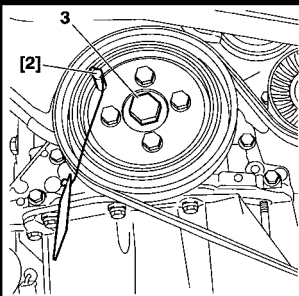
- Fit the tension measuring tool to the middle of the belt strip "c".
- Turn the tensioner roller (2) (*anti-clockwise direction*) using the tool 7017-T.W to obtain the following measurement : **30 ± 2 SEEM units**.
- Tighten the screw (1) to **2 m.daN**.
- Remove the tools.
- Rotate the crankshaft by **two turns** (*do not turn backwards*).
- Check the setting by positioning the pegs at "a" and "b".
- Remove the pegs.

CHECKING THE TENSION

- Rotate the crankshaft by **two turns** (*do not turn backwards*).
- Peg the camshaft pulley at "a".
- Fit the tension measuring tool on the belt strip at "c".
- The tension measurement should be **44 ± 2 SEEM units**.
(*If the measurement is not correct, repeat the tensioning procedure*).
- Remove the tools.

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN



- [1] Camshaft setting pegs
- [2] Crankshaft setting peg
- [3] Belt locking pin
- [4] Angular tightening adaptor
- [5] Hub immobilising tool

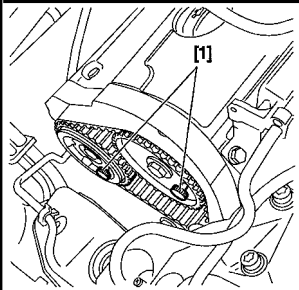
TOOLS

- : (-).0189.A
 - : (-).0189.B
 - : (-).0189.K
 - : 4069-T
 - : 6310-T
- } Tool kit C.0189.

Checking the valve timing.

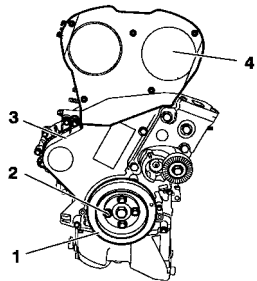
- Turn the engine by the crankshaft pinion screw (3) to bring it to pegging position.
- Peg the crankshaft, using tool [2].
- Peg the camshaft pulleys, using tools [1].

NOTE : The pegs [1] must go in without effort.



CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN



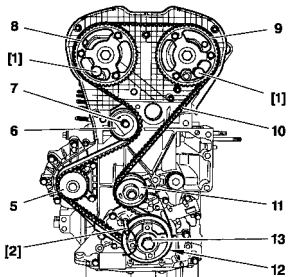
Checking the valve timing. (continued).

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

Setting the valve timing

Remove

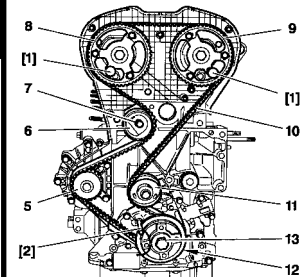
- Remove the screws (2), the pulley (1), upper valve cover (4), lower valve cover (3).
- Turn the engine by the screw (13) of the pinion (12) to bring it to pegging position.
- Peg the pulleys (8) and (9) using tools [1].
- Peg the pinion (12) using tool [2].
- Loosen the screw (7) of the tensioner roller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



B1BP23XC B1EP14JD

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN

**Refit (continued)**

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

NOTE : Make sure that the belt (10) is as flush as possible with the outer face of the various pinions and rollers.
 -Remove the tools [3] and [1].

Timing belt tension**Adjusting the tension**

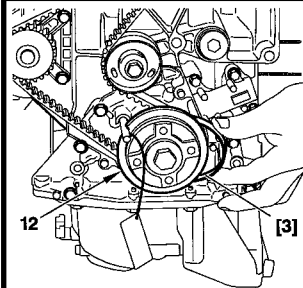
- Turn the roller (6) in the direction of the arrow "b"; using an Allen key at "a".
- Position the index "c" in its maximum setting at "d".

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

- Bring the index "c" to its adjusting position "f" by turning the tensioner roller (6) in the direction of the arrow "e";

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

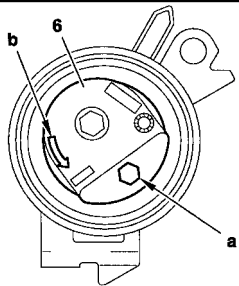
IMPERATIVE : The tensioner roller (6) must not turn while its fixing is being tightened up. If it does, recommence the adjusting operation.



B1EP14JD B1EP14KC

CHECKING AND SETTING THE VALVE TIMING

Engines : 6FZ - RFN



Adjusting the tension (continued).

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

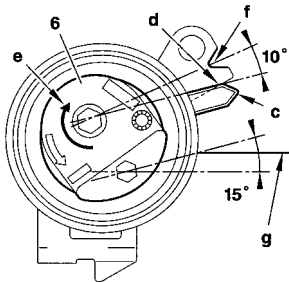
IMPERATIVE : The hexagonal drive of the tensioner roller (6) must be at 15° below the level of the cylinder head gasket "g". If not, replace the tensioner roller (6) or the timing belt and the tensioner roller (6).

Refit (continued).

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

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

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



Checks.

Timing belt tension

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

Positioning of the crankshaft.

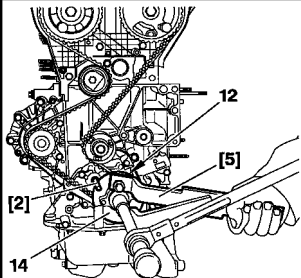
- Fit tool [2].
- As long as it is possible to fit tool [2], continue with the refit operations.

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

B1EP14LC B1EP14NC

CHECKING AND SETTING THE VALVE TIMING

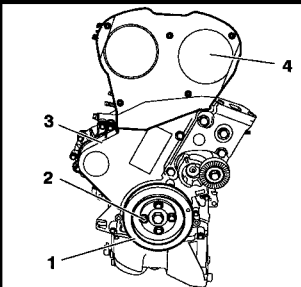
Engines : 6FZ – RFN

**Checks (continued)****Repositioning the flange.**

- Immobilise the crankshaft using tool [5].
- Loosen the screw (13).
- Release the pinion (12) of the crankshaft.
- Bring the flange (14) to the pegging position; using tool [5].
- Fit the tool [2].
- Immobilise the crankshaft using tool [5].
- Tighten screw (13) to 4 ± 0.4 m.daN, then angular tighten $53^\circ \pm 4^\circ$ with tool [4].
- Remove tools [1], [2] and [5].

Refit :

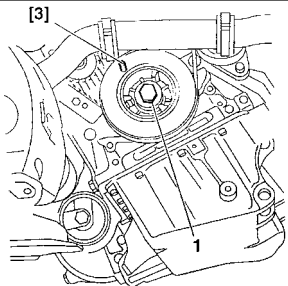
- The lower valve cover (3).
- The upper valve cover (4).
- The crankshaft pulley (1).
- The screws (2).
- Pretighten the screws (2) to 1.5 m.daN.
- Tighten the screws (2) to 2.1 ± 0.5 m.daN.



B1EP14PC B1BP23XC

CHECKING AND SETTING THE VALVE TIMING

Engine : RFS



TOOLS

[1] Belt tension measuring instrument	: 4122-T	
[2] Camshaft pulley locating peg	: 9041-T.Z	} Tool kit 7004-T
[3] Crankshaft locating peg	: 7014-T.N	
[4] Camshaft pulley locking peg	: 4200-T.G	
[5] Tensioner spanner	: 7017-T.W	Tool kit 7004-T
[6] Toothed sector for locking the flywheel	: 9044-T	

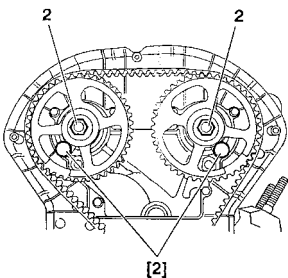
CHECKING THE SETTING

- Turn the engine by the crankshaft screw (1).
- Peg the crankshaft using the tool [3].

ESSENTIAL : Check that the crankshaft DAMPERS pulley is in good condition. If the hub/pulley markings do not line up, the crankshaft pulley must be replaced.

- Peg the camshaft using the tool [2]
(The locating pegs [2] should slide in easily).
- If this is not the case, set the timing.

NOTE : Camshaft hubs (See pages 138 and 139).

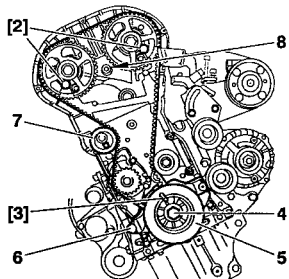
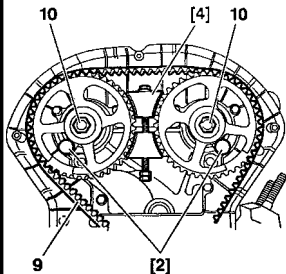


B1EP12FC B1EP12GC

CHECKING AND SETTING THE VALVE TIMING

Engine : RFS

SETTING THE VALVE TIMING.



- Peg the crankshaft using tool [3].
- Peg the camshaft pulleys using tool [2].
- Lock the flywheel using the tool [6].

Remove :

- The peg [3].
- The screw (4) (Brush the screw thread).
- The pulley (5).
- The lower cover (6).

Refit :

- The pulley (5).
- The screw (4) (Tighten moderately).
- The peg [3].

Remove :

- The tool [6].
- The studs (8).
- Fit the tool [4].
- Loosen the screws (10).
- Remove the tool [4].
- Slacken the tensioner roller (7).
- Remove the belt (9).

B1EP120C

B1EP11ZC

CHECKING AND SETTING THE VALVE TIMING

Engine : RFS

Pretensioning the timing belt.

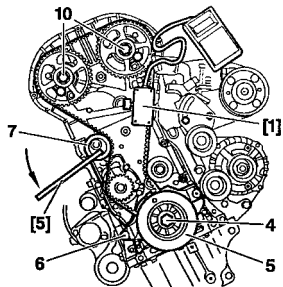
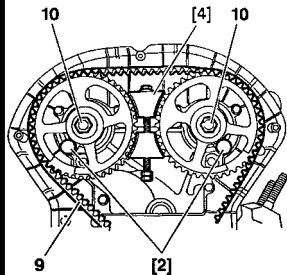
- Peg the crankshaft using the tool [3].
- Peg the camshaft pulleys using the tool [2].

NOTE : Ensure that the camshaft pulleys rotate freely on the hubs. Clean the contact faces of the pulleys and hubs.

- Turn the camshaft pulleys in a clockwise direction to bring them to the end of the slots.
- Fit the belt (9)
- Fit the tool [1].
- Turn the roller (7) using the tool [5].
- Pre-tension to : (*Pulleys slackened*).

Engine	RFS
New belt	55 SEEM units

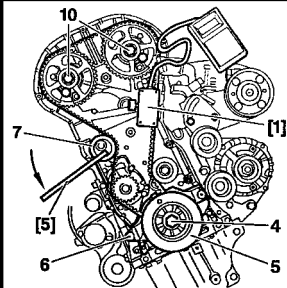
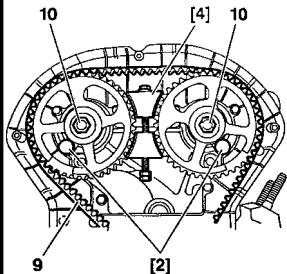
- Tighten the screws of the roller (7) to **2 m.daN**.
- Fit the tool [4].
- Tighten the screws (10) to **4 m.daN**.
- Remove the tools.
- Rotate the crankshaft by **six turns** (*Normal direction of rotation*).



B1EP120C B1EP121C

CHECKING AND SETTING THE VALVE TIMING

Engine : RFS



Tensioning the timing belt.

- Peg the crankshaft using the tool [3].
- Peg the camshaft pulleys using the tool [2].

NOTE : If it is not easy to peg the camshaft hubs, loosen the tensioner roller (7), and turn the camshafts using the screw (10).

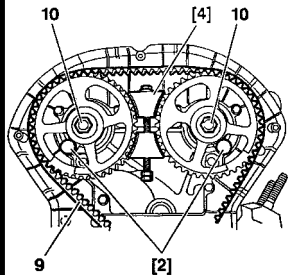
- Fit the tool [4].
- Loosen the screws (10).
- Remove the tool [4].
- Loosen the tensioner roller (7).
- Fit the tool [1] to the belt.
- Turn the roller (7) using the tool [5].

B1EP120C

B1EP121C

CHECKING AND SETTING THE VALVE TIMING

Engine : RFS



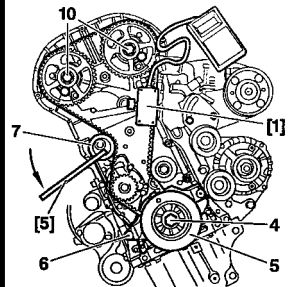
- Tension to : **(Pulleys slackened)**.

Engine	RFS
New belt	35 SEEM units

- Tighten the screw of the roller (7) to **2 m.daN**.
- Fit the tool [4].
- Tighten the screws (10) to **7.5 m.daN**.
- Remove the tools.
- Rotate the crankshaft by two turns (*Normal direction of rotation*).
- Check the pegging of the crankshaft/camshaft using tools [2] and [3].

NOTE : Tools [2] and [3] should slide in easily.

- Remove the tools.



B1EP120C

B1EP121C

CHECKING AND SETTING THE VALVE TIMING

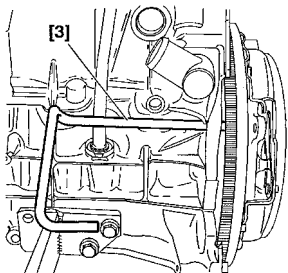
Engines : WJZ - WJY

TOOLS

- [1] HM screw : (-) 0 188 E
- [2] Locating peg \varnothing 6 mm : (-) 0 188 H
- [3] Flywheel locating peg : (-) 0 188 D (or 7014-T.J) Tool kit (-) 0 188.
- [4] Toothed sector for locking the flywheel : (-) 0 188 F
- [5] Belt retaining clip : (-) 0 188 K
- [6] Square drive for adjusting the tension : (-) 0 188 J
- [7] Belt tension measuring instrument : 4122-T
- [8] Toothed sector for locking the flywheel : 6016-T

Checking the valve timing

- Peg the flywheel using tool [3].
- Visually check that the offset between the camshaft and injection pump hub holes, and the corresponding pegging holes do not exceed **1 mm**.



B1CP045C

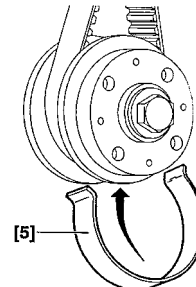
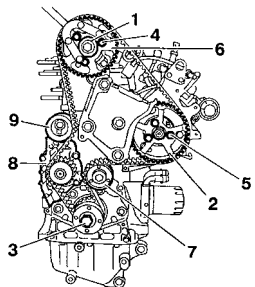
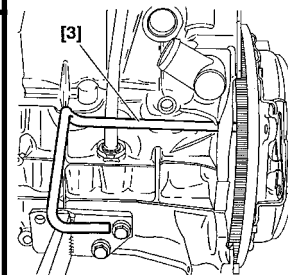
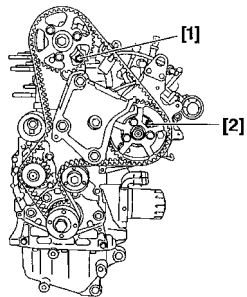
CHECKING AND SETTING THE VALVE TIMING

Engines : WJZ - WJY

SETTING THE VALVE TIMING

Peg :

- The camshaft hub (1), using tool [1].
 - The injection pump pinion (2), using tool [2].
 - The flywheel, using tool [3].
-
- Lock the flywheel, using tool [4].
 - Refit the screw (3) (without tightening it). (Coat the threads with E6).
-
- Tighten the screw (3) to 4 m.daN and finish by carrying out an angular tightening of 60°.
 - Remove the tool [4].
 - Retighten screws (4) and (5) by hand.
 - Turn the pinions (6) and (2) so that they are at the end of their stops. (Clockwise direction).
 - Place the belt on the crankshaft and hold in place using tool [5].
 - Fit the belt in the following order:
 - Roller (7), pinion (2), pinion (6), pump (8) and roller (9).



B1EP130C

B1EP131C

B1CP045C

B1EP132C

CHECKING AND SETTING THE VALVE TIMING

Engines : WJZ - WJY

SETTING THE VALVE TIMING (Continued)

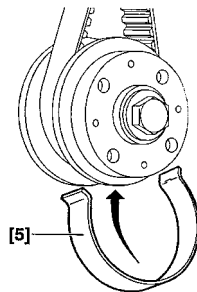
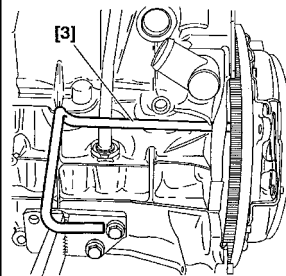
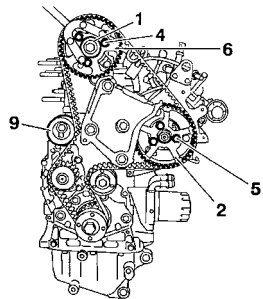
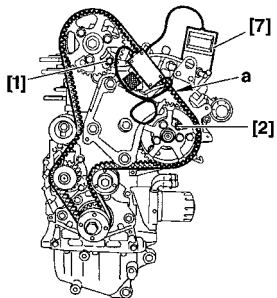
NOTE : If necessary, slightly turn pinions (6) and (2) in an anti-clockwise direction in order to fit the belt.

The angular movement of the belt in relation to the pinions must not exceed 1/2 tooth.

- Fit the tool [7] to the belt strap at "a".
 - Turn the roller (9) (*anti-clockwise*) using tool [6], to obtain:
106 ± 2 SEEM units.
 - Check that pinions (6) and (2) are not at the end of their stops.
- Otherwise, repeat the belt fitting procedure from the beginning.**

Tighten:

- The roller (9) to 4.5 m.daN.
- The screws (4) and (5) to 2.5 m.daN.
- Remove the tools [7]. [5]. [1]. [2] and [3].



B1EP133C

B1EP134C

B1CP045C

B1EP132C

CHECKING AND SETTING THE VALVE TIMING

Engines : WJZ - WJY

SETTING THE VALVE TIMING (Continued).

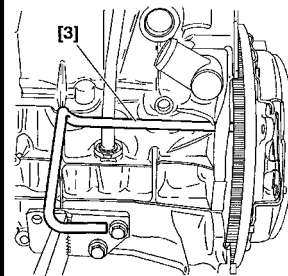
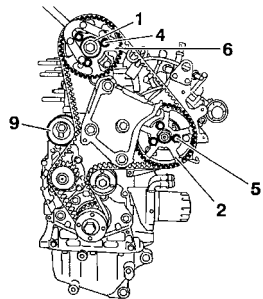
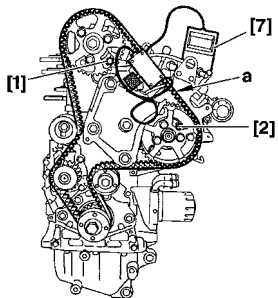
Rotate the crankshaft by **8 turns** (*direction of rotation*).

Peg :

- The hub (1), using tool [1].
- The pinion (2), using tool [2].
- The flywheel, using the tool [3].

Loosen :

- The screws (4) and (5).
- The roller (9).
- Retighten screws (4) and (5) by hand.
- Fit the tool [7] to the belt strap at "a".
- Turn the roller (9) (*anti-clockwise direction*) using tool [6], to obtain : **42 ± 2 SEEM units**.



B1EP133C

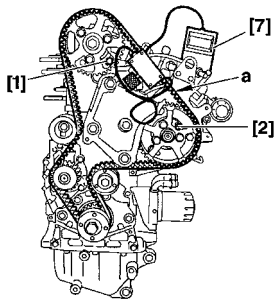
B1EP134C

B1CP045C

CHECKING AND SETTING THE VALVE TIMING

Engines : WJZ - WJY

SETTING THE VALVE TIMING (Continued)

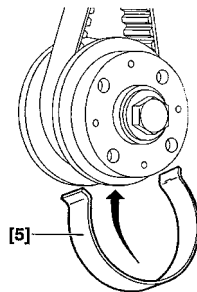
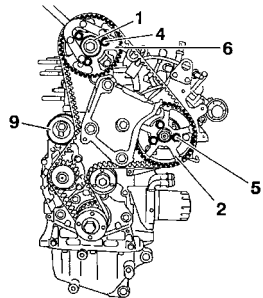
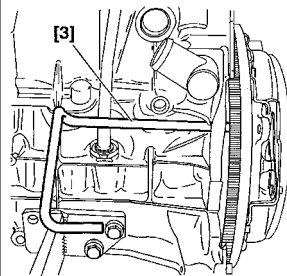
**Tighten :**

- The roller (9) to 2.1 m.daN.
- The screws (4) and (5) to 2.3 m.daN.

- Remove the tool [7].
- Fit the tool [7] to the belt strap at "a".
- The tensioning value should be between 42 ± 4 SEEM units.

ESSENTIAL : If the value obtained is outside the set limits, repeat the tensioning operation.

- Remove the tools [7]. [5]. [1]. [2] and [3].
- Rotate the crankshaft by **2 turns** (*direction of rotation*).
- Check the valve timing.



B1EP133C

B1EP134C

B1CP045C

B1EP132C

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

Tools

[1] Belt tension measuring instrument	: 4122-T
[2] Tension lever	: (-).188.J2
[3] Engine flywheel peg	: (-).0288.D
[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
[8] Crankshaft pulley extractor	: (-).0188.P

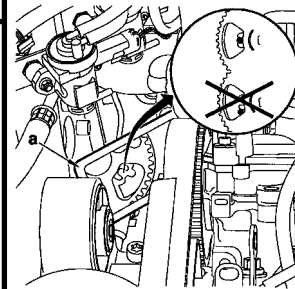
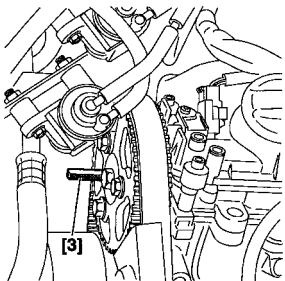
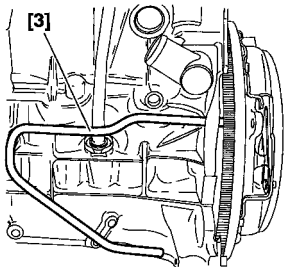
Checking the setting of the valve timing.

Peg :

- The engine flywheel, tool [3].
- The camshaft, tool [5].

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

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



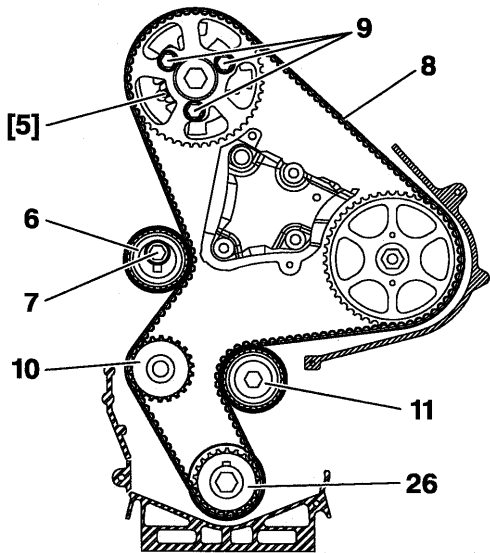
B1CP04CC

B1BP1TSC

B1BP1TTC

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ



SETTING THE VALVE TIMING.

Peg :

- The engine flywheel, tool [3].
- The camshaft, tool [5].

Loosen :

- The three screws (9).
- The screw (7) of the tensioner roller (6).

Remove the timing belt.

Checks.

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

Check that :

- The rollers (6), (11) and the water pump (10) turn freely (*without play or tightness*).
- There are no traces of oil (*on camshaft or crankshaft*).

CHECKING AND SETTING THE VALVE TIMING

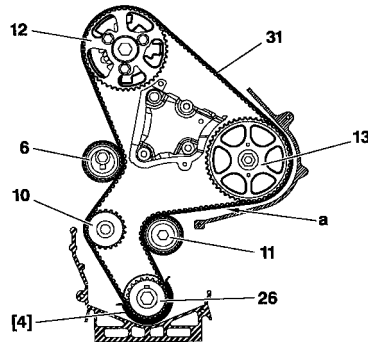
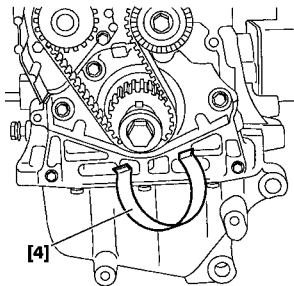
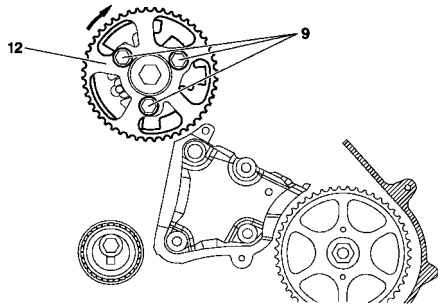
Engines : RHY - RHZ

SETTING THE VALVE TIMING (continued).

- Retighten screws (9) by hand.
- Turn the pinion (12) (clockwise) to the bottom of the buttonhole.
- Refit the belt on the crankshaft, in the following order, using the tool [4] to keep the belt tight at "a".
- Guide roller (11).
- Fuel high pressure pump pinion (13).
- Camshaft pinion (12).
- Water pump pinion (10).
- Tensioner roller (6).

NOTE : If needed, slightly turn the pinion (12) anti-clockwise (offset should not be more than one tooth).

- Remove the tool [4].



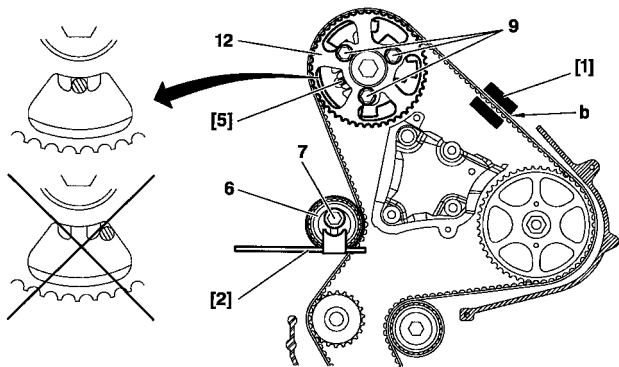
B1EP13ED B1EP13FC

B1EP13GD

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

SETTING THE VALVE TIMING (continued).



- Position tool [1] on the belt at "b".
- Turn the roller (6) (anti-clockwise) using tool [2] to attain a tension of :
98 ± 2 SEEM units.
- Tighten screw (7) of the roller (6), tighten to **2.5 m.daN.**
- Remove one screw (9) from the pinion (12).
(to check that the screws are not against the end of the buttonhole).
- Tighten the screws (9) 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 (9).
- Fit tool [5].
- Loosen screw (7) (to free the roller (6)).
- Fit tool [1].
- Turn the roller (6) (anti-clockwise), tool [2], to attain a tension of :
54 ± 2 SEEM units.

CHECKING AND SETTING THE VALVE TIMING

Engines : RHY - RHZ

SETTING THE VALVE TIMING (continued).

Tighten :

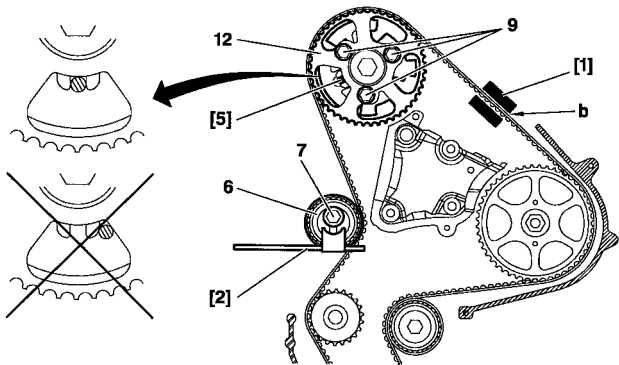
- The screw (7) of the roller (6) to **2.5 m.daN**.
- The screw (9) to **2.m.daN**.
- Remove the tool [1].
- Refit the tool [1].
- Tension value should be : **54 ± 3 SEEM units**.

IMPERATIVE : If value is incorrect, restart the operation

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

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

- Remove the tool [3].



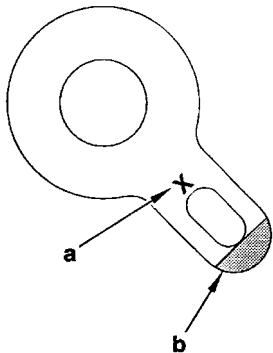
B1EP13HD

XSARA

SPECIAL FEATURES OF THE TIMING

Camshaft hub identification

RFS



B1EP122C

Engine	Hubs	"a" engraving	"b" paint marking
RFS	Inlet	B	BLUE
	Exhaust		

VALVE CLEARANCE SETTINGS

ALL TYPES

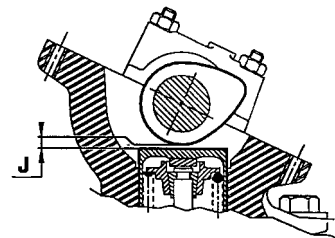
The valve clearances must be checked with the engine cold

	● Inlet	⊗ Exhaust
Petrol all Types (Except 16V)	0.20 mm ± 0.05	0.40 mm ± 0.05
Petrol - 16V Diesel 2.0 HDi	Hydraulic adjustment	
Diesel All Types except 2.0 HDi	0.15 mm ± 0.08	0.30 mm ± 0.08

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



Rocking		⊗ Exhaust ● Inlet	Fully open (Exhaust)	
Rocking	Adjust		Valves fully open	Adjust
1 ● ⊗ 1	4 ● ⊗ 4		⊗ 1	3 ● ⊗ 4
3 ● ⊗ 3	2 ● ⊗ 2		⊗ 3	4 ● ⊗ 2
4 ● ⊗ 4	1 ● ⊗ 1		⊗ 4	2 ● ⊗ 1
2 ● ⊗ 2	3 ● ⊗ 3		⊗ 2	1 ● ⊗ 3

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



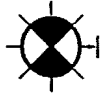

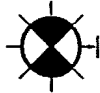

B1DP13QC

ALL TYPES	CHECKING THE OIL PRESSURE												
Tools Tool kit 4103 - T	To be read with the Petrol and Diesel correspondence tables												
	TU all types								XU all types	EW	XU all types		
	1.1 i		1.4 i		1.6 i		1.6 i 16V		1.8 i	1.8 i 16V	2.0 i 16V		
Engine type	HDZ	HFX	KFX	KFW	NFV	NFT	NFU	NFX	LFX	6FZ	RFN	RFS	
Temperature (°C)	90°								80°	90°		80°	
Pressure (Bars)	4								5.3	4		5,5	
Rpm	4 000												
	TUD all types			DW8				DW10TD					
	1.5 D			1.9 D				2.0 HDi					
Engine type	VJX		WJZ		WJY		RHY			RHZ			
Temperature (°C)	90°			80°									
Pressure (Bars)	4			4.5				4					
Rpm	4 000												

ENGINE OIL PRESSURE SWITCH					ALL TYPES		
Engine type			Location	Tightening torque (m.daN)	Warning lamp goes out at : (Bars)		
TU all types	1.1 i	HDZ	Above the oil filter	2.8		0.5	
		HFX					
	1.4 i	KFX					
		KFW					
	1.6 i	NFZ					
		NFT					
	1.6i 16v	NFX					
		NFU					
XU	1.8 i	LFX					
EW	1.8i 16v	6FZ					
	2.0i 16v	RFN					
XU			RFS	Close to the oil filter	3		
						D6AP01MB	D6AP01ND

ALL TYPES

ENGINE OIL PRESSURE SWITCH

Engine type			Location	Tightening torque (m.daN)	Warning lamp goes out at : (Bars)		
TUD	1.5 D	VJX	Above the oil filter	3.4		0.5	
DW8	1.9 D	WJZ					
		WJY					
DW10	2.0 HDi	RHY	Close to the oil filter	2.8		0.5	
		RHZ					

D6AP01MB D6AP01ND

OIL FILTERS										ALL TYPES			
		TU all Types								XU	EW		XU
		1.1 i		1.4 i		1.6 i		1.6 i 16 V		1.8 i	1.8i16 V	2.0 i 16 v	
		HDZ	HFX	KFX	KFW	NFT	NFV	NFU	NFX	LFX	6FZ	RFN	RFS
FILTRAUTO		X	X	X	X	X	X	X	X				
PURFLUX	LS 923										X	X	
	LS 867 B								X				X

		TUD all Types	DW8		DW10	
		1.5 D	1.9 D		2.0 HDi	
		VJX	WJZ	WJY	RHY	RHZ
PURFLUX	LS 923		X	X	X	X
	LS 867 B	X				

		Diameter (mm)	Height (mm)
Specification	LS 923	76	89
	LS 867 B		

NOTE : The **PURFLUX LS 867** filter is still available for **TU** versions (except L4).

The **PURFLUX LS 304** filter (**EW** and **DW** engine versions) has been replaced by the **PURFLUX LS 923** filter.

The **PURFLUX LS 880 A** filter has been replaced by the **PURFLUX LS 880** filter (**ES** engines) and the **PURFLUX LS 520 C** filter (**DJ** engines).

