





Chapter 2 Part B:

XU series engine in-car repair procedures

Contents

Auxiliary drivebelt check and renewal	See Chapter 1	Flywheel/driveplate - removal, inspection and refitting	13
Camshaft and followers - removal, inspection and refitting	7	General information	1
Camshaft oil seal - renewal	6	Oil cooler - removal and refitting	11
Compression test - description and interpretation	3	Oil pump - removal, inspection and refitting	10
Crankshaft oil seals - renewal	12	Sump - removal and refitting	9
Cylinder head - removal and refitting	8	Timing belt - general information, removal and refitting	4
Engine oil and filter renewal	See Chapter 1	Timing belt tensioner and sprockets - removal, inspection and refitting	5
Engine/transmission mountings - inspection and renewal	14	Valve clearances - checking and adjustment	2
Engine oil level check	See "Weekly checks"		

Degrees of difficulty

Easy , suitable for novice with little experience 	Fairly easy , suitable for beginner with some experience 	Fairly difficult , suitable for competent DIY mechanic 	Difficult , suitable for experienced DIY mechanic 	Very difficult , suitable for expert DIY or professional 
---	--	--	---	--

Specifications

Engine general

Code and displacement:

XU5J (180A)	1580 cc
XU5JA (B6D)	1580 cc
XU5JA/K (B6E)	1580 cc
XU51C (B1A/A)	1580 cc
XU51C/K (B1F)	1580 cc
XU5M2/Z, XU5M3/Z, XU5M3/L (BDY)	1580 cc
XU9JA, XU9JA/K (D6B)	1905 cc
XU9JA/Z, XU9JA/L (DKZ)	1905 cc
XU9J1/Z, XU9J1/L (DFZ)	1905 cc

Bore 83.0 mm

Stroke:

1580 cc engines	73.0 mm
1905 cc engines	88.0 mm

Compression ratio:

XU5J, XU5JA	9.8 : 1
XU5JA/K	9.25 : 1
XU51C, XU51C/K	9.35 : 1
XU5M2/Z, XU5M3/Z, XU5M3/L	8.95 : 1
XU9JA, XU9JA/K	9.6 : 1
XU9JA/Z, XU9JA/L	9.2 : 1
XU9J1/Z, XU9J1/L	8.4 : 1

Direction of crankshaft rotation Clockwise (viewed from right-hand side of vehicle)

Firing order 1-3-4-2 (No 1 cylinder at flywheel end of engine)

Valve clearances (engine cold)

Inlet	0.15 to 0.25 mm
Exhaust	0.35 to 0.45 mm

Camshaft

Drive	Toothed belt
Endfloat (not adjustable)	0.07 to 0.16 mm

Lubrication system

Oil pump type	Gear type, chain driven from crankshaft
Oil pressure	3.5 bar at 4000 rpm
Oil pressure warning light switch operating pressure	0.44 to 0.58 bar

Torque wrench settings	Nm	lbf ft
Camshaft cover bolts	10	7
Camshaft bearing caps	15	11
Camshaft sprocket bolt (M10)	40	30
Camshaft sprocket bolt (M12)	80	59
Crankshaft pulley bolt	109	80
Sump bolts	20	15
Sump spacer plate bolt	10	7
Flywheel bolts (renew bolts and use thread locking compound)	49	36
Cylinder head bolts (see text):		
Hexagon head bolts:		
Stage 1	58	43
Stage 2 (after slackening)	20	15
Stage 3	Tighten through a further 120°	
Torx type bolts:		
Stage 1	60	44
Stage 2 (after slackening)	20	15
Stage 3	Tighten through a further 300°	
Oil pump-to-block bolts	20	15
Oil seal carrier plate bolts	15	11
Oil cooler union nuts (remotely mounted oil cooler)	20	15
Oil filter mounting stub	60	44
Timing belt tensioner nuts (spring-loaded type tensioner)	15	11
Timing belt tensioner roller bolt (eccentric roller type tensioner)	20	15
Engine mounting bracket bolts:		
M8	34	25
M10	45	33
Engine mountings:		
RH nut	27	20
LH nut	35	26
Battery tray/bracket	18	13
Lower mounting centre bolt	34	25
Lower mounting to subframe	45	33

1 General information

How to use this Chapter

This Part of Chapter 2 describes those repair procedures that can reasonably be carried out on the XU series engine while it remains in the car. If the engine has been removed from the car and is being dismantled as described in Part D, any preliminary dismantling procedures can be ignored. Refer to Part A and C for information on the XV, XW and XY series and TU series engines.

Part D describes the removal of the engine/transmission from the vehicle, and the full overhaul procedures that can then be carried out.

Engine description

The engine has four cylinders and an overhead camshaft, is mounted transversely, driving the front wheels, and it is inclined to the rear at an angle of 30° from vertical. The XU series engines are of 1580 cc (XU5) or 1905 cc (XU9), the difference in displacement being achieved by increasing the stroke.

The transmission is also mounted transversely in line with and on the left-hand

end of the engine. The final drive unit is integral with the transmission and transmits drive to the front wheels via driveshafts.

The engine has four wet liner cylinders, a five-bearing crankshaft and an overhead camshaft.

The connecting rods rotate on horizontally-split bearing shells at their big-ends. The pistons are attached to the connecting rods by gudgeon pins. The gudgeon pins are an interference fit in the connecting rod small-end eyes. The aluminium alloy pistons are fitted with three piston rings - two compression rings and an oil control ring.

Camshaft drive is by a toothed timing belt. The belt is tensioned by a spring loaded, or eccentric roller tensioner assembly and also drives the coolant pump. The camshaft operates directly on bucket tappets; valve clearance adjustment is by shims inserted between the tappet and the valve stem. The distributor is driven directly from the left-hand end of the camshaft.

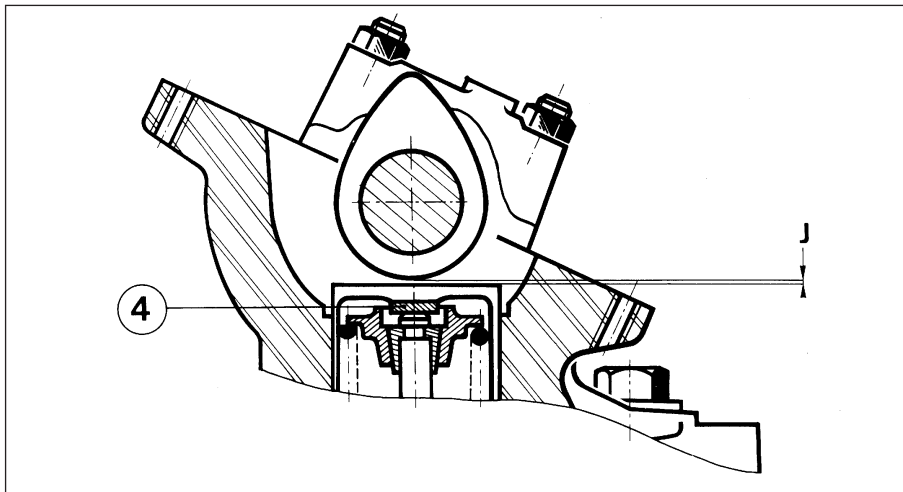
The oil pump is located in the sump and is chain driven from the crankshaft. A forced feed lubrication system is employed. Oil from the pump passes to the oil filter then to the oil gallery, crankshaft and camshaft. The valve stems are lubricated by oil returning from the camshaft to the sump. The oil pump chain

and sprockets are lubricated by oil in the sump. On certain models an oil cooler may be fitted, either on the engine between the cylinder block and oil filter, or mounted remotely in front of the radiator.

