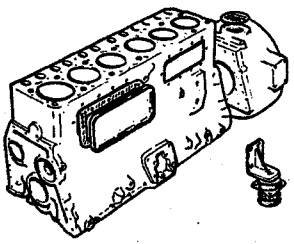
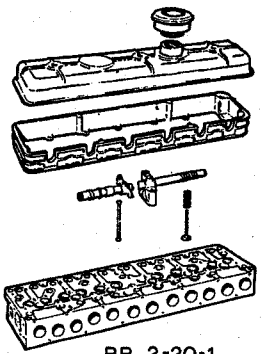
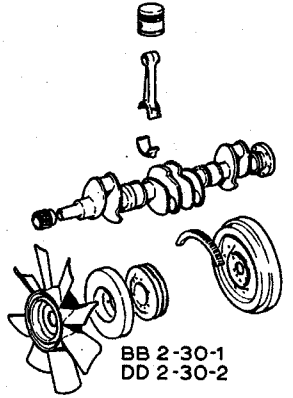
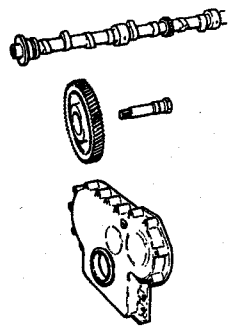
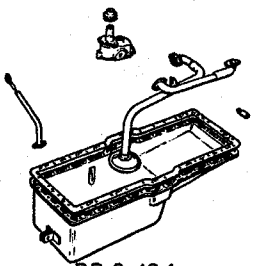
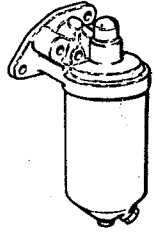
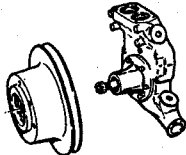
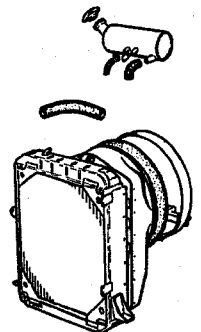
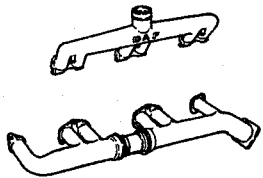
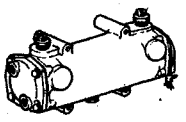


CONTENTS

Subgroup	Subject	Pages	Date code
00	Specifications of DD575 engine	1-4	03-72
10-1	Cylinder block and fly-wheel housing	1-6	03-72
20-2	Cylinder head and valve mechanism	1-8	03-72
30-2	Crankshaft, connecting rods and pistons	1-6	03-72
35-2	Timing	1-4	03-72
40-2	Lubricating system and lubricant consumption test	1-7	03-72
55-1	Cooling system	1-3	03-72
60-2	Manifolds	1	03-72

DIVISION INTO SUB-GROUPS

 <p>BB 2-10-1 DD 2-10-2</p>	 <p>BB 2-20-1 DD 2-20-2</p>	 <p>BB 2-30-1 DD 2-30-2</p>
 <p>BB 2-35-1 DD 2-35-2</p>	 <p>BB 2-40-1 DD 2-40-2</p>	 <p>BB 2-46-1 DD 2-46-2</p>
 <p>BB 2-50-1 DD 2-50-2</p>	 <p>BB/DD 2-55-1</p>	 <p>BB 2-60-1 DD 2-60-2</p>
	 <p>BB 2-47-1</p>	

Data indicated refer to new parts.

Min. and max. values between brackets indicate permissible wear.

GENERAL

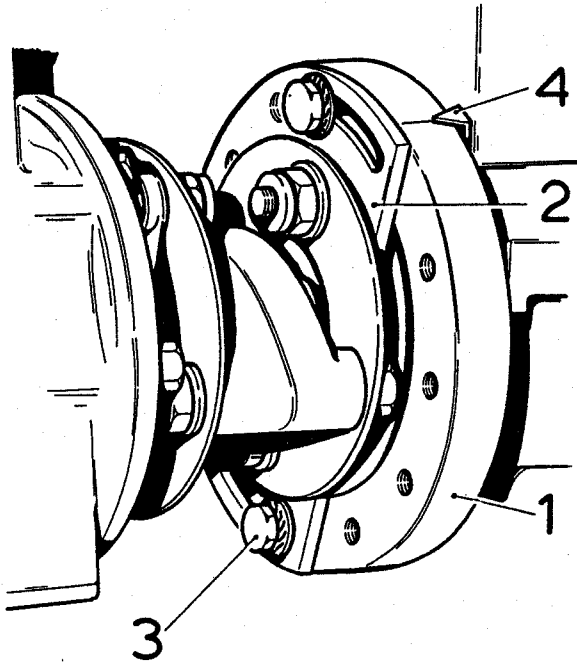
TECHNICAL DATA

Engine make	DAF
Type	DD575
Designation	Water-cooled, direct-injection diesel engine
Number of cylinders	6
Bore (nominal)	100.62 mm
Stroke	120.65 mm
Swept volume	5.75 litre
Idling speed	400-450 r.p.m.
Max. no load speed	2640 r.p.m.
Max. speed under load	2400 r.p.m.
Compression ratio	16 : 1
Firing order	1-5-3-6-2-4
Dry weight, including accessories	approx. 530 kg
Type of screw thread applied	in accordance with SAE norms

SPECIAL TOOLS

	DAF part number
Auxiliary tool for measuring engine speed	2-99-535265
Auxiliary tool for measuring compression	2-99-535264
Tool for extracting and fitting cylinder liners,	
complete	2-99-535625
threaded spindle	2-99-535626
disc	2-99-535627
bushing	2-99-535632
bushing	2-99-535633
Drift for mounting valve guides	2-99-535073
Drift for forcing out valve guides	2-99-535074
Cleaning spindle for atomizer hole in cylinder head	2-99-535058
Injector holder sleeve expander	{ 2-99-535299 2-99-535300
Puller for removing crankshaft pulley and camshaft gear	2-99-535144
Centring bush for camshaft	2-99-535047
Drift for fitting bush on lubricate oil pump drive shaft	2-99-535076
Drift for fitting waterseal of waterpump	2-99-535655

CHECKS AND ADJUSTMENTS



Commencement of delivery

Commencement of delivery: 28° before T.D.C.

Timing

- No. 1 piston in compression stroke (check for instance by means of compression meter).
- Crank fly-wheel until mark No. 1 inj. is exactly under pointer.
Always crank in direction of engine rotation to eliminate backflash!
- Slacken clamping bolts of fuel pump coupling adjusting plate.
- Turn fuel injection pump fly-wheel until mark is exactly under the pointer.
- Retighten clamping bolts of adjusting plate.
- Recheck commencement of delivery in the usual way by means of a „goose-neck”.

Also refer to "Replacing the fuel injection pump", group 4-90-2.