ALL TYPES

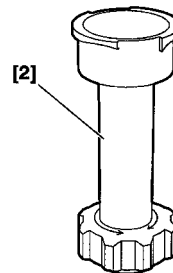
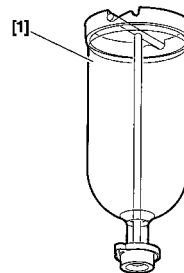
FILLING AND BLEEDING THE COOLING CIRCUIT

Filling and bleeding

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

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

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



B1GP00AC

E5AP1GNC

IDLING - ANTI-POLLUTION							SAXO - All Types	
Vehicles	Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content		
				Man. gbox	Auto. gbox : N gear engaged	CO	CO2	
SAXO	1.1 i	HFX	L4	850		< 0.5	> 9	
	1.4 i	KFW	L4					SAGEM 2000
	1.6 i (100 hp)	NFT	L4					BOSCH M7.4.4.
	1.6 i 16V	NFX	L4	M. MARELLI 48P2				800

INJECTION

XSARA - All Types		IDLING - ANTI-POLLUTION						
Vehicles		Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content	
					Man. gbox	Auto. gbox : N gear engaged	CO	CO2
XSARA 2	1.4 i	KFW	IFL5/L4	SAGEM S2000	850		< 0.5	> 9
	1.6i	NFU	L4	BOSCH M.7.4.4.				
	2.0 i	RFN	L4	MAGNETTI MARELLIMM 48.P2				
	2.0 i 16V	RFS	L3	M. MARELLI 1AP10				
XSARA PICASSO	1.6i (100 hp)	NFV	L4	BOSCH M7.4.4.	700		< 0.5	> 9
	1.8i	6FZ	L4	SAGEM - S2000				

IDLING - ANTI-POLLUTION						BERLINGO - All Types		
Vehicles	Engine type	Emission standard	Make - Injection type	Idling speed (± 50 rpm)		% Content		
				Man. gbox	Auto. gbox : N gear engaged	CO	CO2	
BERLINGO	1.1 i	HDZ	L3 / W3	BOSCH MA3.1	850		< 0.5	> 9
	1.1 i	HFX	L4 / W4	BOSCH M 7.4.4.				
	1.4 i	KFW	L4 / W4	SAGEM 2000				
	1.4 i Dual fuel	KFX	L3	SAGEM SL96 / BRC FLYING INJECTION				
	1.6i 16V	NFU	L4 / W4 / IFL5	BOSCH M 7.4.4.				
	1.8 i	LFX	L3 / W3	M. MARELLI 1AP20	800			

INJECTION

SAXO - All Types		PETROL INJECTION			
		SAXO			
		1.1 i	1.4 i	1.6 i (100 hp)	1.6 i (100 hp)
Engine type	HFX	KFW	NFT	NFX	
Emission standard	IFL5 / L4	L4	L4	L4	
Injection make and type	BOSCH M.7.4.4.	SAGEM S2000	BOSCH M.7.4.4.	M. MARELLI 48P2	
Fuel pressure (bars)	3	3	3.5	3	
Overspeed cut-off (rpm)	5500	5500	5700	6600	
Injection cut-in during deceleration (rpm)					
Injector resistive value (ohms)	14.5	14.5	14.5	14.5	
Engine coolant temperature sensor resistive value (ohms)	3800 at 10° C	2 500 at 20° C	800 at 50° C	230 at 90° C	
Idling actuator or stepper motor resistive value (ohms)	Idle actuator: 11				
Air temperature sensor resistive value (ohms)	3800 at 10° C	2 500 at 20° C	800 at 50° C	230 at 90° C	

PETROL INJECTION					XSARA 2 - All Types	
	XSARA 2				XSARA PICASSO	
	1.4 i	1.6 i 16 V	2.0 i 16 V	2.0 i 16 V	1.6 i	1.8 i 16 V
Engine type	KFW	NFU	RFN	RFS	NFV	6FZ
Emission standard	IFL5 / L4	IFL5 / L4 / K'	IFL5 / L4	L4	L3	IFL5 / L4
Injection make and type	SAGEM S2000	BOSCH M.7.4.4.	M. MARELLI 48P2	M. MARELLI 1AP10	BOSCH M.7.4.4.	SAGEM S2000
Fuel pressure (bars)	3	3	3.5	3	3.5	3.5
Overspeed cut-off (rpm)					6300	6500
Injection cut-in during deceleration (rpm)					1150	1300
Injector resistive value (ohms)	14.5	14.5	12.2	16	14.5	12.2
Engine coolant temperature sensor resistive value (ohms)	3800 at 10° C		2 500 at 20° C		800 at 50° C	
					230 at 90° C	
Idling actuator or stepper motor resistive value (ohms)	Stepper motor : 53					
Air temperature sensor resistive value (ohms)	3800 at 10° C		2 500 at 20° C		800 at 50° C	
					230 at 90° C	

INJECTION

BERLINGO - All Types		PETROL INJECTION					
	BERLINGO						
	1.1 i	1.1 i	1.4 i	1.4 i (Dual fuel)		1.6 i 16 V	1.8i
Engine type	HDZ	HFX	KFW	KFX		NFU	LFX
Emission standard	L3 / W3	L4 / W4	L4 /W4	L3		L4 / W4 / IFL5	L3 / W3
Injection make and type	BOSCH MA3.1	BOSCH M7.4.4.	SAGEM S2000	SAGEM SL96	BRC FLYING INJECTION		M. MARELLI 1AP20
Fuel pressure (bars)		/	3.5	3.5	/	3.5	3
Overspeed cut-off (rpm)	6510	6000	6440	6440	6000		6400
Injection cut-in during deceleration (rpm)	1 500 except 1st	/	1500	1500 to1800	/		1400
Injector resistive value (ohms)	14.5	/	12	12	/	14.5	14.5
Engine coolant temperature sensor resistive value (ohms)	3800 at 10° C		2 500 at 20° C		800 at 50° C		230 at 90° C
Idling actuator or stepper motor resistive value (ohms)	Stepper motor : 53						
Air temperature sensor resistive value (ohms)	3800 at 10° C		2 500 at 20° C		800 at 50° C		230 at 90° C

EMISSION STANDARDS						ALL TYPES
STANDARD			APPLICATIONS		NOTES	CHARACTERISTICS
E.E.C	PSA		Engines	Vehicle	Applicable	
	A-S	RP				
ECE R 15.04	K K'	15.04 15.04	Petrol Diesel	Private vehicles: > 2 litres • new cyl. < 2 litres • existing cyl. < 2 litres	→ 06/89 → 06/92 → 12/92	Brussels directive 83/351 → except special derogations for certain private vehicles cyl. > 2 litres → Utility vehicle limits = private vehicle limits increased by 25 % → For private vehicles and utility vehicles in major export
				Utility vehicles: All Types	→ 10/89 imminent	
ECE R 15.05	W vp	15.05	Petrol	Private vehicles: > 2 litres • new models • existing models	01/10/88 → 01/10/89 →	

INJECTION

INJECTION

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

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

INJECTION

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

EMISSION STANDARDS							ALL TYPES
STANDARD			APPLICATIONS		NOTES	CHARACTERISTICS	
E.E.C	PSA		Engines	Vehicle	Applicable		
	A-S	RP					
EURO 1 (EURO 93)	W2	CEE W2	Petrol Diesel	Utility vehicles: < 3.5 tonnes <ul style="list-style-type: none"> • new models • existing models Class 1 : <ul style="list-style-type: none"> • new models • existing models Class 2/3 : <ul style="list-style-type: none"> • new models • existing models 	01/10/93 → 01/10/9 → → 01/97 → 10/97 → 01/98 → 10/98	Brussels Directive 93/59 → 3 classes depending on vehicle weight : Class 1 < 1250 kg Class 2 : 1250/1700 kg Class 3 > 1700 kg	With oxygen sensor and catalytic converter for petrol vehicles
EURO 2 (EURO 96)	L3	CEE 95	Petrol Diesel	Private vehicles: < 6 seats and < 2.5 tonnes <ul style="list-style-type: none"> • new models • existing models 	01/96 → 01/97 →	Brussels Directive 94/12 → EURO 93 standard made stricter	With oxygen sensor and reinforced catalytic converter for petrol vehicles. With catalytic converter and EGR for diesel vehicles.

INJECTION

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

EMISSION STANDARDS						ALL TYPES	
STANDARD			APPLICATIONS		NOTES	CHARACTERISTICS	
E.E.C	PSA		Engines	Vehicle	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 : • nouveaux modèles • 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	01/96 → 01/97 →	Brussels Directive 98/69 → EURO 3 standard (L4) made stricter → Fiscal incentives

INJECTION

ALL TYPES			EMISSION STANDARDS				
STANDARD			APPLICATIONS		NOTES	CHARACTERISTICS	
E.E.C.	PSA		Engines	Vehicles	Applicable		
	A-S	RP					
EURO 4	IF / L5		Essence 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		Essence Gas	Utility vehicles : < 3.5 tonnes Class 1 : • new models • existing models Class 2/3 : • new models • modèles existants	→ 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.

ANTI-POLLUTION TECHNICAL CHECKS (FRANCE)

ALL TYPES

All Types Petrol CO Corrected (In %)

All Types Diesel (m⁻¹)

Conditions : At idle, engine warm.

→ 01/96

Less than 4.5 % for vehicles registered before 10/86.

Less than 3.5 % for vehicles registered after 10/86.

With catalytic converter

Greater than 2.0i 89 M.Y.

All Types 93 M.Y.

CO less than 0.5 % at idle speed.

CO less than 0.3 % at fast idle speed between 2500 and 3000 rpm (*)

(*) Except :

TU5 JP : 2200 rpm ± 100.

XU5JP : 1500 rpm or 3100 rpm (± 100).

XU7JP : 1500 rpm or 3100 rpm (± 100).

NOTE : On **XU5JP** and **XU7JP** engines at 1500 rpm, the check should be carried out with main beams, rear heated screen and cabin ventilation switched on and with the front wheels on maximum lock (if the vehicle has power-assisted steering).

Lambda Probe value **0,97** to **1,03**.

Features :

Xantia, MMDCM injection on **1.6i** (BFZ) engine, **1.8i** (LFZ) engine and **2.0i** (RFX) engine.

Should the check reveal excessive **CO**, make sure that the ECU channel **25** is not connected to earth in error.

(See Info-rapid N° 77)

01/96 →

Atmospheric engine.

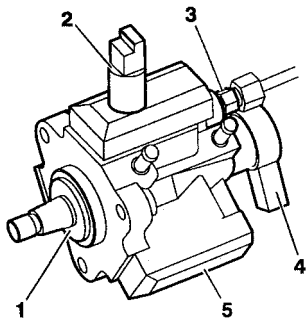
Less than 2.5 m⁻¹

Turbocharged engine.

Less than 3.0 m⁻¹

INJECTION

Engines : RHY - RHZ

**Cleaning.**

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

Fuel supply circuit.

- Required fuel : diesel.

WARNING : Do not use other fuels.**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.

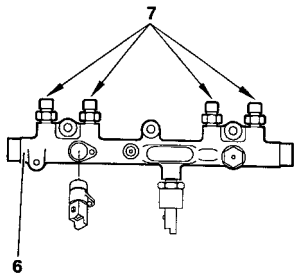
Do not separate the following components from the high pressure fuel pump (5) :

- High pressure fuel pump third piston deactivator (3) (no replacement parts).
- High pressure fuel regulateur (4) (no replacement parts).
- Sealing ring (1) (no replacement parts).
- High pressure outlet connector (3) (will cause a malfunction).

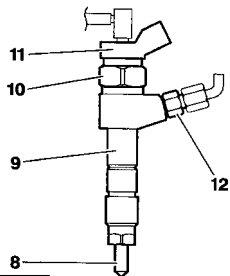
PS: HDi = High pressure Diesel injection

PROHIBITED OPERATIONS: HDi DIRECT INJECTION SYSTEM

XSARA - XSARA PICASSO



B1HP12DC



B1HP12EC

Engines: RHY - RHZ

High pressure fuel injection common rail.

- Do not separate the connectors (7) from the common injection rail (6).
- (malfunction).

Diesel injectors.

WARNING : Diesel and ultrasonic cleaners are prohibited.

Do not separate the following components from the diesel injector carrier (9) :

- Diesel injector (8) (no replacement parts).
- Electromagnetic element (11) (destruction).
- Do not alter the position of the nut (10) (malfunction).
- Do not separate the connector (12) from a diesel injector.
- It is forbidden to clean the carbon deposits from the diesel injector nozzle
- Identification : Injector carrier.
- There are two types of diesel injector carrier classed according to fuel flow.

Identification by engraving or paint mark

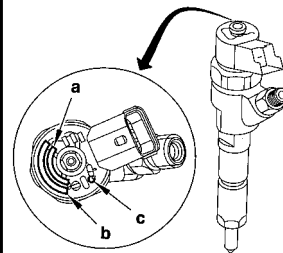
Injector carrier	Engraving	Paint mark	Location
Class 1	1	Blue	On the upper part of the coil near to the fuel return aperture
Class 2	2	Green	

Identification markings:

- "a": Supplier identification.
- "b": PSA identification number.
- "c": Class identification.

IMPERATIVE: When replacing a diesel injector carrier, order a component of the same class.

(See repair manual).



B1HP16PC

INJECTION

Engines : RHY - RHZ

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.

Engines : RHY - RHZ

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.
- 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.

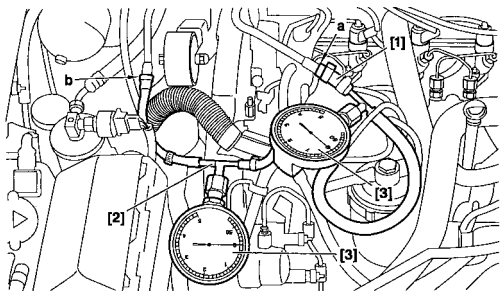
XSARA - XSARA PICASSO

CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

Engines : RHY - RHZ

TOOLS

[1] Ø 10 mm low pressure connector	: 4215-T	
[2] Ø 8 mm low pressure connector	: 4218-T	
[3] Pressure gauge for testing boost pressure	: 4073-T	Tool kit 4073-T



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.

Checks on pressure : static.

- Switch on ignition

For **3 seconds** (*normal functioning*):

- Fuel supply pressure shown by the pressure gauge [3] = 1.8 ± 0.4 Bar.

- Fuel return pressure shown by the pressure gauge [3] = 0.5 ± 0.4 Bar.

B1BP1TWD

CHECKS : LOW PRESSURE FUEL SUPPLY CIRCUIT

XSARA - XSARA PICASSO

Engines: RHY - RHZ (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] = 0.7 ± 0.4 Bar.

Abnormal functioning

Fuel supply pressure	Fuel return pressure	Checks
Between 3 and 3.5 Bar	0.7 ± 0.2 Bar	Check the condition of the diesel filter
More than 3.5 Bar	Less than 0.7 Bar	Check the low pressure regulator incorporated in the filter (<i>locked shut</i>) : replace.
More than 3.5 Bar	More than 0.7 Bar	Check the fuel return circuit (<i>pipe pinched or trapped.....</i>).
Between 0.8 and 1.5 Bar	Less than 0.7 Bar	Check the fuel supply circuit : - Booster pump (<i>low pressure</i>), piping.

Impossible to start the engine :

Fuel supply pressure less than **0.8 Bar** :

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

Check : diesel injector return flow. (*Table below*)

Uncouple the diesel injector return pipe.

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

Engines: RHY - RHZ

TOOLS

: FACOMM DA 16.

[1] Manual vacuum pump**IMPERATIVE** : Respect the safety and cleanliness requirements.**Vacuum pump.**

- Connect the tool [1] on the vacuum pump (1).
- Start the engine.
- Pressure should be **0.8 bar** at **780 rpm**.

Boost pressure regulator electrovalve.

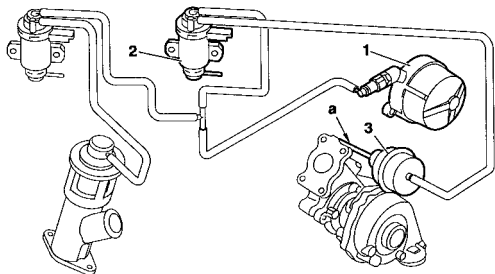
- Connect the tool [1] between the electrovalve (2) and the valve (3) of the boost pressure regulator.

Compare readings with the values in the table below.

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

Pressure regulator valve.

- Connect the tool [1] on the valve (3).
- Apply a pressure of **0.5 bar** to activate the rod "a" :
- Rod "a" should be moved **12 mm**.



Engine : RHZ

Tools.

[1] Pressure gauge for checking boost pressure	: 4073-T.A Tool kit 4073-T
[2] Sleeve for checking boost pressure	: 4185-T
[3] Adaptor sleeve	: 4229-T

Checks.

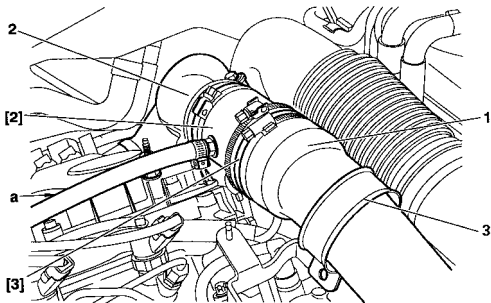
IMPERATIVE : respect the following checking requirements : Engine at running temperature. Vehicle in running order at full load.

Preparation.

- Remove the collar fixing (3).
- Insert the tool [2] connected with tool [3], between the pipe (1) and the duct (2).
- Position tool [1] in the vehicle.
- Connect the sleeve [2] to the tool [1] with its tube "a".

Procedure.

- Start the engine.
- Engage first gear and start the engine.
- Engage the gears up to third gear.
- Decelerate to **1000rpm**.
- Accelerate hard, and check the pressure : **0.6 ± 0.05 Bar (1500 rpm)**.
- Accelerate freely in kick-down, (*changing from fourth to third gear*).
- Check the pressure : **0.95 ± 0.05 Bar (between 2500 and 3500 rpm)**.
- Remove the tools, reposition the pipe (1) and refit the collar (3).



B1HP12JD

Engines : RHY

TOOLS.

- | | |
|--|----------------------------|
| [1] Pressure gauge for checking boost pressure | : 4073-T.A Tool kit 4073-T |
| [2] Sleeve for checking boost pressure | : 4185-T |

Checks.

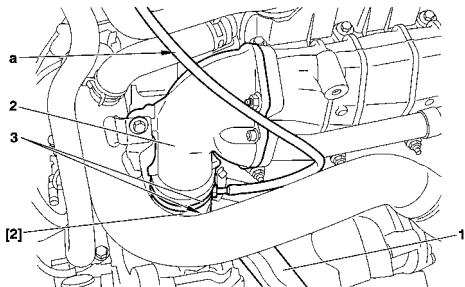
IMPERATIVE : respect the following checking requirements : Engine at running temperature. Vehicle running at full load.

Preparation.

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

Procedure.

- Start the engine.
- Engage first gear and start the engine.
- Engage the gears up to third gear.
- Decelerate to **2000 rpm**.
- Gradually accelerate.
- Check the pressure : **0.95 ± 0.05 Bar**.
- Remove the tools, refit the collars (3) and the sleeve.



Engine : RHY

TOOLS

[1] Manual vacuum pump

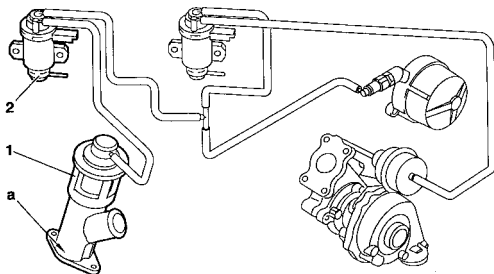
: FACOMM DA 16.

IMPERATIVE : Respect the safety and cleanliness requirements.**EGR valve**

- Connect the tool [1] to the capsule union (1).
- Apply, several times in succession, a vacuum of approx. **0.6 bar** to activate the rod "a".
- In abrupt reaction to the vacuum, the valve should close on its seating with a clicking noise.

Exhaust gas recycling (EGR) electrovalve.

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



Engine speed (rpm)	Pressure (Bar)
780	0.5
2500	0

B1HP12GD

SAXO - XSARA				SPECIFICATIONS OF THE SIEMENS INJECTION PUMP			
				PUMP -TYPE - REFERENCE			
Emission standards				TD EURO 3			
Equipment				Transponder			
XSARA	DW	10	RHY	FTP 6186 D 10/F			

SPECIFICATIONS OF THE SIEMENS INJECTION PUMP										SAXO - XSARA		
Engine type	Pump Type Reference	Static timing Initial advance Compression Time (cylinder N° 4)	Dynamic timing checking (at idle)	Reference		Colour code	Injector needle lift pressure (Bar)	Adjustments (rpm)			Max. speed	
				Injector	Injector holder + injector			Fast idling	Anti-stall	Idling	Unladen rpm	Laden rpm
RHY	FTP 6186 D 10/F	Non-adjustable		9636819 380								

INJECTION

XSARA				SPECIFICATIONS OF THE DELPHI DIESEL INJECTION PUMP			
				PUMP - TYPE - REFERENCE			
Emission standards				L3			
Equipment				Transponder			
XSARA	DW	8B	WJY	DWLP 12 R8448 B 371 B			

SPECIFICATIONS OF THE DELPHI DIESEL INJECTION PUMP											XSARA	
Engine type	Pump Type Reference	Static timing Initial advance Compression Time (cylinder N° 4)	Dynamic timing checking (at idle)	Reference		Colour code	Injector needle lift pressure (Bar)	Adjustments (rpm)			Max. speed	
				Injector	Injector holder + injector			Fast idling	Anti-stall	Idling	Unladen rpm	Laden rpm
WJY	DWLP 12 R 8448 B/ *	Engine TDC Pegging hole. Value «X» engraved on the pump.		RDNO SDC 6903	LDCR 0260 IAA		135.5 ± 5	950 ± 25	1500 + 3mm shim	875 ± 25	875 ± 25	5350 ± 125

INJECTION

(*) = See table on page : 152.

XSARA

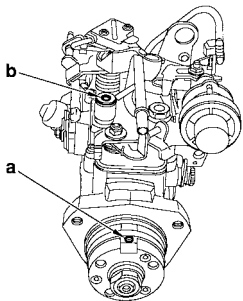
CHECKING AND SETTING THE DELPHI MECHANICAL INJECTION PUMP

Engines : WJZ - WJY

Evolution of the checking of the setting of the LUCAS diesel injection pump

Old assembly.

NEW ASSEMBLY : RPO 7910 →

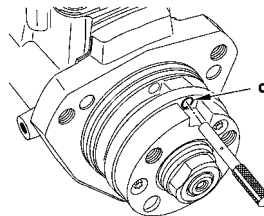


B1HP1A4C

Diesel injection pump with hole for checking the setting

The setting of the diesel injection pump is done with the aid of the following tools :

- A peg placed at "a".
- A peg and a dial gauge placed in the checking hole at "b".



B1HP1A5C

Diesel injection pump without a hole for checking the setting.

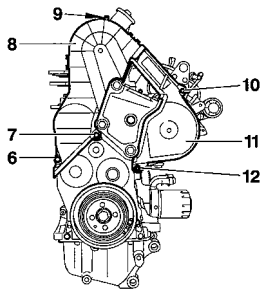
The setting of the diesel injection pump is done with the aid of a peg at "c".

See method on following pages.

CHECKING AND SETTING THE DELPHI MECHANICAL INJECTION PUMP

XSARA

Engines : WJZ - WJY (continued)



Tools.

- [1] Flywheel locating peg
- [2] H M8 screw
- [3] Injection pump setting peg \varnothing 6 mm

- : 7014-T.J.
- : (-).0188.E. Tool kit C.0188
- : (-).0188.H

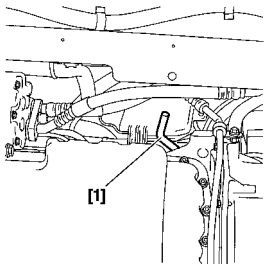
After carrying out the necessary dismantling operations on the vehicle, proceed in the following manner :

Remove :

- The screws (6), (7), (9), (10) and (12).
- The upper casing (8).
- The intermediate casing (11).

WARNING : Refit the screw (6) equipped with a washer. (*Thickness 5 mm*).

- Turn the front RH wheel to turn the engine. (*Normal direction of rotation*).
- Bring the camshaft and injection pump pulleys to their setting point.
- Position the flywheel peg, using tool [1]. (*From above the vehicle*).
- Turn the engine until the peg [1] engages in the flywheel.



B1EP12NC

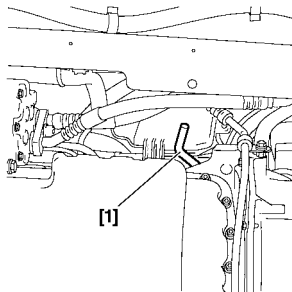
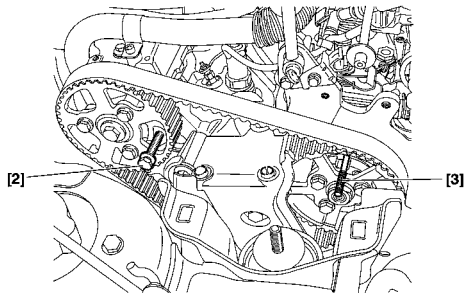
B1BP1S9C

INJECTION

XSARA

CONTROLE-CALAGE DE LA POMPE MECANIQUE DELPHI

Engines : WJZ - WJY (continued)

**Peg :**

- The camshaft hub, using tool [2].
- The injection pump hub, using tool [3].

Impossible to peg the camshaft.

Reset the valve timing (See pages 108 to 112).

Possible to peg the camshaft, but not the injection pump.

Carry out the following operations:

- Loosen the screws of the injection pump hub.
- Turn the injection pump hub.
- Insert the peg [3] into the setting hole.
- Tighten the screws of the injection pump hub. **Tighten to 2.3 ± 0.2 m.daN.**

ESSENTIAL : If setting the diesel injection pump proves impossible, reset the valve timing (See pages 108 to 112).

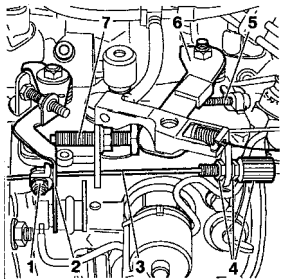
Remove:

- The tools [1], [2] and [3].
 - The screw (6) and the washer.
- Reassemble the components.

B1EP12WD

B1BP1S9C

Engines : WJZ - WJY

**Adjusting the fast idle.****Engine cold.**

- Ensure that the lever (2) is up against its stop to the right.
- If not, adjust the tension of the cable (3) using the cable clamp (1).
- Finish tensioning using the sleeve tensioner (4).

Engine hot.

- Check that the cable (3) is in tension.

Checking the thermostatic sensor.

- There should be a minimum 6 mm cable travel between a cold and a hot engine.

Adjusting the accelerator control.**Prior conditions.**

- Engine hot (*cooling fan is engaged twice*).

Checking the accelerator cable tension.

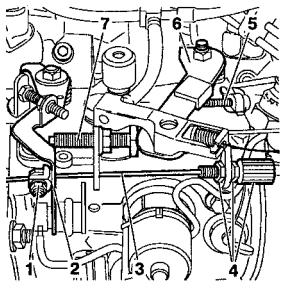
- Fully depress the accelerator pedal.
- Check that the lever (6) is against its stop (5) otherwise, alter the position of the pin.
- If not, adjust the position of the accelerator cable tensioning retaining pin.
- Ensure that in the idle position the lever (6) is against the stop (7).

B1HP0K9C

XSARA

ADJUSTING THE DELPHI MECHANICAL INJECTION PUMP CONTROLS

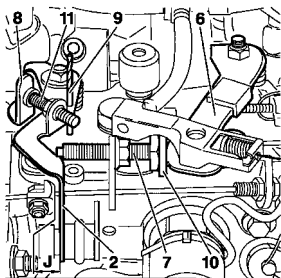
Engines : WJZ - WJY (continued)

**Adjusting the anti-stall (residual output).**

- Insert a **3 mm** thick shim (**10**) between the throttle lever (**6**) and the anti-stall screw (**7**).
- Push the stop lever (**8**).
- Insert a **3 mm** diameter peg (**9**) in the lever (**2**).
- Adjust the engine speed to **1500 rpm \pm 100** using the stop screw (**7**).
- Remove the shim (**10**) and the peg (**9**).

Adjusting the idle speed.

- Adjust the speed using the idle adjustment screw (**11**).
- Idling speed : **825 \pm 25 rpm**.

**Checking the engine deceleration.**

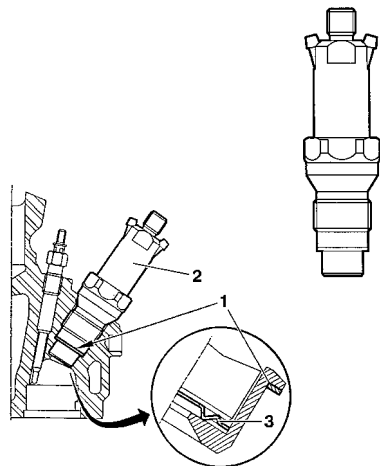
- Move the throttle lever (**6**) to obtain an engine speed of **3000 rpm**.
- Release the throttle lever (**6**).
- The deceleration should be between **2.5** and **3.5** seconds.
- The drop should be approximately **50 rpm** in relation to the idle speed.
- **Deceleration too fast**, (*the engine has a tendency to stall*) slacken the screw (**7**) by a quarter turn.
- **Deceleration too slow**, (*engine speed is greater than the idle speed*) tighten screw (**7**) by a quarter turn.

NOTE : In each case, check the idle speed for any necessary adjustments.

B1HP0K9C

B1HP0KAC

Engines : WJZ - WJY



Fitting an injector

The copper seal (1) and the fire seal washer (3) are to be replaced each time they are removed.

NOTE : Fitting parts of different makes is **PROHIBITED**.

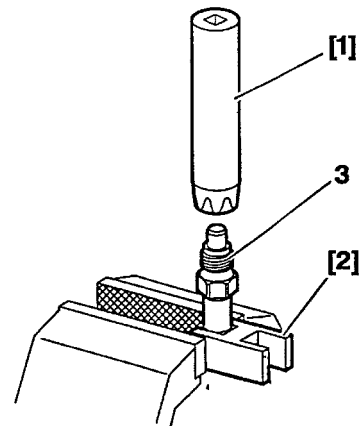
WARNING : Ensure that the fire seal washer (3) is fitted the right way round.

Tighten the injector holder on the cylinder head to :

9 m.daN

[1] Tool to remove/refit injectors (2) 7007-T

[2] 7008-T.A Tool kit 4123-T



(3) Tighten lightly to prevent any distortion.

B1DP158C

B1HP12VC

B1HP0YGC

SAXO - XSARA				BOSCH INJECTION PUMP SPECIFICATIONS	
				PUMP - TYPE - REFERENCE	
Emission standards				L3/L4	
Equipment				Transponder	
SAXO	TUD	5B	VJX	539	
XSARA	DW	10	RHY	CP1 (*)	
			RHZ		
<p>(*) = The fuel high pressure pump is driven by the timing belt.</p>					

BOSCH INJECTION PUMP SPECIFICATIONS

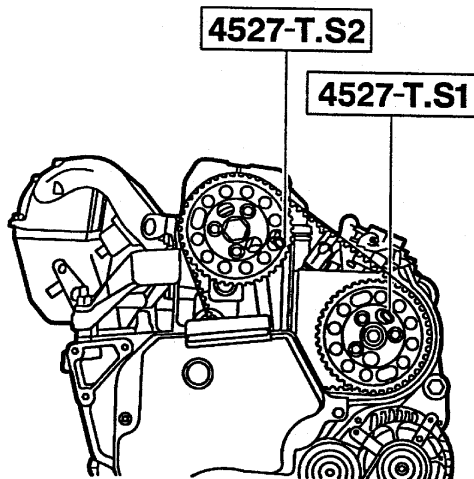
SAXO - XSARA

Engine type	Pump Type Reference	Static timing (1) Initial advance Compression Time (cylinder N° 4)	Dynamic timing checking (at idle)	Reference		Colour code	Injector needle lift pressure (Bar)	Adjustments (rpm)			Max. speed	
				Injector	Injector holder + injector			Fast idling	Anti- stall	Idling	Unladen rpm	Laden rpm
VJX	539	Pump 0,60 ± 0,1 mm After BDC		299	KCA 20S106		120 ± 5	No		800 ± 100	5450 ± 160	5000 ± 160
RHY	CP1	Non-adjustable		96255 42580								
RHZ												

INJECTION

(1) = Engine : TDC peg hole

Engine : VJX



B1HP0YAC

Tools

- Flywheel locating peg
- Mounting plate locating peg
- Camshaft peg

: 4507-T.A
 : 4527-T.S1
 : 4527-T.S2

} Tool kit 4507-T

Checks

- Peg the flywheel.
- Visually check the pegging of the camshaft and pump pulleys, or check using the tools **4527-T.S1** and **4527-T.S2**.

Setting the injection pump

- Peg :
 - The flywheel.
 - The camshaft pulley.
- Fit the pump and tighten to **2.5 m.daN**.
- Peg the pump mounting plate.
- Fit the pump drive pinion together with the timing belt. Tighten to **2.5 m.daN**.

Engine : VJX

ADJUSTING THE FAST IDLE SPEED.

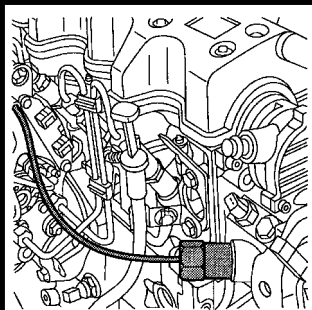
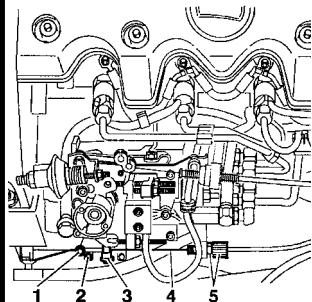
- Bring the lever (3) into contact with the screw (2).
- Use the screw (2) to obtain the fast idle speed : 1100 ± 100 rpm.

Engine cold :

- Ensure that the lever (3) is up against the screw stop (2).
- If not, slightly tension the cable (4) using the cable clamp (1).
- Finish tensioning with the sheath tensioner (5).

