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SUBSCRIPTION

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PETROL ENGINE

ES9J4 (2946 cm³. V6)

- AIR AND FUEL SUPPLY - TURBOCHARGING
- IGNITION

MAN 108931

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"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".

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DATA : BOSCH MP 7.0 MULTIPOINT INJECTION SYSTEM

Application : this procedure applies to engine XFZ (ES9J4).

1 – SYNOPSIS

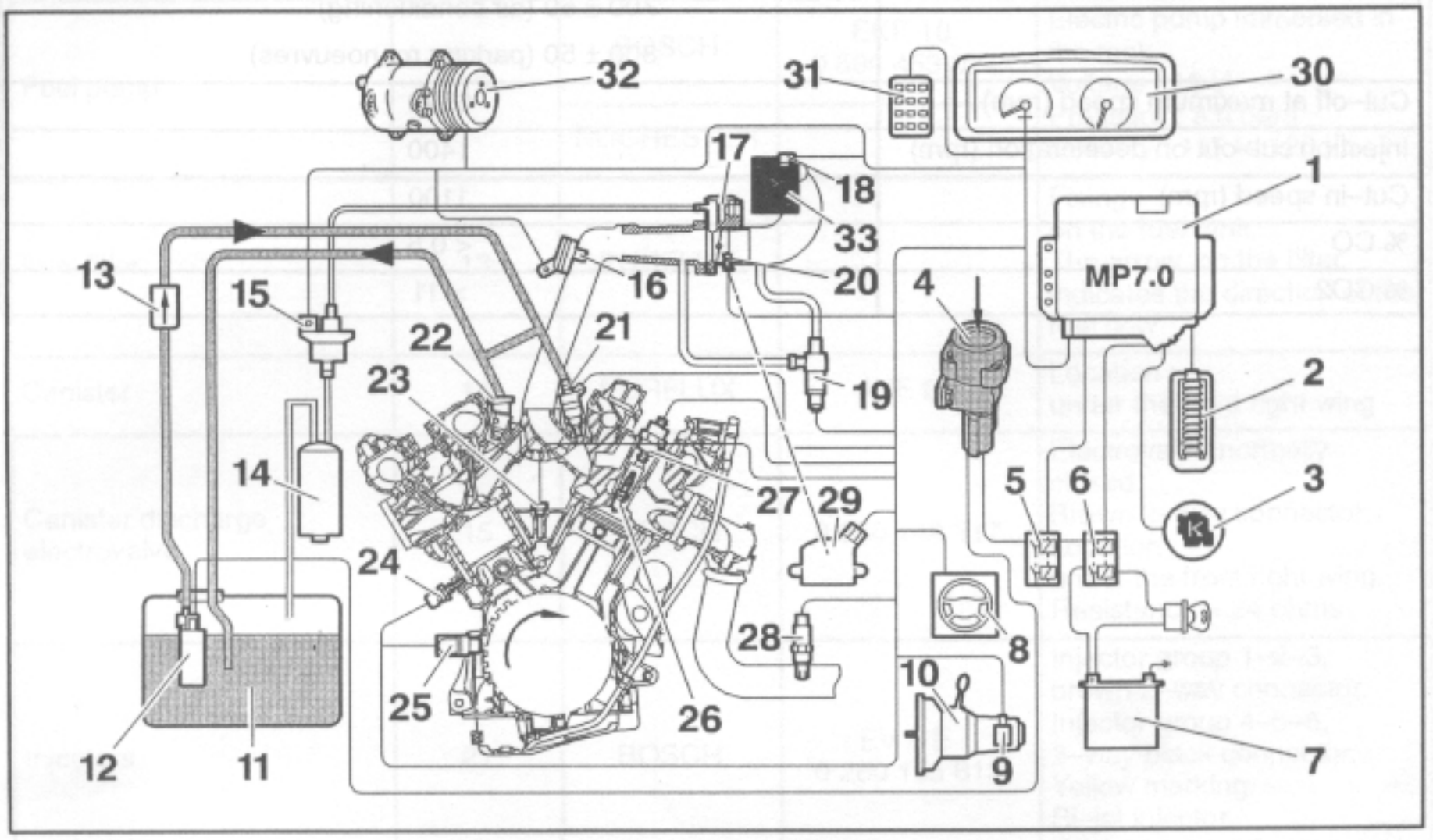


Fig : B1HP0KZD

(1) engine management ECU.
(2) diagnostic connector.
(3) injection ignition test warning lamp.
(4) inertia switch.
(5) double relay : power.
(6) double relay : principal.
(7) battery.
(8) pressure sensor : power assisted steering.
(9) vehicle speed sensor.
(10) gearbox.
(11) fuel tank.
(12) fuel pump.
(13) fuel filter.
(14) canister.
(15) canister discharge electrovalve.
(16) integral pressure sensor.
(17) canister discharge unit – throttle housing.
(18) inlet air temperature sensor.
(19) idling regulation electrovalve.
(20) throttle housing heating element.
(21) injectors.
(22) pressure regulator – pulsation damper.
(23) knock sensor.
(24) coolant temperature sensor.
(25) engine speed sensor.
(26) sparking plugs (x6).
(27) HT coil unit.
(28) oxygen sensor.
(29) throttle potentiometer.
(30) consumption information – engine speed.
(31) coded anti–theft keypad.
(32) air conditioning compressor cut out information.
(33) air filter unit.
(34) automatic gearbox ECU, if the vehicle is equipped with an automatic gearbox.