Repair operations possible with the engine in the car

The following work can be carried out with the engine in the car:

- a) Valve clearances - adjustment.
- b) Compression pressure - testing.
- c) Timing belt - removal, refitting and adjustment.
- d) Timing belt tensioner and sprockets - removal, inspection and refitting.
- e) Camshaft oil seal - renewal.
- f) Camshaft and followers - removal, inspection and refitting.
- g) Cylinder head - removal and refitting.
- h) Cylinder head and pistons - decarbonising.
- i) Sump - removal and refitting.
- j) Oil pump - removal, inspection and refitting.
- k) Crankshaft oil seals - renewal.
- l) Flywheel/driveplate - removal and refitting.
- m) Engine mountings - inspection and renewal.



2.6 Valve clearance is measured at point J and altered by shim (4)

Adjustment

11 To adjust the clearances remove the camshaft as described in Section 7.

12 Lift off a cam follower and its shim. Be careful that the shim does not fall out of the follower. Clean the shim and measure its thickness with a micrometer (see illustrations).

13 Refer to the clearance recorded for the valve concerned. If the clearance was larger than specified, a thicker shim must be fitted; if the clearance was too small, a thinner shim must be fitted.

Sample calculation - clearance too large:

Desired clearance (A) 0.20 mm
 Measured clearance (B) 0.28 mm
 Difference (B - A) = + 0.08 mm
 Original shim thickness 2.62 mm
 Req'd shim thickness $2.62 + 0.08 = 2.70$ mm

Sample calculation - clearance too small:

Desired clearance (A) 0.40 mm
 Measured clearance (B) 0.23 mm
 Difference (B-A) = -0.17 mm
 Original shim thickness 2.86 mm
 Req'd shim thickness $2.86 - 0.17 = 2.69$ mm

14 Shims are available in thicknesses from 1.650 to 4.000 mm, in steps of 0.025 mm in the middle of the range and at the ends in steps of 0.075 mm. Clean new shims before measuring or fitting them.

15 Repeat the operations on the other cam followers and shims, keeping each follower identified so that it can be refitted in the same position.

16 When reassembling, oil the shim and fit it on the valve stem, then oil the cam follower and lower it smoothly into position. If the follower is raised at any stage the shim may be dislodged.

17 When all the followers are in position with their shims, refit the camshaft. Check the valve clearances before refitting the timing belt in case a mistake has been made and the camshaft has to be removed again. With the timing belt disconnected the camshaft will not be moved by rotation of the crankshaft. Before rotating the camshaft alone, position all the pistons halfway down the bores to avoid piston-to-valve contact.

2 Valve clearances - checking and adjustment



Note: The valve clearances must be checked and adjusted only when the engine is cold.

1 The importance of having the valve clearances correctly adjusted cannot be overstressed, as they vitally affect the performance of the engine. If the clearances are too big, the engine will be noisy (characteristic rattling or tapping noises) and engine efficiency will be reduced, as the valves open too late and close too early. A more serious problem arises if the clearances are too small, however. If this is the case, the valves may not close fully when the engine is hot, resulting in serious damage to the engine (eg. burnt valve seats and/or cylinder head warping/cracking).

Checking

- 2 Remove the air cleaner and ducts as described in the relevant Part of Chapter 4.
- 3 Disconnect the brake servo vacuum hose.
- 4 Remove the camshaft cover, trying not to damage the gasket.
- 5 Have ready a pencil and paper to record the measured clearances.
- 6 Turn the crankshaft using a spanner on the crankshaft pulley bolt until the cam lobe

nearest the flywheel end of the engine is pointing vertically upwards (see illustration).

HAYNES *Turning the engine will be easier if the spark plugs are removed first - see Chapter 1.*
HINT

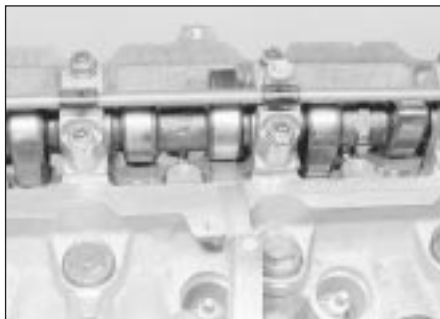
7 Using feeler blades, measure the clearance between the base of the cam and the cam follower (see illustration). Record the clearance.

8 Repeat the measurement for the other seven valves, turning the crankshaft as necessary so that the cam lobe in question is always vertically upwards.

9 Calculate the difference between each measured clearance and the desired value (see Specifications). Note that the value for inlet valves is different from that for exhaust. Counting from either end of the engine, the valve sequence is:

Exhaust - Inlet - Inlet - Exhaust - Exhaust - Inlet - Inlet - Exhaust.

10 If any clearance measured is outside the specified tolerance, adjustment must be carried out as described below. If all clearances are within tolerance, refit the camshaft cover, using a new gasket if necessary. Note the diagnostic socket and copper washer under the bolt at the timing belt end on certain engines.



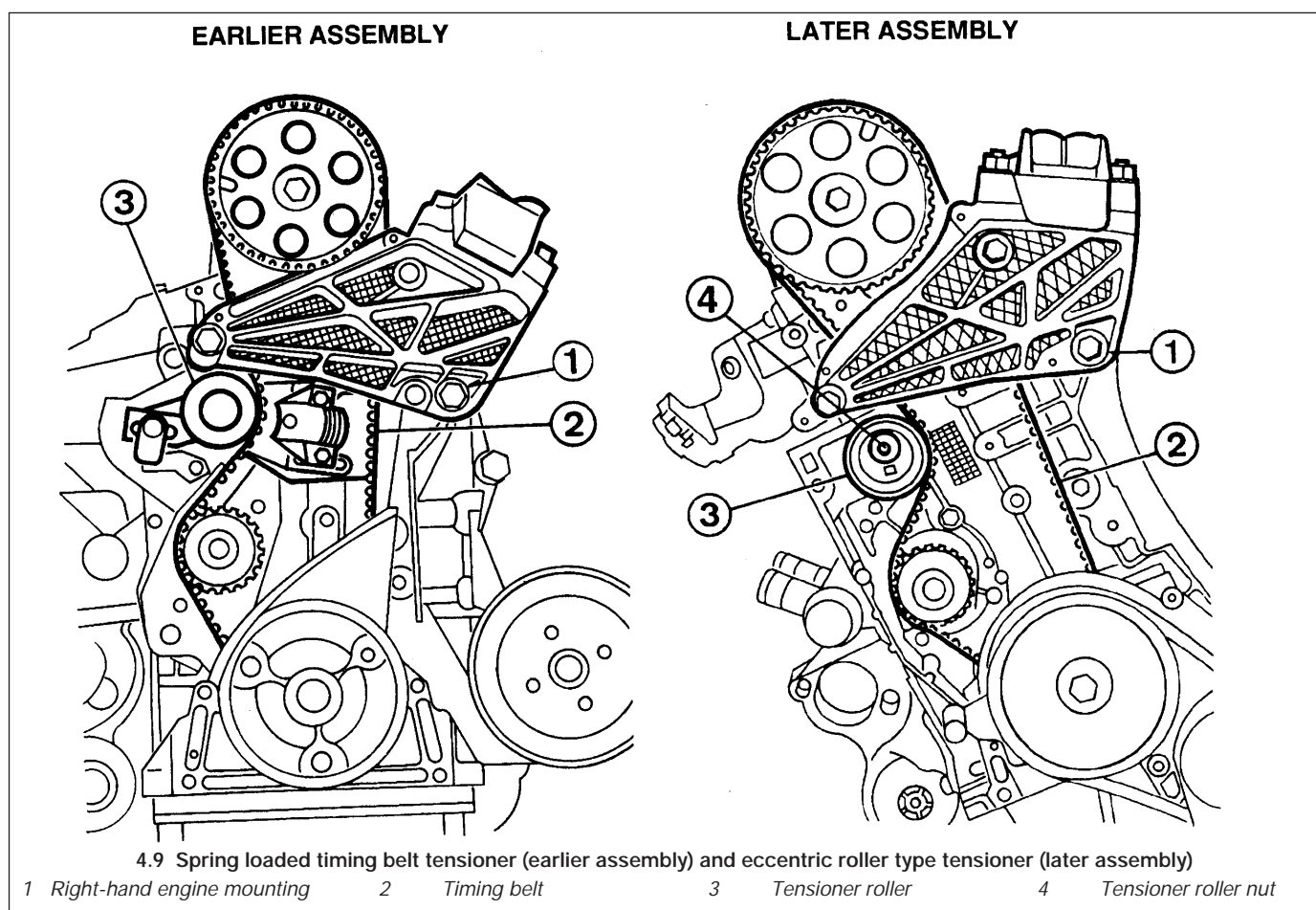
2.7 Using feeler blades to measure a valve clearance



2.12a Lift off the cam follower and shim ...