Engine hot :

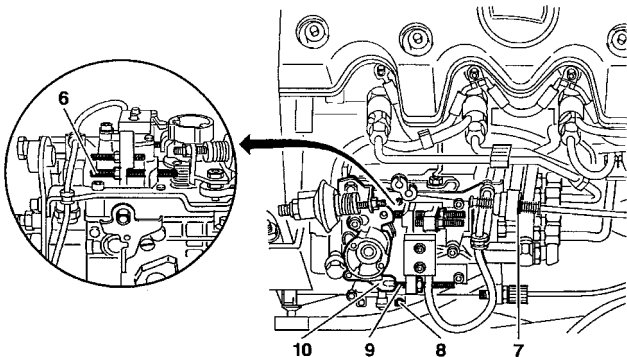
- Ensure that the cable (4) is slack.
- Check the operation of the thermostatic sensor on the coolant outlet housing : there should be a minimum **6 mm** cable travel between a cold and a hot engine.
- If not, replace the thermostatic sensor. Tighten to **2.5 m.daN**.



B1HP0HQC

B1HP0HUC

Engine : VJX (continued)

**ADJUSTING THE ACCELERATOR CONTROL.**

- Fully depress the accelerator pedal.
- Check that the lever **(10)** is against the stop screw **(6)**. If not, modify the position of the spring clip **(7)**.
- Check that, at idle, the lever **(10)** is against its stop **(9)**.

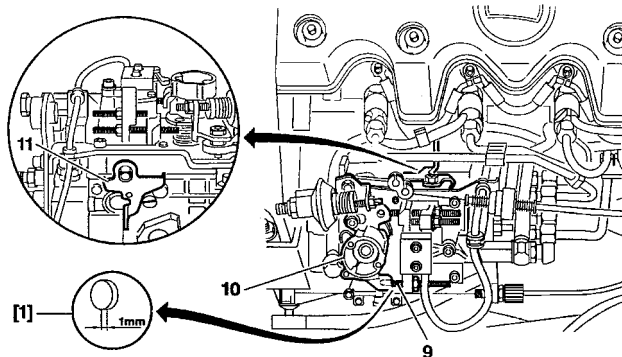
Preliminary conditions :

- Engine hot (*The cooling fan is engaged twice*).
- Fast idle control released.

ADJUSTING THE IDLE SPEED.

- Slacken the screw **(9)** by a few turns until it no longer touches the lever **(10)**.
- Adjust the idling speed using the screw **(8)**.

Engine : VJX (continued)

**ANTI-STALL ADJUSTMENT**

- Insert a **1 mm** shim [1] between the throttle lever (10) and the residual output adjustment screw (9).
- Turn the residual output adjustment screw (9) to obtain an engine speed of : **835 ± 40 rpm**.
- Remove the shim [1].

CHECKING THE ENGINE DECELERATION.E

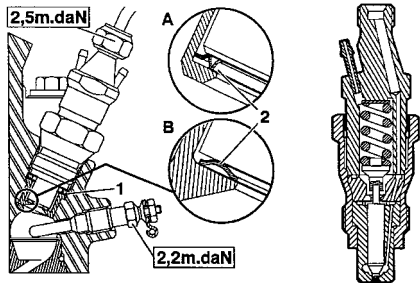
- Move the throttle lever (10) to obtain an engine speed of **3000 rpm**.
- Release the throttle lever (10).
- The deceleration should be between **2** and **3** seconds.

ESSENTIAL : Check the operation of the manually-operated "STOP" control (11).

SAXO - XSARA

FITTING BOSCH INJECTORS

Engine : VJX



Fitting an injector

The copper seal (1) and the fire seal washer (2) are to be replaced each time they are removed.

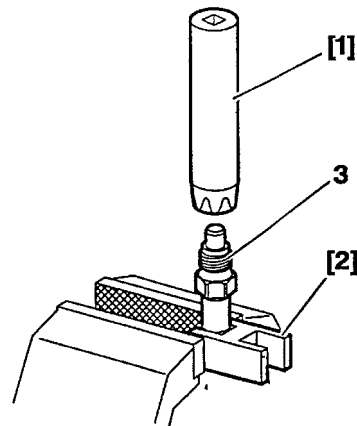
NOTE : Fitting parts of different makes is **PROHIBITED**.

WARNING : Ensure that the fire seal washer (2) is fitted the right way round.

Tighten the injector holder on the cylinder head to :

VJZ
7 m.daN
All Types
9 m.daN

- [1] Tool to remove/refit injectors (2) 7007-T
 [2] 7008-T Tool kit 4123-T



- (3) Tighten lightly to avoid distortion.
 Tighten to 7 m.daN.

B1HP0YNC

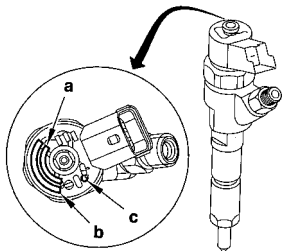
B1HP0YPC

B1HP0YGC

Engine : RHY

Evolution : Classification of diesel injector carriers

16/11/98 →



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

Identification.

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

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

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

Identification marking:

a : Supplier identification.

b : PSA identification no.

c : Identification of class.

After Sales operations.

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

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

ALL TYPES		SPARKING PLUGS						
Vehicles – Models		Engine type	BOSCH	CHAMPION	SAGEM	Electrode gap setting	Tightening torque	
SAXO	1.1i	HDZ/HDY	FR7DE	RC8YCL	RFN58LZ	0.9 mm	2.5 mdaN	
	1.4i	KFX						
	1.6i	NFZ						
	1.6i 16v	NFX						
XSARA	1.4i	KFW	FR7DE	RC8YCL	RFN58LZ	0.9 mm	2.7 mdaN	
	1.6i 16v	NFU	FR7ME					
	2.0i 16v	RFN	FR8ME	REC9YCL	RFN52HZ			1 mm
	2.0i 16v	RFS	FR6DE		RFN62LZ			0.9 mm
XSARA PICASSO	16i	NFV	FR7DE	RC8YCL	RFN58LZ	1 mm	2.5 mdaN	
	1.8i 16v	6FZ	FR8ME	REC9YCL	RFN52HZ		2.7 mdaN	
BERLINGO	1.1i	HDZ	FR7DE	RC8YCL	RFN58LZ	0.9 mm	2.5 mdaN	
	1.1i	HFX	FR7KDC					
	1.4i	KFX/KFW	FR7DE	RC8YCL				
	1.6i 16v	NFU	FR7ME					
	1.8i	LFX	FR7DE	RC8YCL			2.7 mdaN	

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

This decree stipulates :

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

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

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

The speed indicated by the speedometer may be influenced by :

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

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

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

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

ALL TYPES

CLUTCH SPECIFICATIONS

	1.1i		1.4i		1.6i		1.6i 16V		1.5D
Engine type	HDZ	HFX	KFX	KFW	NFT	NFV	NFX	NFU	VJX
Gearbox	MA/4 - MA/5								
Make	VALEO								LUK
Mechanism/Type	180 CP 3400			180 CPO 3400	2200 CPR 3800				180 P 3000
Clutch disc	181 XJ (E73) 11 R 10 X			180 XJF 73 C	200X(D95) 11A12X				80D
Ext./Int. lining Ø	180/127				200/137				180/135
Disc lining type	F 408				F 808	F 410		F 808	F 410

CLUTCH
GEARBOX
DRIVESHAFTS

CLUTCH SPECIFICATIONS							ALL TYPES	
	1.8i	1.8i 16V	2.0i 16V		1.9TD		2.0 HDi	
Engine type	LFX	6FZ	RFN	RFS	WJZ	WJY	DHY	RHY
Gearbox	BE4/5							
Make	VALEO				LUK			
Mechanism/Type	200 CP 4250	230 DNG 4700		215 DT 5250	200 P 3700		230 P 4700	
Clutch disc	200 B (D73) 33AX	230 DNG 4700		215 F D95	215 F (D 93) 22 BX		228	
Ext./Int. lining Ø	200/137	228/155		215/147	200/134		228	
Disc lining type	F 408	F 808			F408			

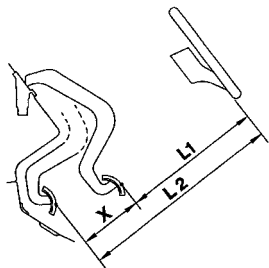
**CLUTCH
GEARBOX
DRIVESHAFTS**

SAXO - XSARA

CLUTCH : CHECKS AND ADJUSTMENTS

Mechanically operated push-action clutch (adjustable)

Engines	SAXO	Adjustable	HFX-KFW-NFT-NFX-VJX	Gearbox	MA/5
	XSARA	Non-adjustable*	KFW-NFU		



(* See page 175)

ESSENTIAL : If the clutch control is new, squeeze the cable sheath before adjusting by declutching successively a minimum of 20 times.

Checks

NOTE : Adjustable steering wheels should be put into the low position

- Record the measurement "X" between positions L1, pedal at rest, and L2, pedal fully depressed.
- Measurement "X" should be : (Pedal travel).

SAXO
135 ± 5 mm

Adjustments.

- If the measurement is incorrect, adjust the clutch pedal travel "X".
- Loosen the lock nuts (1).
- To adjust the travel to conform with the measurements indicated above, either loosen or tighten the nut (2) (Tighten the nut to increase the travel, and loosen it to decrease the travel.)
- Tighten the lock nut (1).

B2BP023C B2BP00GC

CLUTCH : CHECKS AND ADJUSTMENTS

XSARA

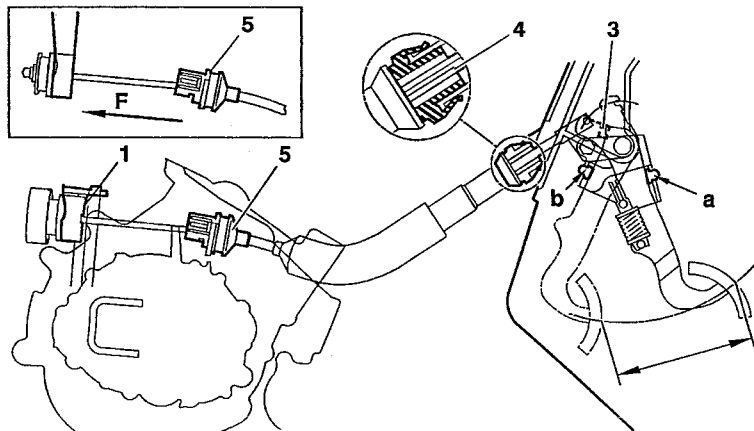
Push-action clutch with automatic adjustment (non-adjustable) (*)

Engines

LFX - WJZ - WJY

Gearboxes

BE3/5 – BE4/5



Refitting the clutch cable.

- Set the pedal to the high position (contact at **A**).
 - Attach the cable end-piece to the pedal.
 - Refit a new clip (**3**) to the pedal.
 - Fit the end-piece (**4**) to the bulkhead (**G6 grease**).
 - Clip the end-piece (**5**) to the gearbox.
 - Refit the cable to the lever (**1**).
 - Depress the clutch cable several times to set the assembly in place.
 - Check that the end-piece (**4**) is properly fitted to the bulkhead.
 - Check the operation of the automatic adjusting device.
- 1**) - Pull the lever (*in direction F*), the lever must move when pulled by hand.
 - 2**) - Press the clutch pedal very lightly and repeat the same operation. The lever should not move back.

(*) See pages 176 to 177.

CLUTCH
GEARBOX
DRIVESHAFTS

B2BP03CD

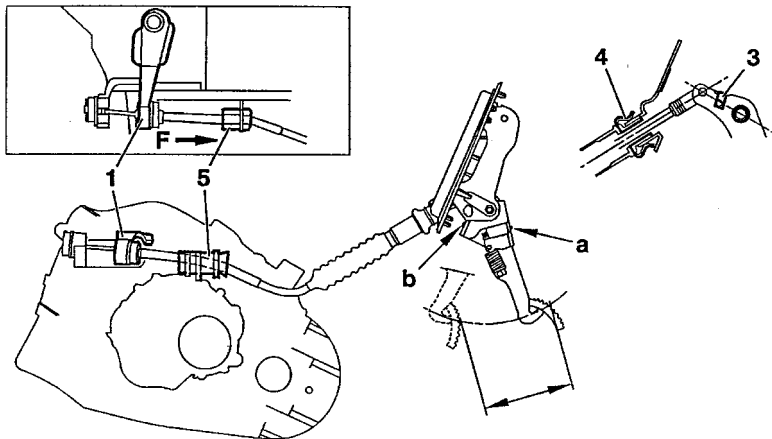
Pull-action clutch with automatic adjustment (non-adjustable) (*)

Engines

RFS – RFN – RHY - RHY

Gearbox

BE4/5



Refitting the clutch cable.

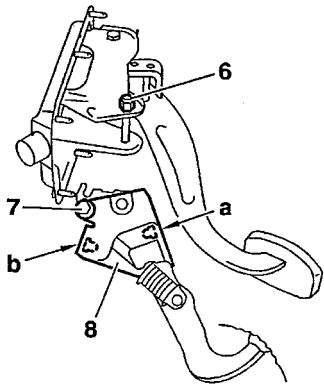
- Set the pedal to the high position (contact at **A**).
 - Attach the cable end-piece to the pedal.
 - Refit a new clip (**3**) to the pedal.
 - Fit the end-piece (**4**) to the bulkhead (*G6 grease*).
 - Clip the end-piece (**5**) to the gearbox.
 - Refit the cable to the lever (**1**).
 - Depress the clutch cable several times to set the assembly in place.
 - Check that the end-piece (**4**) is properly fitted to the bulkhead.
 - Check the operation of the automatic adjusting device.
- 1)** - Pull the lever (*in direction F*), the lever must move when pulled by hand.
 - 2)** - Press the clutch pedal very lightly and repeat the same operation. The lever should not move back.

(*) See pages **176 to 177**.)

B2BP03DD

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

Engines : LFX - RFN - RFS - WJX - RHY - RHZ



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

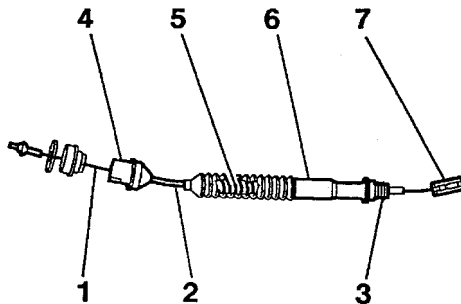
Procedure

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

Characteristics

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

Engines : LFX - RFN - RFS - WJX - RHY - RHZ



B2BP02SC

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

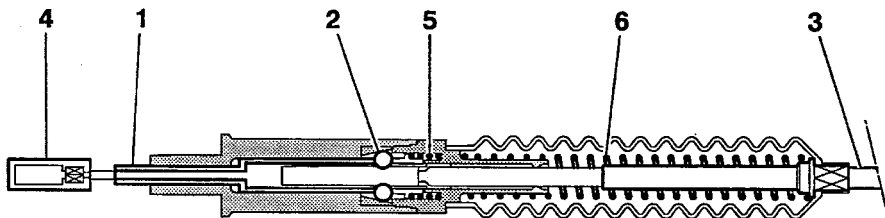
DESCRIPTION

- | | |
|--|--|
| 1 - Metallic cable, crimped on both ends. | 5 - Tensioning spring ensuring the maximum length of the cable sleeve. |
| 2 - Outer cable or telescopic duct. | 6 - Wear take-up device. |
| 3 - Outer cable stop, bulkhead side (<i>fixed point on the bodyshell</i>). | 7 - Hooking yoke. |
| 4 - Outer cable stop, gearbox side (<i>fixed point on the gearbox</i>). | |

CLUTCH : CHECKS AND ADJUSTMENTS

XSARA - XSARA PICASSO

Engines : LFX - RFN - RFS - WJX - RHY - RHZ



B2BP03QD

Operation	Clutch disengagement phase	Engagement / adjustment phase
<p>For the adjusting device to operate correctly, it is necessary that :</p> <p>The pedal is at rest (<i>against its upper stop</i>) The locking sleeve (1) is slightly compressed, the rollers (2) are free, the outer cable (3) length may vary.</p>	<p>As soon as the pedal is applied, the attaching end-piece (4) leaves the sleeve (1) which moves back. The rollers, pushed by spring (5) jam the system. The cable behaves like a conventional cable.</p>	<p>The pedal returns to rest on its upper stop. Attaching end-piece (4) pushes sleeve (1) which frees the rollers.</p> <p>Outer cable (3), kept extended by the spring (6) becomes :</p> <ul style="list-style-type: none"> - Shorter if the clutch disc is worn. - Longer if the outer cable has been compressed.

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

CLUTCH
GEARBOX
DRIVESHAFTS

SAXO - All Types
GEARBOX AND TYRE SPECIFICATIONS

	Petrol					
	1.1i	1.4i		1.6i	1.6i 16V	
		Automatic				
Engine type	HFX	KFW		NFT	NFX	
Tyres-Rolling circumference	155/70 R 13 – 1.67 m			165/65 R14 1.725m	185/55 R14 1.7 m	
Gearbox type	MA/5		MB3	MA/4 – MA/5		
Gearbox ident. plate	20 CF 03	20 CF 12	312	20 CN 03 – 20 CN 05		
Reduction box torque	14x60	17x64	17x56	17x61	16x63	
Speedometer ratio	19x17	19x17	21x19	19x17		
CLUTCH GEARBOX DRIVESHAFTS	Diesel					
	1.5D					
	Engine type	VJX				
	Tyres-Rolling circumference	165/65 R14 – 1.725 m				
	Gearbox type	MA/5				
	Gearbox ident. plate	20 CF 02 29/08/200 →				
	Reduction box torque	17x64				
	Speedometer ratio	19x17				

GEARBOX AND TYRE SPECIFICATIONS					XSARA → 09/2000	
	Petrol					
	1.4i	1.6i 16V		2.0i 16V		
		Automatic		Automatic		
Engine type	KFW	NFU		RFN		RFS
Tyres-Rolling circumference	195/55 R15 - 1.815 m					
Gearbox type	MA/5		AL4	BE4/5	AL4	BE3/5
Gearbox ident. plate	20 CF 13	20 CN 28	20 TP 49	20 DL 40	20 TP 47	20 TE 47
Reduction box torque	16x65		21x73	19x72	23x73	14x62
Speedometer ratio	21x18		24x21	22x19	24x21	22x19
	Diesel					
	1.9D	2.0 Hdi				Automatic
Engine type	WJY	RHY		RHZ		
Tyres-Rolling circumference	195/55 R15 - 1.815 m					
Gearbox type	BE4/5				AL4	
Gearbox ident. plate	20 DL 41	20 DL 42	20 DM 10		20 TP 48	
Reduction box torque	19x75	19x70	17x61			
Speedometer ratio	22x19					
Right hand drive :	6FZ-RFN = 20 DM 03	WJZ - WJY = 20 DM 05	RHY = 20 DM 07	RHZ = 20 DM 11		

CLUTCH
GEARBOX
DRIVESHAFTS

XSARA PICASSO**GEARBOX AND TYRE SPECIFICATIONS**

	Petrol		Diesel
	1.6i	1.8i 16 V	2.0 HDi
Engine type	NFV	6FZ	RHY
Tyres-Rolling circumference	185/65 R15 – 1.895 m		
Gearbox type	BE4/5		
Gearbox ident. plate	20 DL 66	20 DL 68	20 DL 64
Reduction box torque	15x64	19x77	19x72
Speedometer ratio	22x18		

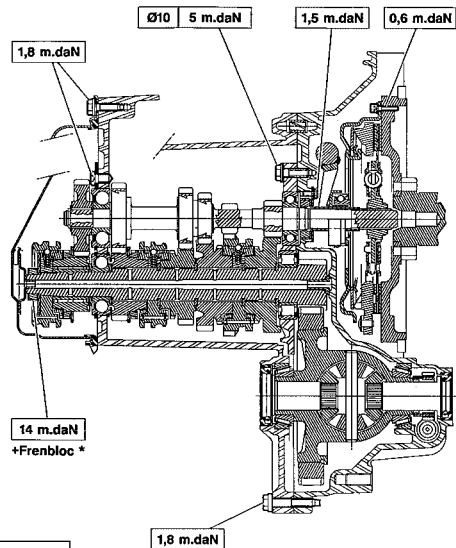
**CLUTCH
GEARBOX
DRIVESHAFTS**

Right hand drive : **NFV = 20 DL 67** **6FZ = 20 DL 69** **RHY = 20 DL 65.**

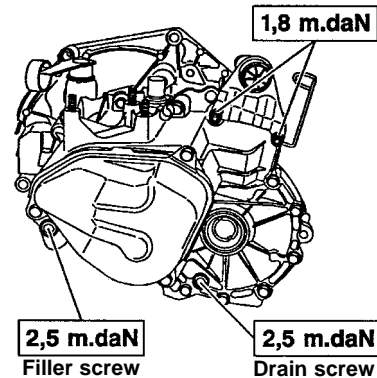
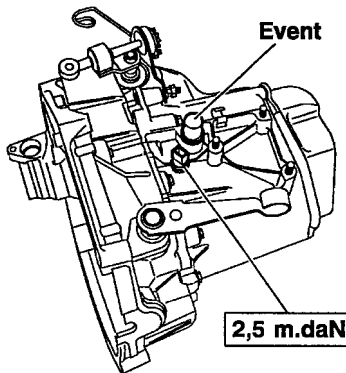
GEARBOX - MA/5

SAXO - XSARA

Engines : HFX - KFW - NFT - NFX - NFU - VJX



B2CP34HP

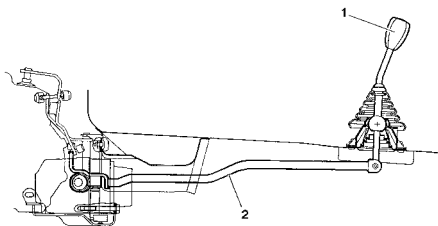


B2CP20FC

B2CP20GC

CLUTCH
GEARBOX
DRIVESHAFTS

Engines : HFX - KFW - NFT - NFX - NFU - VJX



1 - Gear lever.

2 - Gear control rod.

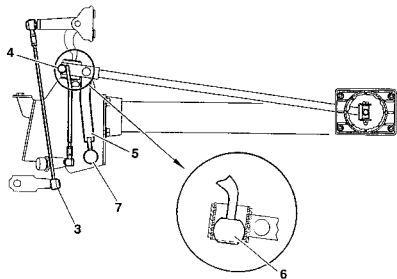
3 - Gear control rod.

4 - Gear selection rod.

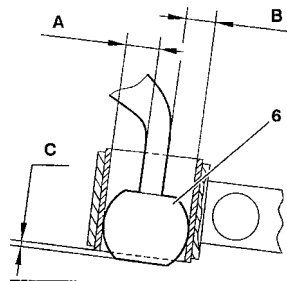
5 - Gear selection rod.

6 - Knuckle joint

7 - Fixed point on the gearbox.



B2CP16SP



A = 11.5 mm.

B = 9.5 mm.

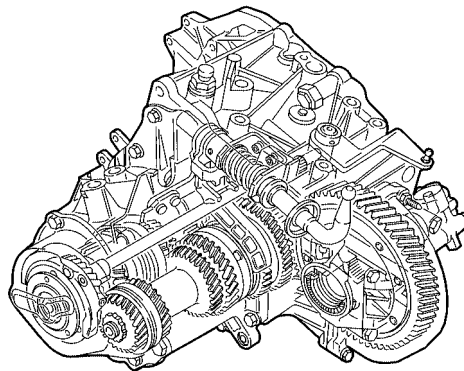
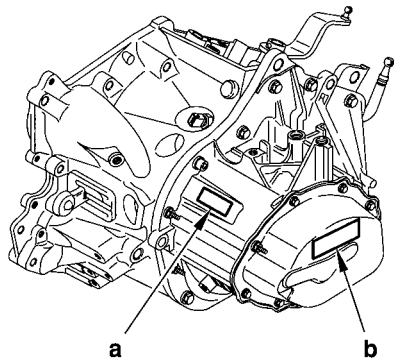
C = 3 mm.

B2CP16TC

GEARBOX – BE4/5

XSARA - XSARA PICASSO

Engines : NFV - 6FZ - RFN - RFS - WJY - RHY - RHZ



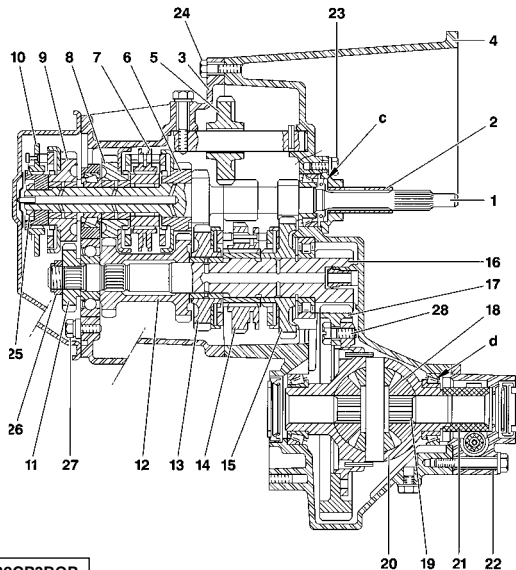
- (a) = Marking zone (Sequence and serial no.).
- (b) = Location of identification label.

B2CP3BNC

B2CP3BPD

CLUTCH
GEARBOX
DRIVESHAFTS

Engines : NFV - 6FZ - RFN - RFS - WJY - RHY - RHZ



B2CP3BQP

Identification

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

- (14) 1st / 2nd gear synchroniser
- (15) Driven gear (1st gear).
- (16) Secondary shaft.
- (17) Differential gear.
- (18) Satellite gears.
- (19) Planet gears.
- (20) Differential housing.
- (21) Speedometer drive.
- (22) Extension.

"d" Adjusting shims : 0.7 to 2.4 mm
(0.10 mm and increasing by 0.10 mm).

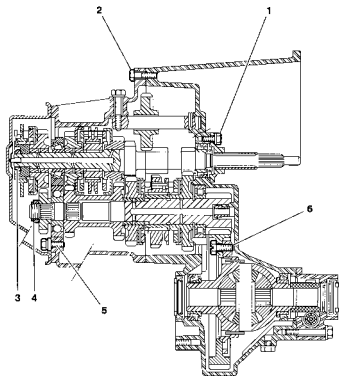
"c" Adjusting shims: 1.4 to 1.6 mm
(0.10 mm and increasing by 0.10 mm).

GEARBOX- BE4/5

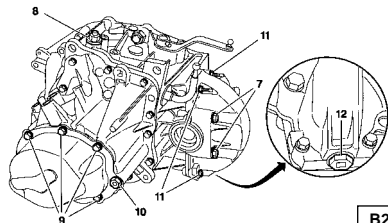
SAXO - XSARA - XSARA PICASSO

Engines : NFV - 6FZ - RFN - RFS - WJY - RHY - RHZ

Tightening torques



B2CP3BSP

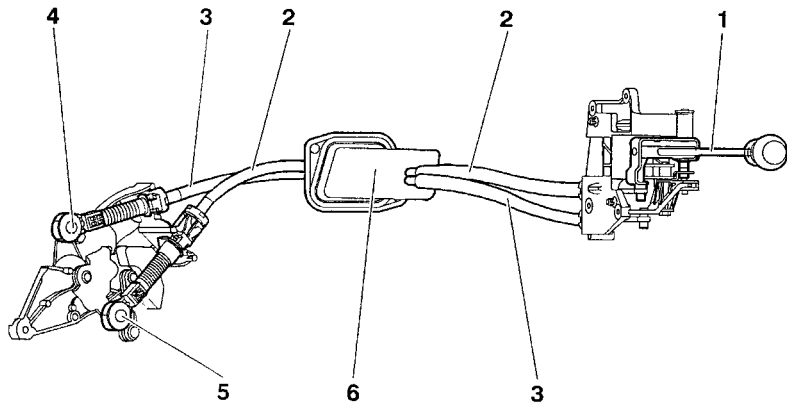


B2CP3BTD

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

CLUTCH
GEARBOX
DRIVESHAFTS

Engines : NFV - 6FZ - RFN - RFS - WJY - RHY - RHZ



- (1) Gear control lever.
- (2) Gear engagement control cable (*).
- (3) Gear selection control cable (*).
- (4) Gear selection ball-joint Ø 10 mm.
- (5) Gear engagement ball-joint Ø 10 mm.
- (6) Flexible insulating grommet through the bulkhead.

(*) = These two cables cannot be separated.

B2CP3BWD

Engines : NFV - 6FZ - RFN - RFS - WJY – RHY - RHZ

Principles of adjusting the gear controls.

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

Principles.

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

Place the gearbox in neutral.

Couple the cables on the lever.

Fit the ball-joints on the gearbox lever.

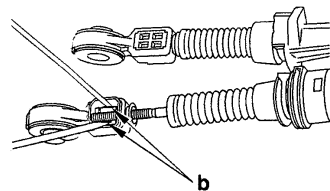
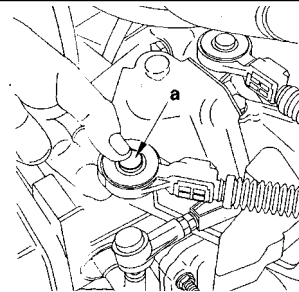
Lock the cable lengths with the ball-joint locking keys.

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

To unlock the ball-joint, press at the centre "a", then pull the ball-joint upwards.

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

Unclip at "b", using two small screwdrivers.

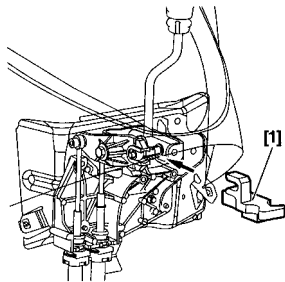


B2CP3BXC

B2CP3BYC

Engines : NFV - 6FZ - RFN - RFS - WJY - RHY - RHZ

Adjusting the gear controls.



TOOLS.

[1] Tool for positioning the gear lever

: 9607-T.

ADJUSTMENTS.

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

Inside the vehicle.

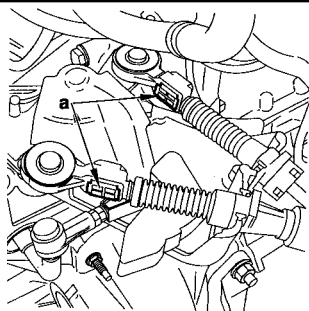
- Remove the trim under the gear lever.
- Lock the gear lever in neutral position, using tool [1].

Under the bonnet.

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

CHECKS.

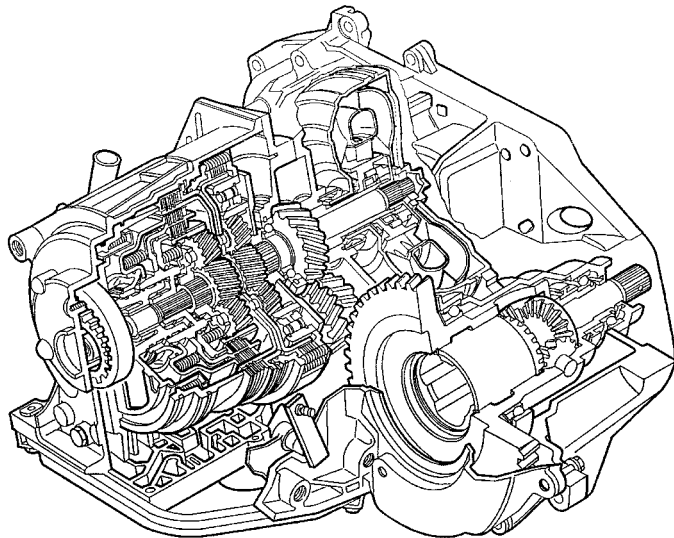
- Remove the tool [1].
- Check that all the gears engage without "tightness".
- Check that the gear lever moves identically forwards and backwards and to right and left. If it does not, repeat the adjustment.
- Refit the trim under the gear lever.
- Refit the air filter assembly.



B2CP3C6C

B2CP3C0C

Engine : KFW



Tightening torques m.daN.

- Gearbox to engine fixing	3.5
- Converter to engine fixing	2.5
- Converter closing plate fixing	
M8	1.6
M10	2.6
- Electrical bracket fixing	6.5
- Flexible mounting to gearbox fixing	8.5
- Speedometer drive	1
- Heat exchanger fixing	5

NOTE : When fitting a new automatic gearbox, it is **ESSENTIAL** that the heat exchanger and the oil be replaced.

B2CP14ZP

Engine : KFW

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 :

- Add an extra **2 litres of oil** to the automatic gearbox.
- Do not exceed **30 kph** over a distance of **50 km**.
- Gear lever in position "**N**".

WARNING : Do not forget to remove the extra oil.

Driving.

Never drive with the ignition switched off.

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

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

Wait until the vehicle is completely stationary before engaging the gear lever in position "**P**".

REMOVING - REFITTING. (*Automatic gearbox*).

WARNING : Never place the gearbox on its lower casing (*risk of deforming the tray and damaging the hydraulic valve block*).

Driveshafts.

ESSENTIAL : When moving the left driveshaft, ensure it remains horizontal (*risk of losing the tri-axe joint needles*).

Initialising procedure.

The gearbox should be initialised in the following cases :

- Replacement of the ECU.
- Clearing of faults.
- Replacement of the potentiometer.
- Replacement or adjustment of the accelerator cable.
- Incorrect initialisation.

NOTE : The initialisation procedure should be checked using a diagnostic tool.

Engine : KFW

PRE-REPAIR PROCEDURE

Oil quality

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

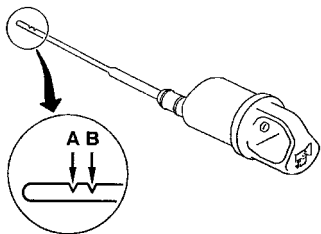
ESSENTIAL : The gearbox must be replaced.

Oil level (prior conditions)

- Oil hot (**80°C min.**).
- Foot on the brake, change through all the gears.
- Vehicle on a level surface.
- Selection lever in position "P".
- Engine running.

The level should be between the min. markings "A" and "B" on the dipstick.

ESSENTIAL : In no case should the oil level exceed the marking "B".
Top up the automatic gearbox oil level (if necessary).



B2CP16WC

Engine : KFW

PRE-REPAIR PROCEDURE (continued)

Negative pressure circuit.

- Check the negative pressure circuit.
- Carry out the necessary repairs.

Checks using the diagnostic tool.

Preliminary checks :

- The adjustment of the gear selection control.
 - The adjustment of the accelerator cable.
- Carry out the necessary operations

Reading the fault codes

Read the fault codes.