2 – DATA

Engine plate	XFZ (ES9J4)
Capacity (cc)	2946
Idling speed (rpm) (not adjustable)	600 ± 50 Variable engine speed according to the battery voltage 700 ± 50 (air conditioning) 800 ± 50 (parking manoeuvres)
Cut–off at maximum speed (rpm)	6520
Injection cut–out on deceleration (rpm)	1400
Cut–in speed (rpm)	1100
% CO	< 0,5
% CO2	> 11

3 – FUEL SYSTEM

Component	Item	Supplier	Reference	Remarks
Fuel to be used				95 RON or 98 RON premium unleaded petrol
Fuel tank	11			Capacity = 80 litres. Composition = polyethylene
Fuel pump	12	BOSCH	EKP 10 0 580 453 024	Electric pump immersed in the tank. Voltage : 12 V. Pressure : 3,5 bars. Delivery : 115 to 120 l/h
		ROCHESTER		
Fuel filter	13	PURFLUX		Fixing : on the fuel tank. The arrow, on the filter, indicates the direction of the fuel flow
Canister	14	PURFLUX	AVE 20	Location : under the front right wing
Canister discharge electrovalve	15	BOSCH	0 280 142 317	Electrovalve normally closed. Brown 2–way connector. Location : under the front right wing. Resistance = 24 ohms
Injectors	21	BOSCH	EV 8 E 0 280 155 613	Injector group 1–2–3, brown 2–way connector. Injector group 4–5–6, 2–way black connector. Yellow marking. Bi–jet injector. Resistance = 16 ohms
Pressure regulator	22	BOSCH	0 280 160 560	Fixing on the return end of the fuel rail. Regulating pressure = 3 bars
Pulsation damper			0 280 161 500	Fixing on the supply end of the fuel rail

4 – AIR CIRCUIT

Component	Item	Supplier	Reference	Remarks
Integral pressure sensor	16	BOSCH	DSS 0 261 230 012	Grey 3–way connector. Incorporated into the inlet manifold
Throttle housing	17	MAGNETI–MARELLI	PSA 603	The unit comprises : heating element. Throttle potentiometer
Idling regulation electrovalve	19	BOSCH	ZWD 5 0 280 140 563	Grey 3–way connector. Fixed to the throttle housing by a retaining clamp

5 – ELECTRICAL CIRCUIT

Component	Item	Supplier	Reference	Remarks
Engine management ECU	1	BOSCH	MP 7.0. Emission standard Z/L3. Vehicle with manual gearbox : 0 261 204 410. With automatic gearbox : 0 261 204 415	55–way connector. "semi–sequential" injection. "flash" type eprom (reprogrammable eprom). Located in the ECU housing
Inertia switch	4	FIRST INERTIA SWITCH	Type 505	3–way black connector. Location on front right wheel arch, fixing on the suspension support. Can be manually reset if the cut–off system is activated
Double relay : 1 – power : ignition system, coded anti–theft device, oxygen sensor heating	5	OMP / BITRON	240 104	15–way black connector. Located in the ECU housing
2 – main supply : injection ECU, electric fuel pump	6	CARTIER	03 723	
Power–assisted steering pressure sensor	8	BITRON		Blue 2–way connector. Switch opens at 20 bars, for ECU information (steering on full lock). Mauve identification collar. Fixed to the power steering hydraulic 4–way union beneath the vehicle
Vehicle speed sensor	9	EATON		White 3–way connector. Fixing : on the differential housing of the gearbox
Inlet air temperature sensor	18	JAEGER	IAT S04	Grey 2–way connector. Fixing : on the air filter inlet duct

Component	Item	Supplier	Reference	Remarks
Throttle housing heating element	20	SOLEX	22 496 134	Yellow 2–way connector. Fixing : on the throttle housing. Supply : 13,5 Volts (+ 2,5 V / – 5,5 V). Consumption : 8 amps
Knock sensor	23	BOSCH	0 261 231 10	Green 3–way connector. Fixing : on the central part of the Vee of the engine block. Imperatively observe the tightening torque : 2 ± 0,5 m.daN
Coolant temperature sensor	24	ELTH	0 953 001 9900	Green 2–way connector. Fixing : on the coolant outlet housing
Engine speed sensor	25	ELECTRICFIL	14 43 13	Brown 3–way connector. Fixing : on the gearbox bell housing
Oxygen sensor	28	BOSCH	Emission standard K LSH23	White 4–way connector. Fixing : on the exhaust pipe below the body
			Emission standard Z/L3 LSH24. 0 258 003 754	Brown 4–way connector. Fixing : on the exhaust pipe below the body
Throttle potentiometer	29	BOSCH	DKG1 0 280 122 009	Single track. White 3–way connector. Fixing : on the throttle housing. Not adjustable

6 – IGNITION SYSTEM

Component	Item	Supplier	Reference	Remarks
Spark plugs	26	BOSCH	FR7 KDC	Electrode gap : 1 mm Tightening torque : 2,5 m.daN
		EYQUEM	RFC 58LSPD	
Ignition coil unit	27	SAGEM	BBC 3.2	4–way black connector. Dual static type ignition