1. Fly-wheel
2. Adjusting plate
3. Clamping bolt (2 x)
4. Pointer

Engine speeds

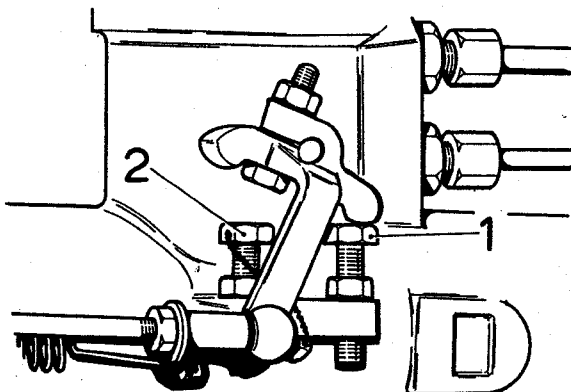
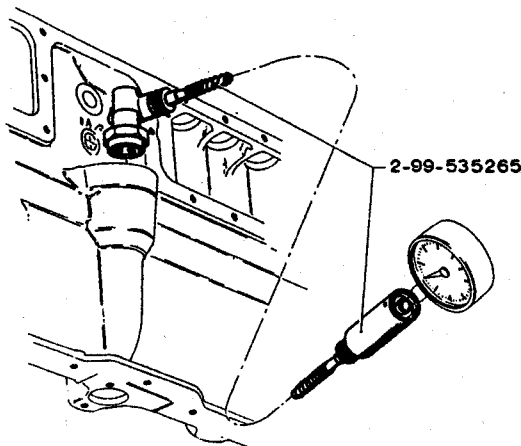
(also refer to "Fuel injection system - governor").

Idling speed : 400-450 r.p.m.

Max. no load speed : 2640 r.p.m.

Adjustment:

- Connect rev. counter to engine rev. counter drive by means of adaptor 535265.
- Adjust idling speed by means of set screw (1).
- Adjust max. no load speed by means of set screw (2).



1. Idling speed set screw.
2. Max. no. load speed set screw.

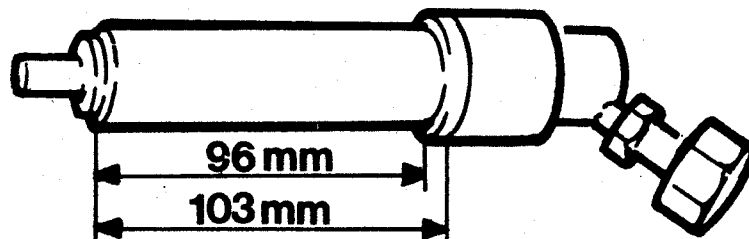
SERIES: F 1200/1400

DATE: 7803

**AUXILIARY TOOL FOR MEASURING
THE COMPRESSION.**

In view of the application of injector bushings with different lengths on the 8,25 litre engines, the tool 535264 must be adapted.

The figure shows how the length of the shaft must be changed to 103 mm by turning off about 7 mm from the shoulder. Henceforth we will naturally be supply the tool in the modified design.



SERIES: F 1200/1400

DATE: 7802

Sealing washers in cooling and fuel systems

Gradually there will be introduced solid copper sealing washers with an enlarged surface for the fuel and cooling systems to substitute for the copper-asbestos and aluminium sealing washers fitted up to now.

We recommend to use henceforth for repairs exclusively the solid copper sealing washers.

For M 8 connections: washer 242097, 8x11.5 mm
M 10 connections: washer 331327, 10x15 mm
M 12 connections: washer 331328, 12x17 mm
M 14 connections: washer 244680, 14x18 mm
M 16 connections: washer 322364, 16x22 mm
M 18 connections: washer 331331, 18x24 mm

SERIES: F 1200/1400

DATE: 7805

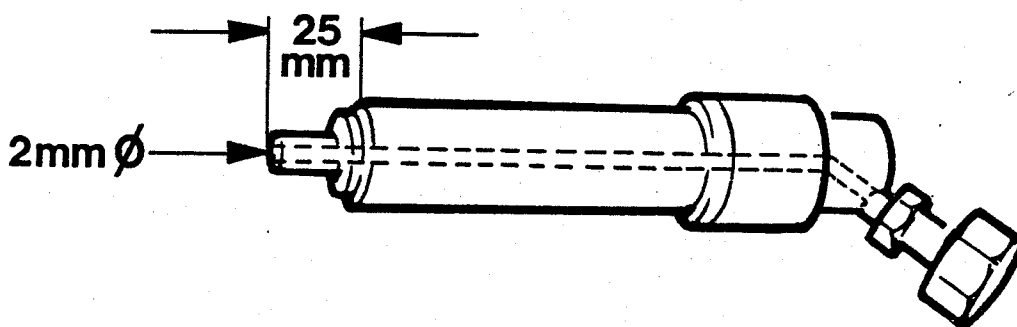
**AUXILIARY TOOL FOR MEASURING
THE COMPRESSION.**

On a number of pieces of the auxiliary tool 535264 the mouth of the tube has been caulked in production.

This will, as a matter of fact, bring about incorrect compression measurings.

You are therefore requested to have all specimens of this tool in your workshop and in your stock, if any, inspected for this fault.

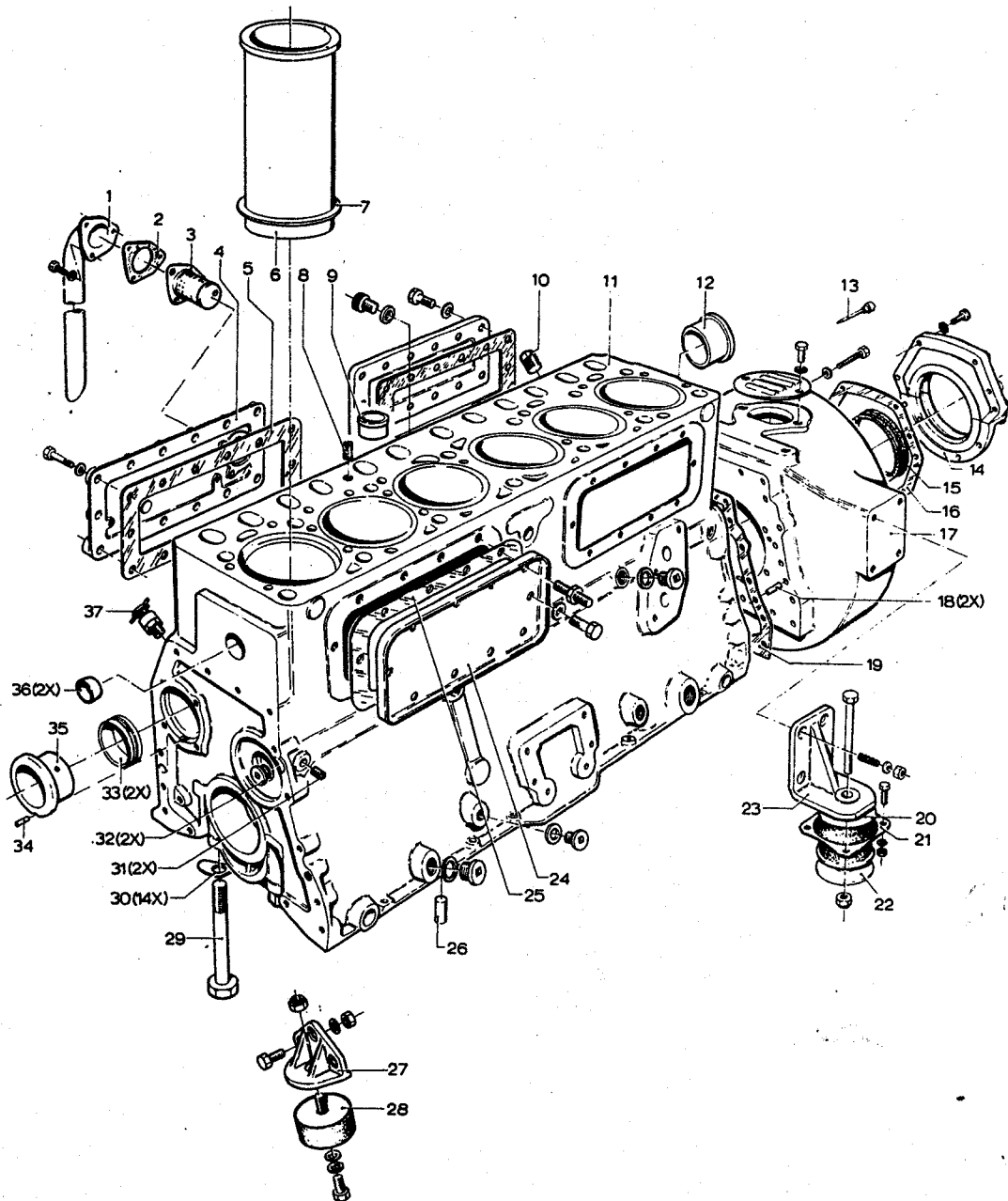
If necessary, the tube has to be re-bored to a dia of 2 mm, and this over a length of abt. 25 mm.