Absence of fault codes

Measure the parameters.

Anomalies present:

- **YES** : Carry out the necessary repairs.
- **NO** : Check (*adjust the negative pressure capsule*).

ESSENTIAL : Initialise the ECU

Perform a road test

Fault codes present

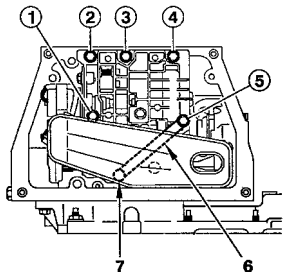
Carry out the necessary repairs.
Clear the fault codes.

ESSENTIAL : Initialise the ECU

Perform a road test.

SPECIAL FEATURES: AUTOMATIC GEARBOX - MB3

SAXO



Engine : KFW

Hydraulic valve block.

Refitting.

WARNING : On refitting the strainer, ensure that the bracket (6) runs under the washer of the screw (7).

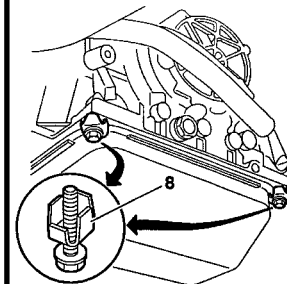
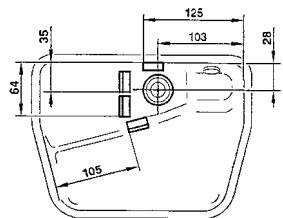
- Refit the strainer without tightening the screws.
- Observe the following tightening sequence :
- Screws 1,2,3,4 and 5 to **0.9 m.daN**.

ESSENTIAL : Respect the position of the magnets in the lower casing. Clean the casing before placing the smooth side of the magnet against the sheet metal.

Fitting the casing.

WARNING : The fixing brackets (8) of the lower casing have a fitting direction (*small side = lower casing side*).

Tightening torque **0.6 m.daN**.



B2CP34PC

B2CP13TC

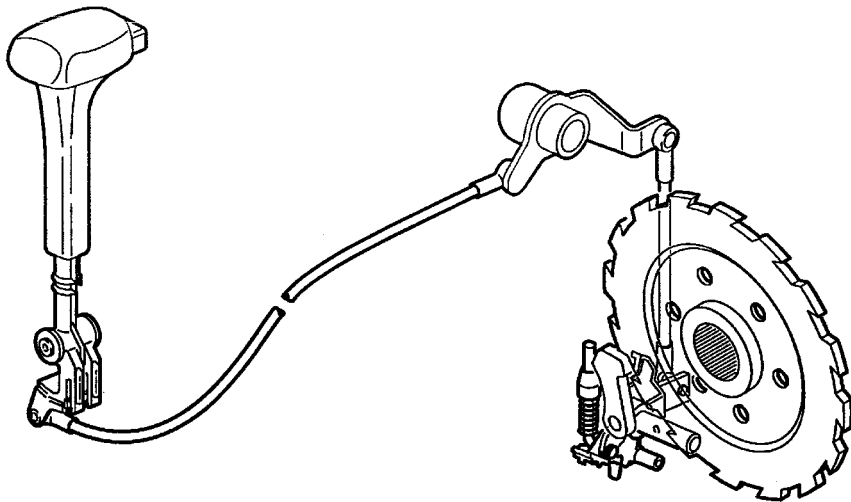
B2CP34QC

CLUTCH
GEARBOX
DRIVESHAFTS

SAXO

MB3 AUTOMATIC GEARBOX CONTROLS

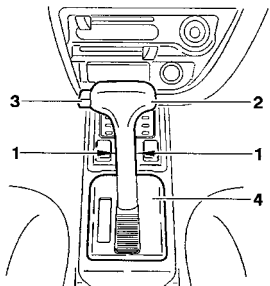
Engine : KFW



CLUTCH
GEARBOX
DRIVESHAFTS

B2CP352D

Selection control



WARNING: No part must be forced while performing these operations (*careful removal*).

Removing the gear lever knob.

- Remove the screws (1).
- Lift the lever knob (2) by about 10 mm.
- Turn backwards by 1/4 turn, and raise by approximately 7 mm.
- Press and hold down the locking button (3).

- Turn forwards by 1/4 turn, remove the gear lever knob (2).

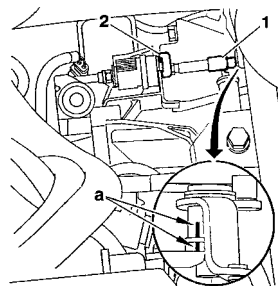
Refitting the gear lever knob

- Press and hold down the locking button (3).
- Fit the knob (2) on the lever until it touches its stop (*in the direction shown in the diagram*).
- Release the locking button (3).
- Turn forwards by 1/4 turn.
- Refit the screws (1).

ESSENTIAL : Check the passage of all the gears, otherwise adjust the selection control.

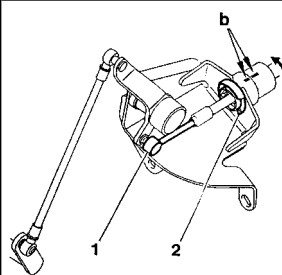
B2CP18YC

Adjusting the selection control



ESSENTIAL : Put the gearbox side control in the 1st imposed position; the 2 markings "a" must be aligned.

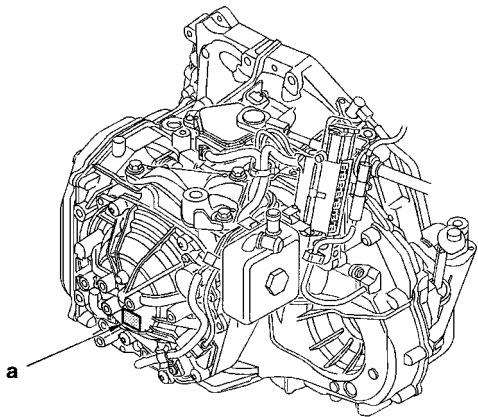
- Fit the ball joint (1).
- Fit the lug (2).
- Lock the outer cable stop by 1/4 turn (*in the direction of the arrow*).
- Check that the painted markings "b" are aligned.



B2CP18WC

B2CP18XC

Engines : NFU - RFN - RHZ



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

The gearbox is lubricated for life.

(a) Part reference.

B2CP30ZD

Engines : NFU - RFN - RHZ

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 50 kph over a distance of 50 km.

Driving.

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

Lubrication

The automatic gearbox is only lubricated when the engine is running

REMOVING - REFITTING. (Automatic gearbox).

WARNING : Never place the gearbox on its lower casing (*risk of deforming the tray and damaging the hydraulic valve block*).

Never use the connections as handles for raising, turning, holding or pushing the gearbox

ESSENTIAL :

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

WARNING : With the safety programme selected, a snatching can be felt when changing from "P" → "R" or "N" → "R".

Engines : NFU – RFN - RHZ

PROCEDURE BEFORE REPAIRS

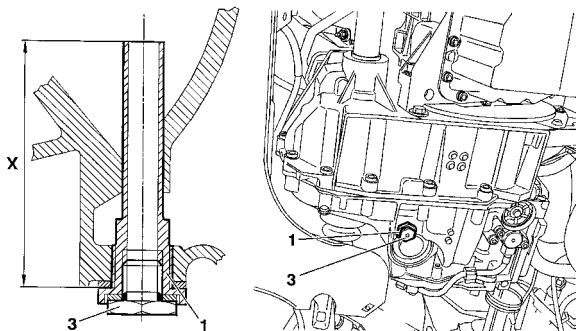
AL 4 gearbox

Oil Quality

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

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

ESSENTIAL : The gearbox must be replaced.

AL 4 gearbox only

Engines : NFU - RFN - RHZ

PROCEDURE BEFORE REPAIRS

Oil level AL 4 (*prior conditions*).

- Vehicle in horizontal position.
- Check gearbox is not in back-up mode.
- Remove the oil filler plug **(3)**.
- 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), measured with the aid of a diagnostic tool.
- Remove the oil level plug **(3)**.
- Thread of oil then "drip-drip" : refit plug **(3)**. Tighten **2.4 m.daN**.
- "Drip-drip" or nothing : refit the 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 filler plug **(3)**. Tighten to **2.4 m.daN**.
- Initialise the oil usage counter (open the diagnostic tool procedure).

NOTE : Dimension X : TU and EW engines = 81 mm DW engines = 77 mm.

Engines : NFU – RFN - RHZ

PROCEDURE BEFORE REPAIRS (continued)

When the ECU detects an erroneous or absent value on input or output :

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

There are two types of back-up modes :

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

Reading the fault codes.

Read the fault codes.

- Absence of fault codes:
- Carry out a measure of parameters.

Presence of anomalies:

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

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

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

RECOMMENDATIONS - PRECAUTIONS (AUTOMATIC GEARBOX - AL 4)

XSARA

Engines : NFU - RFN - RHZ

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.

An initialisation of the auto-adaptives.

A recording 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.

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.

CLUTCH
GEARBOX
DRIVESHAFTS

Engines : NFU - RFN - RHZ

ECU : Downloading, Configuration, Initialisation (pedal) (continued)

Downloading.

ECU downloading procedure :

- Follow the diagnostic tooling procedure.

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

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

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

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

Pedal initialisation.

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

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

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

Engines : NFU - RFN - RHZ

SHIFT LOCK

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

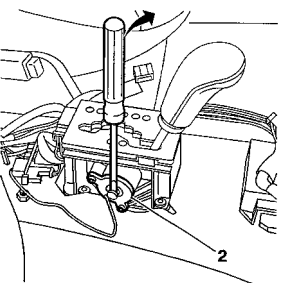
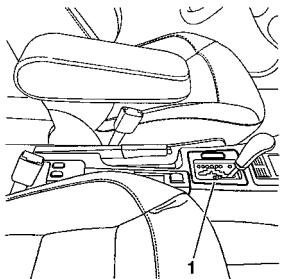
Unlocking the SHIFT LOCK *(In normal operation)*

- Switch on the ignition.
- Press and hold down the brake pedal.
- Using the selection lever, disengage from position **P**.

NOTE : It is **IMPERATIVE** to disengage the gear selection lever from position "P" the minute you start applying the brake pedal. Otherwise, release pressure on the brake pedal and then try again.

Unlocking the SHIFT LOCK *(In the event of a malfunction)*

- Remove the cover (1).
- Unlock the shift lock (2) using a screwdriver.
- Using the selection lever, disengage from position "P".



B2CP268C

B2CP269C

ALL TYPES

DRIVESHAFTS - GEARBOXES

		Tightening torques (m.daN)		Gearbox oil seal mandrels		
Gearbox	Engines	Driveshaft bearing	Driveshaft nut	Right	Left	Toolkit
MA/4 - MA/5	HFX-KFW-NFV-NFT-NFX-NFU-VJX	NO	24.5	7114-T.W	7114-T.X	7116-T
MA/5 XSARA	KFW-NFU	1.8	32			
BE4/5	NFV-RFN-6FZ-WJY-RHY-RHZ		24.5	4101-T.E1 +4601-T.E2	NO	4601-T
MB3	KFW		32.5	Seal extractor RH / LH (-) 0338 C		(-) 0338
AL 4	NFU-RFN - RHZ		(-) 0338 J1 + (-) 0338 J2	(-) 0338 H1 +(-) 0338 H2		

Tightening torque for wheel bolts : SAXO - XSARA = 8.5 m.daN

CLUTCH
GEARBOX
DRIVESHAFTS

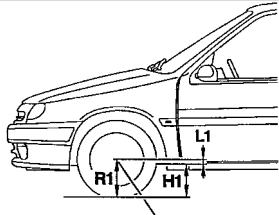
AXLE GEOMETRY

SAXO - All Types

Geometry of the axles at reference height.

Front height

Rear height



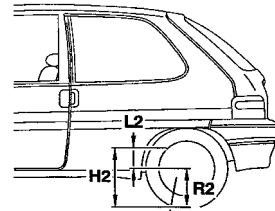
$$H1 = R1 - L1$$

H1 = Distance between the ground and the mounting face of the fixings.
R1 = Distance between the centre of the front wheel and the ground.
L1 = Distance between the centre of the front wheel and the mounting face of the fixings.

3 Tocs	4604-T
4 Tocs	8006-T

$$H2 = R2 + L2$$

H2 = Distance between the ground and the mounting face of the rear crossmember.
R2 = Distance between the centre of the rear wheel and the ground.
L2 = Distance between the centre of the rear wheel and the rear crossmember.



3 Tocs	4604-T
4 Tocs	8006-T

The values **L1** and **L2** are given in the table below.

C4CP0N2C

Normal suspension

Raised suspension

C4CP0N3C

Dimension	Front axle	Rear axle	Front axle	Rear axle
	L1	L2	L1	L2
Value (mm)	71 ± 10 mm	53 ± 6 mm	36 ± 10 mm	82 ± 6 mm

Measure the dimension **R1**.

Calculate the dimension **H1 = R1 - L1**.

Measure the dimension **R2**.

Calculate the dimension **H2 = R2 + L2**

Compress the suspension until the calculated values «**H1**» and «**H2**» are obtained.

NOTE : The difference in height between the two sides at the rear should be less than **7.5 mm**.

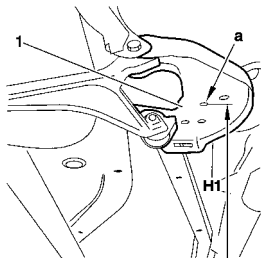
AXLES
SUSPENSION
STEERING

Geometry of the axles at reference height.

Front height

Reminder : Measuring the front height

H1 = Distance between the ground and the mounting face of the fixings



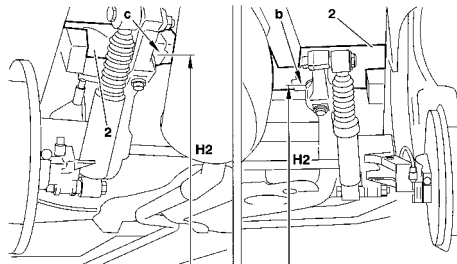
B3BP07UC

The front heights **H1** are measured between the ground and the mounting face of the arm fixings **(1)** at the point «**a**».

Rear height

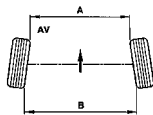
Reminder : Measuring the rear height

H2 = Distance between the ground and the rear crossmember



B3BP07VD

The rear heights **H2** are measured between the ground and the mounting face of the rear crossmember **(2)** at «**b**» and «**c**».



B3CP02UC

WARNING

A < B = Positive figure:

+ =

TOE-IN

A > B = Negative figure:

- =

TOE-OUT

AXLE GEOMETRY

SAXO - All Types

Geometry of the axles at reference height.

		Normal suspension			Raised suspension			
		Front		Rear	Front			Rear
Engine		TU1M+ (*)	TU1M+ (**) TU3JP – TU5JP TU5JP4 – TUD5B	All Types	TU1M+ (*)	TU1M+ (**) TU3JP – TU5JP TU5JP4 – TUD5B	All Types	
Steering		Manual	Manual	Assisted	Manual	Manual	Assisted	
Tracking Toe-in	° mm	-0°10' to 0°31' -1 to -3		-0°10' to 0°31' +1 to +3	-0°16' to -1°6' +1.49 to +6.39	-0°10' to 0°31' -1 to -3		-0°16' to -1°6' +1.49 to +6.39
Camber		- 0°9' ± 30'	- 0°40' ± 30'		- 1°35' ± 30'	- 0°9' ± 30'	- 0°40' ± 30'	
Castor		2°13' ± 30'		3°14' ± 30'		2°13' ± 30' 3°		3°14' ± 30'
King pin inclination		12° ± 41' ± 40'		12°42' ± 40'		12° ± 41' ± 40'		12°42' ± 40'

(*) = Without assisted steering option and ABS. (**) = With assisted steering and ABS options.

WARNING : For the vehicle to be at reference height, compress the suspension until the calculated values «H1» and «H2» are obtained.

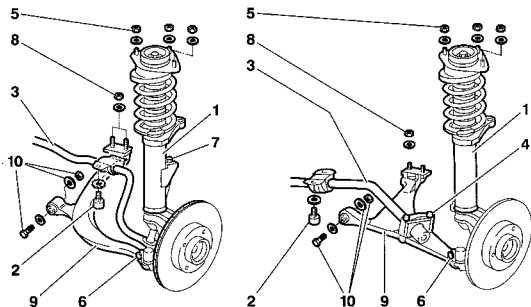
**AXLES
SUSPENSION
STEERING**

SAXO - All Types

FRONT AXLE

Anti-roll bar Ø 18 and 22 mm

Anti-roll bar Ø 19 and 21 mm



B3CP02SD

- (1) Suspension leg.
- (3) Front anti-roll bar.
- (9) Lower arm.

Tightening torques m.daN

- (2) Anti-roll bar bearing fixing on the bodyshell 5.5 ± 0.2
- (4) Anti-roll bar bearing fixing on the lower arm 2.2 ± 0.2
- (5) Suspension leg upper fixing 2.1 ± 0.2
- (6) Lower ball-joint fixing screw 3.8 ± 0.4
- (7) Anti-roll bar link rod fixing 7 ± 0.6
- (8) Suspension arm rear fixing nut 4.2 ± 0.4
- (9) Suspension arm front fixing 8.5 ± 0.8

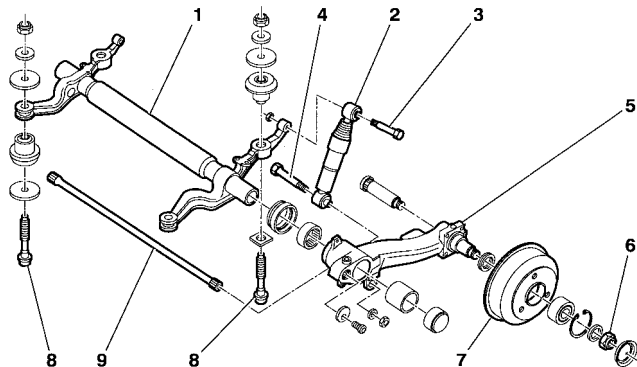
Suspension – Front anti-roll bar

Ø Anti-roll bar	TU1M+ (2)					TU1M+ (1) TU3JP TUD5B		TU1M+		TU5JP		TU1M+ (3) TU3JP (3) TU5JP4 (3)		Raised suspension	
	None		21		19		18		22		France Administration		Export		
	None		21		19		18		22		21		19		
	None		21		19		18		22		21		19		

(1) = With airbag. (2) = Without option. (3) = VTS level.

REAR AXLE

SAXO - All Types



- (1) Rear axle.
- (2) Damper.
- (5) Rear suspension arm.
- (7) Rear brake drum.
- (9) Torsion bar.

The Anti-roll bar is located inside the tube of the rear axle.

Tightening torques m.daN.

- | | |
|-------------------------------|-------------|
| (3) Damper upper fixing screw | 10 ± 1 |
| (4) Damper lower fixing screw | 10 ± 1 |
| (6) Stub nut | 20 ± 1 |
| (8) Rear axle fixing bolt | 8.7 ± 1 |

B3DP02ND

SAXO - All Types		REAR AXLE - SUSPENSION			
		Torsion bar			
		TU1M+ (1) (2) – TU3JP (2) TU5JP4 - TUD5B (1)	TU1M+ - TU3JP TU5JP4 – TUD5B	TU1M+TUD5B (3)	
Torsion bar Ø (mm)		19	17.9	18.3	
Colour reference	LH : 2 rings	Black	White	Green	
Torsion bar	RH : 1 ring				
(1) = Entreprise.		(2) = VTS trim level		(3) = With raised suspension	
		Antiroll bar			
		TU1M+	TU1M+(2)-TU3JP TU5JP4-TUD5B	TU1M+ (3) TU3JP (3) TU5JP4 (3)	Raised suspension
France	Export				
Ø Anti-roll bar (mm)	None	18	22	18	15
(1) = With airbag.		(2) = With airbag or assisted steering or ABS.		(3) = VTS trim level.	

SAXO - All Types

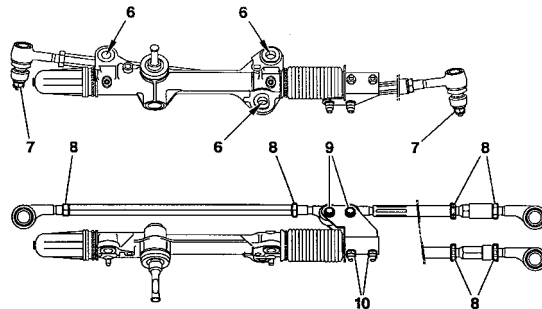
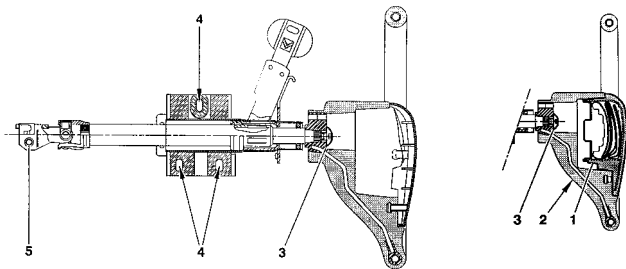
STEERING SPECIFICATIONS

	Manual steering		
Tyres	155/70 R13	165/70 R13	165/65 R14
Pinion (no. of teeth)	6		
Rack (no. of teeth)	28		
Rack travel	80	72	
Stop (colour)	Black	White	
	Power-assisted steering		
Tyres	165/70 R13	165/70 R14	185/55 R14
Pinion (no. of teeth)	7		
Rack (no. of teeth)	28		
Rack travel	68		
Stop (colour)			

NOTE : The steering assembly is secured to the bulkhead..

Length of the steering track rods
(Between the centre lines of the ball-joints).

Pre-adjustment = **520 mm.**



Tightening torques (m.daN)

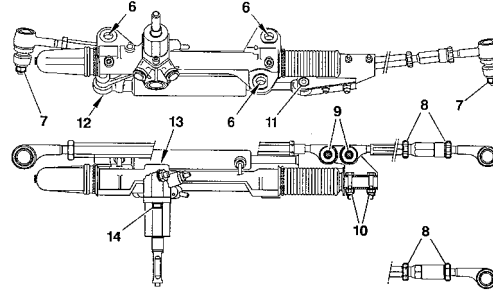
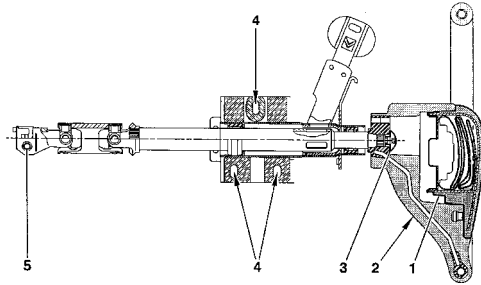
1 - Airbag	
2 - Airbag fixing to steering wheel	0.8
3 - Steering wheel fixing	3
4 - Steering column fixing	2.3
5 - Steering cardan joint fixing	2.3
6 - Fixing to bulkhead	2.2

7 - Pivot ball-joint nut	3.5
8 - Lock nut M14	4.5
8 - Lock nut M16	5
9 - Track rod articulation	2.1
10 - Splined coupling fixing to steering rack	2.4

B3EP02UD

B3EP09SC

B3EP09TD

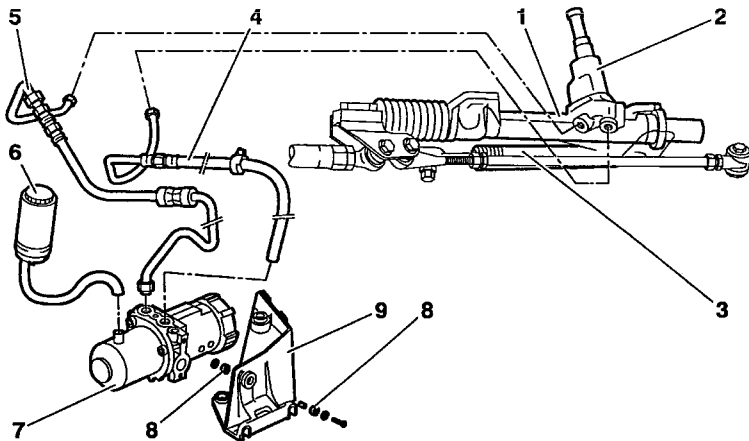


Tightening torques (m.daN)

1 - Airbag	
2 - Airbag fixing to steering wheel	0.8
3 - Steering wheel fixing	3
4 - Steering column fixing	2.3
5 - Steering cardan joint fixing	2.3
6 - Fixing to bulkhead	2.2
7 - Pivot ball-joint nut	3.5
8 - Track rod lock nut M14	4.5

8 - Track rod lock nut M16	5
9 - Track rod articulation	2.1
10 - Splined coupling fixing to steering rack	2.4
11 - Steering ram to splined coupling	8
12 - Steering ram to casing	8
13 - Nut fixing the pinion to the bearing	1.5
14 - Valve/casing fixing	0.7

Power steering system

WARNING : Saxo all types except diesel without aircon

- 1 - Power steering
- 2 - Oil dispensing valve
- 3 - Power-assisted steering ram
- 4 - Low pressure pipe
- 5 - High pressure pipe
- 6 - Upper reservoir
- 7 - Power steering electro-pump unit and built-in lower reservoir
- 8 - Flexible mounting
- 9 - Electro-pump unit bracket

Tightening torques (m.daN)

Pump support fixing	2
Pump fixing to support	2

High pressure pump

Electro-pump connection	2
Power steering valve connection	2.5

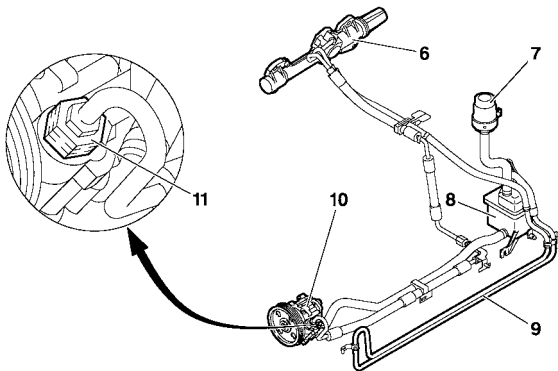
Low pressure pump

Electro-pump connection	2.5
Power steering valve connection	2.5

NOTE : Fluid type TOTAL Fluide ATX capacity : 0.950 L.

B3EP09UD

POWER STEERING SYSTEM

WARNING : Saxo diesel with aircon

B3EP12XD

Description.

NOTE : The power steering system on vehicles without aircon is supplied by a mechanical pump driven by the accessories drive belt.

(6) Power steering mechanism.

(7) Upper reservoir.

(8) Lower reservoir.

(9) Radiator.

(10) Power steering pump.

(11) The grooves on the connector (6) indicate that the pump (5) is constant flow.

Max. pressure : **80 Bars.**

Pulley diameter : **112 mm.**

Fluid quality : **TOTAL Fluide ATX**

Capacity : **1.55 litres.**

XSARA - All Types

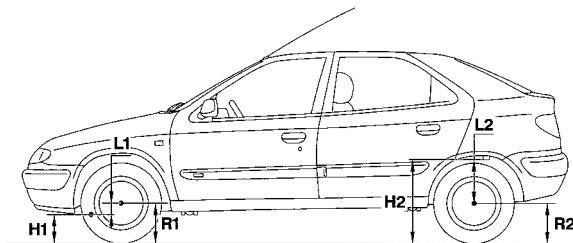
AXLE GEOMETRY

Front and rear measuring points

XSARA All Types

Front height

Rear height



B3CP046D

H1 = Dimension between the centre of the front suspension arm mounting and the ground.

H2 = Dimension between the contact face of the rear mounting and the ground.

R1 = Front wheel radius under load.

R2 = Rear wheel radius under load.

L1 = Distance between the centre of the wheel and the centre of the front suspension arm mounting.

L2 = Distance between the centre of the wheel and the contact face of the rear mounting on the bodyshell.

AXLE GEOMETRY

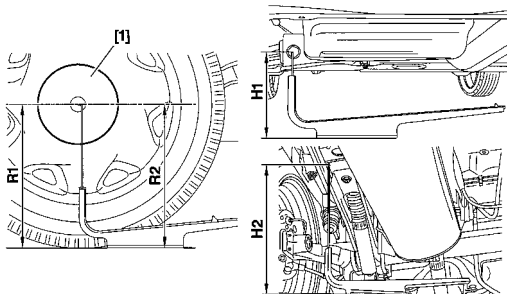
XSARA - All Types

Reference heights

Tools

[1] Gauge for measuring the radius of wheels with 4 bolts

: 8006-T



Setting the reference height.

Front

Rear

Measure the dimension «R1».
Calculate the dim. $H1 = R1 - L1$.

Measure the dimension «R2».
Calculate the dim. $H2 = R2 + L2$.

Compress the suspension until the values (H1) and (H2) are obtained.
NOTE : The difference in height between the two sides should be less than 10 mm.

B3CP04AD

	Front axle			Rear axle			
Engines	2.0i 16V (RFS)	All engines (except 2.0i 16V and CRD)	All CRD engines	2.0i 16V (RFS)	All saloons (except 2.0i 16V and CRD)	Estate	All CRD engines
Reference heights (in mm)	115.5	90.5	75.5	73	83	88	103

AXLES
SUSPENSION
STEERING

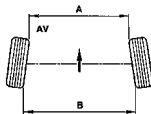
Values of the front and rear suspensions, at reference height

ESSENTIAL : When checking the suspensions, the vehicle should be at reference height.

Tools used :

Compress the suspension, to obtain the values at reference height.

- [1] Set of two suspension compressors : 9511-T.A
- [2] Set of four straps : 9511-T.B
- [3] Set of four shackles : 9511T.C



WARNING

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

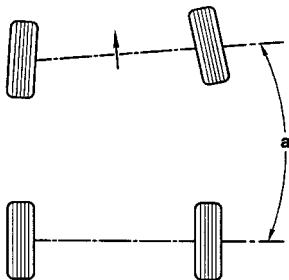
B3CP04LC

AXLE GEOMETRY

XSARA

Values of the front and rear suspensions, at reference height

		Front axle				
		Adjustable	All engines (except 2.0i 16V)	2.0i 16V	All CRD engines	
Tracking	mm	YES	$- 1.5 \pm 1$			
	0°		$- 0^\circ 15' \pm 10'$			
Castor		NO	$3^\circ \pm 40'$			
King pin inclination			$10^\circ 40' \pm 1^\circ$	$11^\circ \pm 1^\circ$	$10^\circ 40' \pm 1^\circ$	
Camber			$0^\circ \pm 1^\circ$			
		Rear axle				
		Adjustable	All engines (except 2.0i 16V)	2.0i 16V	Estate	All CRD engines
Tracking	mm	NO	4.6 ± 1	5.2 ± 1	4.4 ± 1	3.5 ± 1
	0°		$0^\circ 41' \pm 10'$	$0^\circ 47' \pm 10'$	$0^\circ 40' \pm 10'$	$0^\circ 32' \pm 10'$
Camber			$- 1^\circ 30' \pm 1^\circ$			



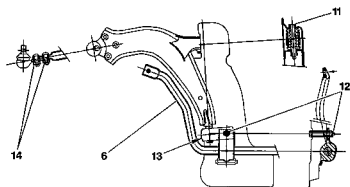
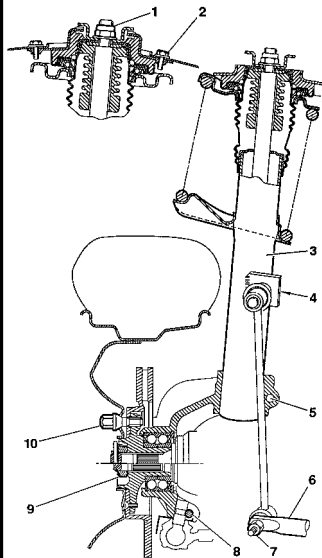
a = Angle which defines the tracking between the front and rear axles.

Its value must not exceed **12'**

B3CP04UC

FRONT AXLE

XSARA - All Types



Vehicles **09/2000** → are all equipped as standard with ventilated discs.

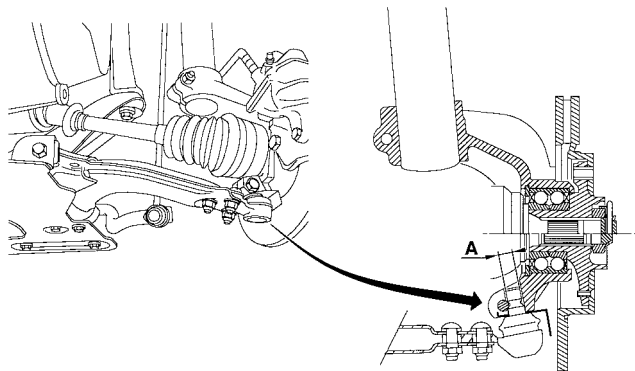
Tightening torques (m.daN).

(1) Damper nut	4.5 ± 0.4
(2) Cup screw	2.5 ± 0.3
(3) Suspension leg	
(4) Anti-roll bar link rod upper ball-joint	3.7 ± 0.3
(5) Suspension leg pivot (hollow pivot)	4.5 ± 0.5
(5) Suspension leg pivot (pivot «H»)	5.5 ± 0.5
(6) Anti-roll bars	
(7) Anti-roll bar link rod lower ball-joint	3.7 ± 0.3
(8) Pivot lower ball-joint	4 ± 0.4
(9) Driveshaft nut	32.5 ± 2.5
(10) Wheel bolt	9 ± 1
(11) Lower arm front mounting	7.6 ± 0.7
(12) Lower arm rear mounting and anti-roll bar bearing	6.8 ± 0.6
(13) Screw under rear mounting	
(14) Ball-joint fixing on lower arm	3.1 ± 0.3
Subframe to bodyshell fixing screw	5 ± 0.5
	8.5 ± 0.8

B3CP040P

B3CP041D

Evolution : Suspension arm ball-joint



Application from **RPO : 7968**.

New components :

- Suspension arm ball-joint.
- Pivot.

Old fitting $\text{ØA} = 16 \text{ mm}$.

New fitting $\text{ØA} = 18 \text{ mm}$.