INITIALISATION PROCEDURE : BOSCH MP7.0 MULTIPOINT FUEL INJECTION ECU

1 – RECOMMENDED TOOLS

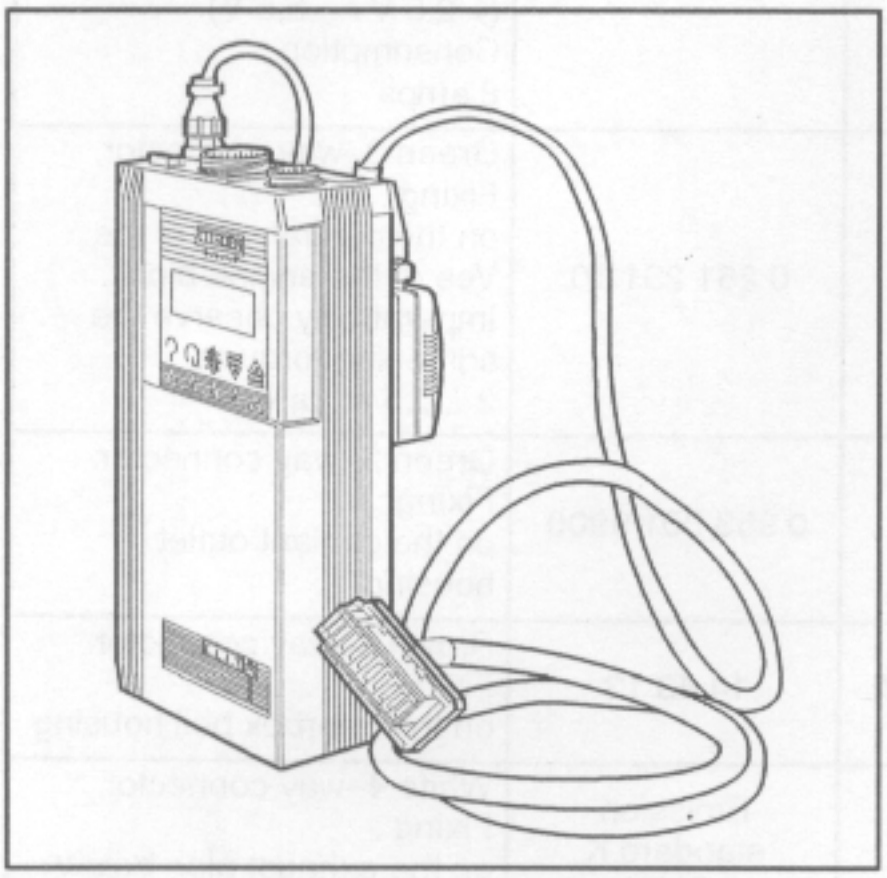


Fig : B3BP039C

ELIT test unit : 4125–T.

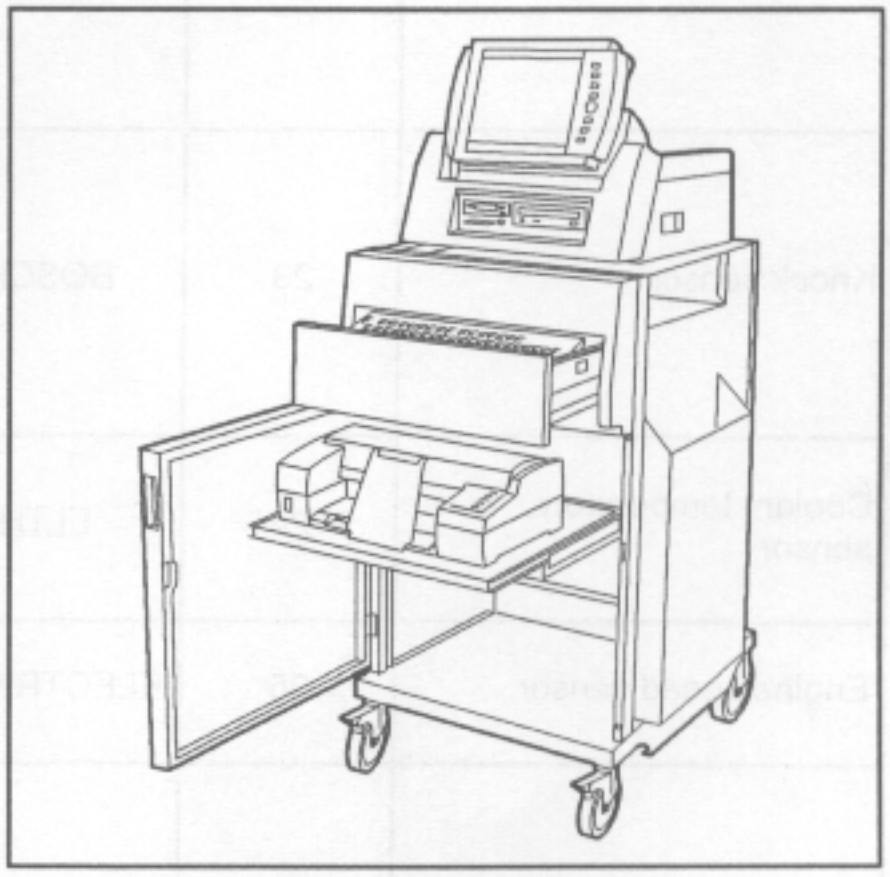


Fig : E5AP087C

PROXIA diagnostic station : 4165–T.



Fig : E5AP088C

LEXIA diagnostic station : 4171–T.