2.12b ... then measure the shim thickness with a micrometer



3 Compression test - description and interpretation

Refer to Part A, Section 3 but on engines with a static distributorless ignition system, disable the ignition by depressing the retaining clip and disconnecting the wiring connector from the ignition module.

4 Timing belt - general information, removal and refitting



General information

1 The timing belt drives the camshaft and coolant pump from a toothed sprocket on the front of the crankshaft. If the belt breaks or slips in service, the pistons are likely to hit the valve heads, resulting in extensive (and expensive) damage.

2 The timing belt should be renewed at the specified intervals (see Chapter 1), or earlier if it is contaminated with oil, or if it is at all noisy in operation (a "scraping" noise due to uneven wear).

3 If the timing belt is being removed, it is a

wise precaution to check the condition of the coolant pump at the same time (check for signs of coolant leakage). This may avoid the need to remove the timing belt again at a later stage, should the coolant pump fail.

Removal

4 Disconnect the battery negative lead.

5 Remove the auxiliary drivebelt as described in Chapter 1.

6 Remove the inner shield from the right-hand wheel arch and wedge the radiator bottom hose under the sump.

7 Remove the shield from the camshaft sprocket.

8 Remove the plastic covers from the front of the timing belt. Note the location of the various bolts.

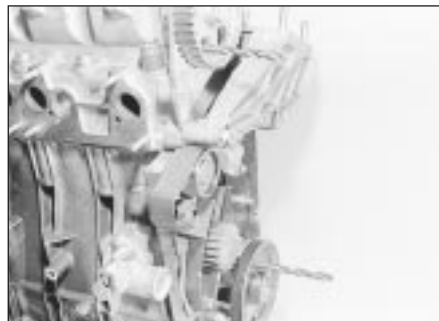
9 Observe the timing belt tensioner assembly and ascertain whether it is of the spring-loaded type or the later eccentric roller type (see illustration). Proceed as follows under the appropriate sub-heading according to type fitted.

Models with spring-loaded tensioner

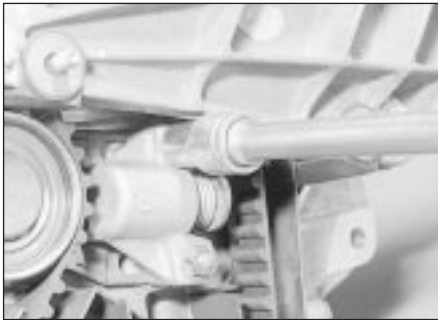
10 Turn the crankshaft using a spanner on the pulley bolt until the dowel hole in the pulley is at about 12 o'clock and the hole in the camshaft sprocket is at about 7 o'clock. In this position a 10 mm dowel should pass through each hole and into the timing recess behind. Verify this and then remove the dowels (see illustration).

11 Remove the clutch bottom shield. Have an assistant jam the starter ring gear while the crankshaft pulley bolt is undone. This bolt is very tight. Do not jam the pulley by means of the timing dowel: damage will result. Remove the bolt and washer.

12 Check that the 10 mm dowels will still enter the timing holes: adjust the crankshaft position if necessary by means of the starter ring gear. Remove the crankshaft pulley, retrieving the Woodruff key if it is loose.



4.10 Crankshaft and camshaft sprockets locked with timing dowels



4.13a Slacken the two nuts at the front of the timing belt tensioner . . .

13 Slacken the two nuts on the front of the timing belt tensioner and the single nut at the rear. Use a spanner on the square end of the tensioner cam spindle to turn the cam to the horizontal position and so compress the tensioner spring (see illustrations). Tighten the cam locknut.

14 Remove the timing belt, taking care not to kink it or contaminate it with oil if it is to be re-used. Draw an arrow on the belt using chalk to mark the running direction unless a new belt is to be fitted.

15 Check the timing belt carefully for any signs of uneven wear, splitting, or oil contamination. Pay particular attention to the roots of the teeth. Renew it if there is the slightest doubt about its condition. If the engine is undergoing an overhaul, and has covered more than 36 000 miles (60 000 km) with the existing belt fitted, renew the belt as a matter of course, regardless of its apparent condition. The cost of a new belt is nothing compared with the cost of repairs, should the belt break in service. If signs of oil contamination are found, trace the source of the oil leak and rectify it. Wash down the engine timing belt area and all related components, to remove all traces of oil. If the timing belt is to be renewed, ensure that the correct belt type is obtained - the timing belt used with the earlier spring-loaded tensioner is not interchangeable with the later type.

Models with eccentric roller tensioner

Note: Peugeot specify the use of special tool (SEEM C. TRONIC type 105 or 105.5 belt tension measuring equipment) to correctly set the belt tension. If this equipment cannot be obtained, an approximate setting can be achieved using the method described below. If the method described here is used, the tension must be checked using the special equipment at the earliest opportunity. Do not drive the vehicle over large distances, or use high engine speeds until the belt tension is known to be correct. Refer to a Peugeot dealer for advice.

16 Proceed as described in paragraphs 10 to 12, noting that the crankshaft pulley timing dowel must be of 10 mm diameter, stepped down to 8 mm at one end to engage with the smaller hole in the timing recess.



4.13b . . . and turn the tensioner cam spindle to the horizontal position

17 Slacken the tensioner roller bolt to relieve the belt tension, then withdraw the belt, noting the direction of fitting and the markings. Take care not to kink it or contaminate it with oil if it is to be re-used. Draw an arrow on the belt using chalk to mark the running direction unless a new belt is to be fitted.

18 Examine the belt carefully with reference to paragraph 15.

Refitting

Models with spring-loaded tensioner

19 Commence refitting by positioning the belt on the crankshaft sprocket, then refitting the pulley and verifying the correct position of the crankshaft by means of the dowel. Observe the arrows on the belt showing the direction of rotation, and the timing lines which align with marks on the crankshaft and camshaft sprockets (see illustration).

20 Fit the belt to the camshaft sprocket, round the tensioner and to the coolant pump sprocket.

21 Release the tensioner cam locknut and turn the cam downwards to release the spring. Tighten the locknut and the tensioner front nuts.

22 Remove the timing dowels and turn the crankshaft through two full turns in the normal direction of rotation. Turn the crankshaft further to bring No 1 piston to TDC on the firing stroke.

23 Slacken the tensioner front nuts and the cam locknut, then retighten them.

24 Turn the crankshaft further and make sure that the timing dowels can still be inserted. If not, remove the drivebelt and start again.

25 If a new belt has been fitted, it must be run in and retensioned, as follows.

26 Tighten the crankshaft pulley bolt to the specified torque, then refit and tension the auxiliary drivebelt (see Chapter 1). Temporarily refit the camshaft sprocket cover.

27 Run the engine up to operating temperature, indicated by the cooling fan operating, then stop it and allow it to cool for at least two hours.

28 Rotate the crankshaft to the TDC position, No 1 cylinder firing, then slacken and retighten the tensioner nuts once more.

29 Remove the auxiliary drivebelt and the crankshaft pulley. Refit and secure the plastic



4.19 Timing line on belt aligned with mark on camshaft sprocket

covers, then refit the pulley and tighten its bolts to the specified torque. Refit and tension the auxiliary drivebelt.