Replaces
Vervangt
Ersetzt
Remplace

P. 3

To insert after
Voegen achter
Einfügen hinter
Insérer derrière

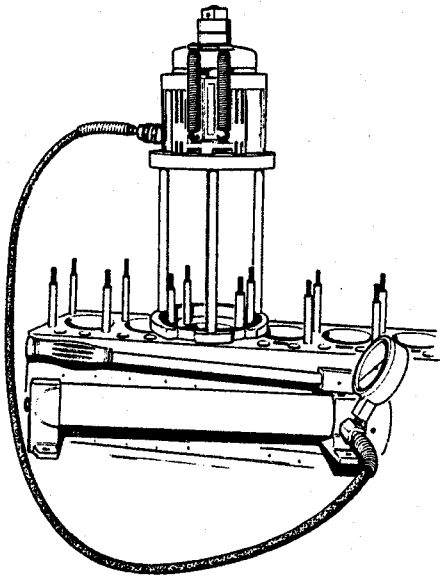
CYLINDER BLOK AND FLY-WHEEL HOUSING



1. Sump breather tube
2. Gasket
3. Sump breather filter
4. Side cover
5. Gasket
6. Cylinder liner
7. Spacer ring
8. Plug
9. Bearing bush
10. Plug
11. Cylinder block
12. Camshaft bearing bush

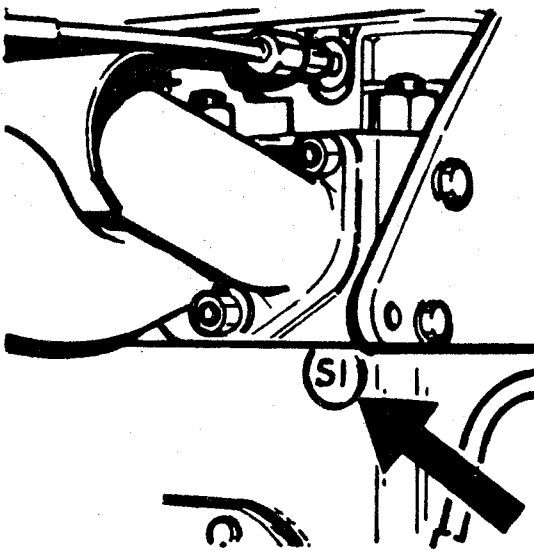
13. Pointer
14. Oil seal holder
15. Oil seal
16. Gasket
17. Fly-wheel housing
18. Dowel pin
19. Gasket
20. Stop plate
21. Engine bracket rubber
22. Centring ring
23. Engine bracket, rear
24. Water cover

25. Gasket
26. Dowel pin
27. Engine bracket, front
28. Engine bracket rubber
29. Main bearing cap bolt
30. Locking plate
31. Plug
32. Plug
33. Camshaft bearing bush, front
34. Dowel pin
35. Camshaft bearing bush, centre
36. Sealing plug
37. Drain cock



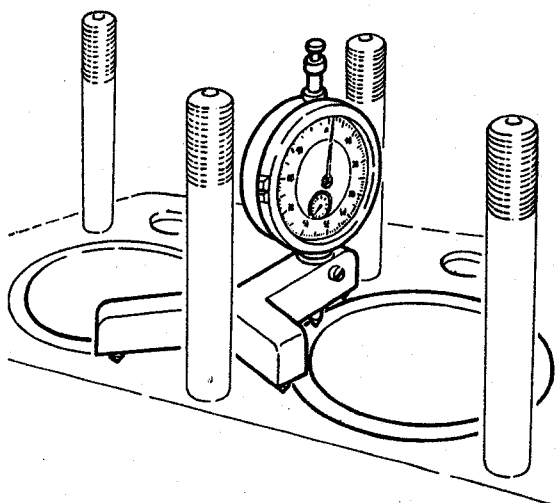
DAF tool 2-99-535625 can also be used in combination with standard hydraulic devices, available in the local trade with a working pressure of 30 tons (for instance Owatonna Tool Company).

To facilitate tracing the possible cause of abnormal cylinder liner wear, a wear pattern of the liner in question should be available. For this purpose use the form as shown on page 5.



When oversize cylinder liners have been fitted, the mark S1 should be punched in the LH side of the block; the engine specification plate should be marked C.S1.

Modification: Afterwards, there was determined that the mark S1 should be punched above the engine number.



After the block has been planed, the recess for the cylinder liner collar should be rectified to its initial value. Grinding off the cylinder liner collar is inadmissible.

For measuring the projection of the cylinder liner above the cylinder block use a dial gauge. If required, rectify by means of shims.

Chassis type

Date when put into service :

Engine type

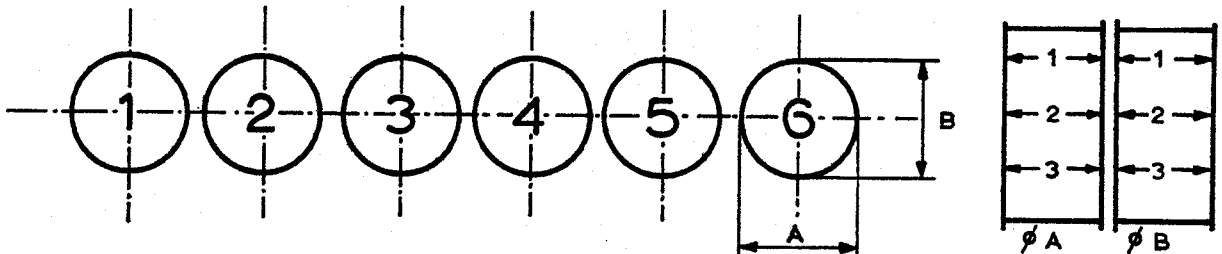
 Number of kilometres covered
with relative cylinder liners :

Engine No.

Specif. No.