2 – INITIALISATION OF THE ENGINE IDLE SPEED

Switch on the ignition.

Unlock the coded anti–theft device (according to equipment).

Wait 5 seconds before starting the engine.
Do not depress the accelerator pedal.

3 – AUTO–ADAPTATION OF THE RICHNESS

Warm up the engine until the cooling fan or fans cut in and out : water temperature = 80 °C.

Connect the diagnostic tool to the vehicle central diagnostic socket.

NOTE : The diagnostic socket is located in the passenger compartment fusebox.

IMPERATIVE : Switch off all the vehicle's electrical equipment.

Select the following in the "diagnosis" menu of the equipment :
- test by function
- reading fault codes

There must be no fault codes displayed.

Switch off the ignition, then switch it on.

Start the engine. Do not depress the accelerator pedal.

Run the engine at idle speed for 5 minutes. Do not depress the accelerator pedal.

Select the following in the "diagnosis" menu of the equipment :
- measure parameters
- injection information

Reading parameters for "throttle butterfly position", the diagnostic equipment should read "IDLING".

If a different condition should be displayed, carry out the following operations :
- check the routing and tension of the accelerator cable
- ensure that the throttle butterfly returns to the idle stop
- slowly depress the accelerator pedal and check that the diagnostic equipment reads the throttle positions of "IDLE – MID–THROTTLE – FULL THROTTLE" when displaying "throttle butterfly position"

If the throttle status does not alter, there is an electrical fault : refer to the specific brochure. Fault finding.

NOTE : Erasing the fault codes using diagnostic equipment does not erase the auto–adaptation of the mixture richness.

REMOVING – REFITTING : INLET MANIFOLD

1 – REMOVING

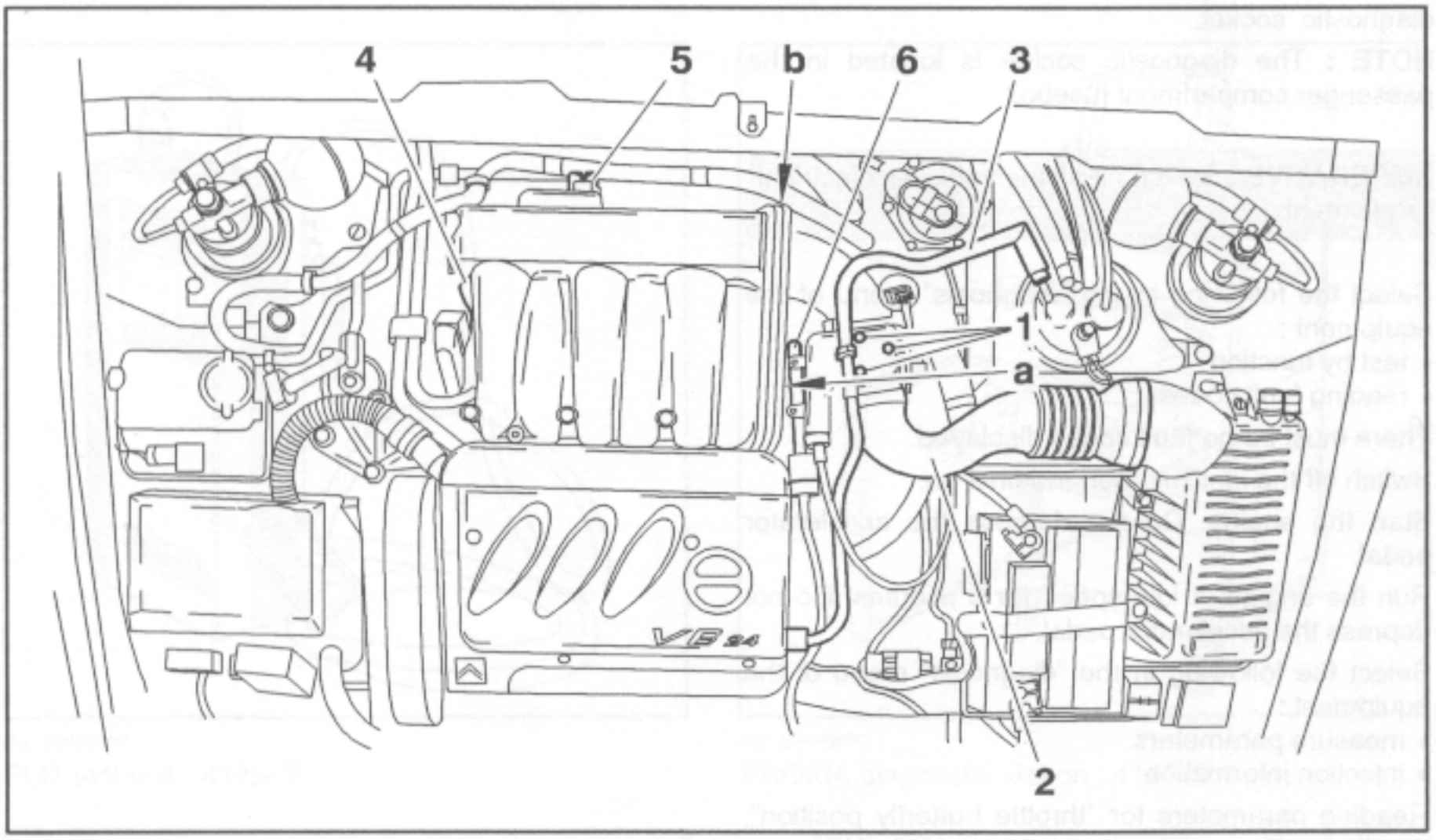


Fig : B1BP1MRD

Remove :
- the engine cover
- the air sleeve (2)
- the screws (1)

Unclip the pipe (3).