30 Check the ignition timing and adjust if necessary (Chapter 5B).

Models with eccentric roller tensioner

31 Commence refitting by slipping the belt over the camshaft sprocket, followed by the crankshaft sprocket, the coolant pump sprocket, and finally over the tensioner roller. Observe the arrows on the belt indicating the direction of rotation, and the timing lines which align with corresponding marks on the crankshaft and camshaft sprockets.

32 With the camshaft timing dowel fitted, rotate the tensioner roller anti-clockwise by hand as far as possible to take up any slack in the belt, then tighten the tensioner roller bolt sufficiently to hold the roller in position. If the special belt tension measuring equipment is available, it should be fitted to the tensioned run of the belt, and the tensioner roller should be moved to give a reading of 30 ± 2 units. Tighten the roller bolt to the specified torque, taking care not to move the roller as the bolt is tightened.

33 Check that the crankshaft and camshaft are still positioned correctly by temporarily refitting the crankshaft pulley and re-inserting the timing dowel.

34 Remove the timing dowels, temporarily refit the crankshaft pulley, and turn the crankshaft through two full turns in the normal direction of rotation. Check that both timing dowels can still be inserted. If not, remove the drivebelt and start again. Never turn the crankshaft backwards during this procedure.

35 If all is well, remove the dowels, and turn the crankshaft through two further turns in the normal direction of rotation.

36 Refit the camshaft timing dowel, and check that the belt can just be twisted through 90° (using moderate pressure from the forefinger and thumb) at the midpoint of the longest belt run between the camshaft and crankshaft sprockets. If in doubt about this setting, it is better to err on the tight side until the tension can be checked by a Peugeot dealer; if the belt is too slack, it may jump on the sprockets, which could cause serious engine damage. If the special belt tension measuring equipment

is available, it should be refitted to the tensioned run of the belt. The reading should now be between 42 and 46 units.

37 If the tension is not as specified, repeat the tensioning operation.

38 Refit the belt covers and the crankshaft pulley. Apply thread locking compound to the crankshaft pulley bolt threads, and tighten the bolt to the specified torque.

39 On completion, refit all disturbed components, and tension the auxiliary drivebelt, as described in Chapter 1.

5 Timing belt tensioner and sprockets - removal, inspection and refitting



Removal

Camshaft sprocket

1 Remove the timing belt as described in Section 4.

2 Remove the locking pin from the camshaft sprocket, slacken the sprocket retaining bolt and remove it, along with its washer. To prevent the camshaft rotating as the bolt is slackened, restrain the sprocket with a suitable tool through the holes in the sprocket face (see **Tool Tip**). Do not attempt to use the sprocket locking pin to prevent the sprocket from rotating whilst the bolt is slackened.

3 With the retaining bolt removed, slide the sprocket off the end of the camshaft. If the locating peg is a loose fit in the rear of the sprocket, remove it for safe-keeping. Examine the camshaft oil seal for signs of oil leakage and, if necessary, renew it as described in Section 6.

TOOL TIP



To make a camshaft sprocket holding tool, obtain two lengths of steel strip about 6 mm thick by 30 mm wide or similar, one 600 mm long, the other 200 mm long (all dimensions approximate). Bolt the two strips together to form a forked end, leaving the bolt slack so that the shorter strip can pivot freely. At the end of each 'prong' of the fork, secure a bolt with a nut and a locknut, to act as the fulcrums; these will engage with the cut-outs in the sprocket, and should protrude by about 30 mm

Crankshaft sprocket

4 Remove the timing belt as described in Section 4.

5 Slide the sprocket off the end of the crankshaft. Remove the Woodruff key from the crankshaft, and store it with the sprocket for safe-keeping. Where necessary, also slide the spacer (where fitted) off the end of the crankshaft.

6 Examine the crankshaft oil seal for signs of oil leakage and, if necessary, renew it as described in Section 12.

Tensioner assembly (models with spring-loaded tensioner)

7 Remove the timing belt as described in Section 4.

8 Undo the two bolts at the front and single nut at the rear and withdraw the spring housing spring and tensioner pulley. Take care to keep the spring under control as the bolts are undone to prevent it flying out.

Tensioner assembly (models with eccentric roller tensioner)

9 Remove the timing belt as described in Section 4.

10 Slacken and remove the timing belt tensioner pulley retaining bolt, and slide the pulley off its mounting stud. Examine the mounting stud for signs of damage and if necessary, renew it.

Inspection

11 Clean the camshaft/crankshaft sprockets thoroughly, and renew any that show signs of wear, damage or cracks.

12 Clean the tensioner assembly, but do not use any strong solvent which may enter the pulley bearing. Check that the pulley rotates freely on the backplate, with no sign of stiffness or free play (see **illustration**). Renew the assembly if there is any doubt about its condition, or if there are any obvious signs of wear or damage.

Refitting

Camshaft sprocket

13 Refit the locating peg (where removed) to the rear of the sprocket. Locate the sprocket on the end of the camshaft, ensuring that the locating peg is correctly engaged with the cut-out in the camshaft end.



5.12 Spring loaded timing belt tensioner components

14 Refit the sprocket retaining bolt and washer, and tighten it to the specified torque. Retain the sprocket with the tool used on removal. Note that on early models the sprocket is secured with an M12 bolt whereas this has been reduced to M10 on later engines. Ensure that the correct torque wrench setting is used according to bolt type.

15 Realign the hole in the camshaft sprocket with the corresponding hole in the cylinder head, and refit the locking pin. Check that the crankshaft pulley locking pin is still in position.

16 Refit the timing belt (Section 4).

Crankshaft sprocket

17 Slide the spacer (where fitted) into position, taking great care not to damage the crankshaft oil seal, and refit the Woodruff key to its slot in the crankshaft end.

18 Slide on the crankshaft sprocket, aligning its slot with the Woodruff key.

19 Refit the timing belt (Section 4).

Tensioner assembly (models with spring-loaded tensioner)

20 Assemble the tensioner spring, spring housing and pulley then locate the assembly on the engine.

21 Fit the front bolts and rear locknut finger tight only. Use a spanner on the square end of the tensioner cam spindle to turn the cam to the horizontal position and so compress the tensioner spring. Tighten the cam locknut.

22 Refit the timing belt (Section 4).

Tensioner assembly (models with eccentric roller tensioner)

23 Refit the tensioner pulley to its mounting stud, and fit the retaining bolt.

24 Refit the timing belt (Section 4).

6 Camshaft oil seal - renewal



1 Remove the camshaft sprocket as described in Section 5. Remove the rear cover plate behind the sprocket.

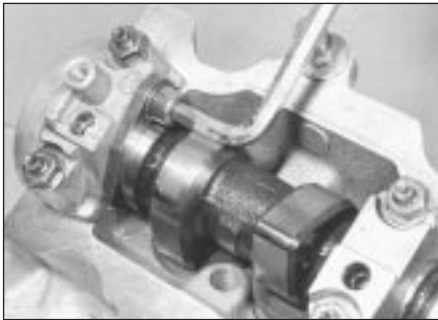
2 Punch or drill two small holes opposite each other in the oil seal. Screw a self-tapping screw into each, and pull on the screws with pliers to extract the seal.

3 Clean the seal housing, and polish off any burrs or raised edges, which may have caused the seal to fail in the first place.

4 Lubricate the lips of the new seal with clean engine oil, and drive it into position until it seats on its locating shoulder. Use a suitable tubular drift, such as a socket, which bears only on the hard outer edge of the seal. Take care not to damage the seal lips during fitting. Note that the seal lips should face inwards.

5 Refit the sprocket rear cover plate, locate it correctly with a 10 mm dowel and tighten its fastenings.

6 Refit the camshaft sprocket as described in Section 5.



7.5a Removing the camshaft thrust plate bolt . . .



7.5b . . . followed by the thrust plate

on which these conditions are apparent. If a follower bearing surface is badly scored, also examine the corresponding lobe on the camshaft for wear, as it is likely that both will be worn. Renew worn components as necessary.

Refitting

13 Where removed, refit each shim to the top of its original valve stem. *Do not* interchange the shims, as this will upset the valve clearances (see Section 2).