Repair requirements.

ESSENTIAL : Swapping of old and new components is forbidden.

It is permitted to fit a new pivot/ball-joint assembly on one side of an old vehicle.

Replacement Parts.

The old components are still available from Replacement Parts.

B3CP054D

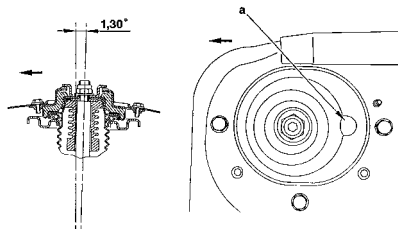
FRONT AXLE**XSARA - All Types****Anti-roll bars**

Engines		Diameter	Colour reference
1.6i-1.6i 16V-1.9D	Saloon	19	Blue
2.0i 16V (RFV)-2.0 HDi	Estate	20	Yellow
2.0i 16V (RFS)	Saloon	21	White

XSARA - All Types

FRONT AXLE

XSARA → 07/1999



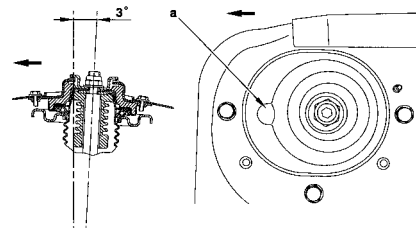
Lug "a" to the rear.

XSARA 07/1999 → 09/2000

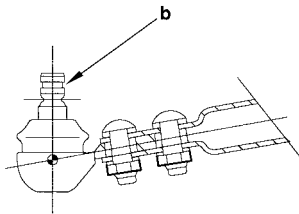
The angle of castor changes to 3° except for **LPG** vehicles, **DRC** vehicles, and Estates All Types.

DRC = Difficult Road Conditions : this type of vehicle has axles and suspensions designed for driving on rough road surfaces.

XSARA 09/2000 →



Lug "a" to the front.



Pivot ball joint

Manual steering, groove at "b".

Power-assisted steering, groove at "b".

NOTE : Vehicles after 09/2000 → are all equipped as standard with ball-joints without the groove at «b».

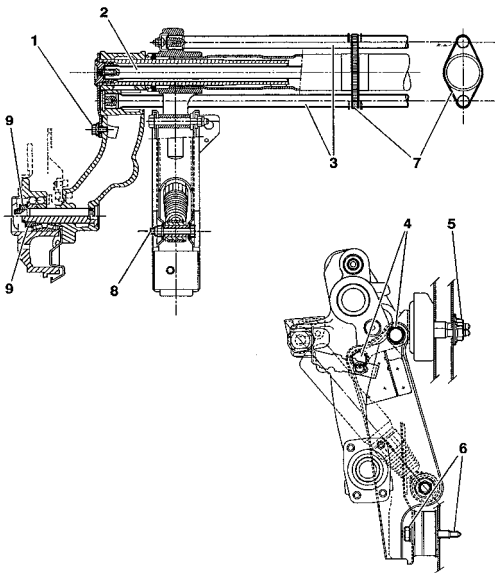
B3CP042D

B3CP049C

B3CP043D

REAR AXLE

XSARA - All Types



Tightening torques (m.daN)*

(1) Anti-roll bar lever	3.2 ± 0.3
(2) Anti-roll bar	
(3) Transversal torsion bars	
(4) Rear crossmember flanges	8.3 ± 0.8
(5) Front mountings	5.5 ± 0.5
(6) Rear mountings	4.5 ± 0.4
(7) Anti-vibration clamp.	
(8) Damper pin	9.6 ± 0.9
(9) Stub axle nuts (lubricated)	18.5 ± 1

NOTE

- The **RH** torsion bar can be identified by **1 paint** line.
- The **LH** torsion bar can be identified by **2 paint** lines.

B3DP04SP

XSARA - All Types

REAR AXLE

Engines	Vehicles	Torsion bars (mm)		Anti-roll bars (mm)	
		Diameter	Colour reference	Diameter	Colour reference
19.D	3-door Entrepise	19.3	Violet	19	Orange
	3- and 5-door TT exc. Entrepise	18.7	Yellow	18	Blue
	Estates All types	20	Grey	20	Green
1.6i 16V-2.i 16V 2.0 HDi	3- and 5-door TT	19.3	Violet	19	Orange
	Estates All types	20	Grey	20	Green
2.0i 16V	3-door VTS	21	Light green	23	Without colour, or white sticker
Grand Export «GRD»	3- and 5-door TT	19.3	Violet	19	Orange
	Estates All types	20	Grey	20	Green

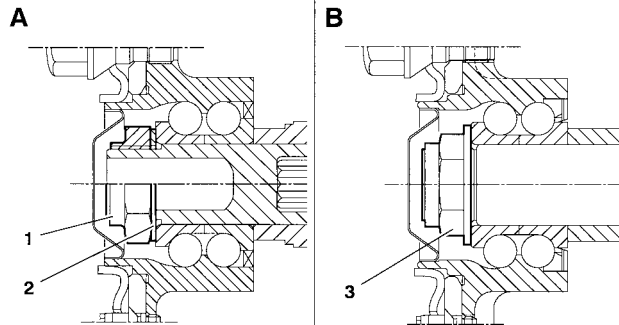
REAR AXLE

XSARA - All Types

Evolution : Rear hub nut

Old → 15/12/1999.

New 15/12/1999 →



Evolution :

- New rear hub nut (3).
- Washer discontinued (2).

Old fitting (A)

- (1) Rear hub nut.
- (2) Thrust washer.

ESSENTIAL : Tighten to : 27.5 ± 2.7 m.daN

New fitting (B)

- (3) Rear hub nut.

ESSENTIAL : Tighten to : 25 ± 2.5 m.daN.

NOTE : It is possible to have both types of fitting on the same axle.
The old nut (1) requires the fitting of the thrust washer (2).

WARNING : do not fit a thrust washer (2) with a new nut (3).

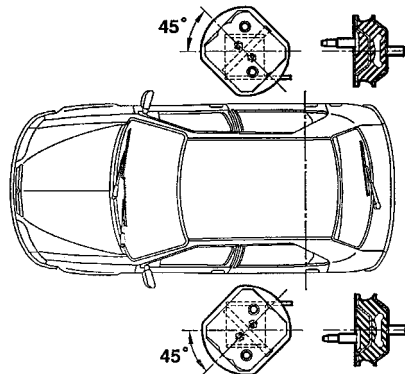
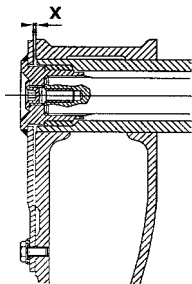
ESSENTIAL: Respect the tightening torque to be applied when fitting.

WARNING: Identify the type of fitting, before starting a repair.

B3DP08AD

XSARA - All Types

REAR AXLE



Operating clearance - $X = 1$ to 1.4 mm.

NOTE : The RH torsion bar can be identified by **1 paint** line.

The LH torsion bar can be identified by **2 paint** lines.

- The **front** mountings are aligned at an angle of **45°** in relation to the vehicle's axis.
- The **rear** mountings are in **parallel with the vehicle's axis**.

NOTE : There are two suppliers for the mountings:

- **RBT**, identified by a **Green** or **Yellow** painted dot on the side of the mounting.
 - **PAULSTRA**, identified by a **Black** painted dot on the side of the mounting.
- It is **ABSOLUTELY FORBIDDEN** to swap components of different suppliers.

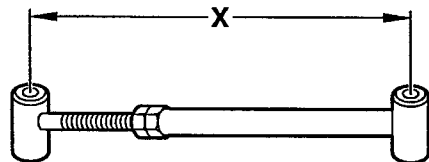
B3DP04TC

B3DP04UD

REAR DAMPER

XSARA - All Types

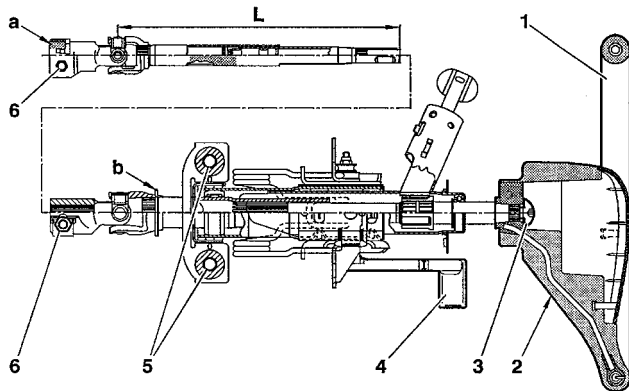
Adjusting the rear dummy damper



Engines	Lengths of the rear dummy damper (mm)	
	Normal driving	Grand export
1.9 D	339	346
1.6i 16V 3-door		339
1.6i 16 V 5-door 2.0i 16V (RFN) -2.0 HDi		346
2.0i 16V (RFS)	318	
Estates and Entreprise all types	336	342

E5AP14WC

Steering wheel - Manual steering



- (a) : L.H.D./R.H.D = White.
- (L) : Shaft length = 311 ± 1.5 mm.
- (1) Steering wheel fitted with AIRBAG.
(according to equipment).
- (4) Steering column adjustment lever.

Tightening torques (m.daN).

- | | |
|---|-------|
| - (2) AIRBAG to steering wheel fixing | : 0.8 |
| - (3) Steering wheel fixing | : 3.3 |
| - (5) Steering column to support fixing | : 2.3 |
| - (6) Steering cardan joint fixing | : 2.3 |

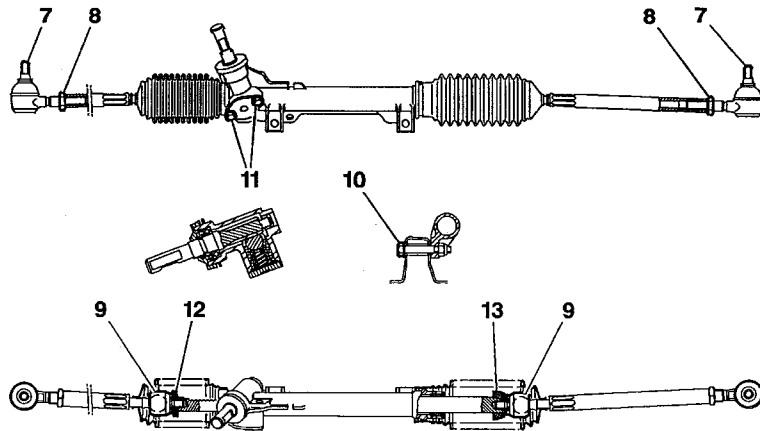
- (b) = Locating bush.

The locating bush must be centred in the reference window before tightening the cardan bolts (6).

MANUAL STEERING SPECIFICATIONS

XSARA - All Types

Manual steering



Tightening torques (m.daN)

(7) Pivot ball-joint nut	: 4
(8) Link rod lock nut	: 4.5
(9) Ball-joint on steering rack	: 6
(10) Fixing on cradle	: 5
(11) Plunger flange screw	: 1.2

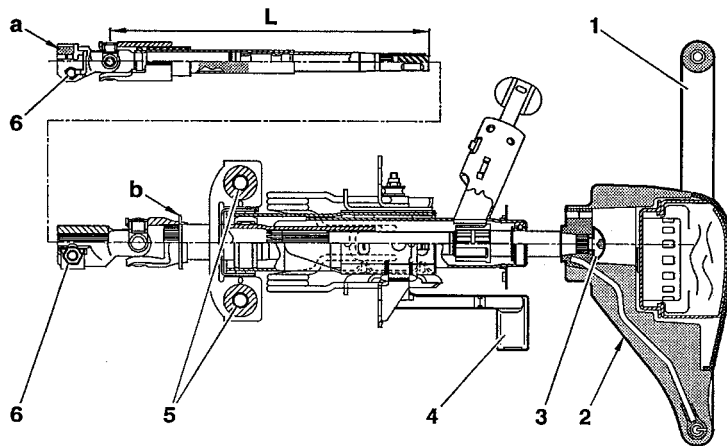
B3EP042D

Manual steering (continued)

	Steering rack travel (mm)	Number of teeth		Steering stop	Number of steering wheel turns	Steering ratio
		Pinion	Steering rack			
L.H.D.	73.5	6 teeth (RH helix)	29	(13) Yellow thickness mm	4.3	22/1

- Length of the steering link rods (*Pre-adjustment*) = **371 mm** (*Between ball-joint centres*) or **391 mm** (*Between the centre of the pivot ball-joint and the contact face of the steering rack ball-joint*).

Steering wheel - Power-assisted steering



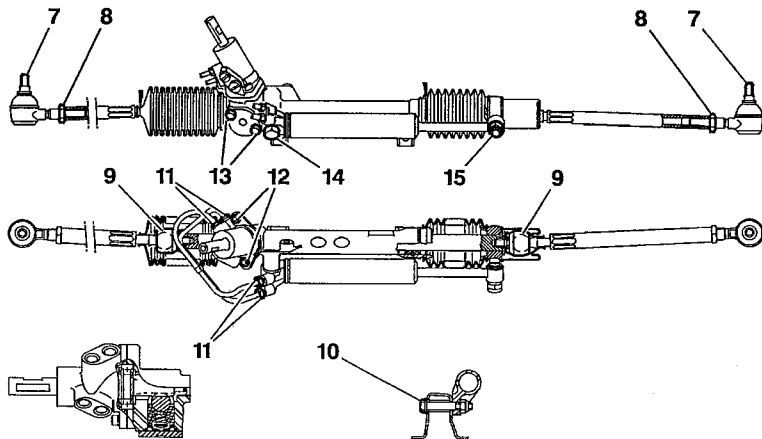
- (a) : L.H.D. = **Blue**.
: R.H.D. = **White**.
- (L) : Shaft length = 311 ± 1.5 mm.
- (1) Steering wheel fitted with **AIRBAG**.
(according to equipment).
- (4) Steering column adjustment lever.

Tightening torques (m.daN).

- (2) **AIRBAG** to steering wheel fixing : **0.8**
 - (3) Steering wheel fixing : **3.3**
 - (5) Steering column to support fixing : **2.3**
 - (6) Steering cardan joint fixing : **2.3**
- (b) = **Locating bush**.

The locating bush must be centred in the reference window before tightening the cardan bolts (6).

Power-assisted steering



Tightening torques (m.daN)

(7) Pivot ball-joint nut	: 4
(8) Link rod lock nut	: 4.5
(9) Ball-joint on steering rack	: 6
(10) Fixing on subframe	: 5
(11) Hydraulic pipe connection	: 2.5
(12) Valve to housing fixing	: 1.2
(13) Plunger flange screw	: 1.2
(14) Screw fixing the steering ram to the housing	: 5.5
(15) Nut fixing the steering ram to the yoke	: 5.5

POWER-ASSISTED STEERING SPECIFICATIONS

XSARA - All Types

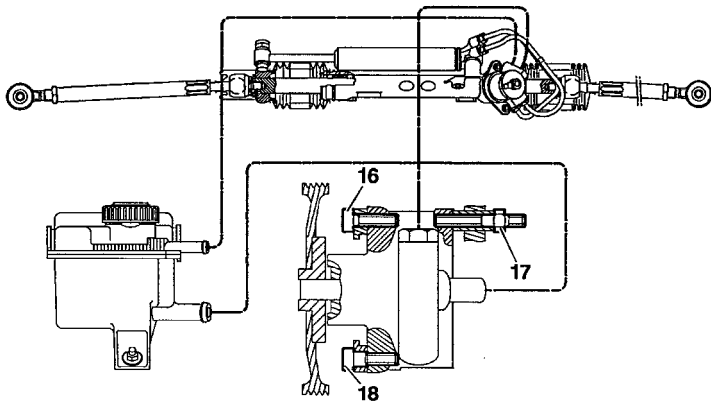
Power-assisted steering (continued)

	Steering rack travel (mm)	Number of teeth		Number of steering wheel turns	Steering ratio
		Pinion	Steering rack		
L.H.D.	71.7	(*) (RH helix)	28	3.3	18.8/1

Steering valve		
Vehicles	Protector colour	Number of teeth (*)
All types (except 1.8i 16V - 1.9TD)	BLACK	7
1.8 i 16V - 1.9 TD	ORANGE	8

- Length of the steering link rods (*Pre-adjustment*) = **371 mm** (*Between ball-joint centres*) or **391 mm** (*Between the centre of the pivot ball-joint and the contact face of the steering rack ball-joint*).

Power-assisted steering assembly



Power-assisted steering system capacity = 1 litre.

Oil type: **TOTAL FLUIDE ATX.**

SAGINAW Pump adjustment = 100 Bars \pm 5.

Pump shaft threading 3/8 - 16 threads per inch.

Tightening torques (m.daN)

High pressure tube (*Rubber seal pump side*)

- Power-assisted valve and pump union : 2.5

Return pipe.

- Power-assisted valve union : 2.5

(16) - Upper front fixing (E3) : 2.5

(17) - Upper rear fixing (E3) : 2.2

(18) - Fixing (E3) : 2.2

Tightening sequence.

- Tighten screws (16) and (18)

- Lightly tighten screw (17), then fully tighten.

Pressure switch on the pressure circuit.

- Switch opens 30 to 35 Bars.

- Switch closes 25 bars.

- Tighten to : 2 m.daN.

B3EP045D

AXLE GEOMETRY

XSARA PICASSO - All Types

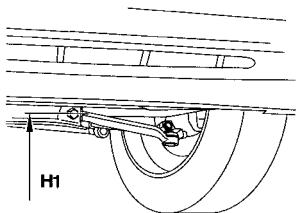
Measurements at reference height

NOTE : To make the setting of reference height easier, it is acceptable to take the measurement from the flange of the jacking point.

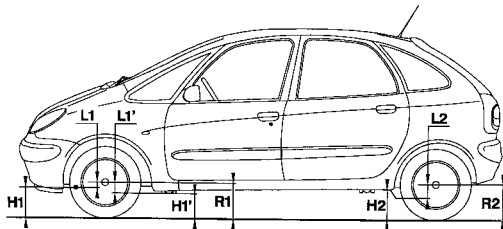
WARNING : The values shown should only be used as guides. In case of doubt, check the settings at reference height

Front height

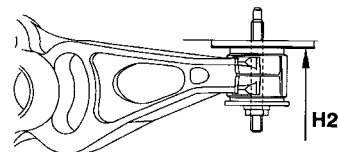
Rear height



B3CP05BC



B3CP058D



B3DP079C

$$H1 = R1 - L1 \quad H1' = R1 - L1'$$

$$H2 = R2 - L2$$

H1= From the front suspension arm linkage bolt axis to the ground.
R1= Radius of the front wheel when laden.
L1 = From the centre of the wheel to the front suspension arm linkage bolt axis.
H1' = From the front jacking point to the ground.
L1' = From the front jacking point to the radius of the front wheel when laden.

H2 = From the rear axle flexible mounting face to the ground.
R2 = Radius of the rear wheel when laden.
L2 = From the centre of the wheel to the rear axle flexible mounting face.

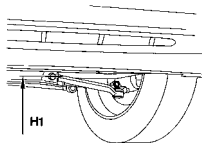
XSARA PICASSO - All Types

AXLE GEOMETRY

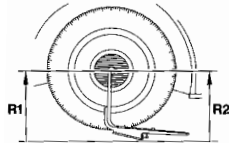
Measurements at reference height (continued).

(The reference height of the vehicle is set as per the table below).

Front axle

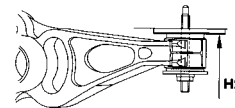


B3CP05BC



B3CP05AC

Rear axle



B3DP079C

$H1 = R1 - L1$ ou $H1' = R1 - L1'$

$H2 = R2 + L2$

FRONT AXLE

Essieu rear

Vehicles all types

$L1 = 90.5\text{mm}$

$L1' = 124\text{ mm}$

$H2 = R2 + 8.5\text{ mm}$

CRD vehicles (Difficult Road Conditions)

$H1 = R1 - L1$ or $H1' = R1 - L1'$

$H2 = R2 + L2$

6FZ - RHZ

L1

L1'

L2

75.5

109

23.5

Measure the radius of the front wheel : R1.
Calculate dimension H1 or H1'.

Measure the radius of the rear wheel: R2.
Calculate dimension H2.

Compress the suspension to obtain the calculated values. The difference in height between the two sides should be less than 10 mm.

AXLE GEOMETRY	XSARA PICASSO - All Types
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Measurements at reference height (continued). Compress the suspension to obtain the calculated values.

Vehicle all types

Front axle				Rear axle		
Vehicle	Tracking	Castor	King pin inclination	Camber	Tracking	Camber
	Adjustable	Non-adjustable				
All Types	0 mm ± 1mm 0 ± 0°09'	3° ± 20'	10° 45' ± 30'	0° ± 30'	4.8 mm ± 1mm 0° 43' ± 0° 09'	1°20' ± 20'

Vehicle all types CRD (Difficult Road Conditions)

Front axle				Rear axle		
Vehicle	Tracking	Castor	King pin inclination	Camber	Tracking	Camber
	Adjustable	Non-adjustable				
All Types	-1 mm ± 1mm - 0°09' ± 0°09'	2°93' ± 20'	10°42' ± 30'	0°12' ± 30'	3.8 mm ± 1mm 0°34' ± 0° 09'	- 1°23' ± 20'

NOTE : When checking axles, the vehicle should be at reference height.

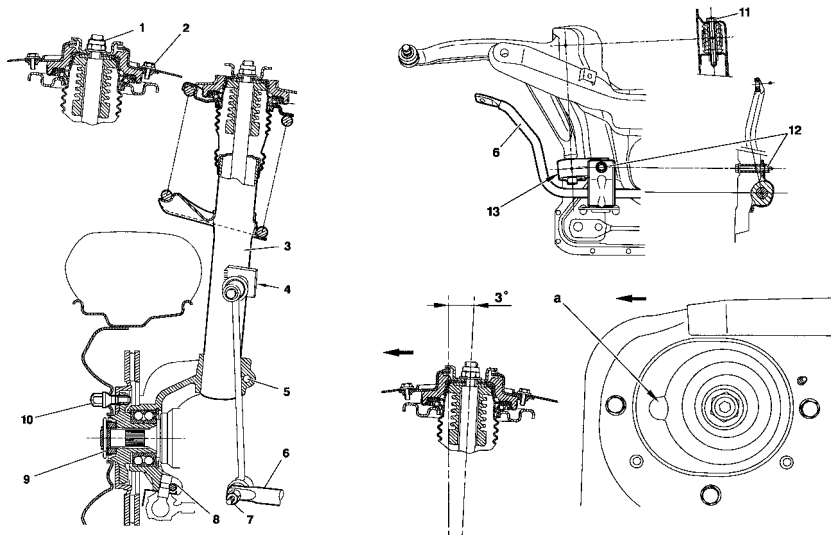
(*) = Fuel tank full.

			WARNING	
All Types	Ground clearance		A < B = Positive figure:	+ = TOE-IN
Unladen (*)	150 mm (Minimum value)		A > B = Negative figure:	- = TOE-OUT

**AXLES
SUSPENSION
STEERING**

XSARA PICASSO - All Types

FRONT AXLE



Damper upper bracket :
Lug «a» to the front.

Tightening torques m.daN.

- (1) Damper nut : 4.5 ± 0.4
- (2) Cup screw : 2.5 ± 0.3
- (3) Suspension arm.
- (4) Anti-roll bar link rod ball-joint : 3.7 ± 0.3
- (5) Suspension arm swivel : 4.5 ± 0.4
- (6) Anti-roll bar
- (7) Anti-roll bar link rod ball-joint : 3.7 ± 0.3
- (8) Lower swivel ball-joint : 4 ± 0.4
- (9) Hub nut : 32.5 ± 2
- (10) Wheel bolt : 9 ± 1
- (Face and threads not lubricated).
- (11) Lower arm front pivot : 7.6 ± 0.7
- (12) Lower arm rear pivot and anti-roll bar bearing : 6.8 ± 0.6
- (13) Screw under rear pivot : 3.7 ± 0.3
- Fixing bolt : subframe on bodyshell : 8.5 ± 0.8

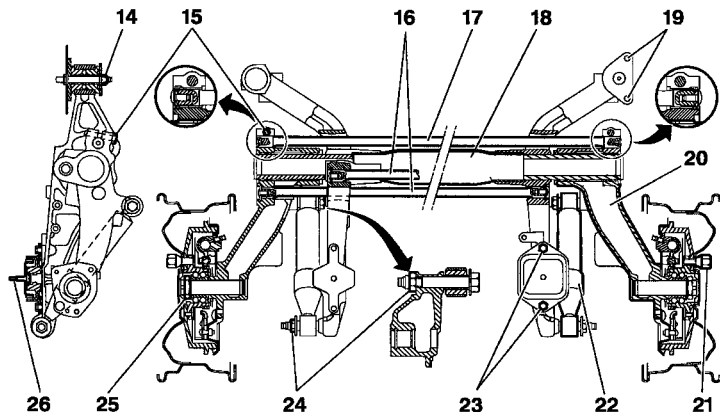
Anti-roll bar

Engines	Diameter	Colour mark
NFZ-6FZ RHY	21	WHITE

B3CP056P B3CP057D B3CP043D

REAR AXLE

XSARA PICASSO - All Types



Tightening torques m.daN.

- (14) Front flexible mounting on subframe : 9.5 ± 0.9
- (15) Anti-roll bar bolt : 5.5 ± 0.5
- (16) Rear torsion bar
- (17) Anti-roll bar
- (18) Tubular axle
- (19) Front flexible mounting on bodyshell : 4 ± 0.4
- (20) Rear upper arm.
- (21) Wheel bolt : 9 ± 0.9
- (Face and threads not lubricated)
- (22) Damper
- (23) Rear flexible mounting on subframe : 5.5 ± 0.5
- (24) Damper pin nut : 11 ± 0.1
- (25) Stub axle nuts (lubricated) : 25 ± 0.2
- (26) Rear flexible mounting on bodyshell : 5.5 ± 0.5

Engines	Torsion bar		Anti-roll bar	
	Ø (mm)	Colour mark	Ø (mm)	Colour mark
NFZ-6FZ RHY	19.6	PINK	21	ORANGE

NOTE : The RH torsion bar can be identified by **1** paint line.
The LH torsion bar can be identified by **2** paint lines.

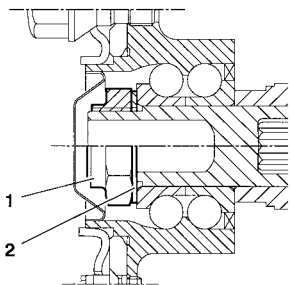
B3DP078D

Evolution : Rear hub nut

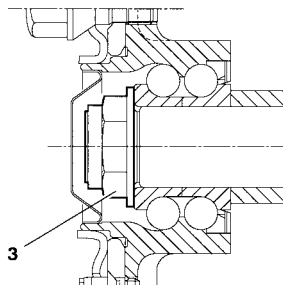
Old → 15/12/1999.

New 15/12/1999 →

A



B



Evolution :

- New rear hub nut (3).
- Washer discontinued (2).

Old fitting (A)

- (1) Rear hub nut.
- (2) Thrust washer.

ESSENTIAL : Tighten to : 27.5 ± 2.7 m.daN

New fitting (B)

- (3) Rear hub nut.

ESSENTIAL : Tighten to : 25 ± 2.5 m.daN.

NOTE : It is possible to have both types of fitting on the same axle.
The old nut (1) requires the fitting of the thrust washer (2).

WARNING : do not fit a thrust washer (2) with a new nut (3).

ESSENTIAL : Respect the tightening torque to be applied when fitting.

WARNING : Identify the type of fitting, before starting a repair.

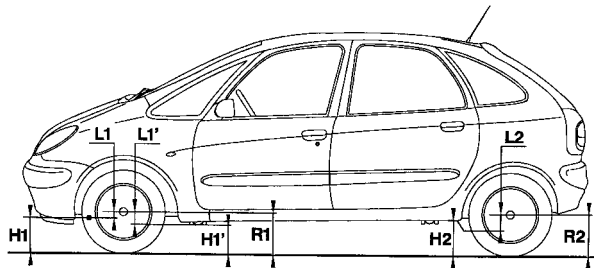
B3DP08AD

SUSPENSION

XSARA PICASSO - All Types

Height of the vehicle in running order

(The vehicle height, when in running order, is set according to the measurements shown in the table below).



The vehicle is said to be in running order when it is empty, with all reservoirs full, including the fuel tank.

B3CP058D

Vehicles all types (except CRD)

Front

$$H1 = R1 - L1$$

Engine	1.6i - 1.8 i 16 V	2.0 HDi
L1	62.5	66.5 mm
L1'	96	100 mm

Rear

$$H2 = R2 - L2$$

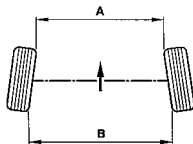
Engine	1.6i - 1.8 i 16 V - 2.0 HDi
L2	51 mm

XSARA PICASSO - All Types
SUSPENSION

Measurements at the front and rear axles, vehicle in running order

Vehicles all types (except CRD)

Front axle				Rear axle		
	Adjustable	1.6i - 1.8i 16 V	2.0 HDi		Adjustable	1.6i - 1.8i 16 V 2.0 HDi
Tracking	Yes	2 mm ± 1 mm 0° 18' ± 0° 09'	1.7 mm ± 1 mm 0° 15' ± 0° 09'	Tracking	Oui	1.2 mm ± 1 mm 0° 11' ± 0° 09'
Castor	No	2° 54' ± 20'		Camber	Non	1° 15' ± 20'
King pin inclination		10° 6' ± 30'	10° 12' ± 30'			
Camber		0° 20' ± 30'	0° 15' ± 30'			



B3CP02UC

A < B = Positive figure:

+ =

TOE-IN

A > B = Negative figure:

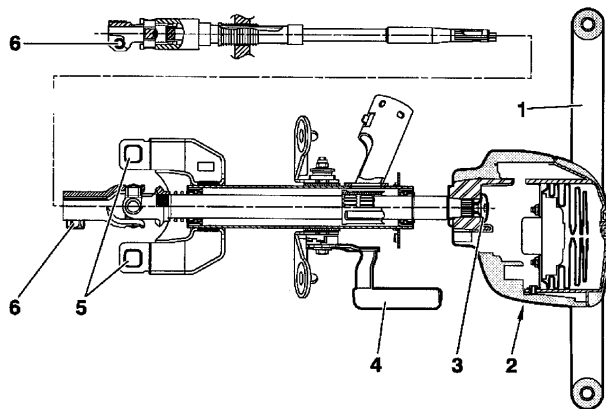
- =

TOE-OUT

WARNING

STEERING COLUMN SPECIFICATIONS

XSARA PICASSO - All Types



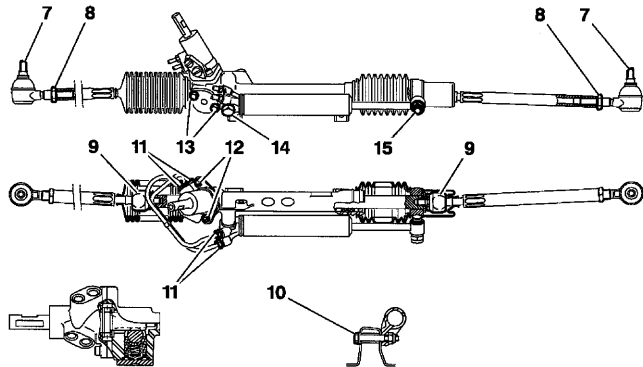
Left hand drive = **Green marking.**
Right hand drive = **White marking.**

- (1) Steering wheel.
- (4) Steering column adjustment.

Tightening torques m.daN.

(2) Airbag to steering wheel fixing	0.8 ± 0.1
(3) Steering wheel fixing	3.3 ± 0.6
(5) Steering column to support fixing	4 ± 1
(6) Steering cardan joint fixing	2.3 ± 0.2

B3EP116D



Tightening torques (m.daN)

(7) Pivot ball-joint nut	$4 \pm 0.4.$
(8) Steering rod adjusting lock nut	$4.5 \pm 0.4.$
(9) Ball-joint on steering rack	$6 \pm 0.6.$
(10) Fixing steering on subframe	$8 \pm 0.8.$
(11) Hydraulic pipe connection	2.4 ± 0.2
(12) Power steering valve	1.2 ± 0.2
(13) Plunger flange screws	$1.2 \pm 0.2.$
(14) Steering ram screw on housing	$9 \pm 1.$
(15) Steering ram screw on yoke	$9 \pm 1.$

NOTE : When removing the steering, it is imperative to replace screws (14) and (15) (*New screws*).

STEERING SPECIFICATIONS

XSARA PICASSO - All Types

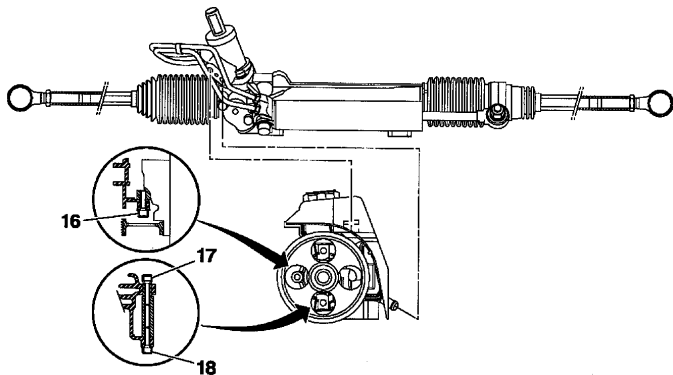
	Steering rack travel	Rack pinion	Number of teeth in rack	Number of steering wheel turns	Turning circle between walls	Turning circle entre trottoirs
Left hand drive	71.7x2	LH helix	28	3.22	12 m	11.48 m
Right hand drive		RH helix				

Engines	Steering valve
1.6i - 1.8i 16 V - 2.0 HDi	No. of teeth : 7

Length of the steering link rods (pre-adjustment):

(Between ball-joint centres) = **392 mm**

(Between the centre of the pivot ball-joint and the contact face of the steering rack ball-joint). = **412 mm.**



Capacity of power steering circuit = **1 Litre**.
 Oil quality = **TOTAL FLUIDE ATX**.
 Power steering pump : Supplier **SAGINAW**.
 Pump adjustment = **100 ± 5 Bars**.
 Pump shaft threading **3/8 - 16 threads per inch**

Tightening torques (m.daN)

Unions between pump unions and power steering valve	2 ± 0.3
(16) Fixing screw	2.2 ± 0.3
(17) Fixing screw	2.2 ± 0.3
(18) Fixing screw	2.2 ± 0.3

NOTE : Coat the threads with product "E3".