Uncouple :
- the cruise control control rod (6)
- the accelerator cable
- the flexible hose (4)

Remove the high voltage harness fixings (a) and (b).

Disconnect :
- the connector (5)
- the throttle housing harness connectors

Uncouple the throttle housing gas recycling pipe.

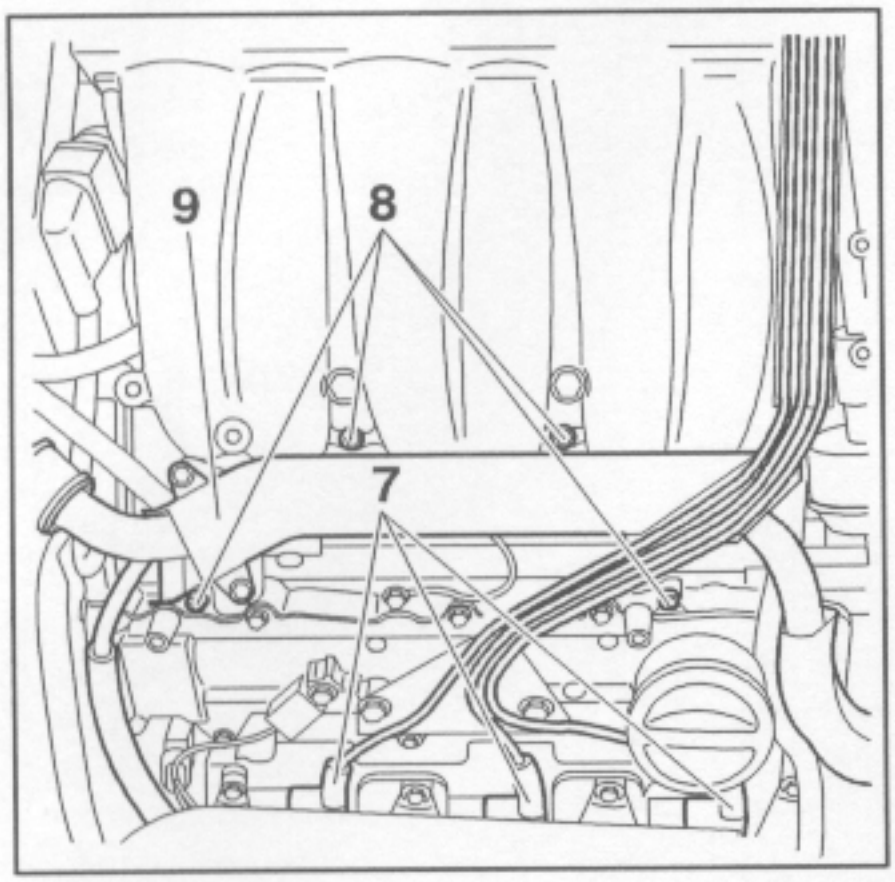


Fig : B1HP0UVC

Disconnect the high tension leads (7).

Remove the screws (8).

Release the harness (9).

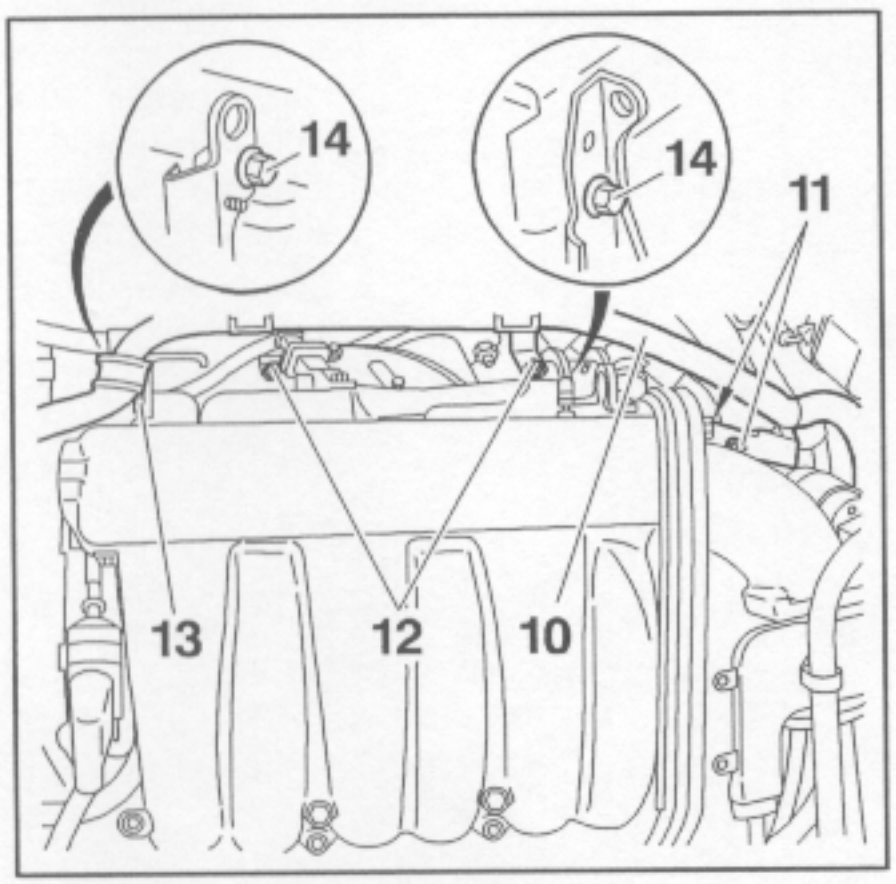


Fig : B1HP0UWC

Remove :

- the screws (12)
- the screws (11)

Release the harness (10).