14 Liberally oil the cylinder head cam follower bores and the followers. Carefully refit the followers to the cylinder head, ensuring that each follower is refitted to its original bore. Some care will be required to enter the followers squarely into their bores.

15 Liberally oil the camshaft bearings and lobes, then refit the camshaft to the cylinder head. Temporarily refit the sprocket to the end of the shaft, and position it so that the sprocket timing hole is aligned with the corresponding cut-out in the cylinder head. Also ensure that the crankshaft is still locked in the timing position (see Section 4).

16 Ensure that the bearing cap and head mating surfaces are completely clean, unmarked, and free from oil. Refit all the caps, using the identification marks noted on removal to ensure that each is installed correctly and in its original location.

17 Evenly and progressively tighten the camshaft bearing cap nuts by one turn at a time until the caps touch the cylinder head. Then go round again and tighten all the nuts to the specified torque setting. Work only as described, to impose the pressure of the valve springs gradually and evenly on the bearing caps.

18 Where applicable, refit the camshaft thrust plate and secure with its retaining bolt.

19 Examine the oil supply pipe union O-rings (where fitted) for signs of damage or deterioration, and renew as necessary. Apply a smear of clean engine oil to the O-rings. Ease the pipe into position in the top of the bearing caps, taking great care not to displace the O-rings.

20 Refit the distributor as described in Chapter 5B.

2B

7 Camshaft and followers - removal, inspection and refitting



Removal

1 Remove the camshaft sprocket as described in Section 5. Remove the rear cover plate behind the sprocket.

2 Remove the camshaft cover. For ease of access, remove the distributor cap and HT leads, air cleaner assembly and brake servo vacuum hose.

3 Remove the distributor as described in Chapter 5B.

4 Carefully ease the oil supply pipe out from the top of the camshaft bearing caps, and remove it. Note the O-ring seals fitted to each of the pipe unions on later models.

5 Where fitted undo the bolt and remove the camshaft thrust plate (see illustrations).

6 The camshaft bearing caps should be numbered 1 to 5, number 1 being at the transmission end of the engine. If not, make identification marks on the caps, using white paint or a suitable marker pen. Also mark each cap in some way to indicate its correct fitted orientation. This will avoid the possibility of installing the caps the wrong way around on refitting.

7 Evenly and progressively slacken the camshaft bearing cap retaining nuts by one turn at a time. This will relieve the valve spring pressure on the bearing caps gradually and evenly. Once the pressure has been relieved,

the nuts can be fully unscrewed and removed (see illustration).

8 Note the correct fitted orientation of the bearing caps, then remove them from the cylinder head (see illustration).

9 Lift the camshaft away from the cylinder head, and slide the oil seal off the camshaft end (see illustration).

10 Obtain eight small, clean plastic containers, and number them 1 to 8; alternatively, divide a larger container into eight compartments. Using a rubber sucker, withdraw each follower in turn, and place it in its respective container. Do not interchange the cam followers, or the rate of wear will be much-increased. If necessary, also remove the shim from the top of the valve stem, and store it with its respective follower. Note that the shim may stick to the inside of the follower as it is withdrawn. If this happens, take care not to allow it to drop out as the follower is removed.

Inspection

11 Examine the camshaft bearing surfaces and cam lobes for signs of wear ridges and scoring. Renew the camshaft if any of these conditions are apparent. Examine the condition of the bearing surfaces, both on the camshaft journals and in the cylinder head/bearing caps. If the head bearing surfaces are worn excessively, the cylinder head will need to be renewed.

12 Examine the cam follower bearing surfaces which contact the camshaft lobes for wear ridges and scoring. Renew any follower



7.7 Progressively unscrew the camshaft bearing cap nuts . . .



7.8 . . . and remove the caps



7.9 Lift the camshaft from the cylinder head



7.21 Align the camshaft sprocket cover plate using a dowel or twist drill

21 Fit a new camshaft oil seal, using the information given in Section 6, then refit the sprocket rear cover plate. Align the cover plate using a 10 mm dowel or drill bit then secure with the retaining bolt (see illustration).

22 Refit the camshaft sprocket as described in Section 5.

23 Check the valve clearances as described in Section 2.

24 Refit the camshaft cover, HT leads and distributor cap, air cleaner, and brake servo vacuum hose.

25 Reconnect the battery negative terminal.

8 Cylinder head - removal and refitting



Removal

1 Drain the cooling system as described in Chapter 1.

2 Remove the timing belt as described in Section 4.

3 Slacken, but do not remove, the engine lower mounting rubber centre nut and bolt (see illustration).

4 Remove the air cleaner assembly, inlet ducts and pipes with reference to the relevant Part of Chapter 4.

5 Remove the crankcase breather and its pipes.

6 Remove the nut which secures the engine right-hand mounting rubber to the cylinder head bracket (see illustration).



8.3 Engine lower mounting

7 Carefully raise the engine 60 to 80 mm using a hoist or a well-protected jack. Remove the two bolts which secure the right-hand mounting bracket to the cylinder head, then lower the engine back into position.

8 Remove the inlet manifold and associated fuel system components with reference to the relevant Part of Chapter 4.

9 Make suitable notes as an aid to refitting then disconnect all coolant and vacuum hoses and electrical leads from the cylinder head.

10 Disconnect the exhaust downpipe(s) at the manifold flange.

11 Remove the coolant pipe from the pump inlet housing. Also remove the diagnostic socket from its bracket.

12 Remove the camshaft cover, at the same time removing the distributor cap and HT leads. If the cylinder head is to be dismantled for overhaul, remove the distributor or, on models with static distributorless ignition systems, the ignition module, as described in Chapter 5B.

13 Working in the reverse of the sequence shown in illustration 8.27, progressively slacken the cylinder head bolts by half a turn at a time, until all bolts can be unscrewed by hand. Remove the bolts along with their washers, noting the correct location of the spacer fitted to the front right-hand bolt.

14 With all the cylinder head bolts removed, the joint between the cylinder head and gasket and the cylinder block/crankcase must now be broken without disturbing the wet liners. Although these liners are better-located and sealed than some wet-liner engines, there is still a risk of coolant and foreign matter leaking into the sump if the cylinder head is lifted carelessly. If care is not taken and the liners are moved, there is also a possibility of the bottom seals being disturbed, causing leakage after refitting the head.

15 To break the joint, obtain two L-shaped metal bars which fit into the cylinder head bolt holes, and gently "rock" the cylinder head free towards the front of the car. Do not try to swivel the head on the cylinder block/crankcase; it is located by dowels, as well as by the tops of the liners.

16 When the joint is broken, lift the cylinder head away. Remove the gasket from the top



8.6 Right-hand engine mounting and cylinder head bracket

of the block, noting the two locating dowels. If the locating dowels are a loose fit, remove them and store them with the head for safe-keeping.

17 Do not attempt to turn the crankshaft with the cylinder head removed, otherwise the wet liners may be displaced. Operations that require the crankshaft to be turned (eg cleaning the piston crowns), should only be carried out once the cylinder liners are firmly clamped in position. In the absence of the special Peugeot liner clamps, the liners can be clamped in position as follows. Use large flat washers positioned underneath suitable-length bolts, or temporarily refit the original head bolts, with suitable spacers fitted to their shanks (see illustration).

18 If the cylinder head is to be dismantled for overhaul, remove the camshaft and cam followers as described in Section 7, then refer to Part D of this Chapter.