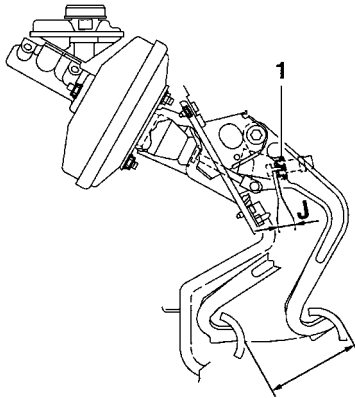
A pressure switch is implanted in the hydraulic piping between the high pressure pump and the power steering valve.

- Opening pressure = **30 / 35 Bars**.
- Closing pressure = **25 Bars minimum**.
- Tightening torque = **2 ± 0.2**

B3EP118D

BRAKE SPECIFICATIONS				SAXO - All Types			
(1) Compensator integral with the wheel cylinder. (2) Load sensitive compensator.		1.1i - 1.4 i 1.5 D		1.6 i	1.6i 1.6 i 16V		
		Power-assisted steering without ABS					
Ft	Ø mm	Master cylinder		19	20.6	22.2	
		Master-vac		177.8	203.2	228.6	
		Caliper/ piston makes		BENDIX Standard 4/48	TEVES FN48/48		
		Disc	Non-ventilated	247	247		
	Ventilated						
	Disc thickness/min. thickness		10/8	20.4/18.4			
	Brake pad grade		GALFER 3726 TEXTART 4009	TEXTART 4900	AS – FM 380		
Rr	Ø mm	Cylinder or caliper		19	30		
		Drum / Ø max.		180/182			
		Disc	Non-ventilated		247		
	Disc thickness/min. thickness				8/6		
	Make		BENDIX RAD			BENDIX S4	
	Brake lining grade		DON 8259			AS FM 380	
	Compensator		(1) 20			(2) 13	

SAXO - All Types		BRAKE SPECIFICATIONS (continued)					
(1) Compensator integral with the wheel cylinder. (2) Load sensitive compensator.		1.1 i - 1.4 i 1.5 D	1.6 i	1.6 i 1.6 i 16V	Entreprise 1.1i-1.5D		
		Power-assisted steering with ABS			Manual steering		
Ft	Ø mm	Master cylinder		20.6			
		Master-vac		203.2			
		Caliper/ piston makes		BENDIX Standard 4/48	TEVES FN 48/48		BENDIX Standard 4/48
		Disc	Non-ventilated	247			247
	Ventillé				247		
	Disc thickness/min. thickness		10/8	20.4/18.4		10/8	
	Brake pad grade		JURID 519	AS FM 380		GALFER 3726 TEXTART 4009	
Rr	Ø mm	Cylinder or caliper		20.6	30	19	
		Drum / Ø max.		203/205		180/182	
		Disc	Non-ventilated			247	
	Disc thickness/min. thickness				8/6		
	Make		LUCAS RAI		BENDIX S4	BENDIX RAD	
	Brake lining grade		JURID E 558		AS FM 380	DON 8259	
	Compensator		(2) 13			(1) 20	

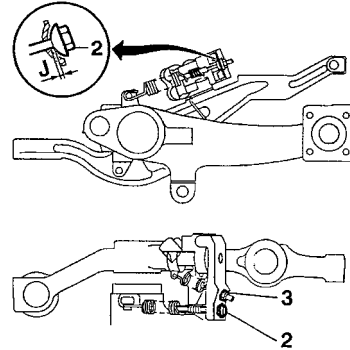


Adjusting the stop lamp switch.

Clearance $J = 2$ to 3 mm.

After adjustment, tighten the lock nut (1) to 1 m.daN.

B3FP06FC



B3FP06GC

Conditions

- Vehicle in running order - **5 litres** of fuel.
- A driver (**75 Kg**).

Adjusting the brake limiter.

- Apply the brake pedal to close the limiter.
- Adjust using the screw (2) to obtain a clearance J of **0.5 to 2 mm**.

NOTE : Do not touch (3) which has been adjusted at the factory.

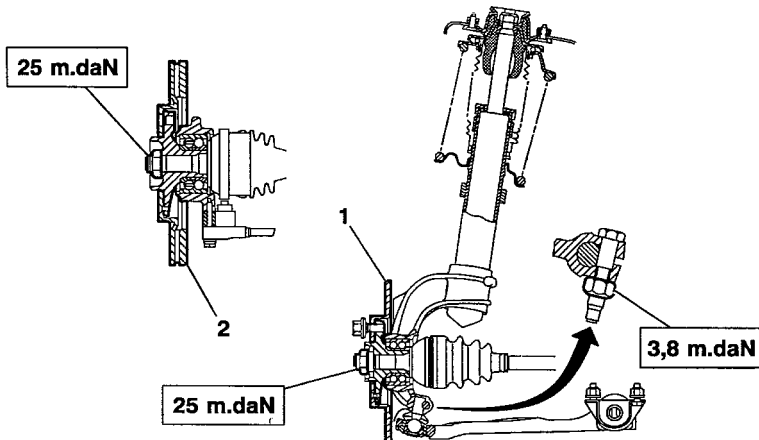
SAXO - All Types

BRAKES (continued)

ABS - 1.1 i - 1.4 i - 1.6 i

Tightening torques (m.daN)

Removing the caliper



- | | |
|-----------------------------------|-----------|
| - 1.1 i Manual steering | |
| - Screw M8 | 3.2 ± 0.3 |
| - Screw M12 | 12 ± 1.2 |
| | |
| - 1.1 i - 1.4 i
(Except 1.6 i) | |
| - 2 Screws M12 | 12 ± 1.2 |
| | |
| - 1.6 i | |
| - 2 Screws M12 | 10.5 ± 1 |

NOTE : See evolution, pages 254 to 256

B3FP10ND

BRAKES (continued)**SAXO - All Types****EVOLUTION : Fixing screws for FRONT brake calipers: Type BENDIX STANDARD 4.****Application from RPO 8973.****Vehicles concerned.**

Vehicles equipped with non-ventilated brake discs. (Except VTS trim level).

Vehicles equipped with the following engines:

TUD5 – TU1JP – TU3JP

TU1M+ (Entreprise) and TU9M (Entreprise).

Evolutions.**Evolutions of the following components:**

Front brake caliper fixing screws.

Stop plates for front brake caliper fixing screws.

Evolutions of the fixing screws:

Coating on the threads of the fixing screws.

Flanges for better centring of the fixing screws.

NOTE : The fixing screws are matched to the stop plates.

IMPERATIVE : Respect the tightening torques.

Old fitting: tighten to **12 m.daN.± 1.2 (up to RPO 8972).**

NEW FITTING (from RPO 8973).

Tightening : 3.5 m.daN ± 0.3

Angular tightening : 87° ± 3°

Repair.**Removing-refitting the front brake caliper (old and new fitting)**

Clean the threads of the fixing screws and coat them with a brake product of type «E3».

Tightening : 3.5 m.daN ± 0.3

Angular tightening : 87° ± 3°

Interchangeability

The new fixing screws matched to the new stop plates can be fitted on the old front brake calipers.

IMPERATIVE : Respect the matching of the stop plates and fixing screws.

Replacement parts.

The Replacement Parts service markets both the old and the new components.

SAXO - All Types

BRAKES (continued)

EVOLUTION : Fixing screws for REAR brake calipers: Type BENDIX STANDARD 4.

Application from RPO 8973.

Vehicles concerned.

Vehicles equipped with non-ventilated brake discs. (Except VTS trim level).

Vehicles equipped with the following engines:

TU5J4 and TU5JP.

Evolutions.**Evolutions of the following components:**

Rear brake caliper fixing screws.

Stop plates for rear brake caliper fixing screws.

Evolutions of the fixing screws:

Coating on the threads of the fixing screws.

Flanges for better centring of the fixing screws.

NOTE : The fixing screws are matched to the stop plates.

IMPERATIVE : Respect the tightening torques.

Old fitting: tighten to **11 m.daN ± 1 (up to RPO 8972).**

NEW FITTING (from RPO 8973).

Tightening : 7.5 m.daN ± 0.7

Repair.**Removing-refitting the rear brake caliper (old and new fitting)**

Clean the threads of the fixing screws and coat them with a brake product of type «E3».

Tightening : 7.5 m.daN ± 0.7

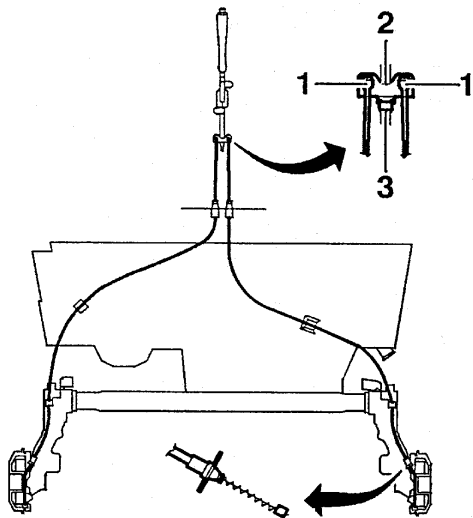
Interchangeability

The new fixing screws matched to the new stop plates can be fitted on the old rear brake calipers.

IMPERATIVE : Respect the matching of the stop plates and fixing screws.

Replacement parts.

The Replacement Parts service markets both the old and the new components.



- Prior to adjustment.**
- Release the handbrake.
 - Drums rotating freely.
 - No tight spot *(If there is one, check if the primary or secondary cables are correctly routed).*
 - Check that all the parts slide and move correctly.
 - Bleed the main circuit.

- Adjustment.**
- Set the brake to the **4th** notch.
 - Tighten the nut **(3)** until the rear brakes are applied.
 - Check that:
 - there is a total travel of between **4** and **7 notches**.
 - the two secondary cables **(1)** on the balance lever **(2)** move together.
 - the wheels rotate freely when the brake is released.
 - Check that the brake warning lamp comes on from the **4th** notch.

NOTE : The handbrake operates on the rear wheels.

SAXO - All Types**BLEEDING THE BRAKES**

The brakes are bled :

- Using brake bleeding equipment, in which case the pressure of the equipment should be set to a maximum of 2 Bars.

IMPERATIVE order of bleeding**Wheel :**

- Rear left.
- Front right.
- Rear right.
- Front left.

Top up to level using the brake fluid sold by the **CITROEN Replacement Parts Division**.

BRAKE SPECIFICATIONS							XSARA → 09/2000		
			Saloons						
			1.4i	1.6i 16V	2.0i 16V		1.9 D	2.0 HDi	
					RFN	RFS		RHY	RHZ
Ft	Ø mm	Master cylinder	Without ABS 23,8 (expansion holes)			With ABS 23,8 (valve)			
		Master-vac	228.6						
		Caliper/piston makes	BOSCH 54		LUCAS 57		BOSCH 54		
		Disc	Ventilated	266		283		266	
	Disc thickness/min. thickness		22 / 20						
	Brake pad grade		FERF 769		ASFM 380		FERF 769		
	Thickness/min. thickness		13 / 2						
	Rr	Ø mm	Drum - Ø min./max.	203/205				203/205	
Disc non-ventilated				247				247	
Disc thickness/min. thickness			8/6				8/6		
Make		BENDIX	JURID		TEXTAR	BENDIX	JURID		
Brake lining grade		D 8259	519		428	D 8259	519		
Make		BOSCH / Load-sensitive compensator							
Cut-off pressure in Bars		32							
Ramp/Paint reference		0.3 - White							

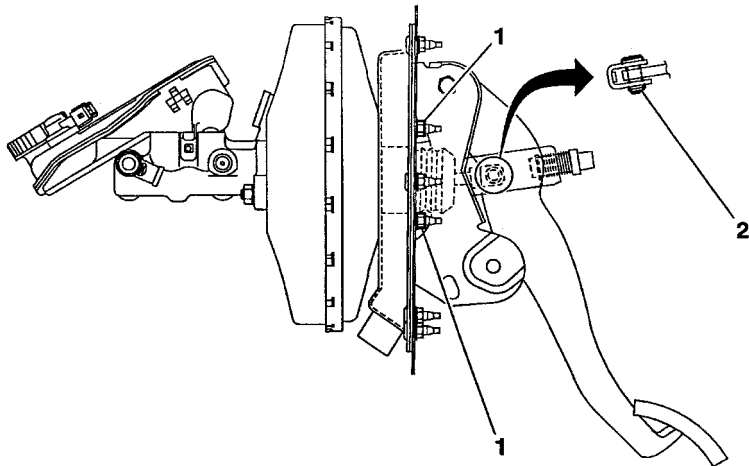
XSARA → 09/2000

BRAKE SPECIFICATIONS

			Estates						
			1.4i	1.6i 16V	2.0i 16V		1.9 D	2.0 HDi	
					RFN	RFS		RHY	RHZ
Ft	Ø mm	Master cylinder	Without ABS 23,8 (expansion holes)			With ABS 23,8 (valve)			
		Master-vac	228.6						
		Caliper/piston makes	BOSCH 54		LUCAS 57		BOSCH 54		
		Disc	Ventilated	266		283		266	
	Disc thickness/min. thickness		22 / 20						
	Brake pad grade		FERF 769		ASF 380		FERF 769		
	Thickness/min. thickness		13 / 2						
Rr	Ø mm	Drum - Ø min./max.	228 / 230				228 / 230		
		Disc non-ventilated		247				247	
	Disc thickness/min. thickness			8 / 6				8 / 6	
	Make		JURID	JURID		JURID		JURID	
	Brake lining grade		E 558	519		E 558		519	
	Make		BOSCH / Load-sensitive compensator						
	Cut-off pressure in Bars		32						
Ramp/Paint reference		0.3 - White							

BRAKE SPECIFICATIONS

XSARA - All Types



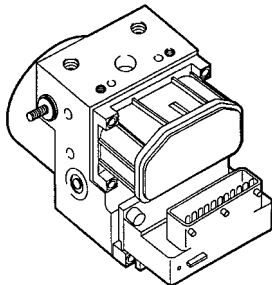
- Tighten the nuts **(1)** to **2.3 m.daN**.
- The clevis pin **(2)** is held in place by a plastic clip.

XSARA - All Types

BRAKE SPECIFICATIONS

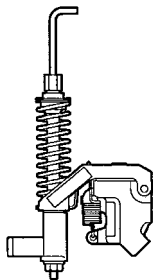
Braking system specifications

1



- X braking circuit.
- Front : disc brakes, ventilated (*according to model*).
- Rear : drum brakes with automatic adjustment.
- Cable operated handbrake acting on the rear wheels.

2



- (1) Hydraulic valve block «**ABS Bosch 5.3**» or
- (1) Hydraulic valve block « **ABS Bosch 5.3 REF**».
- (2) Load sensitive braking compensator (*according to model*).

B3FP09HC

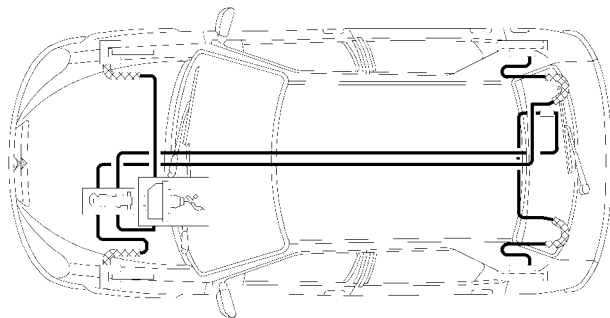
B3FP09JC

BRAKE SPECIFICATIONS

XSARA - All Types

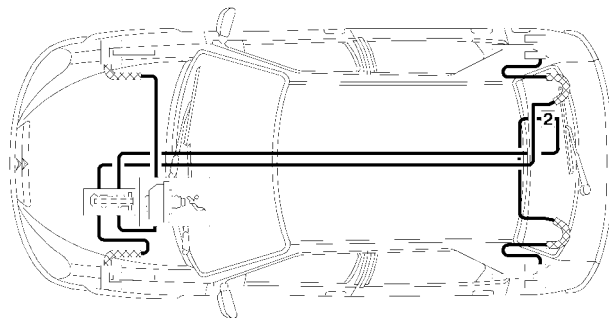
BRAKES

Braking system without ABS (rear drum brakes)
From RPO 8687



B3FP14FD

Braking system without ABS (rear disc brakes)

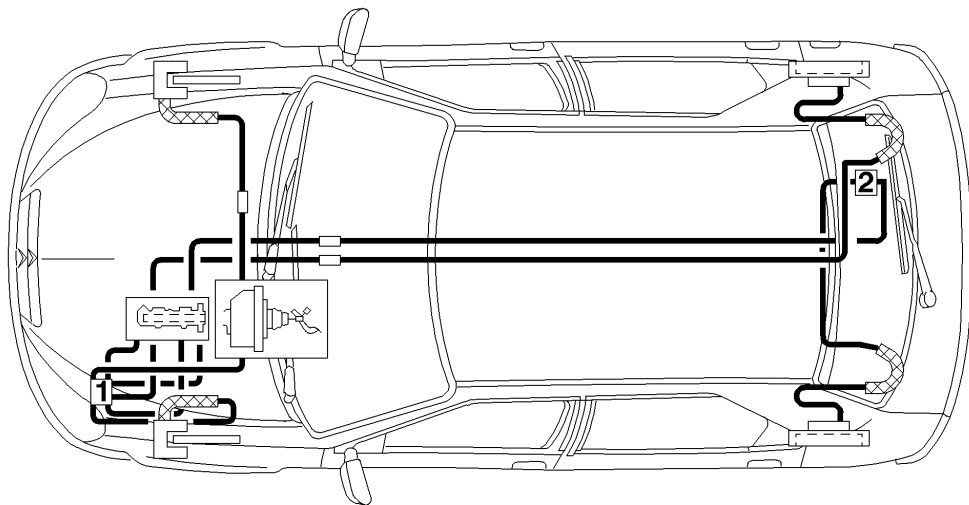


B3FP14GD

XSARA - All Types

BRAKE SPECIFICATIONS

Braking system with ABS (rear drum brakes)



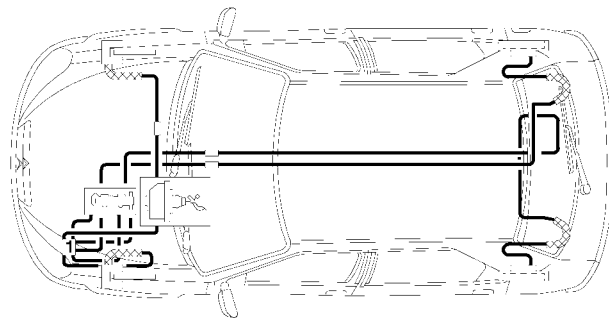
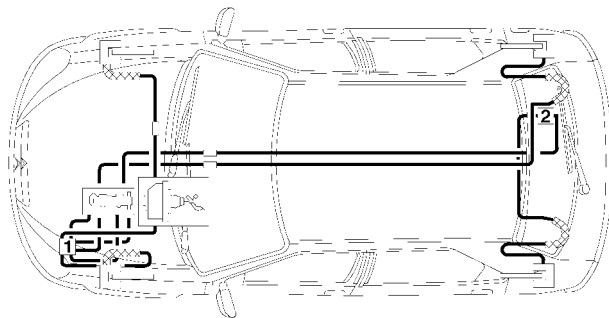
B3FP14HD

BRAKE SPECIFICATIONS

XSARA - All Types

Braking system with ABS REF (rear disc brakes)

Braking system with ABS REF (rear drum brakes)



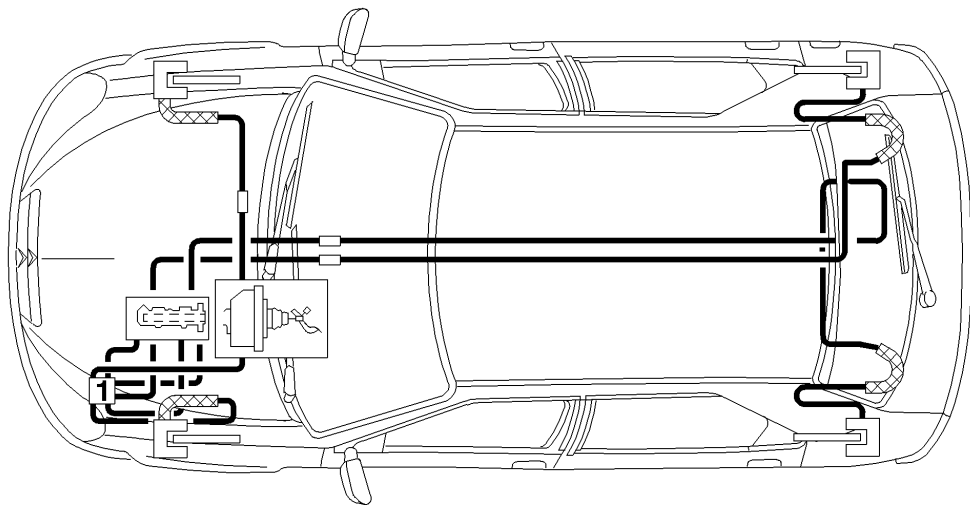
B3FP14JD

B3FP14KD

XSARA - All Types

BRAKE SPECIFICATIONS

Braking system with ABS REF (rear drum brakes)



B3FP14LD

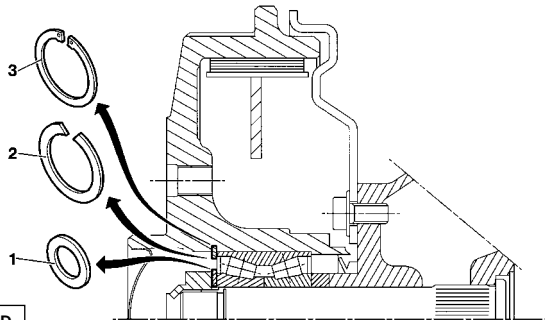
REAR BRAKE SPECIFICATIONS

XSARA - All Types

BRAKES

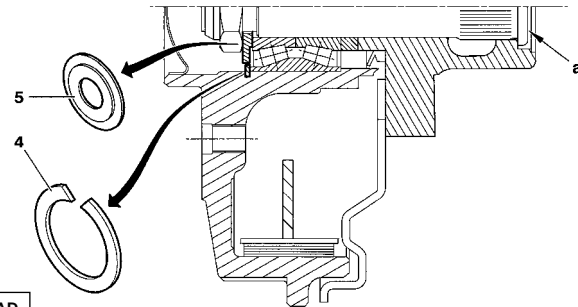
Evolution : Rear brake drum hub 01/1999 →

Old assembly



B3FP119D

New assembly



B3FP11AD

Evolutions

New components :

- Rear wheel stub.

- Stop ring (ref. (4)).

- Double shouldered washer (ref. (5))

NOTE : The new assembly is identified by a figure from 1 to 6 cold-stamped on the head of the wheel stub at «a».

(1) Washer exterior diameter = 38 mm.

(2) Stop ring

(3) Circlip.

NOTE : This assembly is equipped with either part (2) or part (3).

Ref. «a»: Figure from 1 to 6 cold-stamped.

(4) Stop ring.

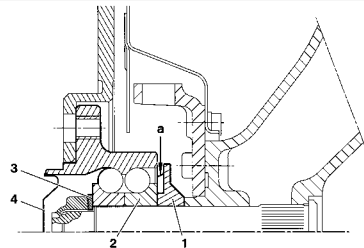
(5) Double shouldered washer, exterior diameter = 48 mm.

XSARA - All Types

REAR BRAKE SPECIFICATIONS

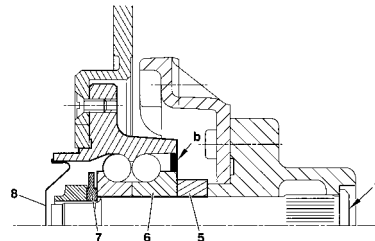
Evolution : Rear brake disc hub 01/99 →

Old assembly



B3FP11BD

New assembly



B3FP11CD

Evolutions

Fixing of the brake disc hub.**New components:**

- Rear wheel stub.
- Double shouldered washer (ref. **(7)**).

NOTE : The new assembly is identified by a figure from **1 to 6** cold-stamped on the head of the wheel stub at «**c**».

Sealing of the brake disc hub.**New components:**

- Sealed bearing incorporated at «**b**» (ref. **(6)**).
- Spacer without seal face (ref. **(5)**).
- Cap (ref. **(8)**).

New assembly

Ref. «**c**» : Figure from **1 to 6** cold-stamped.

(5) Spacer without seal face.

(6) Sealed bearing incorporated at «**b**».

(7) Double shouldered washer, exterior diameter = **48 mm.**)

(8) Cap.

CHECKS AND ADJUSTMENTS : BRAKE COMPENSATOR

XSARA - All Types

To perform any checks, it is necessary to calculate the weight on the rear axle in order to refer to the adjustment graphs.

Preliminary pre-check operations.

Calculate :

- | | | |
|---|----------------------------|---------------------|
| 1) The rear weight of the vehicle (empty tank + 1 person) | → Note the vehicle type | Refer to table N° 1 |
| 2) The weight of fuel in the fuel tank | → Note the fuel level | Refer to table N° 2 |
| 3) The weight of options fitted to the vehicle | → Note the vehicle options | Refer to table N° 3 |
- 4) Add these three weights together to obtain the **TOTAL REAR VEHICLE WEIGHT**; remove all objects from the vehicle totalling more than **10 kg** in weight.
- 5) Select the adjustment graph that corresponds to the vehicle model. (*Refer to table N° 4*).
- 6) Check the brake pressure.
- 7) Adjust the load sensitive brake compensator if necessary.

Exemple

- | | | |
|---|---|---------------|
| - The rear weight of the vehicle (<i>empty tank + 1 person</i>) | = | 412 kg |
| - The weight of fuel in the fuel tank (<i>tank 1/2 full</i>) | = | 18 kg |
| - The weight of options fitted to the vehicle (<i>sun roof</i>) | = | 8 kg |
| - Total rear vehicle weight | = | 438 kg |
| - Corresponding graph (<i>Graph N° 1</i>) | | |

XSARA - All Types

CHECKS AND ADJUSTMENTS : BRAKE COMPENSATOR (continued)

(Weights in kg)

TABLE N° 1 (Rear weight of the vehicle (Empty tank + 1 person)).

TABLE N° 2 (Weight of fuel in the fuel tank).

Trim level	X	SX	Exclusive	VTS	Type of fuel	Petrol	Diesel
Engine					5 litres	4	4
1.4 i	392	405	416		1/4	9	10
1.6 i		412	423		1/2	18	20
1.8 i		422	424		3/4	27	30
1.8 i 16 V		424	428	431	Non-ventilated	36	40
1.9 D	405	425	432				
1.9 TD	436	449	447	450			

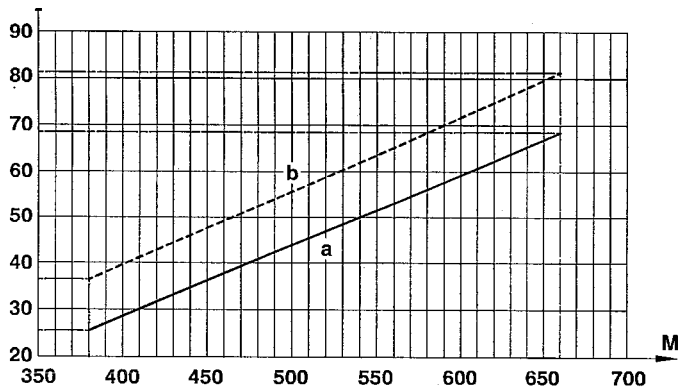
(Weights in kg)

TABLE N° 3 (Weight of options fitted to the vehicle).

TABLE N° 4 (Graph selection).

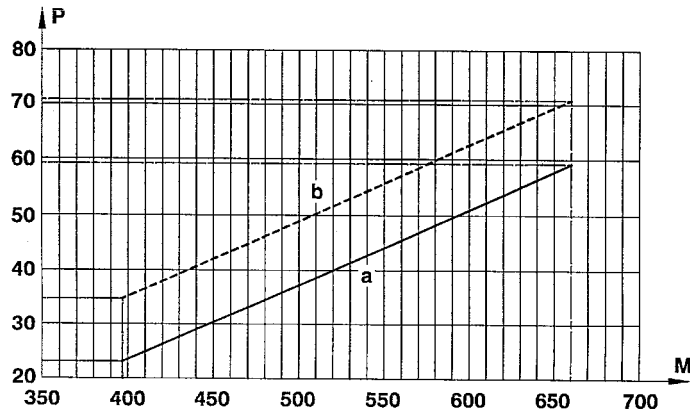
Option		Vehicle Model	Graph
Electric sun roof	8	1.4i - 1.6i - 1.8i - 1.8i (Automatic) - 1.9 D	1
Protective grille	5	1.8 i 16 V	2
Towing equipment (All models)	20	1.9 TD	3

GRAPH N° 1



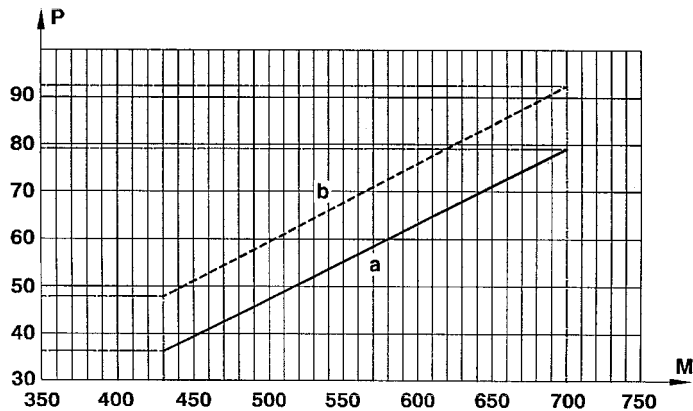
B3FP09XD

GRAPH N° 2



B3FP09YD

GRAPH N°3



TOOLS

- Braking pressure checking tool

: 4140-T

CHECKING THE BRAKE PRESSURE

WARNING : Do not touch the plastic nut (1).

PRELIMINARY OPERATIONS

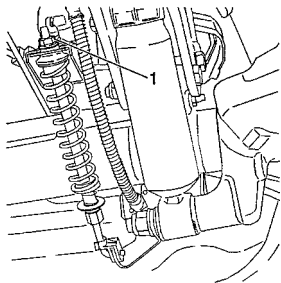
- Place the vehicle on a **4-column lift** if possible.
- Fit tool **4140-T**.
- Calculate the rear vehicle weight (see tables on preceding pages).
- Check that no hydraulic fluid is leaking and that the pipes are not being obstructed.
- Refer to the graph which corresponds to the vehicle type (see preceding pages).

CHECKS

- Perform the checks between the wheels as follows : front left and rear right - front right and rear left.
- With the engine running, increase the pressure at the rear to obtain a front pressure of **60 Bars**.

ESSENTIAL : The checking pressure must be obtained by progressively increasing the pressure (never reduce the pressure to adjust it).

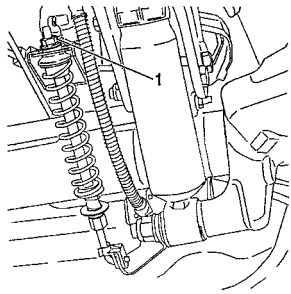
- Check the increased measurement against the graph. (If the measurement is not within the limits, adjust the compensator) (see following page).
- To check that the compensator works correctly, increase the rear pressure to **100 bars**. (If the measurement is not within the limits, replace the compensator).
- Bleed the brake system and carry out a road test.



B3FP101C

XSARA - All Types

CHECKS AND ADJUSTMENTS : BRAKE COMPENSATOR (continued)



ADJUSTING THE COMPENSATOR

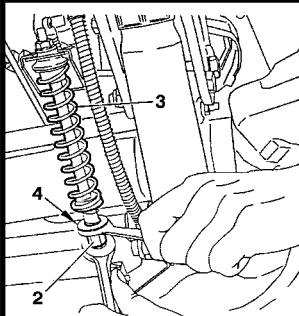
WARNING : Do not touch the plastic nut (1).

IMPORTANT : When loosening the nut (2), the spring (3) may suddenly force off the nut (2) and lock nut (4) assembly. Calculate the spring length (3) before loosening the nut (2), and use a spanner to hold the lock-nut (4) in place, thus restraining the spring.

- Loosen the nut (2) while ensuring the lock-nut (4) is held firmly in place.

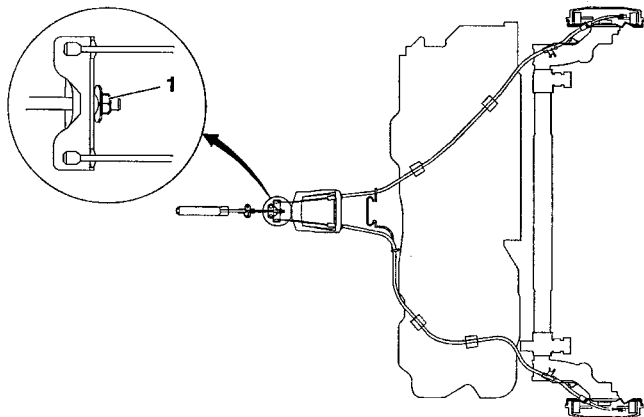
- Adjust the length of the spring (3) :
- Reduce the spring length (3) to increase brake pressure.
- Increase the spring length (3) to reduce brake pressure.

- Tighten the nut (2) to 1.5 m.daN.
- Check the brake pressure.



B3FP101C

B3FP102C



CHECKING AND ADJUSTING THE HANDBRAKE

- Remove the handbrake console.
- Jack up and chock the vehicle with the rear wheels hanging free.
- Check the correct routing of the brake cables under the vehicle.
- Apply and release the handbrake ten times.
- Set the handbrake to the **3rd notch**.
- Tighten the nut **(1)** until the rear brakes are applied.
- Pull the handbrake lever vigorously **4 to 5 times**.
- Set the handbrake to the **3rd notch**.
- Check that the rear brakes are applied.
- Check that the wheels can be turned freely by hand with the handbrake released.
- Lower the vehicle.
- Refit the handbrake console.