Measurements taken by :

MEASURING INSTRUCTIONS



Point of measurement 1: abt. 10 mm under the cylinder liner stop edge

Point of measurement 2: abt. 20 mm from the cylinder liner bottom edge

MEASURING RESULTS

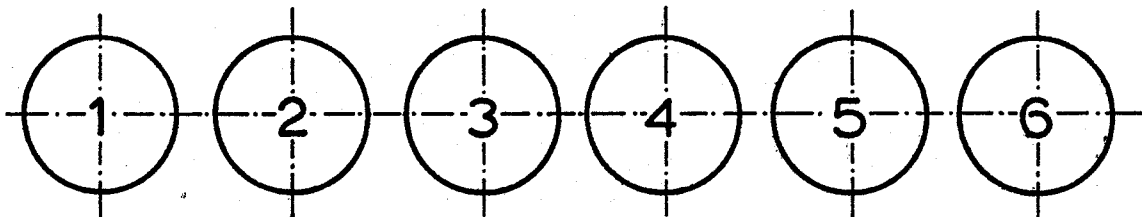
Cylinder	1	2	3	4	5	6
$\phi A 1$						
$\phi A 2$						
$\phi A 3$						
$\phi B 1$						
$\phi B 2$						
$\phi B 3$						
Piston dia. at piston bottom edge at right angles to gudgeon pin						
Piston clearance						

X = piston ring gap

Y = piston ring clearance in groove

	1		2		3		4		5		6	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Top compr. ring												
Compr. ring												
Compr. ring												
Oil scraper ring												
Oil scraper ring												

Distance between cylinder liner collar and cylinder block top side:



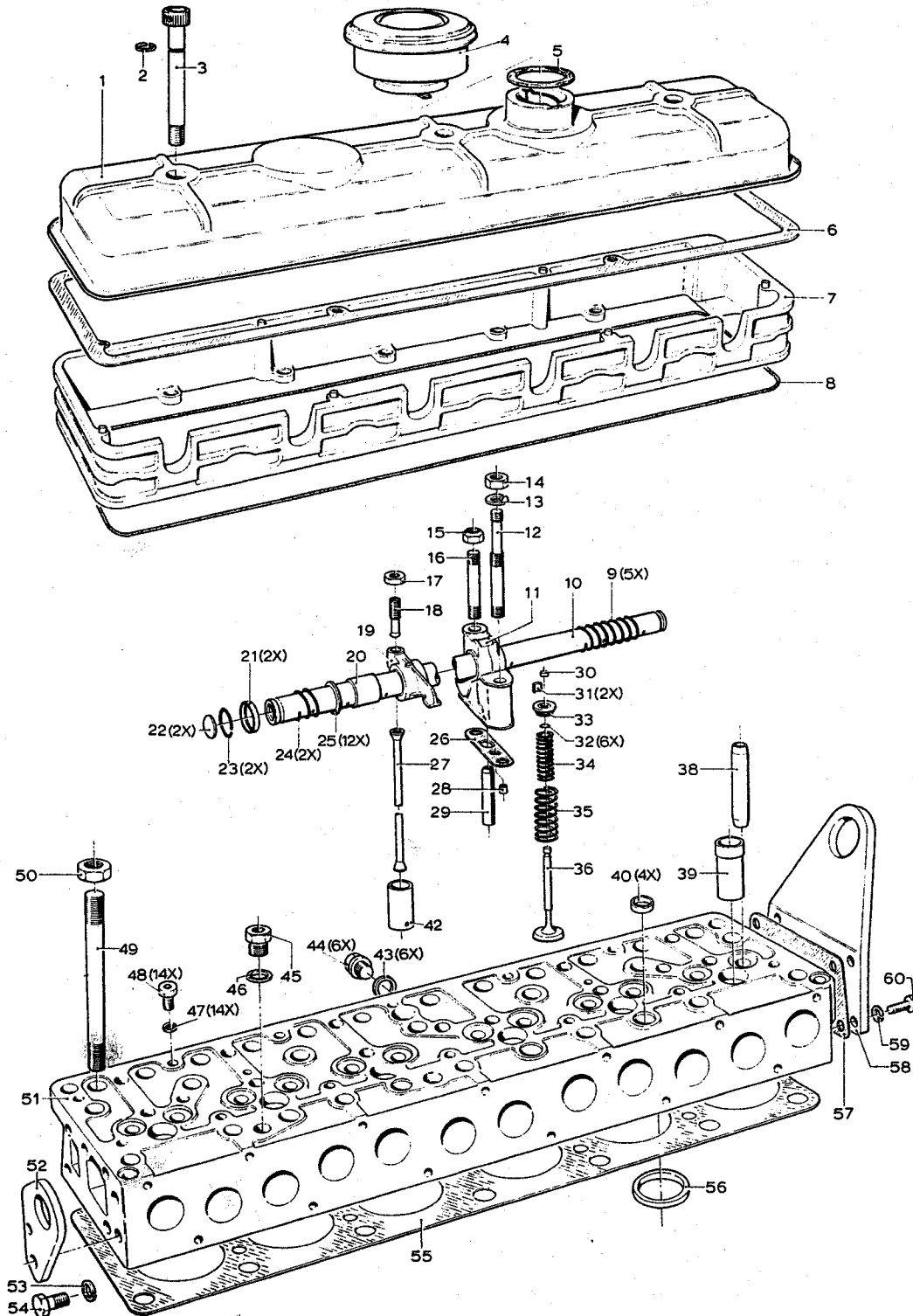
..... mm* mm* mm*

..... mm* mm* mm*

*+ if collar projects above block

— if collar is lower than top side of cyl. block

CYLINDERHEAD AND VALVE MECHANISM



1. Valve cover
2. Lock washer
3. Bolt
4. Sump breather filter
5. Gasket
6. Gasket
7. Valve side cover
8. Sealing ring
9. Compression spring, long
10. Rocker shaft
11. Rocker shaft bracket
12. Stud, long
13. Spring washer
14. Nut
15. Selflocking nut
16. Stud, short
17. Nut
18. Valve set screw
19. Rocker
20. Rocker bush
21. Thrust collar
22. Plug
23. Lock washer
24. Compression spring, short
25. Sealing ring
26. Gasket
27. Valve push rod
28. Dowel pin
29. Spring pin
30. Valve cap
31. Valve key
32. O-ring seal (inlet valve only)
33. Valve spring retainer
34. Inner valve spring
35. Outer valve spring
36. Valve
38. Valve guide
39. Nozzle holder bush
40. Plug
42. Valve tappet
43. Gasket ring
44. Plug
45. Adaptor nipple
46. Gasket ring
47. Spring washer
48. Socket head screw
49. Stud
50. Nut
51. Cylinderhead
52. Lifting bracket
53. Spring washer
54. Bolt
55. Head gasket
56. Exhaust valve seat
57. Gasket
58. Lifting bracket
59. Spring washer
60. Bolt

Valve tappets

Outside dia.	33.274—33.287 mm
Diametrical clearance in cylinder block	0.043— 0.081 mm (max. 0.15 mm)

Push rods

Overall length	374.1 —374.7 mm
Max. permissible out of straight	0.25 mm

Rocker shaft

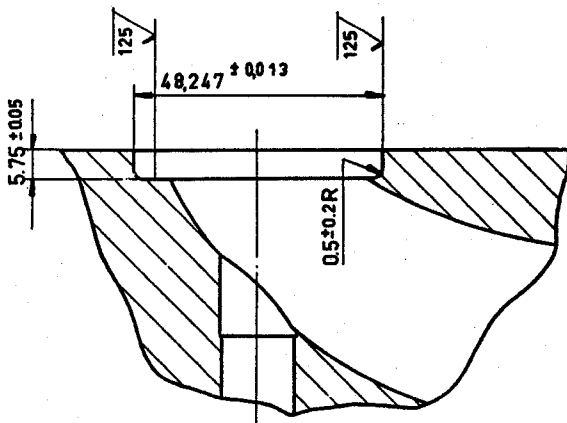
Outside dia.	22.193—22.206 mm
Inside dia. of rocker bush (reamed)	22.213—22.234 mm
Diametrical clearance of shaft in bush	0.007— 0.041 mm (max. 0.09 mm)