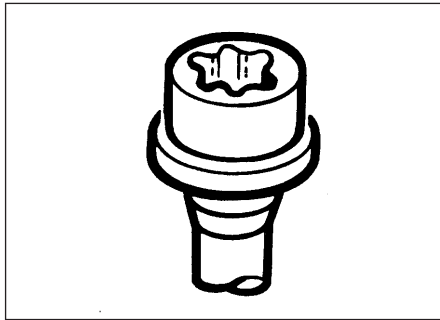
Preparation for refitting

19 The mating faces of the cylinder head and cylinder block/crankcase must be perfectly clean before refitting the head. Use a hard plastic or wood scraper to remove all traces of gasket and carbon; also clean the piston crowns. Refer to paragraph 17 before turning the crankshaft. Take particular care during the cleaning operations, as aluminium alloy is easily damaged. Also, make sure that the carbon is not allowed to enter the oil and water passages - this is particularly important for the lubrication system, as carbon could block the oil supply to the engine's components. Using adhesive tape and paper, seal the water, oil and bolt holes in the cylinder block/crankcase. To prevent carbon entering the gap between the pistons and bores, smear a little grease in the gap. After cleaning each piston, use a small brush to remove all traces of grease and carbon from the gap, then wipe away the remainder with a clean rag. Clean all the pistons in the same way.

20 Check the mating surfaces of the cylinder block/crankcase and the cylinder head for nicks, deep scratches and other damage. If slight, they may be removed carefully with a file, but if excessive, machining may be the only alternative to renewal.



8.17 Cylinder liners clamped with washers and bolts

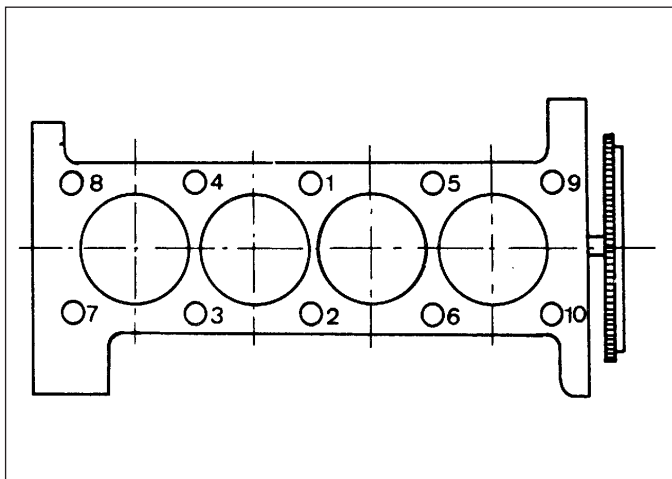


8.23 Torx type cylinder head bolts fitted to later models

21 If warpage of the cylinder head gasket surface is suspected, use a straight-edge to check it for distortion. Refer to Part D of this Chapter if necessary.

22 Check the condition of the cylinder head bolts, and particularly their threads, whenever they are removed. Wash the bolts in suitable solvent, and wipe them dry. Check each for any sign of visible wear or damage, renewing any bolt if necessary. Measure the length of each bolt, to check for stretching (although this is not a conclusive test, in the event that all ten bolts have stretched by the same amount). Although Peugeot do not actually specify that the bolts must be renewed, it is strongly recommended that the bolts should be renewed as a complete set whenever they are disturbed.

23 Note that as from early 1987, the cylinder head bolts are of No 55 Torx type and 8 mm thick washers are fitted to these bolts, whereas 3 mm thick washers fitted to the earlier type hexagon head bolts (see illustration). The spacer fitted to the bolt at the timing belt end is 25 mm thick, (previously 23 mm), and is identified by a groove around its perimeter. A modified cylinder head gasket is also fitted to engines with Torx type cylinder head bolts, so it is important to quote the engine number accurately when obtaining a new one.



8.27 Cylinder head bolt tightening sequence



8.24 Using a nail to hold the cylinder block dowel in the raised position

Refitting

24 Commence refitting by fitting the dowels to the cylinder block. Keep the flywheel-end dowel raised by inserting a 5 mm punch or large nail through the hole in the front of the block (see illustration). Remove the liner clamps.

25 Fit the new gasket, dry, with the tab at the flywheel end. Lower the cylinder head into position, making sure that it mates with the dowels. Remove the punch or nail.

26 Fit the cylinder head bolts, their threads clean and lightly oiled. Remember to fit the spacer to the bolt at the timing belt end. When fitting the Torx type cylinder head bolts, apply a little molybdenum disulphide grease to their heads, and to the contact surface of their heads.

27 Progressively tighten the bolts in the order shown to the Stage 1 specified torque setting (see illustration). Note that the torque settings are different for the two cylinder head bolt types; ensure that the correct setting is being used according to bolt type.

28 Raise the engine slightly and refit the two bolts which secure the right-hand mounting bracket to the cylinder head. Tighten these bolts and slacken the one which holds the same bracket to the engine block. Lower the engine and tighten the right-hand mounting nut and the lower mounting rubber nut and bolt.

Engines with hexagon head type cylinder head bolts

29 Slacken cylinder head bolt No 1, then immediately retighten it to the Stage 2 specified torque. Tighten further by the angle specified for Stage 3 using a socket and extension bar. It is recommended that an angle-measuring gauge is used during this stage of tightening, to ensure accuracy (see illustration). Repeat for all the bolts, following the tightening sequence.

30 Check the valve clearances and adjust, if necessary (see Section 2).

31 Refit the remaining components in the reverse order of removal. Make sure that the correct inlet manifold gasket is fitted. A gasket for carburettor versions is included in the gasket overhaul set which is not the same as the one for fuel injection models.

32 Refill and bleed the cooling system (Chapter 1).

33 Start the engine and warm it up until the cooling fan cuts in, then switch off and allow it to cool for at least two hours.

34 Retighten the cylinder head bolts, as described in paragraph 29, then recheck the valve clearances.

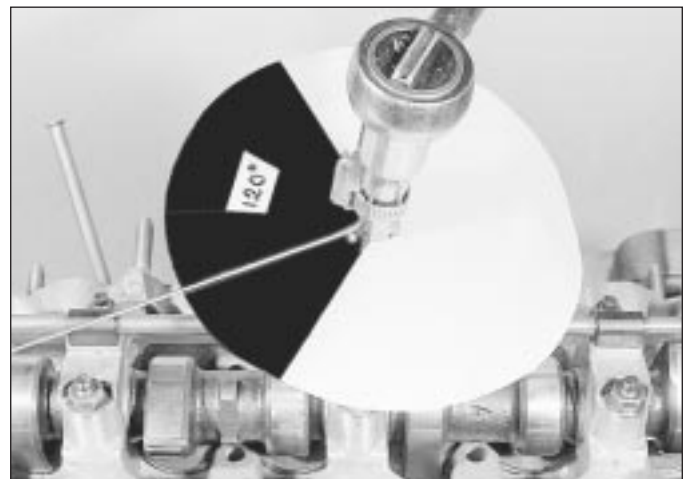
35 If a new timing belt has been fitted, refer to Section 4 and retension it if necessary.

36 Tighten the engine mounting bracket bolt.

Engines with Torx type cylinder head bolts

37 Fully slacken all the head bolts, working in the reverse of the tightening sequence. Once the bolts are loose, tighten all bolts to their Stage 2 specified torque setting, again following the specified sequence.

38 With all the bolts tightened to their Stage 2 setting, working again in the specified sequence, angle-tighten the bolts through the specified Stage 3 angle, using a socket and extension bar. It is recommended that an angle-measuring gauge is used during this stage of tightening, to ensure accuracy. Note that no further tightening of the Torx type head bolts is necessary.



8.29 Home-made torque angle measuring gauge. Disc is fixed and pointer rotates

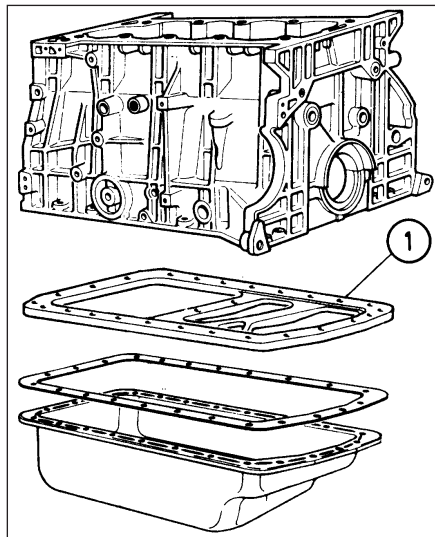
- 39 Check the valve clearances and adjust, if necessary (see Section 2).
- 40 Refit the remaining components in the reverse order of removal and with reference to the relevant Sections and Chapters of this manual as applicable. Make sure that the correct inlet manifold gasket is fitted. A gasket for carburettor versions is included in the gasket overhaul set which is not the same as the one for fuel injection models.
- 41 Refill and bleed the cooling system (Chapter 1).
- 42 If a new timing belt has been fitted, refer to Section 4 and retension it if necessary.
- 43 Tighten the engine mounting bracket bolt.