XSARA - All Types**BLEEDING THE BRAKES****Bleeding :**

The brakes can be bled either :

- using brake bleeding equipment, in which case the pressure of the equipment should be set to 2 Bars.
- or in the usual way.

IMPERATIVE order of bleeding**Wheels :**

- Rear Right.
- Rear Left.
- Front Right.
- Front Left

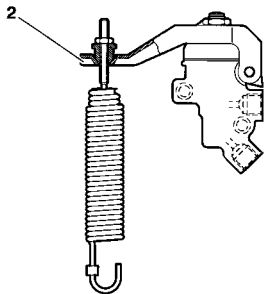
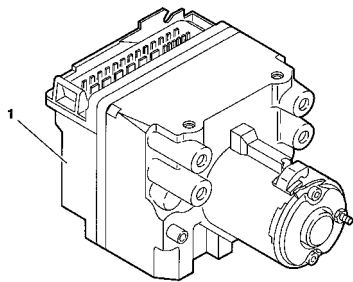
Top up using brake fluid supplied by **CITROEN Replacement Parts**

BRAKE SPECIFICATIONS				XSARA PICASSO - All Types		
NOTE : On models equipped with ABS, there is no load-sensitive braking compensator.				1.6 i	1.8 i 16 V	2.0 HDi
Ft	Ø mm	Master cylinder		23.8		
		Master-vac		254		
		Caliper/ piston makes		LUCAS C 54		
		Disc	Non-ventilated			
	Ventilated		266			
	Disc thickness/min. thickness		20.4 / 18.4			
	Brake pad grade		AS-FM 380			
Rr	Ø mm	Cylinder or caliper		22.2		
		Drum / Ø max.		228/230		
		Disc	Non-ventilated			
	Disc thickness/min. thickness					
	Make		LUCAS			
	Brake lining grade		ABEX 4930/2			
	Compensator – cut-off in Bars		35/75			

XSARA PICASSO - All Types

BRAKE SPECIFICATIONS

Braking system specifications



- "X" braking circuit.
 - Front : disc brakes, ventilated
 - Rear : drum brakes with automatic wear adjustment.
 - Cable operated handbrake acting on the rear wheels.
 - Rear: load-sensitive braking compensator (non-ABS models)
-
- (1) Hydraulic valve block "**ABS Bosch 5.3**".
 - (2) Load sensitive rear braking compensator.

B3FP11VD

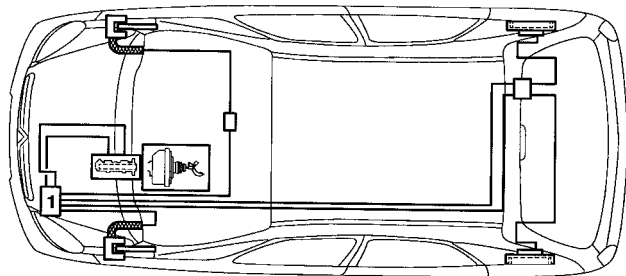
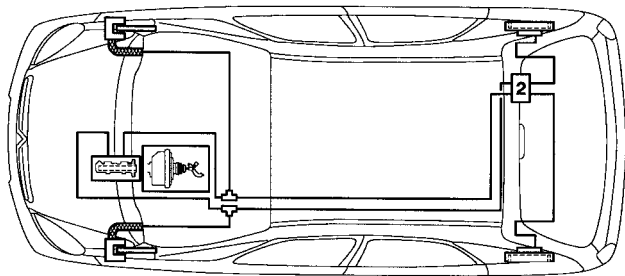
B3FP08ND

BRAKING SYSTEM SPECIFICATIONS

XSARA PICASSO - All Types

Without ABS

With ABS



B3FP11WD

B3FP11UD

XSARA PICASSO - All Types

CHECKING AND ADJUSTING THE LOAD-SENSITIVE BRAKE COMPENSATOR

Tools

[1] Brake pressure checking tool

: 4140-T

Checking procedure

Determine the weight on the rear axle and then refer to the adjustment graphs.

The allocation table enables you to choose which graph to use for each type of vehicle.

Connect the tool [1] in order to check the rear pressure values relative to the front pressures (**60 and 100 bars**).

Determining the rear weight of the vehicle

Refer to the tables of different weights.

To obtain the rear weight of the vehicle, add the following weights :

- Rear weight of the vehicle (tank empty + 1 person).
- Weight of fuel in the fuel tank.
- Weight of the options on the vehicle.

Remove from the vehicle any object weighing more than 1 Kg.

Rear weight of the vehicle (tank empty + 1 person)

Note the vehicle type.

Consult the correspondence table.

Engine type	Rear weight (tank empty + 1 person)
NFZ	542
6FZ	531
RFN	532
RHY	540

Weight of fuel in the fuel tank

Note the level of fuel in the vehicle and from this deduce the weight according to the table.

Level of fuel (Litres)	Weight of fuel in the fuel tank (Kg)	
	Petrol	Diesel
5	4	4
1/4	11	12
1/2	22	24
3/4	33	36
Full	44	48

CHECKING AND ADJUSTING THE LOAD-SENSITIVE BRAKE COMPENSATOR

XSARA PICASSO - All Types

Tools

[1] Brake pressure checking tool

: 4140-T

Example.

Type of vehicle = TU5JP+
 Rear weight (tank empty + 1 person). = 542 Kg.
 Fuel tank half full = 22 Kg
 Sun roof = 10 Kg
Rear weight of the vehicle = 542 + 22 + 10 = 574 Kg.

Weight of the options on the vehicle

Note the options on the vehicle and deduce the weight according to this table

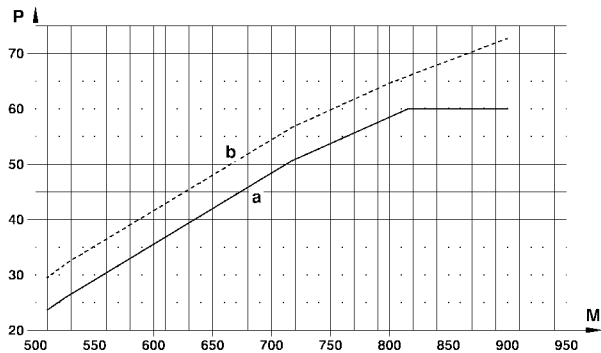
Options	Weight (Kg)
Electric sun roof	10
Bicycle carrier	5
Roof bars	4
Refrigeration/heating module	10
Under-engine shield	9
Towbar all versions	19

- (1) CRD → OPR 8885
 - (2) CRD
 - (3) OPR 8886 →
 - (4) OPR 8886 →
- CRD = Difficult road conditions.

Table of allocation of graphs

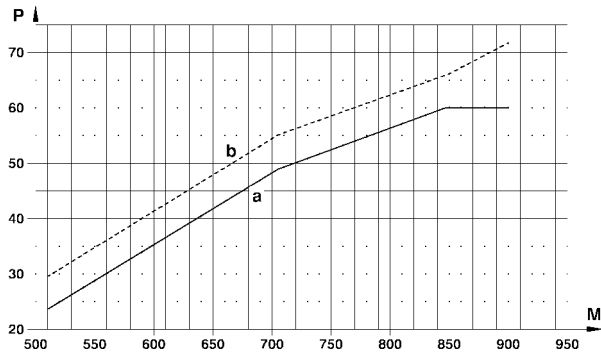
Vehicle engine version	Graph N°
NFT - RHY	1
6FZ	2
NFT - RHY (1)	3
6FZ - RFN (2)	4
RFN (3)	5
RHY (4)	6

GRAPH N° 1



B3FP13RD

GRAPH N° 2



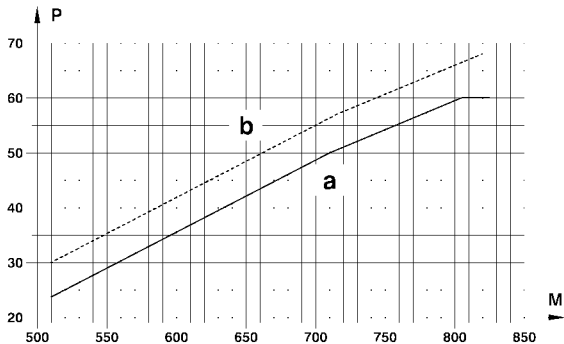
B3FP13SD

P = Rear pressure (in Bars).
M = Weight (in Kg).

Key :

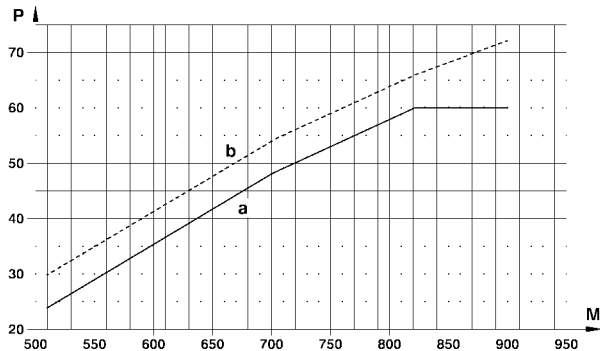
a = Front pressure 60 ± 3 Bars.
b = Front pressure 100 ± 3 Bars.

GRAPH N° 3



B3FP14MD

GRAPH N° 4



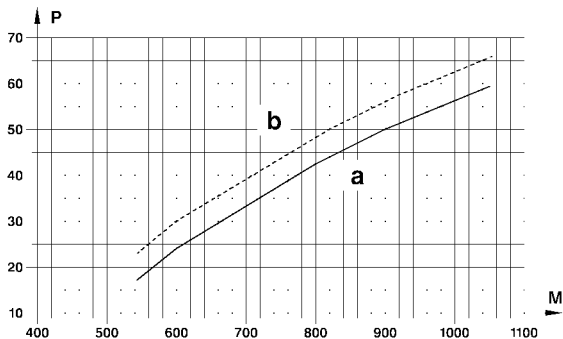
B3FP13UD

Key :

P = Rear pressure (in Bars).
M = Weight (in Kg).

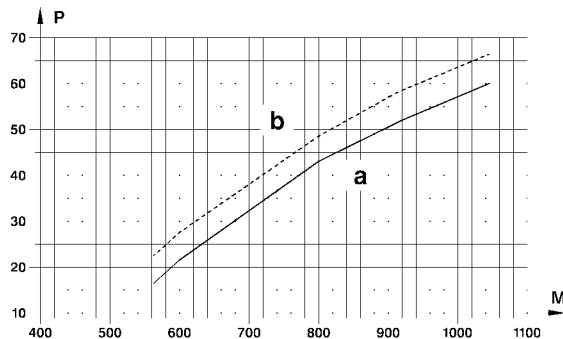
a = Front pressure 60 ± 3 Bars.
b = Front pressure 100 ± 3 Bars.

GRAPH N° 5



B3FP14ND

GRAPH N° 6

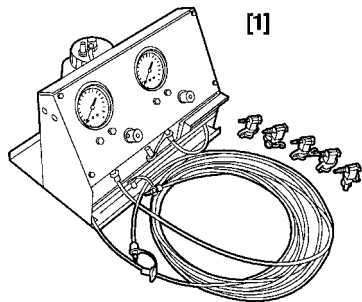


B3FP14PD

P = Rear pressure (in Bars).
M = Weight (in Kg).

Key :

a = Front pressure 60 ± 3 Bars.
b = Front pressure 100 ± 3 Bars.



Checking the braking pressure

Preliminary operations :

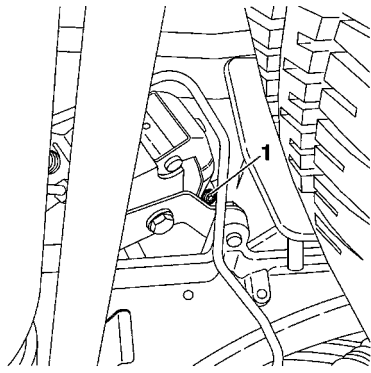
- The vehicle should be placed on all **4 wheels**, preferably on a lift.
- The tool **[1]** (in good working order) in place.
- Rear weight of the vehicle determined.
- Check there are no hydraulic leaks.
- Check the absence of pinching on the pipes.
- Refer to the graph corresponding to the vehicle engine version.
- Checks are done between the following components :
 - Front LH wheel and rear RH wheel.
 - Front RH wheel and rear LH wheel..
- On the vehicle, engine running, note the rear pressure when the front pressure is 60 ± 3 Bars.

ESSENTIAL : The control pressure should be obtained by progressively increasing the pressure (without ever releasing the pressure to adjust it).

- Compare the value noted with the graph.
 - If the value is outside the tolerance, adjust the compensator.
 - In order to check that the compensator is working properly, note the rear pressure when the front pressure is **100 ± 3 Bars**.
 - If the value is outside the tolerance, replace the compensator.
- NOTE :** Any large discrepancy between the two circuits will mean that the braking compensator should be replaced.
- After completing these operations, bleed the braking circuit (see corresponding operation).
 - Carry out a road test.

XSARA PICASSO - All Types

CHECKING AND ADJUSTING THE LOAD-SENSITIVE BRAKE COMPENSATOR



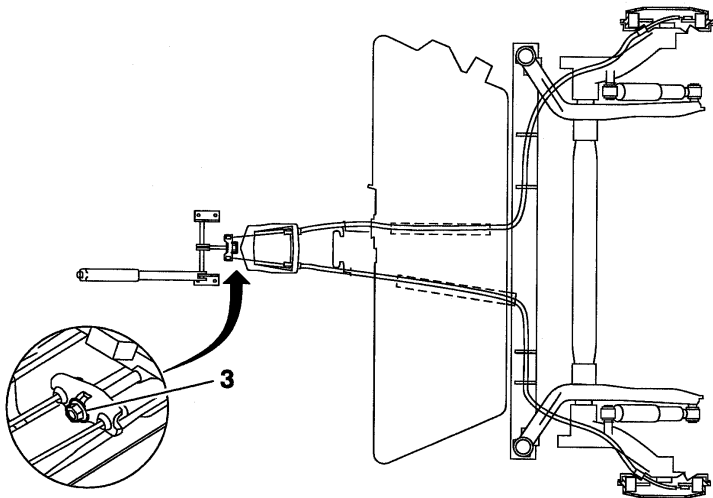
Adjusting the load-sensitive brake compensator

- Untighten the screw **(1)**.
- Move the spring rod.
- Decrease the length of the spring to increase the pressure.
- Increase the length of the spring to decrease the pressure.
- Tighten the screw **(1)** to **1,2 ± 0,25 m.daN**.
- Check the brake pressure.

After the operation :

- Remove the checking tool **[1]**.
- Bleed the braking circuit (See corresponding operation).
- Carry out a road test.

B3FP13VC

**Adjustment :**

- Remove the handbrake trim **(1)**.
- Unclip the sound-deadening **(2)**.
- Raise and support the vehicle with the rear wheels hanging free.
- Check the correct routing of the brake cables under the vehicle.
- Apply and release the handbrake **4 times**.
- Set the handbrake to the 5th notch.
- Tighten the nut **(3)** until the rear brakes are applied.
- Pull the handbrake lever vigorously **4 to 5 times**.
- Set the handbrake to the **5th notch**.
- Check that the rear brakes are applied.
- With the handbrake released, check that the wheels can be turned freely by hand.
- Lower the vehicle.
- Refit the sound-deadening **(2)** and the handbrake trim **(1)**.

XSARA PICASSO - All Types

BLEEDING THE BRAKES

Tools Bleeding equipment of type «LURO» or similar.

IMPERATIVE : For bleeding the secondary circuit, use ELIT, LEXIA or PROXIA diagnostic tools.

Draining.

Drain the brake fluid reservoir as empty as possible using a syringe.

Disconnect the brake fluid warning lamp connector.

Retrieve the brake fluid reservoir from its supply pipes by pulling upwards.

Finish emptying the reservoir of brake fluid.

Clean the brake fluid reservoir.

Refit the brake fluid reservoir.

Reconnect the brake fluid warning lamp connector.

Filling

Refill the reservoir with brake fluid.

WARNING : Use only the recommended hydraulic fluids.

Bleeding.

NOTE : Two technicians are required.

IMPERATIVE: During bleed operations, ensure that the level of brake fluid is maintained in the reservoir and top it up, use only new brake fluid.

Bleed each wheel cylinder, proceeding in the following order :

Rear right hand wheel.

Front left hand wheel.

Rear left hand wheel.

Front right hand wheel.

STARTER MOTORS			SAXO		
Vehicles / models	Manufacturer and Ref.	Class	Climate		
SAXO	1.1i	VALEO D7E16	1	H,T,C	
		BOSCH A 001183 027 F			
		MELCO M002T13081			
	1.4i (Aircon) 1.6i (Aircon)	VALEO D6 RA 572	3	VC	
		VALEO D7E16	1	H.,T	
		BOSCH A 001183 027 F			
	MELCO M002T13081				
	1.4i 1.6i	VALEO D6 RA 572	3	C. VC	
		VALEO D7E16	1	H, T	
		BOSCH A 001 183 027F			
		MELCO M002T13081			
		1.6i 16v 1.4i Automatic	VALEO D7E23	2	C
			BOSCH E OAL 101 390		
	VALEO D6RA572				
	1.5D	VALEO D6 RA 572	3	H, T, C, VC	
VALEO D6RA100		4	H. T. C		
	VALEO D7R151	5	VC		

ELECTRICAL SYSTEM

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

XSARA		STARTER MOTORS				
Vehicles / models		Manufacturer and Ref.	Class	Climate		
XSARA	1.4i 1.6i (Power steering or aircon)	VALEO D7E16	1	H, T		
		BOSCH A 001183 027 F				
		MELCO M002T13081				
		VALEO D6 RA 572				
	1.4i (Power steering and aircon)	VALEO D7E23	2	H,T		
		BOSCH E OAL 101 390				
		VALEO D6RA572				
	1.6 i 1.6i Automatic	VALEO D6 RA 572	3	C, VC, H, T		
		VALEO D6 RA 72				
	2.0i 16 v 2.0i 16 v Automatic EW10J4	MELCO M000T82081			4	C, VC
		BOSCH E OAL 098 390				
		MELCO M 000 T 85 381				
	2.0i 16v XU10J4RS	VALEO D6 RA 661	3	H, T		
		BOSCH A 001 110 140 F				
		BOSCH A 001 111 473				

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

STARTER MOTORS			XSARA	
Vehicles / models		Manufacturer and Ref.	Class	Climate
XSARA	1.9D	VALEO D6 RA 109	4	H, T
		BOSCH A 001 111 562F		
		MELCO M 001 T 80381		
		VALEO D7 R 26	5	C
		MELCO M 001 T 80481		
		VALEO D7 R 27		
	2.0 HDI 90 CV	VALEO D6 RA 109	4	H, T
		BOSCH A 001 111 562F		
		MELCO M 001 T 80381		
		VALEO D7 R 27	6	C, VC
	2.0 HDI 110 CV	VALEO D7 R 26	5	H, T
		MELCO M 001 T 80481		
		VALEO D7 R 27	6	C, VC
	2.0 HDI Automatic 110 CV	VALEO D7 R 27	6	C, VC
MELCO A 001 236 000		6+	C, VC	

ELECTRICAL SYSTEM

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

XSARA PICASSO		STARTER MOTORS		
Vehicles / models		Manufacturer and Ref.	Class	Climate
XSARA PICASSO	1.6i (Power steering and aircon)	VALEO D7E16	1	H, T
		BOSCH A 001 183 027F		
		MELCO M002T13081		
		VALEO D6RA572		
	1.6i (Power steering and aircon)	VALEO D7E23	2	H, T
		BOSCH E OAL 101 390		
		VALEO D6RA572		
	1.8i 16v	VALEO D6 RA 72	3	C, VC
		MELCO M000T82081		
		BOSCH E OAL 098 390		
		MELCO M 000 T 85 381		
	2.0 HDi	VALEO D6 RA 109	4	VC
		BOSCH A 001 111 562F		
		MELCO M 001 T 80381		
		VALEO D7 R 27		
			6	C, VC

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

STARTER MOTORS**ALL TYPES**

Table of classes of starters

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

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

SAXO With power-steering		ALTERNATORS					
Engine	Gbox	Classes and types					
		Without aircon		Climate	With aircon		Climate
1.1i	M	7	VALEO A11 VI 55	H, T	9	VALEO A13 VI 279+	H
			BOSCH A120310028			VALEO A13 VI 278	
		8	VALEO A13 VI 278	C, VC	8	DENSO C 633217-40	T, C, VC
			DENSO C 633217-40				
1.4i1.6i		7	VALEO A11 VI 55	H, T	9	VALEO A13 VI 279+	H
			BOSCH A120310028			VALEO A13 VI 278	
		8	VALEO A13 VI 278	C, VC	8	DENSO C 633217-40	T, C, VC
			DENSO C 633217-40				
1.4i	A	7	VALEO A11 VI 55	H, T	9	VALEO A13 VI 279+	H, T, C, VC
			BOSCH A120310028				
		8	VALEO A13 VI 278	C, VC			
			DENSO C 633217-40				
9		VALEO A13 VI 279+	T, C, VC				
1.5D		M	7	VALEO A11 VI 45	H, T, C, VC	7	A11 VI 45
				8		A13 VI 84	H, VC
1.6i 16v	7		VALEO A11 VI 55	H, T	9	VALEO A13 VI 279+	H
			BOSCH A120310028				
	8	VALEO A13 VI 278	C, VC	8	VALEO A13 VI 278	T, C, VC	
DENSO C 633217-40		DENSO C 633217-40					

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

ALTERNATORS						SAXO Police	
Engine	Gbox	Classes and types					
		Without aircon			Climate	With aircon	
SAXO POLICE							
11.1i/1.4i	M	9	VALEO A13 VI 279+	T	M	VALEO A13 VI 279+	T
1.5D			VALEO A13 VI 279+			VALEO A13 VI 279+	
<p>CLIMATE : T (Temperate), H (Hot), C (Cold), VC (Very cold)</p>							

ELECTRICAL SYSTEM

XSARA With power-steering		ALTERNATORS					
Engine	Gbox	Classes and types					
		Without aircon		Climate	With aircon		Climate
1.4i	M	7	VALEO SG7	H, T, C, VC	7	VALEO SG7	C, VC
			MELCO A005 TA 6291			MELCO A005 TA 6291	
		8	VC	8	VALEO SG8	T	
					DENSO A 115		
					MELCO A005 TA 6391		
		9	VC	9	VALEO A13 VI 277	H	
VALEO A13 VI 277+							
VALEO SG9							
1.6i 16v	M	7	VALEO SG7	H, T, C	7	VALEO SG7	C, VC
			MELCO A005 TA 6291			MELCO A005 TA 6291	
		8	VC	8	VALEO SG8	T	
					DENSO A 115		
					MELCO A005 TA 6391		
		9	VC	9	VALEO A13 VI 277	H	
VALEO A13 VI 277+							
VALEO SG9							

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

ALTERNATORS					XSARA With power-steering		
Engine	Gbox	Classes and types					
		Without aircon		Climate	With aircon		Climate
1.6i 16v	A	7	VALEO SG7	T	8	VALEO SG8	C, VC
			MELCO A005 TA 6291			DENSO A 115	
			VALEO SG8			MELCO A005 TA 6391	
		8	DENSO A 115	H, C, VC	9	VALEO A13 VI 277	H, T
						VALEO A13 VI 277+	
						VALEO SG9	
			MELCO A005 TA 6391				
2.0i 16v	M	7	VALEO SG7	H	9	VALEO A 13 VI 277 +	H, T
			VALEO A 11 VI 106			VALEO SG10	
			MELCO A005 TA 6391			VALEO A13 VI 2 A6	
		8	VALEO A13 VI 2 A6	T	8	VALEO SG8	C
			VALEO SG8			MELCO A005 TA 6391	
			MELCO A005 TA 6391			DENSO A 115	
			DENSO A 115			VALEO SG7	
		9	VALEO A 13 VI 277 +	C, VC	7	VALEO A 11 VI 106	VC
			VALEO SG10			MELCO A005 TA 6391	

ELECTRICAL SYSTEM

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

XSARA With power-steering		ALTERNATORS							
Engine	Gbox	Classes and types							
		Without aircon		Climate	With aircon		Climate		
1.9D	M	7	VALEO A 11 VI 191	H, T	8	VALEO A13 VI 203	T, C, VC		
			VALEO SG7			VALEO SG8			
			VALEO SG7 CPLE			MELCO A002 TB 4791			
		8	VALEO A13 VI 203	C, VC	9	VALEO A13 VI 204+		H	
			VALEO SG8			VALEO SG10			
			MELCO A002 TB 4791			MELCO A002 TB 4891			
9		VALEO A13 VI 204+	H	12		VALEO A13 VI 204+	H		
		VALEO SG10				VALEO SG10			
		MELCO A002 TB 4891				MELCO A002 TB 4891			
2.0 HDI 90CV 110 CV		12	MELCO A003 TA 0891		15	MELCO A003 TA 0891			
			15	BOSCH A 120 51 611		T, C, VC		BOSCH A 120 51 611	T, C, VC
				VALEO SG15 CPLE				VALEO SG15 CPLE	
	VALEO A14 VI127+			VALEO A14 VI127+					
MELCO A004TF0091	MELCO A004TF0091								

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

ALTERNATORS				XSARA PICASSO With power-steering			
Engine	Gbox	Classes and types					
		Without aircon		Climate	With aircon		Climate
1.6i	M	7	NC	H	7	NC	H
			VALEO A11 VI 191	T, C, VC		VALEO A11 VI 191	C
			VALEO SG7			VALEO SG7	
			VALEO SG7 CPLE			VALEO SG7 CPLE	
					9	VALEO A13 VI 204+	T
				VALEO SG10			
				MELCO A002 TB 4891			
					8	VALEO A13 VI 203	VC
				VALEO SG8			
				MELCO A002 TB 4791			

ELECTRICAL SYSTEM

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

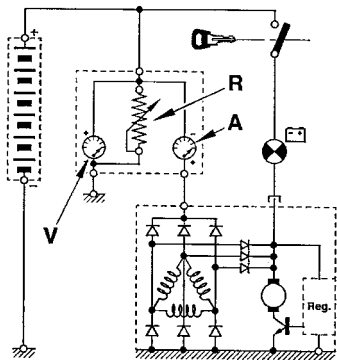
XSARA PICASSO With power-steering			ALTERNATORS					
Engine	Gbox	Classes and types						
		Without aircon		Climate	With aircon		Climate	
1.8i 16v	M	7	NC	H	8	NC	H	
			VALEO A11 VI 191	T, C		VALEO A13 VI 203	C, VC	
			VALEO SG7			VALEO SG8		
			VALEO SG7 CPLE			MELCO A002 TB 4791		
		8	VALEO A13 VI 203	GF	VALEO A13 VI 204+	T		
			VALEO SG8		VALEO SG10			
			MELCO A002 TB 4791		MELCO A002 TB 4891			
		2.0 HDI	15	NC	H	15	NC	H
				BOSCH A 120 51 611	T, C, VC		BOSCH A 120 51 611	T, C, VC
VALEO SG15 CPLE	VALEO SG15 CPLE							
VALEO A14 VI127+	VALEO A14 VI127+							
MELCO A004TF0091	MELCO A004TF0091							

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

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. Adjust the engine speed (table opposite) and rheostat charge according to the vehicle's equipment specification in order to obtain $U = 13.5 \text{ V}$.

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 must go out when the engine has started (accelerate slightly).



CHECKING THE VOLTAGE REGULATOR

the rheostat to zero and disconnect all the electrical consumers. Display 5000 alternator rpm. If U alternator is $> 14.7 \text{ V}$, the regulator is faulty. Set

Note : These tests should be performed with the engine hot and the battery fully charged.

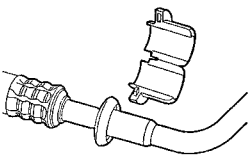
Output under 13.5 V Intensity (A) / Alternator speed

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

SAXO - C3 - XSARA - XSARA PICASSO			PRE-HEATING AND STARTING SYSTEMS		
Vehicles - models			Pre-heater plugs	Pre-heater control unit	Pre / Post heating (pre-heating duration at 20°C)
SAXO	1.5D	VJX	BERU 0 100 226 371	NAGARES 960411-P	10s / 150s
			CHAMPION CH 185	CARTIER 735068	
C3	1.4 HDI	8HX	NGK YE04	NAGARES 960411-P	Controlled by the diesel injection ECU.
				CARTIER 735068	
	1.4 HDI	8HW	NGK YE04	NAGARES 960411-P	
				CARTIER 735068	
1.4 HDI 16v	8HY	NGK YE04	NAGARES 960411-P		
			NAGARES 960411-P		
XSARA	1.9D	WJY	BERU 0 100 226 371	CARTIER 735068	10s / 150s
			CHAMPION CH 185	NAGARES 960411-P	
	2.0 HDI	RHY	CHAMPION CH170	CARTIER 735068	Controlled by the diesel injection ECU.
				NAGARES 960411-P	
	2.0 HDI	RHZ	CHAMPION CH 170	CARTIER 735068	Controlled by the diesel injection ECU.
			NAGARES 960411-P		
PICASSO	2.0 HDI	RHY	CHAMPION CH 170	CARTIER 735068	Controlled by the diesel injection ECU.
				NAGARES 960411-P	

AIR CONDITIONING R 134 a (HFC)					ALL TYPES	
Vehicle	Engines	Date	Refrigerant refill	Compressor		
				Variable	Oil quantity cc	Oil reference
				Capacity		
SAXO	TU - TUD-TT	AM 2000 →	850 gr +0 - 50 gr	SD 6 V 12	135	SP 10
	TU TT	AM 2001 →	825 gr ± 25 gr			
	TUD TT		795 gr ± 25 gr			
XSARA	TU EW	09/2000 →	590 gr +0 -50 gr	SD 6 V 12	135	SP 10
	DW		725 gr +0 -50 gr	SD 7 V 16		
	XU10					
XSARA PICASSO	TU	12/1999 →	675 gr ± 50 gr	SD 6 V 12	135	SP 10
	EW7-DW10					
	BRAZIL All Types	03/2001 →	775 gr ± 25 gr	SD 7 V 16		

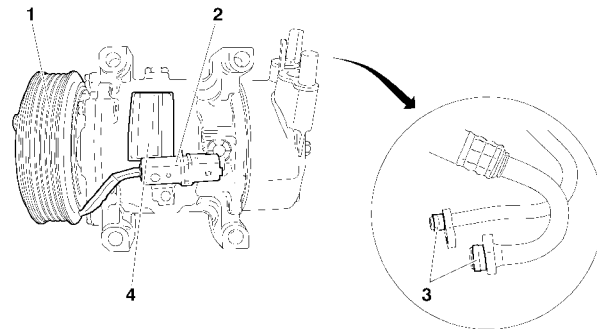
AIR
CONDITIONING

ALL TYPES		SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)																	
			Click-fit connector removing/fitting tool																
	Vehicle	Circuit	Ø Inch	Ring colour	Tool kit 4164-T														
	SAXO XSARA	All Types	5/8	Black	8005-T.A.														
	XSARA PICASSO	BP HP	3/8	Red	8005-T.C														
C5HP073C																			
Tightening torques (m.daN).																			
<u>Aircon compressor fixings</u>																			
<p>ESSENTIAL : Tighten the front part of the compressor (timing belt end), before the rear part of the compressor.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Ø Pipes</th> <th colspan="2">Unions</th> </tr> <tr> <th>Steel/Steel</th> <th>Aluminium/Steel</th> </tr> </thead> <tbody> <tr> <td>M 06</td> <td>1.7 ± 0.3</td> <td>1.3 ± 0.3</td> </tr> <tr> <td>M 08</td> <td>3.8 ± 0.3</td> <td>2 ± 0.2</td> </tr> <tr> <td>M 10</td> <td>4 ± 0.3</td> <td>2.5 ± 0.3</td> </tr> </tbody> </table>				Ø Pipes	Unions		Steel/Steel	Aluminium/Steel	M 06	1.7 ± 0.3	1.3 ± 0.3	M 08	3.8 ± 0.3	2 ± 0.2	M 10	4 ± 0.3	2.5 ± 0.3
Ø Pipes	Unions																		
	Steel/Steel	Aluminium/Steel																	
M 06	1.7 ± 0.3	1.3 ± 0.3																	
M 08	3.8 ± 0.3	2 ± 0.2																	
M 10	4 ± 0.3	2.5 ± 0.3																	
<p>NOTE : Tighten the union to the recommended torque using a retaining spanner whenever possible.</p>																			
<p>NOTE : For operations concerning draining, drying (empty), checking and recharging of a system: refer to BRE 0290.</p> <p>WARNING : For R 134.a quantities (See table on preceding page).</p>																			

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

« EUROCLIM »

Compressor (MANULLI seal)

Tools.Tool for removing-refitting air conditioning seals : **K.1702****MANULLI seal****XSARA PICASSO** engine versions :**NFV** : 10/12/2001 →**6FZ** : 01/04/2002 →**RHY** : 04/11/2002 →**Aircon compressor.****XSARA PICASSO** engine versions: **6FZ and RHY**Discontinuation of compressor **SD 6 V 12**Replaced by compressor **SD 7 V 16** : 04/11/2002 →

The drive plate (1) is held on the aircon compressor shaft by ribs.

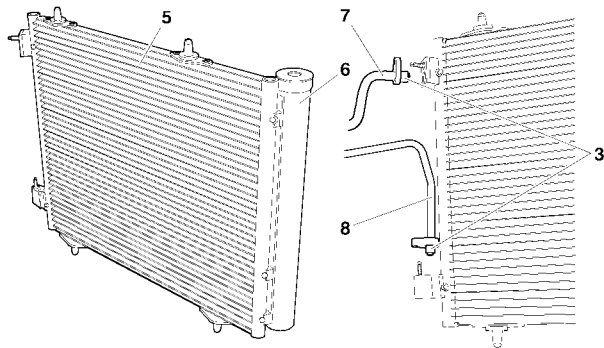
New wiring (2).