Remove the screws (13) and (14).

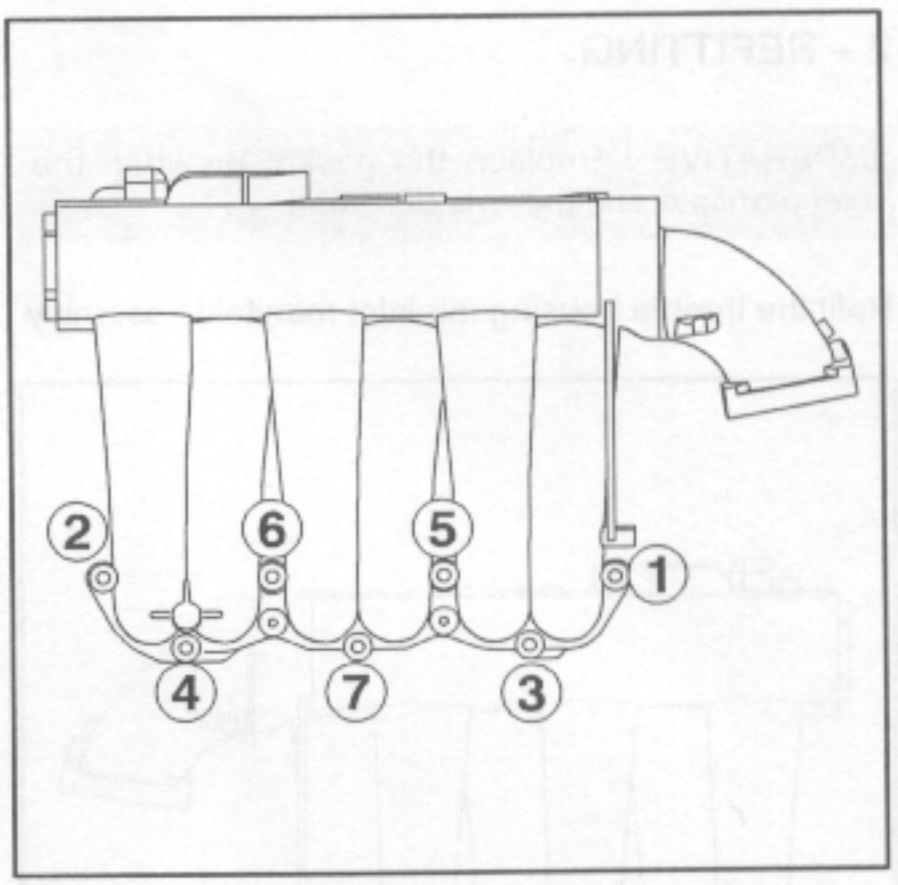


Fig : B1HP0UXC

Remove :

- the fixing screws (follow the recommended sequence)
- the throttle housing–air inlet manifold assembly

Plug the air inlet passages.

2 – REFITTING

IMPERATIVE : Replace the gasket between the inlet manifold and the cylinder head.

Refit the throttle housing–air inlet manifold assembly.