9 Sump - removal and refitting



Removal

- 1 Disconnect the battery negative lead.
- 2 Drain the engine oil, then clean and refit the engine oil drain plug, tightening it securely. If the engine is nearing its service interval when the oil and filter are due for renewal, it is recommended that the filter is also removed, and a new one fitted. After reassembly, the engine can then be refilled with fresh oil. Refer to Chapter 1 for further information.
- 3 Chock the rear wheels then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support").
- 4 On models with air conditioning, where the compressor is mounted onto the side of the sump, remove the drivebelt as described in Chapter 1. Unbolt the compressor, and position it clear of the sump. Support the weight of the compressor by tying it to the vehicle, to prevent any excess strain being placed on the compressor lines. *Do not* disconnect the refrigerant lines from the compressor (refer to the warnings given in Chapter 3).
- 5 Disconnect the wiring to the oil level sensor and the hose to the crankcase ventilation system suction drain pipe on models so equipped.
- 6 Progressively slacken and remove all the sump retaining bolts. Since the sump bolts vary in length and type, remove each bolt in turn, and store it in its correct fitted order by pushing it through a clearly-marked cardboard template. This will avoid the possibility of installing the bolts in the wrong locations on refitting.
- 7 Break the joint by striking the sump with the palm of your hand. Lower the sump, and withdraw it from underneath the vehicle. Remove the gasket (where fitted), and discard it; a new one must be used on refitting. While the sump is removed, take the opportunity to check the oil pump pick-up/strainer for signs of clogging or splitting. If necessary, remove the pump as described in Section 10, and clean or renew the strainer.



9.8 Sump spacer plate (1) fitted to certain models

- 8 On some models, a large spacer plate is fitted between the sump and the base of the cylinder block/crankcase (see illustration). If this plate is fitted, undo the two retaining screws from diagonally-opposite corners of the plate. Remove the plate from the base of the engine, noting which way round it is fitted.

Refitting

- 9 Clean all traces of sealant/gasket from the mating surfaces of the cylinder block/crankcase and sump, then use a clean rag to wipe out the sump and the engine's interior.
- 10 Where a spacer plate is fitted, remove all traces of sealant/gasket from the spacer plate, then apply a thin coating of silicone sealant to the plate upper mating surface. Offer up the plate to the base of the cylinder block/crankcase, and securely tighten its retaining screws (see illustration).
- 11 On models where the sump was fitted without a gasket, ensure that the sump mating surfaces are clean and dry, then apply a thin coating of suitable sealant to the sump mating surface.
- 12 On models where the sump was fitted with a gasket, ensure that all traces of the old



9.10 Applying sealant to the sump spacer plate upper surface

gasket have been removed, and that the sump mating surfaces are clean and dry. Position the new gasket on the top of the sump, using a dab of grease to hold it in position.

- 13 Offer up the sump to the cylinder block/crankcase. Refit its retaining bolts, ensuring that each is screwed into its original location. Tighten the bolts evenly and progressively to the specified torque setting.
- 14 Where necessary, align the air conditioning compressor with its mountings on the sump, and insert the retaining bolts. Securely tighten the compressor retaining bolts, then refit the drivebelt as described in Chapter 1.
- 15 Reconnect the wiring connector to the oil level sensor (where fitted).
- 16 Lower the vehicle to the ground, then refill the engine with oil as described in Chapter 1.

10 Oil pump - removal, inspection and refitting



Removal

- 1 Remove the sump as described in Section 9.
- 2 Where necessary, undo the two retaining screws, and slide the sprocket cover off the front of the oil pump.
- 3 Slacken and remove the three bolts securing the oil pump to the base of the cylinder block/crankcase. Disengage the pump sprocket from the chain, and remove the oil pump (see illustration). Where necessary, also remove the spacer plate which is fitted behind the oil pump on some engines.

Inspection

- 4 Examine the oil pump sprocket for signs of damage and wear, such as chipped or missing teeth. If the sprocket is worn, the pump assembly must be renewed, since the sprocket is not available separately. It is also recommended that the chain and drive sprocket, fitted to the crankshaft, be renewed at the same time. To renew the chain and drive sprocket, first remove the crankshaft timing belt sprocket as described in Section 5.



10.3 Removing the oil pump



10.5a Lift off the pump strainer cover . . .



10.5b . . . and take out the relief valve piston and spring

Unbolt the oil seal carrier from the cylinder block. The sprocket, spacer (where fitted) and chain can then be slid off the end of the crankshaft.

5 Slacken and remove the bolts (along with the baffle plate, where fitted) securing the strainer cover to the pump body. Lift off the strainer cover, and take out the relief valve piston and spring, noting which way round they are fitted (see illustrations).

6 Examine the pump rotors and body for signs of wear ridges or scoring. If worn, the complete pump assembly must be renewed.

7 Examine the relief valve piston for signs of wear or damage, and renew if necessary. The condition of the relief valve spring can only be

measured by comparing it with a new one; if there is any doubt about its condition, it should also be renewed. Both the piston and spring are available individually.

8 Thoroughly clean the oil pump strainer with a suitable solvent, and check it for signs of clogging or splitting. If the strainer is damaged, the strainer and cover assembly must be renewed.

9 Locate the relief valve spring and piston in the strainer cover. Refit the cover to the pump body, aligning the relief valve piston with its bore in the pump. Refit the baffle plate (where fitted) and the cover retaining bolts, and tighten them securely.

Refitting

10 Offer up the spacer plate (where fitted), then locate the pump sprocket with its drive chain. Seat the pump on the base of the cylinder block/crankcase. Refit the pump retaining bolts, and tighten them to the specified torque setting.

11 Where necessary, slide the sprocket cover into position on the pump. Refit its retaining bolts, tightening them securely.

12 Refit the sump as described in Section 9.

11 Oil cooler - removal and refitting



Cylinder block-mounted oil cooler

Removal

1 Certain models may be fitted with an oil cooler mounted between the cylinder block and the oil filter.

2 To prevent the oil cooler from being unscrewed as the oil filter is removed, on later models, a retaining lug is provided on the cylinder block, which engages with a fork on the oil cooler.

3 To remove the oil cooler, first remove the oil filter and partially drain the cooling system as described in Chapter 1.

4 Disconnect the coolant hoses from the filter. Be prepared for coolant spillage, and plug the open ends of the hoses to prevent dirt ingress and further coolant loss.

5 Unscrew the oil filter mounting stub, then withdraw the oil cooler from the engine (see illustration).

Refitting

6 Refitting is a reversal of removal, bearing in mind the following points.

- a) When refitting the oil cooler, where applicable, ensure that the fork on the cooler engages with the lug on the cylinder block.
- b) Before refitting the oil filter mounting stub, thoroughly clean the threads, and coat them with thread-locking compound.
- c) Tighten the mounting stub to the specified torque.
- d) Fit a new oil filter and fill the engine with oil as described in Chapter 1.
- e) On completion, refill the coolant level as described in or Chapter 1.

Remotely mounted oil cooler

Removal

7 On models with a remotely mounted oil cooler, this is located in front of the radiator.

8 Remove the radiator grille and front bumper as described in Chapter 11.

9 Unbolt the engine compartment front crossmember, and position it to one side, leaving the bonnet release cable still attached.