New seals (3) (MANULLI).

Identification label (4) for aircon compressor.

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

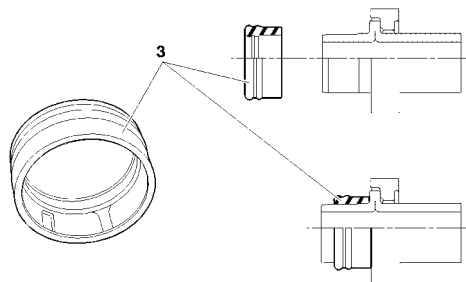
Condenser (MANULLI seal)



C5HP18VD

The condenser **(5)** has a cylinder **(6)** incorporating the function of aircon fluid reservoir and with integral filtering cartridge.
The inlet **(7)** and the outlet **(8)** of the condenser **(5)** are equipped with new seals **(3)** (**MANULLI**).

Seals (MANULLI seal)



C5HP18XD

MANULLI calibrated seal **(3)**
Direction of fitting of the seal **(3)**.
Before fitting the seal, amply lubricate the seal with air conditioning compressor oil (**SP10**).

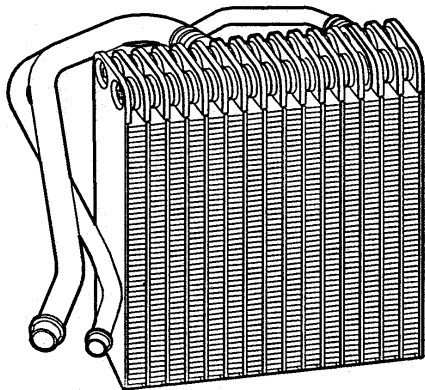
SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)				ALL TYPES
Presence of pollen filter				
Vehicle	Equipment	RPO No.	Presence of filter	Observations
SAXO	All Types		NO	
XSARA XSARA PICASSO	Without aircon		YES (Behr)	Exc. driving school
	Base aircon		YES (Larger)	
	Regulated aircon		YES (Valeo)	
BERLINGO	Without aircon		NO (Valeo)	
	Base aircon		YES (Valeo)	

AIR
CONDITIONING

XSARA - All Tyês

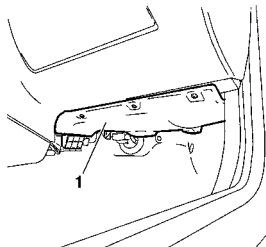
SPECIAL FEATURES : AIR CONDITIONING SYSTEM (R 134.a)

BEHR plate evaporator

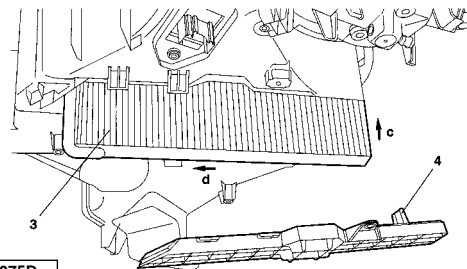


C5HP062C

Pollen filter



C5HP07JC



C5FP075D

Remove-refit.

Remove :

- The interior trim (1).
- The cover (4).
- The pollen filter (3).

Concerns vehicles equipped with aircon without temperature regulation.

Fitting of a new pollen filter necessitates the following operations :

- Engage the pollen filter upwards (following arrow "c").
- Slide the pollen filter towards the rear (following arrow "d").
- Position the index (4) on the cover forward of the pollen filter.

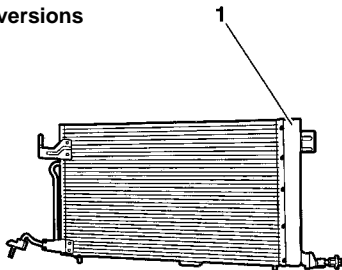
((4) Index on the cover).

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

XSARA - All Tyes

BEHR condenser with integral reservoir (16 Ti)

Petrol engine versions

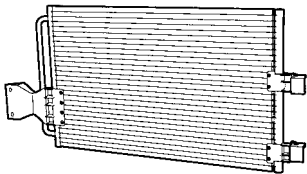


C5HP07BC

The condenser is equipped with a cylinder **(1)** that acts as the fluid reservoir which in turn incorporates a filter cartridge.

NOTE : As soon as the air conditioning loop has been open for more than **5 minutes**, the filter/dryer cartridge assembly should be replaced (no set interval).

Diesel engines

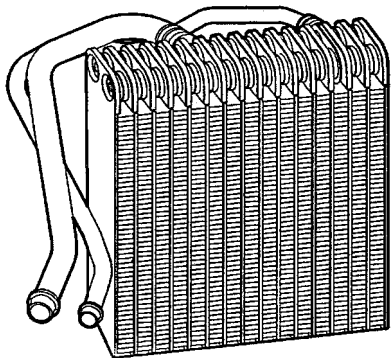


C5HP060C

Instruction for replacing the filter/dryer cartridge.

- After undoing the cap (**TORX 70**), the cold loop must be depressurised.
- Unscrew the cap and clean the cap's thread.
- Take out the filter/dryer cartridge.
- Clean the threaded zone of the condenser reservoir
- Fit the new filter/dryer cartridge.
- Lubricate the cap's O-ring seals with compressor oil. (New seals).
- Screw the cap back on, tighten to **1.4 ± 0.2 m.daN**.

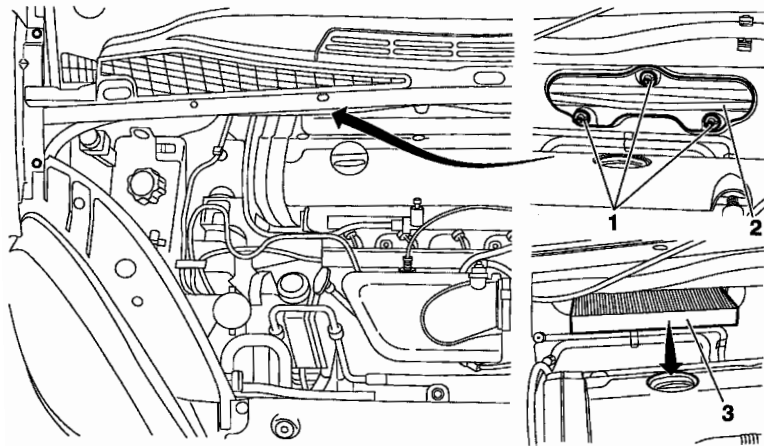
BEHR plate evaporator



C5HP062C

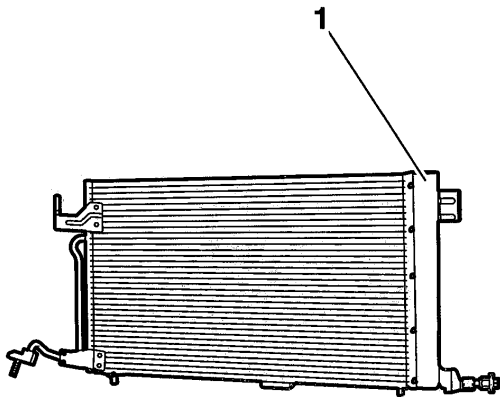
B1BP23ED

Pollen filter

**Remove:**

- The three screws (1).
- The cover (2).
- Remove the pollen filter.

BEHR condenser with integral reservoir (16 Ti)



C5HP07BC

The condenser is equipped with a cylinder (1) that acts as the fluid reservoir which in turn incorporates a filter cartridge.

NOTE : As soon as the air conditioning loop has been open for more than **5 minutes**, the filter/dryer cartridge assembly should be replaced (no set interval).

Instruction for replacing the filter/dryer cartridge.

- After undoing the cap (**TORX 70**), the cold loop must be depressurised.
- Unscrew the cap and clean the cap's thread.
- Take out the filter/dryer cartridge.
- Clean the threaded zone of the condenser reservoir.
- Fit the new filter/dryer cartridge.
- Lubricate the cap's O-ring seals with compressor oil.(New seals).
- Screw the cap back on, tighten to **1.4 ± 0.2 m.daN**.

ALL TYPES

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

Compressor lubricant.

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

Checking the compressor oil level.

There are three specific cases :

- 1) Repairs to a system without leaks.
- 2) Slow leak.
- 3) Fast leak.

1) Repairing a system without leaks.

a) Using draining/recovery equipment not fitted with an oil decanter.

- Drain the system as slowly as possible via the **LOW PRESSURE** valve, so as not to lose any oil.
- No more oil should be added when filling the system with **R 134.a** fluid.

b) Using draining/filling equipment fitted with an oil decanter.

- Drain the **R 134.a** fluid from the system in accordance with the instructions in the equipment handbook.
- Measure the amount of oil recovered.
- Add the same amount of **NEW** oil when filling the system with **R 134.a** fluid.

c) Replacing a compressor.

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

Checking the compressor oil level (continued)

2) Slow leak.

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

3) Fast leak.

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

It is therefore necessary to

- Replace the dehydrator.
- 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.

ALL TYPES

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

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.

- Boot 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 ambient 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 ambient temperature in the workshop,
- the temperature of the air coming from the central vents.

Compare the two values using the table overleaf.

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

ALL TYPES

CHECKING TEMPERATURES (continued)

Vehicle using R134.a fluid (Compressor with variable capacity)

Ambient temperature in °C		40	35	30	25	20	15	
Temperature at the central air vents in °C	Vehicle	Engine types						
	SAXO	All Types	17 ± 3	13 ± 3	11 ± 3	9 ± 3	8 ± 3	
	XSARA	TU	18 ± 2	17 ± 2	14.5 ± 2	11 ± 2	8.5 ± 2	8 ± 2
		EW	19 ± 2	18 ± 2	15 ± 2	12 ± 2	10 ± 2	
		DW	15 ± 2	15.5 ± 2	11 ± 2	9 ± 2	7 ± 2	
XSARA PICASSO	All Types	22 ± 3	16 ± 3	12.5 ± 3	10 ± 3	8 ± 3	6.5 ± 3	

AIR
CONDITIONING

ALL TYPES

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

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 :

CHECK

- 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
	Vehicles	Engines						
High pressure (Bars)	SAXO	All Types	20 ± 3	18 ± 3	16 ± 3	13 ± 3	11 ± 3	9 ± 3
Low pressure (Bars)			3 ± 0.3					
High pressure (Bars)	XSARA	TU	23 ± 2	22.5 ± 2	20 ± 2	17 ± 2	15.5 ± 2	14.5 ± 2
Low pressure (Bars)			3.8 ± 0.2	3.6 ± 0.2	3.5 ± 0.2	3.1 ± 0.2	3 ± 0.2	2.9 ± 0.2
High pressure (Bars)		EW	24.5 ± 2		21.5 ± 2	18.5 ± 2	17 ± 2	15.5 ± 2
Low pressure (Bars)			4 ± 0.2	3.8 ± 0.2	3.5 ± 0.2	3.2 ± 0.2	3 ± 0.2	
High pressure (Bars)		DW	21.5 ± 2	22.5 ± 2	20 ± 2	18 ± 2	16.5 ± 2	15.6 ± 2
Low pressure (Bars)			3.2 ± 0.2	3.3 ± 0.2	3 ± 0.2	2.8 ± 0.2	2.6 ± 0.2	
High pressure (Bars)	XSARA PICASSO	TU EW	25.5 ± 3	20.5 ± 3	18 ± 3	20 ± 3	13.5 ± 3	11 ± 3
Low pressure (Bars)			4 ± 0.3	3.5 ± 0.3	3 ± 0.3			
High pressure (Bars)		DW	25 ± 3	22.5 ± 3	20 ± 3		17 ± 3	15 ± 3
Low pressure (Bars)			4 ± 0.3	3.5 ± 0.3	3 ± 0.3			

**AIR
CONDITIONING**

CHECKING THE EFFICIENCY OF THE AIR CONDITIONING SYSTEM

ALL TYPES

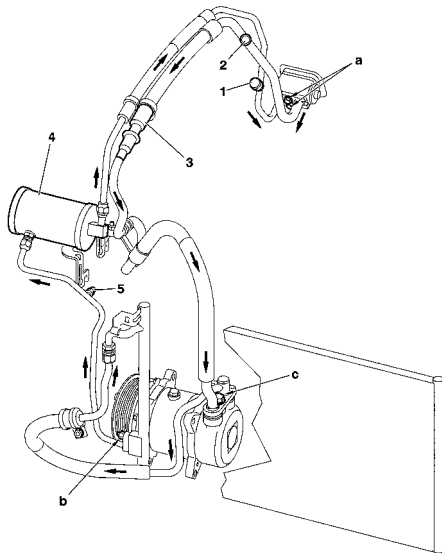
CHECKING PRESSURES (continued)

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

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

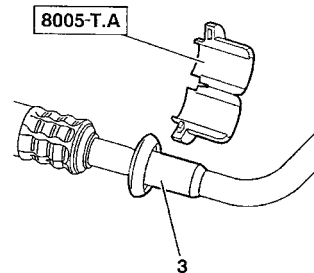
In general, the pressure should be approximately :

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



C5HP15UP

(3) Click-fit union.

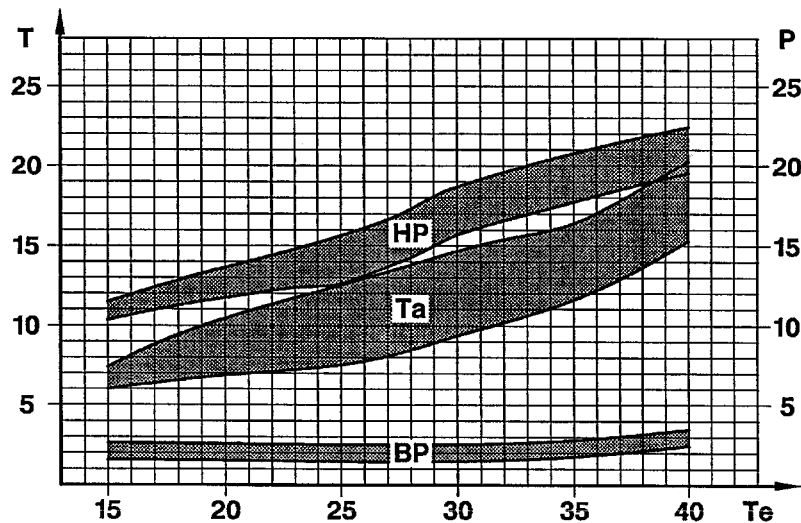


C5HP12EC

Tightening torques (m.daN).

- (1) High pressure valve
- (2) Low pressure valve
- (3) Click-fit union
- (4) Pressostat (1 seal \varnothing 10,82)
- (5) Dryer (2 seals \varnothing 7,65)
- (6) Relief valve, tighten to **0,43 m.daN \pm 0,1**
(1 seal \varnothing 7,65 – 1 seal \varnothing 16,5)
- (7) Compressor fixing flange **3 \pm 0,8 m.daN** (2 seals \varnothing 20)
- (8) (O-ring seal \varnothing 7,65)

Checks on the air conditioning circuit



Key.

T = Scale of Temperature ($^{\circ}\text{C}$), and of High Pressure (Bars).

P = Scale of Low pressure (Bars).

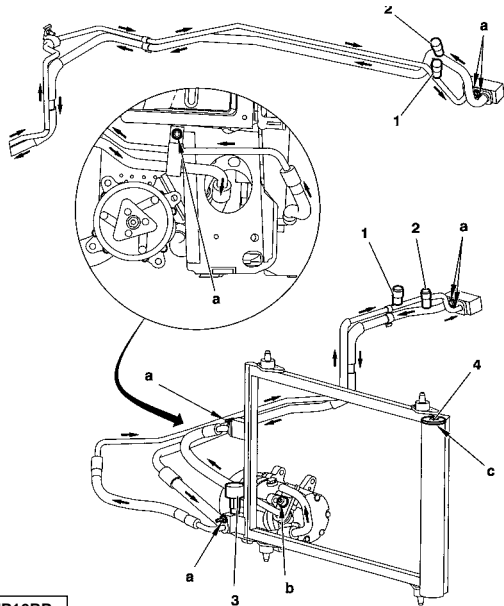
Te = Exterior temperature ($^{\circ}\text{C}$).

HP = Pressure at compressor outlet (Bars).

Ta = Temperature ($^{\circ}\text{C}$) of air blown from the vents.

BP = Pressure at compressor inlet (Bars).

C5HP067D



Plan of air conditioning system

Two solutions :

1/ « MANULLI », with « NON EUROCLIM » compressor (O-ring seals).

2/ « EATON », with « EUROCLIM » compressor (quadrilobe seals).

(1) - High pressure valve

(2) - Low pressure valve

(3) - Pressostat

(4) - Dryer

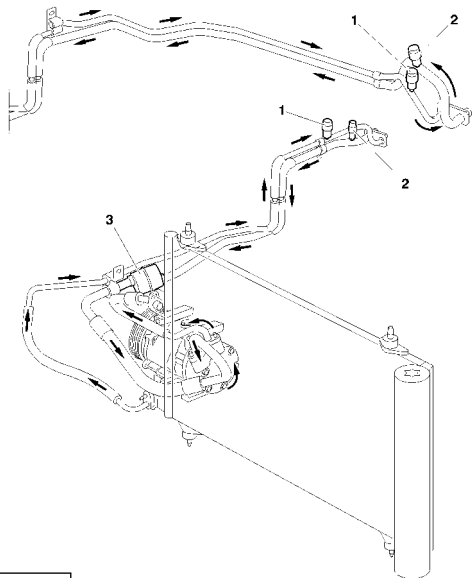
Tightening torques m.daN.

(a) 0.8

(b) 4 ± 0.4

(c) 0.8

A Right hand drive.

Plan of air conditioning system**Solution :**

1/ « EATON », with « EUROCLIM » compressor and buffer capacity (quadrilobe seals).

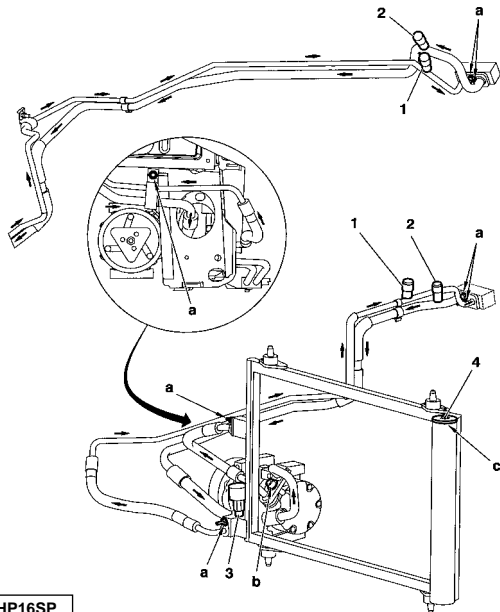
- (1) - High pressure valve
- (2) - Low pressure valve
- (3) - Buffer capacity

Tightening torques m.daN.

- (a) 0.8
- (b) 4 ± 0.4
- (c) 0.8

A Right hand drive.

C5HP17WP



Plan of air conditioning system

Two solutions :

1/ « MANULLI », with « NON EUROCLIM » compressor (O-ring seals).

2/ « EATON », with « EUROCLIM » compressor (quadrilobe seals).

(1) - High pressure valve

(2) - Low pressure valve

(3) - Pressostat

(4) - Dryer

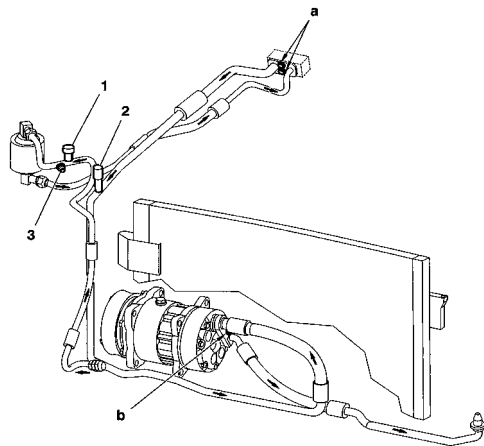
Tightening torques m.daN.

(a) 0.8

(b) 4 ± 0.4

(c) 0.8

A Right hand drive.



Plan of air conditioning system

Two solutions :

1/ « MANULLI », with « **NON EUROCLIM** » compressor (O-ring seals).

2/ « EATON », with « **EUROCLIM** » compressor (quadrilobe seals).

(1) - High pressure valve

(2) - Low pressure valve

(3) - Pressostat

(4) - Dryer

Tightening torques m.daN.

(a) 0.8

(b) 4 ± 0.4

(c) 0.8

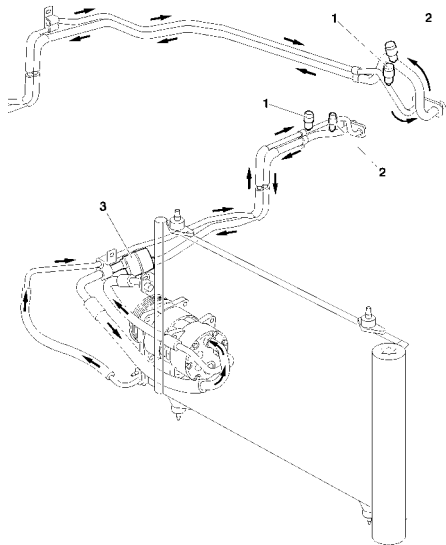
A Right hand drive.

C5HP16VP

XSARA

AIR CONDITIONING SYSTEM R 134.a

Plan of air conditioning system



Trois solutions :

- 1/ « **MANULLI** », with « **NON EUROCLIM** » compressor (O-ring seals).
- 2/ « **EATON** », with « **EUROCLIM** » compressor and buffer capacity (quadrilobe seals).
- 3/ « **EATON** », with « **NON EUROCLIM** » compressor and buffer capacity (O-ring seals).

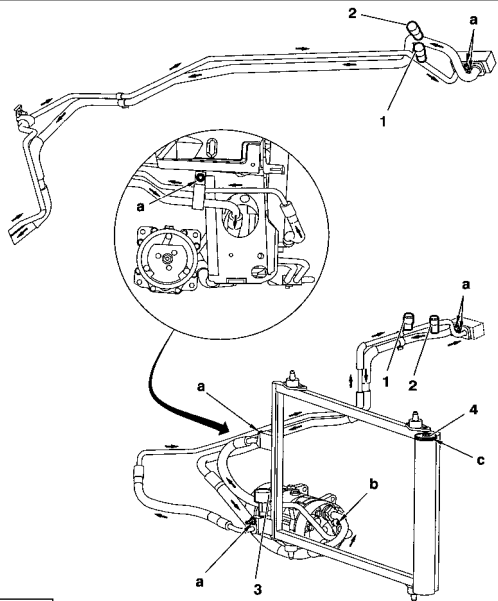
- (1) - High pressure valve
- (2) - Low pressure valve
- (3) - Buffer capacity

Tightening torques m.daN.

- (a) 0.8
- (b) 4 ± 0.4
- (c) 0.8

A Right hand drive.

C5HP17XP



Plan of air conditioning system

Two solutions :

1/ « MANULLI », with « NON EUROCLIM » compressor (O-ring seals).

2/ « EATON », with « EUROCLIM » compressor (quadrilobe seals).

(1) - High pressure valve

(2) - Low pressure valve

(3) - Pressostat

(4) - Dryer

Tightening torques m.daN.

(a) 0.8

(b) 4 ± 0.4

(c) 0.8

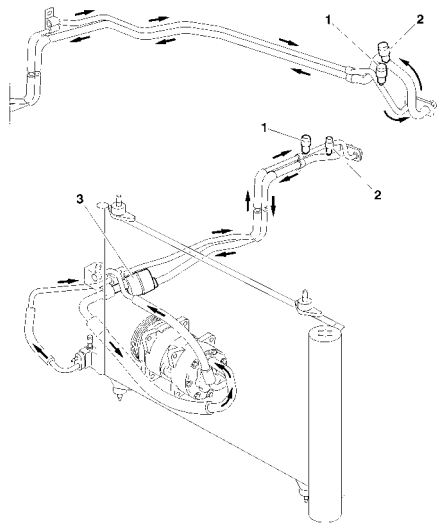
A Right hand drive.

C5HP16TP

XSARA

AIR CONDITIONING SYSTEM R 134.a

Plan of air conditioning system



Trois solutions :

- 1/ « MANULLI »**, with « **NON EUROCLIM** » compressor (O-ring seals).
- 2/ « EATON »**, with « **EUROCLIM** » compressor and buffer capacity (quadrilobe seals).
- 3/ « EATON »**, with « **NON EUROCLIM** » compressor and buffer capacity (O-ring seals).

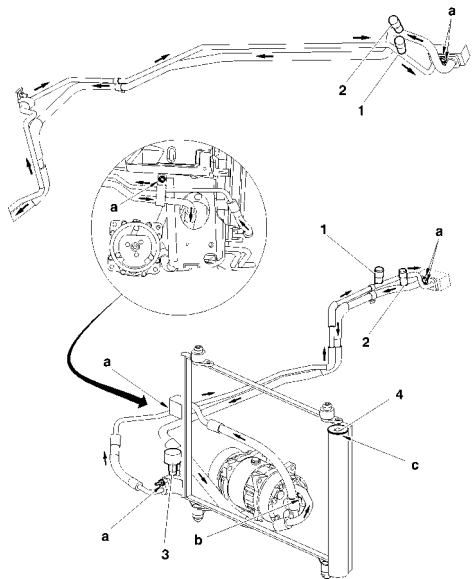
- (1) - High pressure valve**
- (2) - Low pressure valve**
- (3) - Buffer capacity**

Tightening torques m.daN.

- (a) 0.8**
- (b) 4 ± 0.4**
- (c) 0.8**

A Right hand drive.

C5HP17YP



Plan of air conditioning system

Two solutions :

1/ « MANULLI », with « NON EUROCLIM » compressor (O-ring seals).

2/ « EATON », with « EUROCLIM » compressor (quadrilobe seals).

(1) - High pressure valve

(2) - Low pressure valve

(3) - Pressostat

(4) - Dryer

Tightening torques m.daN.

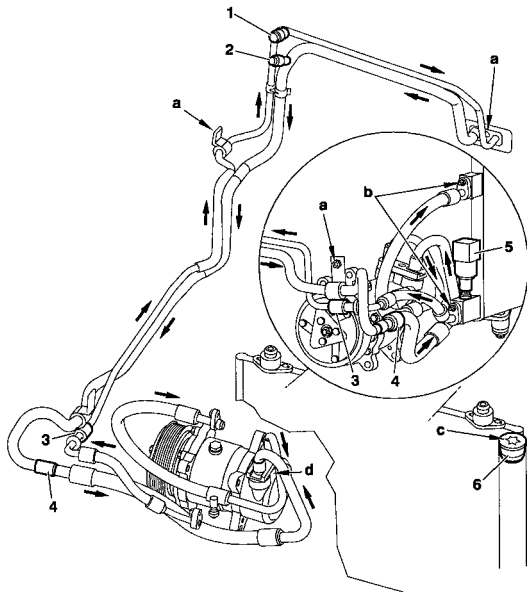
(a) 0.8

(b) 4 ± 0.4

(c) 0.8

A Right hand drive.

C5HP16UP



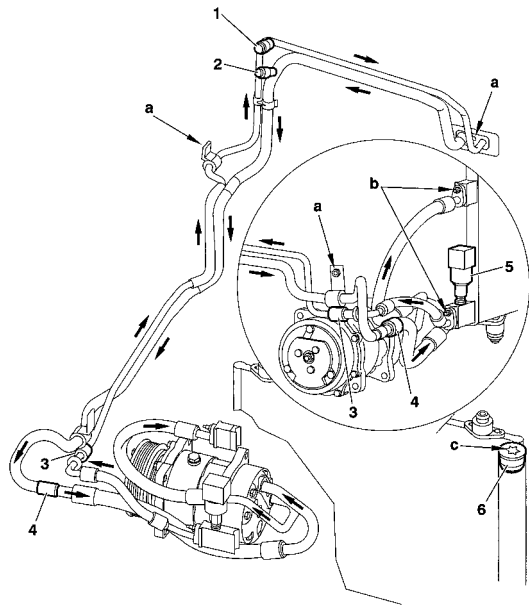
- (1) High pressure valve .
 (2) Low pressure valve.
 (3) High pressure click-fit union (tool **8005-T.C**).
 (4) Low pressure click-fit union (tool **8005-T.A**).
 (5) Pressostat. **1.8 ± 0.6 m.daN**
 (6) Filtering / drying cartridge plug.

Tightening torques m.daN.

- a	0.8 ± 0.1
- b	0.5 ± 0.1
- c	1.4 ± 0.2.
- d	2.5 ± 0.25

AIR CONDITIONING SYSTEM R 134.a

XSARA PICASSO EW7



- (1) High pressure valve .
- (2) Low pressure valve.
- (3) High pressure click-fit union (tool **8005-T.C**).
- (4) Low pressure click-fit union (tool **8005-T.A**).
- (5) Pressostat. **1.8 ± 0.6 m.daN**
- (6) Filtering / drying cartridge plug..

Tightening torques m.daN.

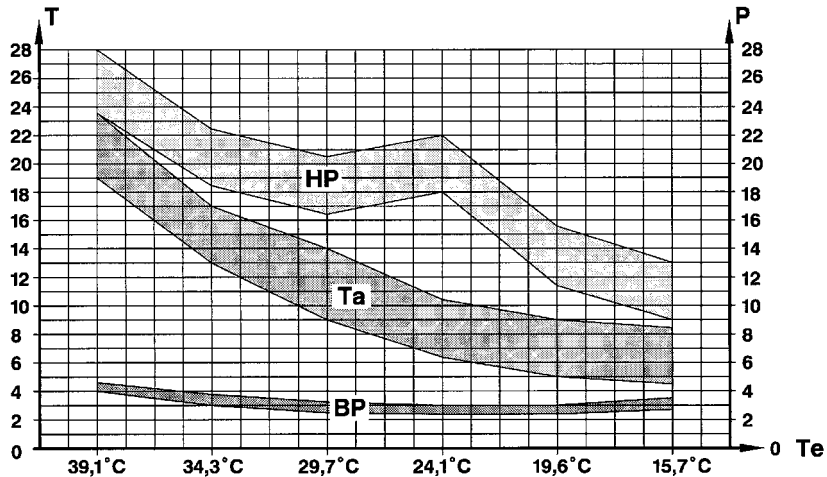
- a **0.8 ± 0.1**
- b **0.5 ± 0.1**
- c **1.4 ± 0.2.**

HP/LP compressor flange fixing **2.5 ± 0.25.**

C5HP13QP

AIR
CONDITIONING

Checks on the air conditioning circuit



Key

T/P = Scale of:

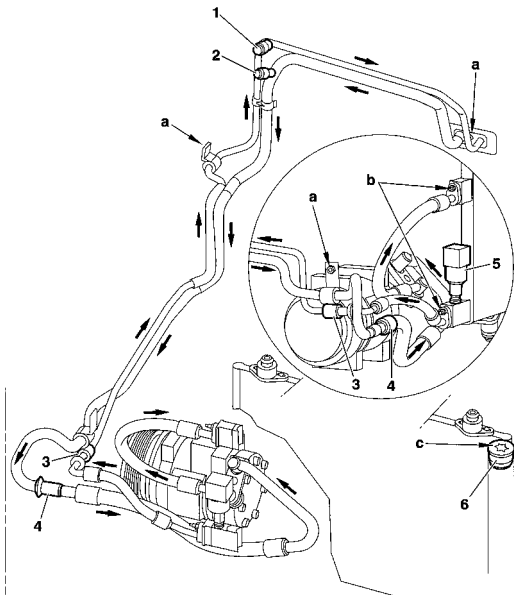
- Temperature (°C), average of air from the central vents.
- Pressure, High (Bars).
- Pressure, Low (Bars).

Te = Exterior temperature (°C).

HP = Pressure at compressor outlet (Bars).

Ta = Temperature (°C) of air blown from the vents.

BP = Pressure at compressor inlet (Bars).



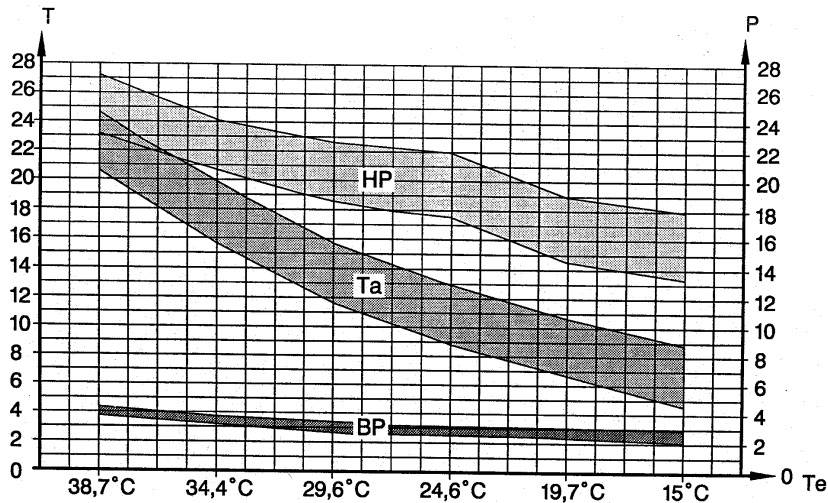
- (1) High pressure valve .
- (2) Low pressure valve.
- (3) High pressure click-fit union (tool **8005-T.C**).
- (4) Low pressure click-fit union (tool **8005-T.A**).
- (5) Pressostat. **1.8 ± 0.6 m.daN**
- (6) Filtering / drying cartridge plug.

Tightening torques m.daN.

- a **0.8 ± 0.1**
- b **0.5 ± 0.1**
- c **1.4 ± 0.2.**

HP/LP compressor flange fixing **2.5 ± 0.15.**

Checking the air conditioning system



Key

T/P = Scale of:

- Temperature (°C), average of air from the central vents.
- Pressure, High (Bars).
- Pressure, Low (Bars).

Te = Exterior temperature (°C).

HP = Pressure at compressor outlet (Bars).

Ta = Temperature (°C) of air blown from the vents.

BP = Pressure at compressor inlet (Bars).