Tightening torque

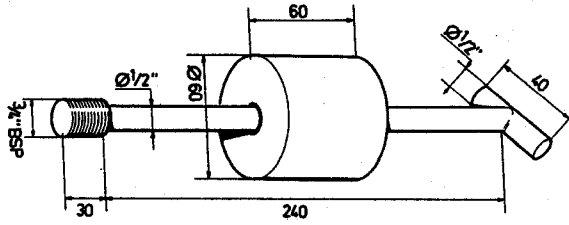
Cylinder head nuts	25—26.4 mkg (180—190 ft.lbs)
Rocker shaft bracket nut	8.7 mkg (65 ft.lbs)
Injector clamp nut	5 mkg (35 ft.lbs)

INSTRUCTIONS FOR REPAIR

Shrunk-in seats are used for the exhaust valves, the inlet valve seats are cut into the cylinder head. For reconditioning purposes separate seat inserts are available for the inlet valves.



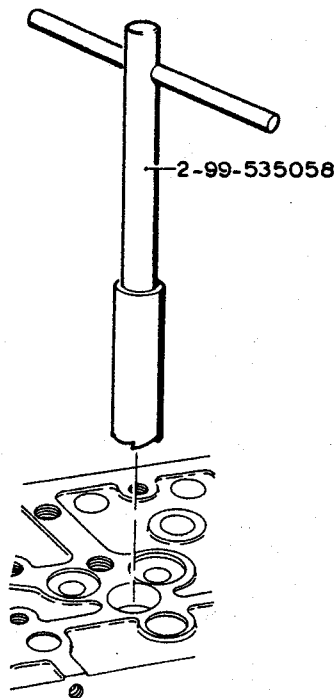
The recess to be made in the cylinder head for the inlet valve seat. The total dial indicator reading relative to the bore for the valve guide should not exceed 0.02 mm. The valve seats are shrunk in.



For removing an injector holder sleeve use an inside puller or a home made auxiliary tool (see drawing).

Tap $\frac{3}{4}$ " BSP thread in injector holder sleeve and screw in auxiliary tool. Next, pull or knock tool together with the injector holder sleeve out of the cylinder head.

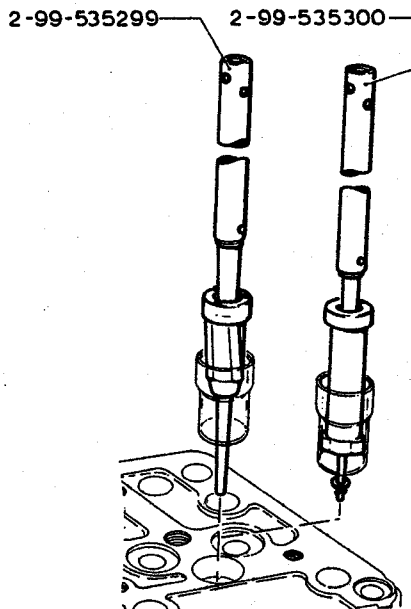
Note: Plug off bore in cylinder head to prevent particles from falling into the combustion chamber.



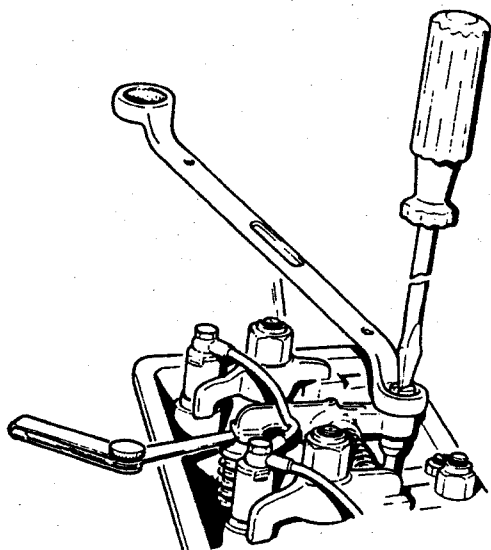
Clean the injector seat in the cylinder head with a scraper, part number 2-99-535058, after treating scraper head with grease.

Also refer to "Injectors" group 4-93-2.

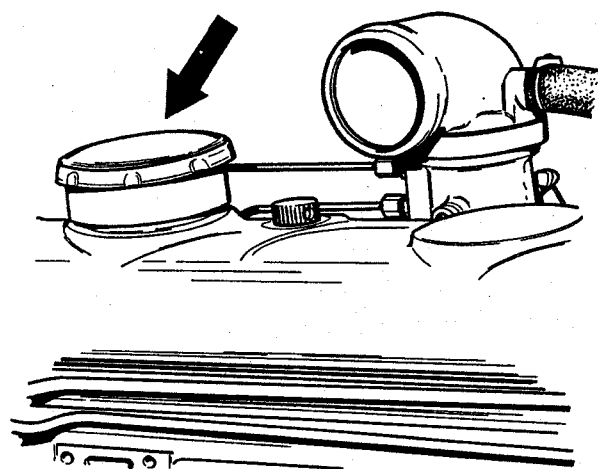
Note: Plug off bore in cylinder head to prevent particles from falling into the combustion chamber.



After fitting the injector holder sleeves it is advisable to expand these with special tools, 2-99-535299 and 2-99-535300 for the upper and lower half of the injector holder sleeve respectively. These tools may be used also for cases of non-serious water leakage along the injector holder sleeves.



Adjust valve clearance with the engine switched off and preferably still warm. Check valve clearance not only at periodical servicings, but also after one or more injectors have been replaced.



The air used for sump breathing is sucked in through the filter on the valve cover (which serves also as filler hole for engine lubricating oil). The engine sump vapours are sucked off via a downward pointing tube.

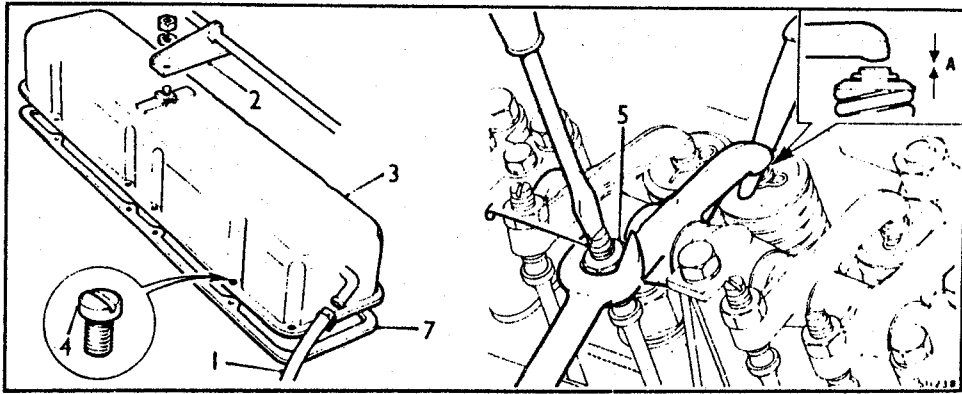
Maintenance:

- Rinse filter thoroughly in gasoil or flushing oil
- Shake filter to dryness
- Immerse filter in clean engine lubricating oil
- Shake filter to dryness

FIRING ORDER 1, 5, 3, 6, 2, 4

BMC ENGINE DATA SHEET
BUT VALVE ROCKER ADJUSTMENT
DATA HOLDS GOOD FOR DAF 575

MAINTENANCE



VALVE ROCKERS. Release the breather hose (1) and the pipe bracket (2) from the rocker cover (3). Remove the securing screws (4) and lift off the rocker cover. Adjust the valve rocker clearances (A) to the figure given in 'GENERAL DATA', in the following sequence:

Four-cylinder engine

Check No. 1 valve with No. 8 valve fully open.