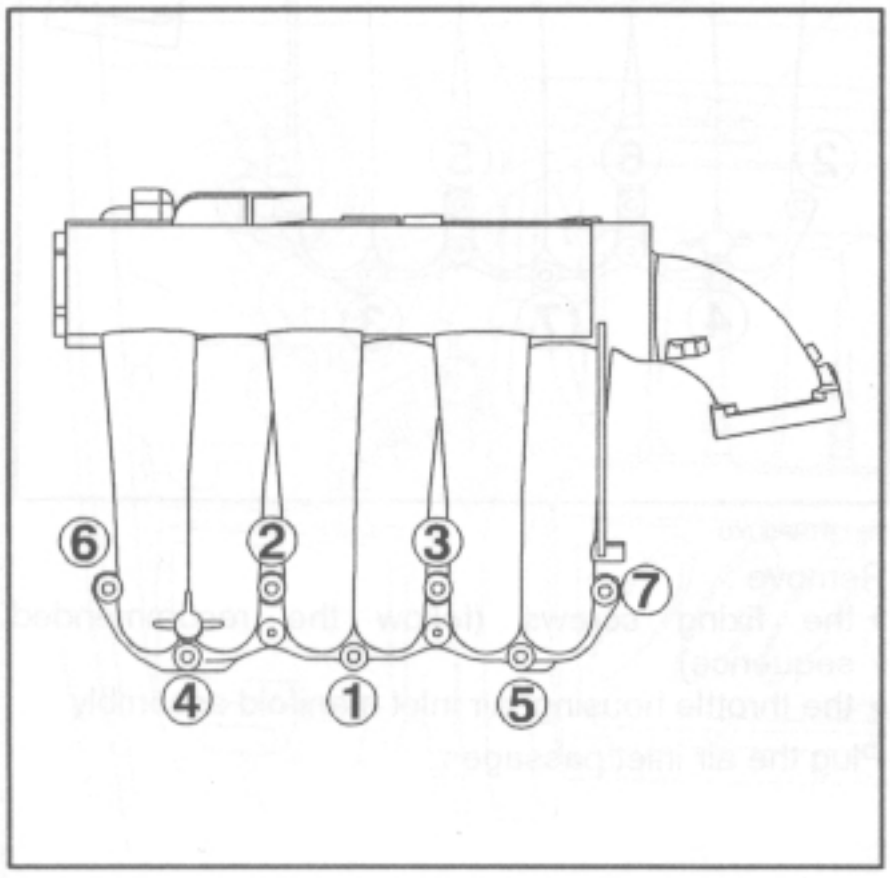


Fig : B1HP0LJC

Tightening method :
- pre–tighten each screw from 1 to 7 to a torque of 1 m.daN (follow the recommended sequence)
- tighten the screws from 1 to 7 to a torque of 2 m.daN (follow the recommended sequence)
- check the tightness of the bolts (follow the recommended sequence)

Fit :
- refit the screws (13) and (14) ; tighten to 1,5 m.daN
- the screws (11)
- refit the screws (12) and (8)

Connect the high tension leads (7).

Fit fixings (a) and (b) of the high voltage harness.

Couple the throttle housing gas recycling pipe.

Reconnect :
- the throttle housing harness connectors
- the connector (5)

Recouple :
- flexible hose (4)
- the accelerator cable
- the cruise control control rod (6)

Reclip the pipe (3).

Fit :
- the screws (1)
- the air sleeve (2)
- the engine cover

REMOVING – REFITTING : SPARKING PLUGS

1 – RECOMMENDED TOOLS

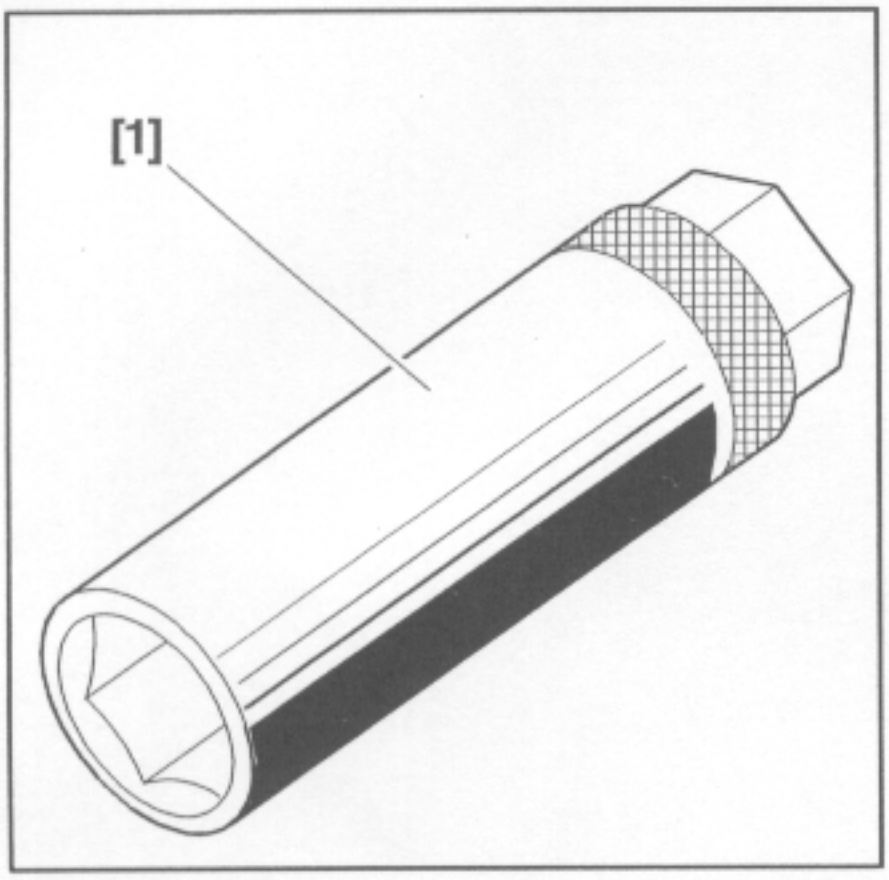


Fig : E5AP03MC

[1] spark plug spanner 9007–T.

2 – REMOVING

Remove the inlet manifold (see the relevant operation).

Plug the air inlet passages.