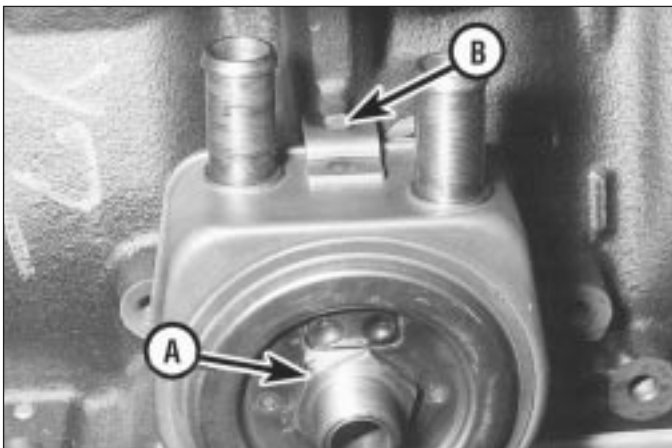
10 Remove the air inlet hose.

11 Remove the stone guard from the front cowling.

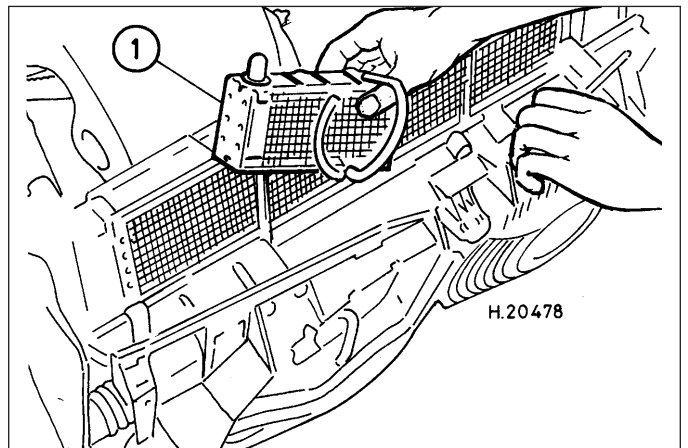
12 Unscrew the retaining bolts, then release the clips and move the front cowling forwards for access to the oil cooler.

13 Place rags or a container beneath the oil cooler to collect any spilled oil. Unscrew the union nuts while holding the connection stubs stationary. Plug the stubs, or tie them to one side.

14 Unscrew the nuts, release the oil cooler from the front cowling, and remove it from the car (see illustration).



11.5 Cylinder block mounted oil cooler mounting stub (A) and locating notch (B)



11.14 Removing the remotely mounted oil cooler (1)

Refitting

15 Refitting is a reversal of removal, but tighten the union nuts carefully to the specified torque while holding the connection stubs stationary. Check and if necessary top-up the engine oil as described in "Weekly checks".

12 Crankshaft oil seals - renewal



Right-hand oil seal

1 Remove the crankshaft sprocket and, where fitted, the spacer as described in Section 5.

2 Punch or drill two small holes opposite each other in the seal. Screw a self-tapping screw into each, and pull on the screws with pliers to extract the seal. Alternatively, the seal can be levered out of position. Use a flat-bladed screwdriver, and take great care not to damage the crankshaft shoulder or seal housing.

3 Clean the seal housing, and polish off any burrs or raised edges, which may have caused the seal to fail in the first place.

4 Lubricate the lips of the new seal with clean engine oil, and carefully locate the seal on the end of crankshaft. Note that its sealing lip must be facing inwards. Take care not to damage the seal lips during fitting.

5 Fit the new seal using a suitable tubular drift, such as a socket, which bears only on the hard outer edge of the seal. Tap the seal into position, to the same depth in the housing as the original was prior to removal.

6 Wash off any traces of oil, then refit the crankshaft sprocket as described in Section 5.

Left-hand oil seal

7 Remove the flywheel/driveplate as described in Section 13. Make a note of the correct fitted depth of the seal in its housing.

8 Punch or drill two small holes opposite each other in the seal. Screw a self-tapping screw into each, and pull on the screws with pliers to extract the seal.

9 Clean the seal housing, and polish off any burrs or raised edges, which may have caused the seal to fail in the first place.



13.10 Apply thread locking compound to the flywheel bolts if not already pre-coated

10 Lubricate the lips of the new seal with clean engine oil, and carefully locate the seal on the end of the crankshaft.

11 Fit the new seal using a suitable tubular drift, which bears only on the hard outer edge of the seal. Drive the seal into position, to the same depth in the housing as the original was prior to removal.

12 Wash off any traces of oil, then refit the flywheel/driveplate as described in Section 13.

13 Flywheel/driveplate - removal, inspection and refitting



Removal

Flywheel (models with manual transmission)

1 Remove the transmission as described in Chapter 7A, then remove the clutch assembly as described in Chapter 6.

2 Prevent the flywheel from turning by locking the ring gear teeth with a screwdriver or similar tool.

3 Slacken and remove the flywheel retaining bolts, and remove the flywheel from the end of the crankshaft. Be careful not to drop it; it is heavy. If the flywheel locating dowel is a loose fit in the crankshaft end, remove it and store it with the flywheel for safe-keeping. Discard the flywheel bolts; new ones must be used on refitting.

Driveplate (models with automatic transmission)

4 Remove the transmission as described in Chapter 7B. Lock the driveplate as described in paragraph 2. Mark the relationship between the torque converter plate and the driveplate, and slacken all the driveplate retaining bolts.

5 Remove the retaining bolts, along with the torque converter plate and the two shims (where fitted). Note that the shims are of different thickness, the thicker one being on the outside of the torque converter plate. Discard the driveplate retaining bolts; new ones must be used on refitting.

6 Remove the driveplate from the end of the crankshaft. If the locating dowel is a loose fit in the crankshaft end, remove it and store it with the driveplate for safe-keeping.

Inspection

7 On models with manual transmission, examine the flywheel for scoring of the clutch face, and for wear or chipping of the ring gear teeth. If the clutch face is scored, the flywheel may be surface-ground, but renewal is preferable. Seek the advice of a Peugeot dealer or engine reconditioning specialist to see if machining is possible. If the ring gear is worn or damaged, the flywheel must be renewed, as it is not possible to renew the ring gear separately.

8 On models with automatic transmission, check the torque converter driveplate

carefully for signs of distortion. Look for any hairline cracks around the bolt holes or radiating outwards from the centre, and inspect the ring gear teeth for signs of wear or chipping. If any sign of wear or damage is found, the driveplate must be renewed.

Refitting

Flywheel - models with manual transmission

9 Clean the mating surfaces of the flywheel and crankshaft. Remove any remaining locking compound from the threads of the crankshaft holes, using the correct-size tap, if available.

10 If the new flywheel retaining bolts are not supplied with their threads already pre-coated, apply a suitable thread-locking compound to the threads of each bolt (see illustration).

11 Ensure that the locating dowel is in position. Offer up the flywheel, locating it on the dowel, and fit the new retaining bolts.

12 Lock the flywheel using the method employed on dismantling, and tighten the retaining bolts to the specified torque.

13 Refit the clutch as described in Chapter 6, and refit the transmission as described in Chapter 7A.

Driveplate - models with automatic transmission

14 Carry out the operations described above in paragraphs 9 and 10, substituting "driveplate" for all references to the flywheel.

15 Locate the driveplate on its locating dowel.

16 Offer up the torque converter plate, with the thinner shim positioned behind the plate and the thicker shim on the outside, and align the marks made prior to removal.

17 Fit the new retaining bolts, then lock the driveplate using the method employed on dismantling. Tighten the retaining bolts to the specified torque wrench setting.

18 Refit the transmission as described in Chapter 7B.

14 Engine/transmission mountings - inspection and renewal



Refer to Part A, Section 10 but note that on early models, shims are fitted between the right-hand mounting rubber buffers and the mounting top plate. These should be added or removed as necessary to provide a clearance of 1.0 mm between the buffers and top plate. On later models, the shims have been deleted and the rubber buffers are increased in thickness to compensate. To prevent scuffing noises from the buffers, it is recommended that the inner surfaces which contact the engine bracket are lubricated with rubber grease.