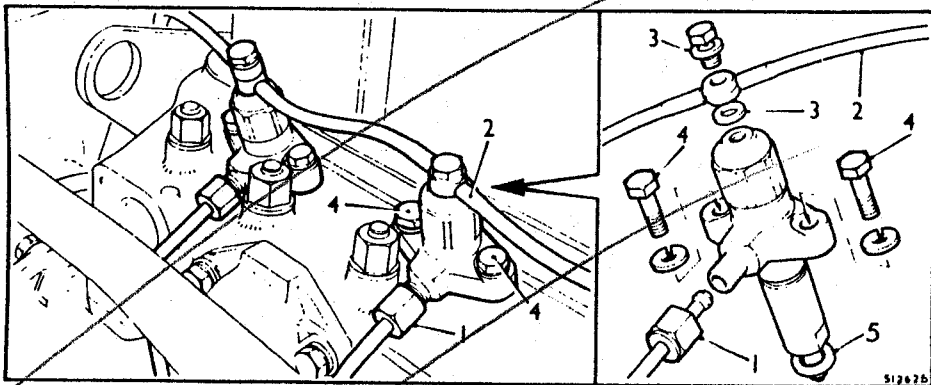
..	..	3	..	..	6	..	..	..
..	..	5	..	..	4	..	..	..
..	..	2	..	..	7	..	..	..
..	..	8	..	..	1	..	..	..
..	..	6	..	..	3	..	..	..
..	..	4	..	..	5	..	..	..
..	..	7	..	..	2	..	..	..

Six-cylinder engine

Check No. 1 valve with No. 12 valve fully open.

..	..	7	..	..	6	..	..	..
..	..	9	..	..	4	..	..	..
..	..	2	..	..	11	..	..	..
..	..	5	..	..	8	..	..	..
..	..	10	..	..	3	..	..	..
..	..	12	..	..	1	..	..	..
..	..	6	..	..	7	..	..	..
..	..	4	..	..	9	..	..	..
..	..	11	..	..	2	..	..	..
..	..	8	..	..	5	..	..	..
..	..	3	..	..	10	..	..	..

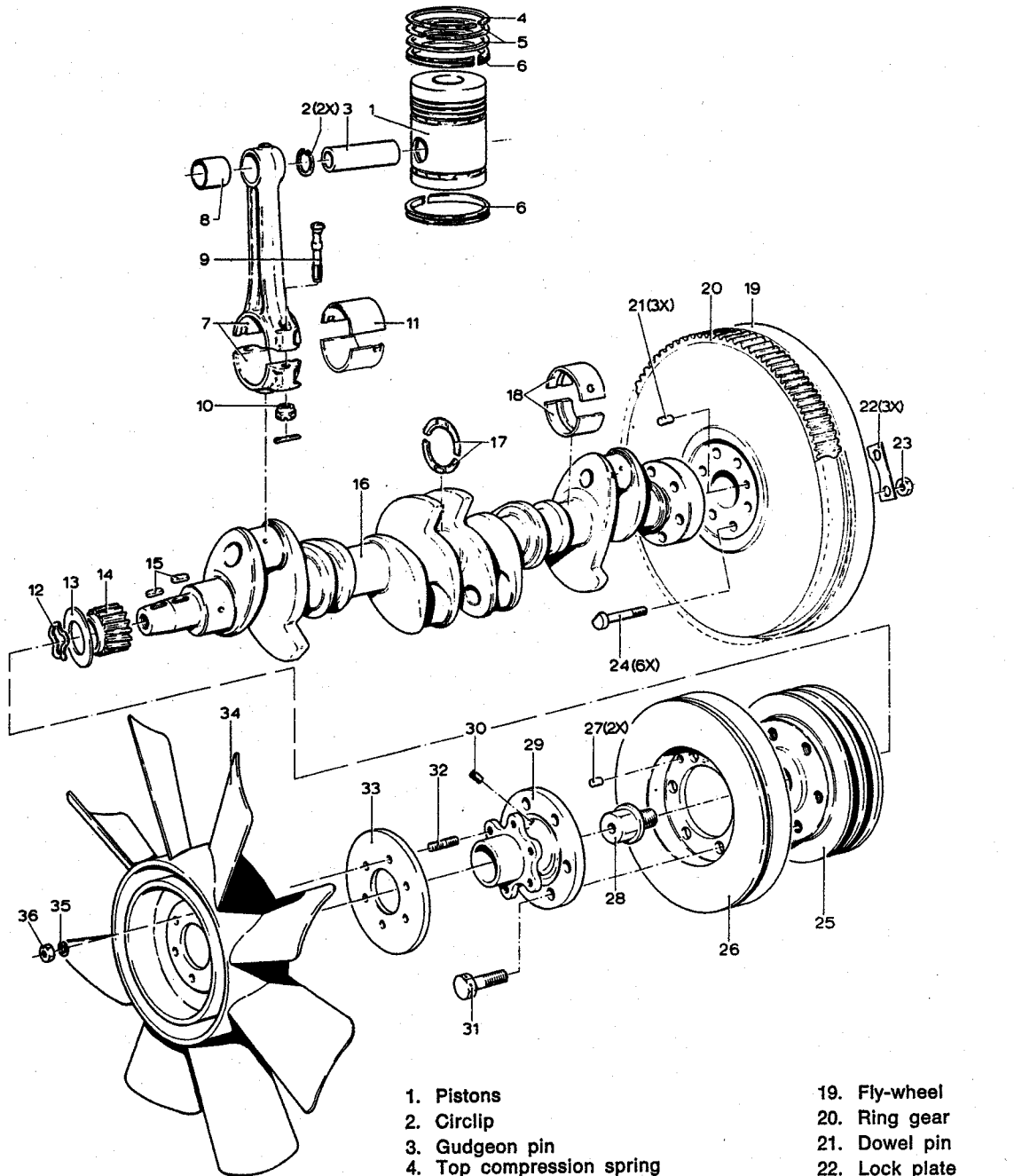
To adjust the clearance, slacken the locknut (5) and turn the adjusting screw (6) until the clearance is correct. Hold the screw against rotation and tighten the locknut. Assemble, ensuring that the rocker cover gasket (7) is serviceable.



● **FUEL INJECTORS.** Injector cleaning and spray testing can only be carried out with specialized equipment, therefore this work should be done by a Distributor or Dealer (refer to Group 51D, 'FUEL INJECTION EQUIPMENT'). ●

Disconnect the feed pipe (1) and the spill rail (2). Note the sealing washer (3) on each side of the spill rail banjo union. Remove the injector securing bolts (4) and withdraw the injector. Renew the injector sealing washer (5). Assemble and tighten the injector securing bolts to the torque figure given in 'GENERAL DATA'.