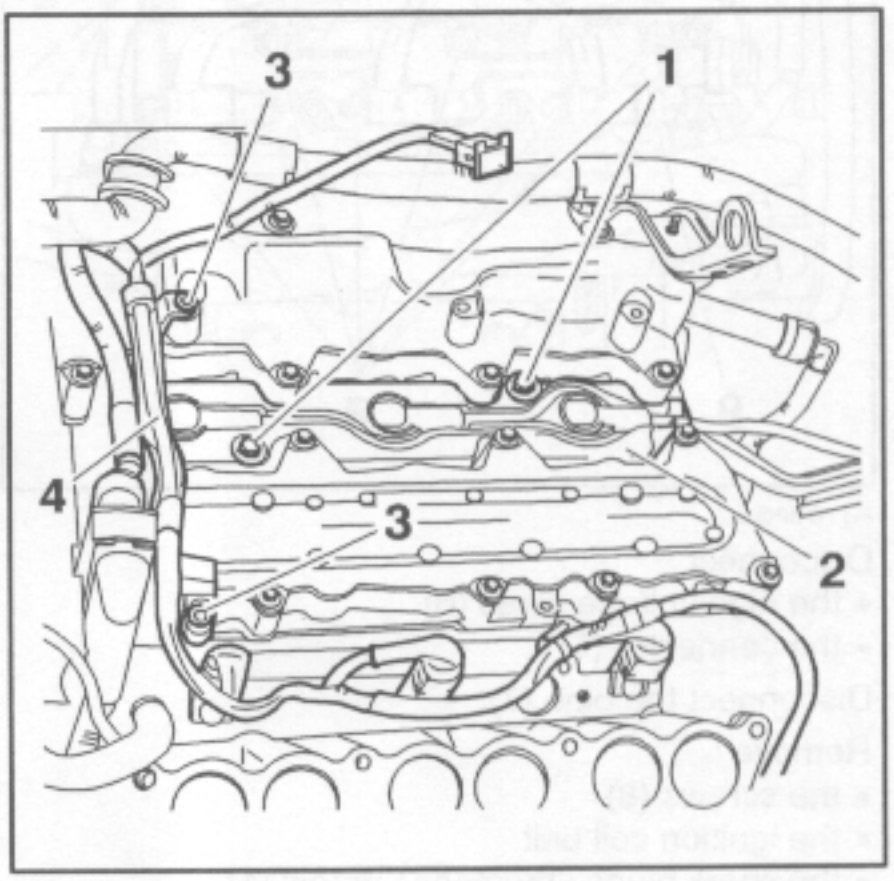


Fig : B1DP137C

Remove the screws (3).

Release the harness (4).

Remove :

- the screws (1)
- the ignition harness cassette (2)
- the engine cover

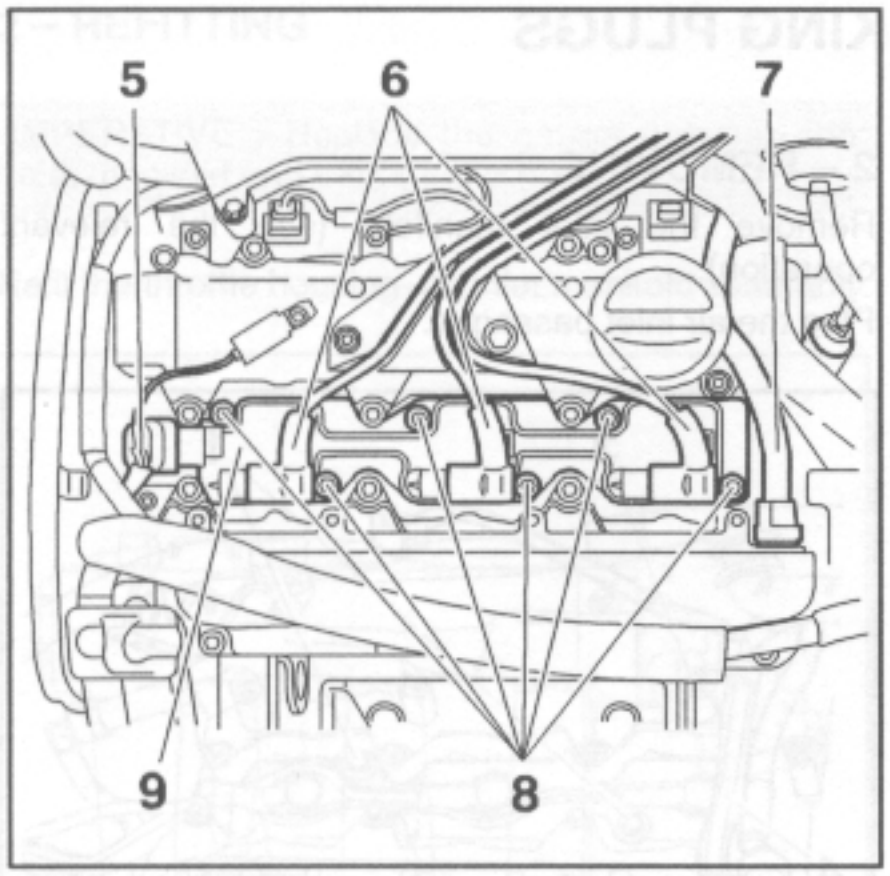


Fig : B1IP008C

Disconnect :
- the high voltage wires (6)
- the connector (5)

Disconnect the pipe (7).

Remove :
- the screws (8)
- the ignition coil unit
- the spark plugs ; by means of tool [1]

3 – REFITTING

NOTE : Lubricate the threads of the sparking plugs (NO–BIND G4 grease).

Fit the sparking plugs.

Using tool [1], tighten the sparking plugs to 2.75 m.daN.

Fit :
- the ignition coil unit
- the screws (8) ; tighten to 0,8 m.daN

Couple up pipe (7).

Reconnect :
- connector (5)
- the high voltage wires (6)

Fit :
- the ignition harness cassette (2)
- the screws (1)
- the screws (3)
- the engine cover

Refit the inlet manifold (see the relevant operation).