CRANKSHAFT, CONNECTING RODS AND PISTONS



- | | |
|------------------------------------|---------------------|
| 1. Pistons | 19. Fly-wheel |
| 2. Circlip | 20. Ring gear |
| 3. Gudgeon pin | 21. Dowel pin |
| 4. Top compression spring | 22. Lock plate |
| 5. Compression spring | 23. Nut |
| 6. Oil scraper ring | 24. Bolt |
| 7. Connecting rod | 25. Vee belt pulley |
| 8. Small end bearing bushing | 26. Damper |
| 9. Connecting rod bearing cap bolt | 27. Dowel pin |
| 10. Castelled nut | 28. Cranking bolt |
| 11. Connecting rod bearing shell | 29. Flange |
| 12. Spacer ring | 30. Locking screw |
| 13. Oil deflector | 31. Bolt |
| 14. Crankshaft gear | 32. Stud |
| 15. Key | 33. Disc |
| 16. Crankshaft | 34. Fan |
| 17. Thrust washer halves | 35. Spring washer |
| 18. Main bearing shells | 36. Nut |

Pistons

Combustion chamber

Material

Gudgeon pin bore

Skirt edge dia.

Pistons clearance

Width of grooves for compression rings

Width of grooves for oil scraper rings

Distance between top of piston in T.D.C.
position and top face of cylinder block

Toroidal

Aluminium alloy

32.995— 33.045 mm

100.457—100.482 mm (min. 100.33 mm)

0.118— 0.173 mm

2.47 — 2.49 mm

6.39 — 6.41 mm

max. + 0.2 mm or — 0.2 mm

Gudgeon pin

Dia.

Clearance in smal end bush

Retained by

Insert in piston heated to 20°—50° C

33.020—33.026 mm

0.020— 0.034 mm

circlips

hand push fit

Pistons rings

Top compression ring

Width of top compression ring

Width of No. 2 & 3 compression rings

Width of oil scraper rings

Gap of top compression ring

Gap of No. 2 & 3 compression rings

Gap of oil scraper ring

Clearance of top compression ring in groove

Clearance of No. 2 & 3 compression rings in
groove

Clearance of oil scraper rings in groove

chromed

2.362—2.375 mm

2.350—2.375 mm

6.312—6.325 mm

0.35 —0.60 mm

0.25 —0.50 mm

0.25 —0.45 mm

0.095—0.128 mm

0.095—0.140 mm

0.065—0.098 mm

Fly-wheel

Lateral run-out

(measured at 140 mm from centre)

Ring gear

0.15 mm

126 teeth

Tightening torques

Main bearing cap bolts

Connecting rod nuts

Fly-wheel nuts

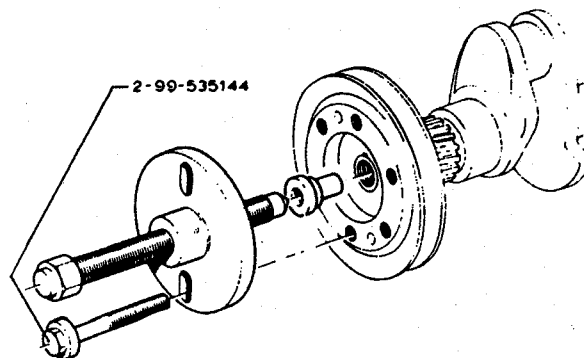
Cranking bolt

20 mkg (147 ft.lbs)

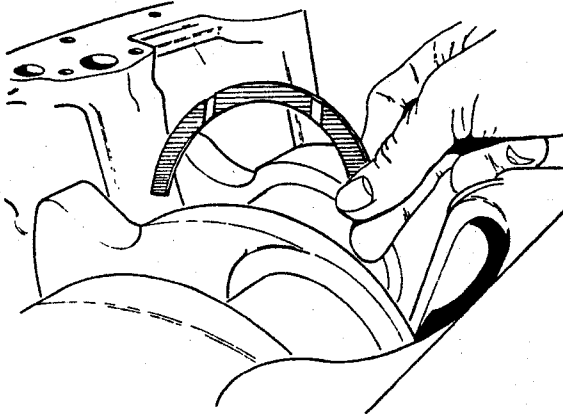
11 mkg (80 ft.lbs)

8.7 mkg (65 ft.lbs)

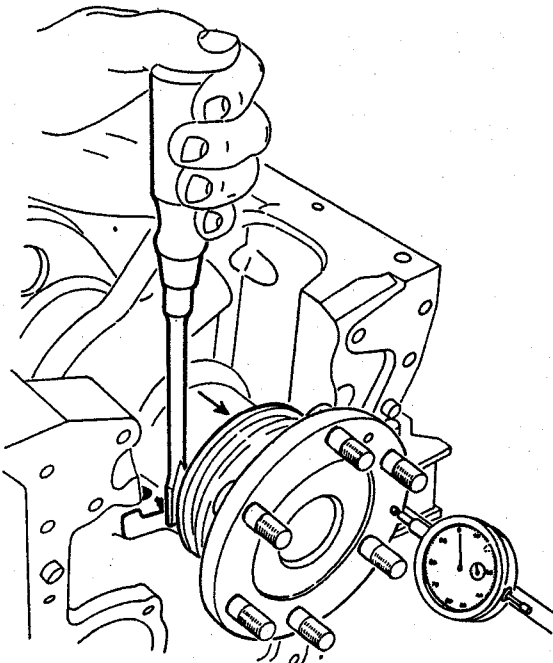
38—42 mkg (275—300 ft.lbs)

INSTRUCTIONS FOR REPAIR

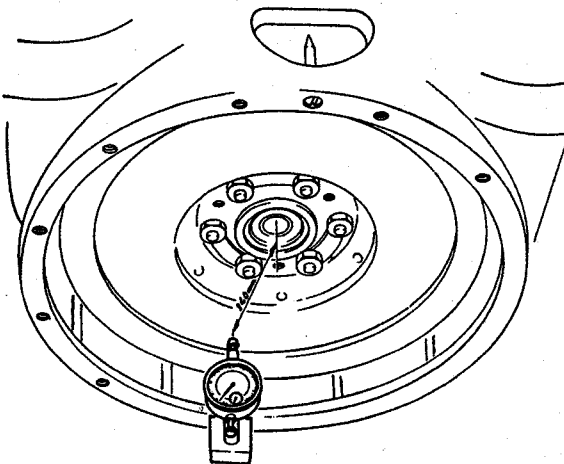
For removing the crankshaft pulley, use special puller, part number 2-99-535144.



The thrust rings for absorbing end thrust on the crank shaft are fitted at either end of the central main bearing. When installing the ring halves, make sure the rounded off edge fits into the crankshaft journal rounding-off and the bronze thrust side faces the crank webs. The lip on one of the thrust ring halves should fit into the corresponding recess in the main bearing cap.

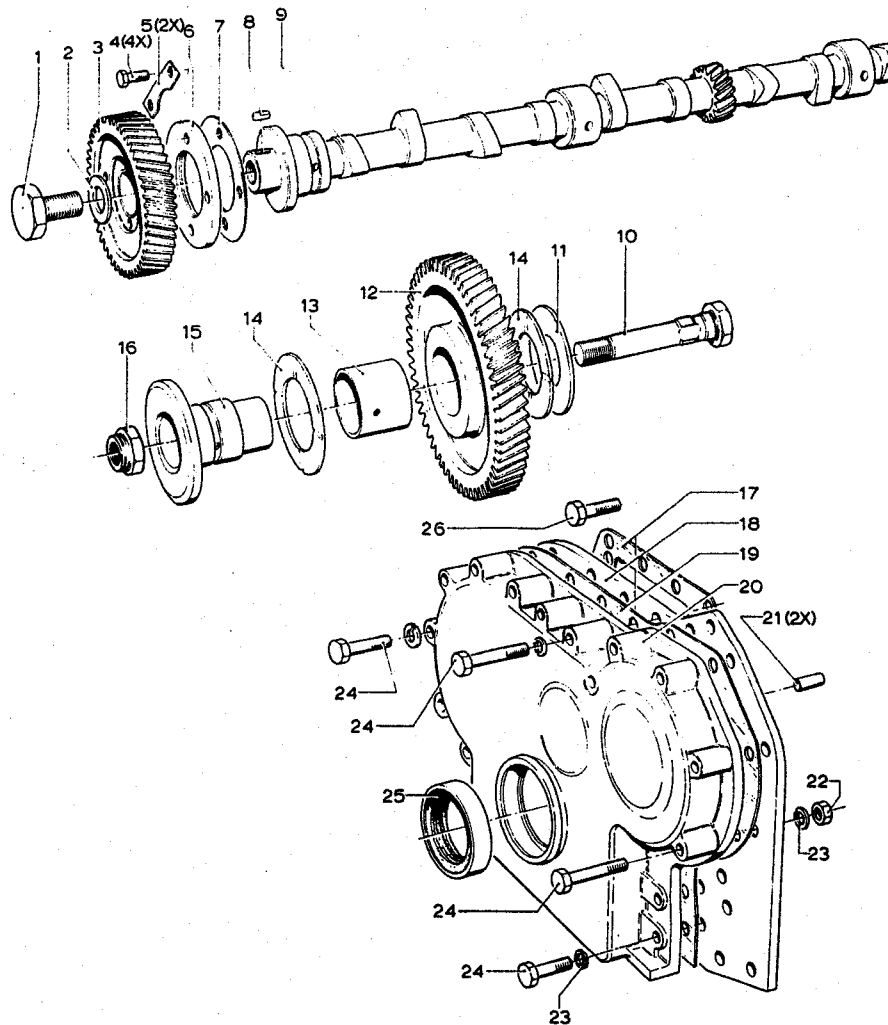


Measuring crankshaft end play is carried out with a dial indicator. If required, rectify by means of oversize thrust rings.



When the fly-wheel has been removed, check lateral run-out as follows: Install dial indicator base on fitting edge of fly-wheel housing and measure run-out on the clutch facing contact surface 140 mm from the crankshaft centre. Max. permissible clock reading 0.10 mm.

TIMING

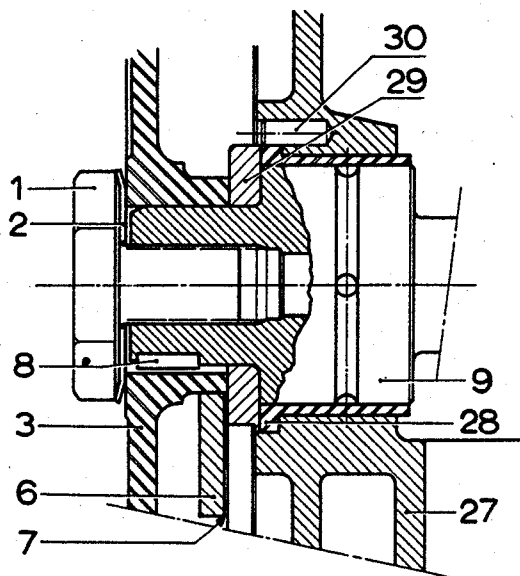


- | | |
|-----------------------|------------------------------|
| 1. Bolt | 14. Bearing bush |
| 2. Lockwasher | 15. Hub of intermediate gear |
| 3. Camshaft gear | 16. Selflocking nut |
| 4. Bolt | 17. Gasket |
| 5. Lock plate | 18. Supporting plate |
| 6. Centring ring | 19. Gasket |
| 7. Shim | 20. Distribution cover |
| 8. Key | 21. Dowel pin |
| 9. Camshaft | 22. Nut |
| 10. Bolt | 23. Spring washer |
| 11. Spacer ring | 24. Bolt |
| 12. Intermediate gear | 25. Oil seal |
| 13. Bearing bush | 26. Bolt |

TECHNICAL DATA

Camshaft

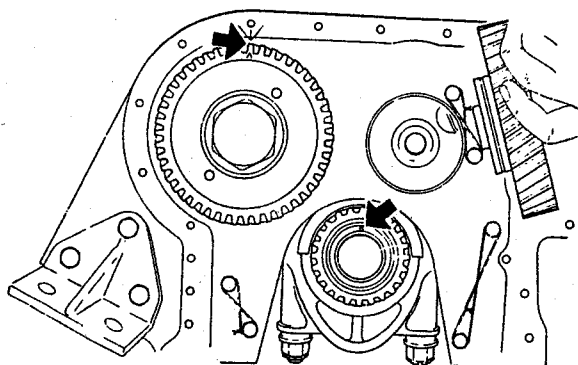
Bearing journal dia.	53.217—53.230 mm
Initial dimension from nose to back of cam	44.8 —44.9 mm
Renew camshaft when this dimension is	44.55 mm
Camshaft end play	0.10 — 0.25 mm (max. 0.3 mm)



Section through camshaft front end

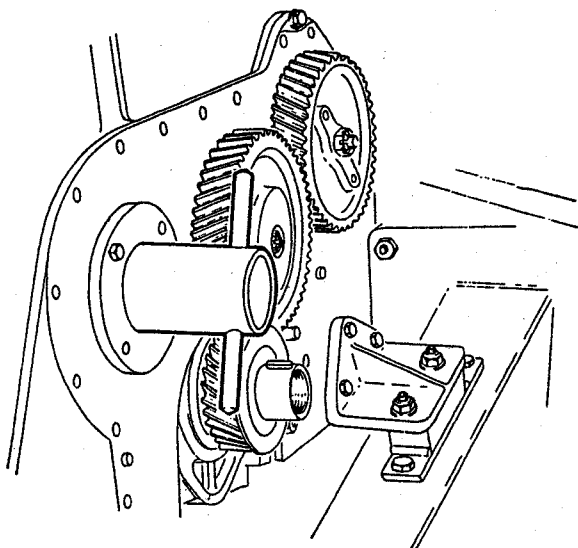
1. Bolt
2. Lock washer
3. Camshaft gear
6. Centring ring
7. Shim
8. Key
9. Camshaft
27. Cylinder block
28. Bearing bush
29. Thrust washer

For camshaft end play adjustment, use shim(s) 7.



Fitting timing gears:

- No. 1 piston in T.D.C. (crankshaft gear key in vertical position).
- Arrows on camshaft gear and timing gear cover opposite each other.



Centring the camshaft:

- Install centring ring, but do not tighten bolts
- Centre camshaft by means of centring bush, part no. 2-99-535047, tighten bolts but do not yet lock.
- Measure end play
- Lock bolts and check whether camshaft turns without heavy spots

SERIES: F 1200/1400

DATE: 7803

**FIXING FLYWHEEL HOUSING AGAINST
CYLINDER BLOCK.**

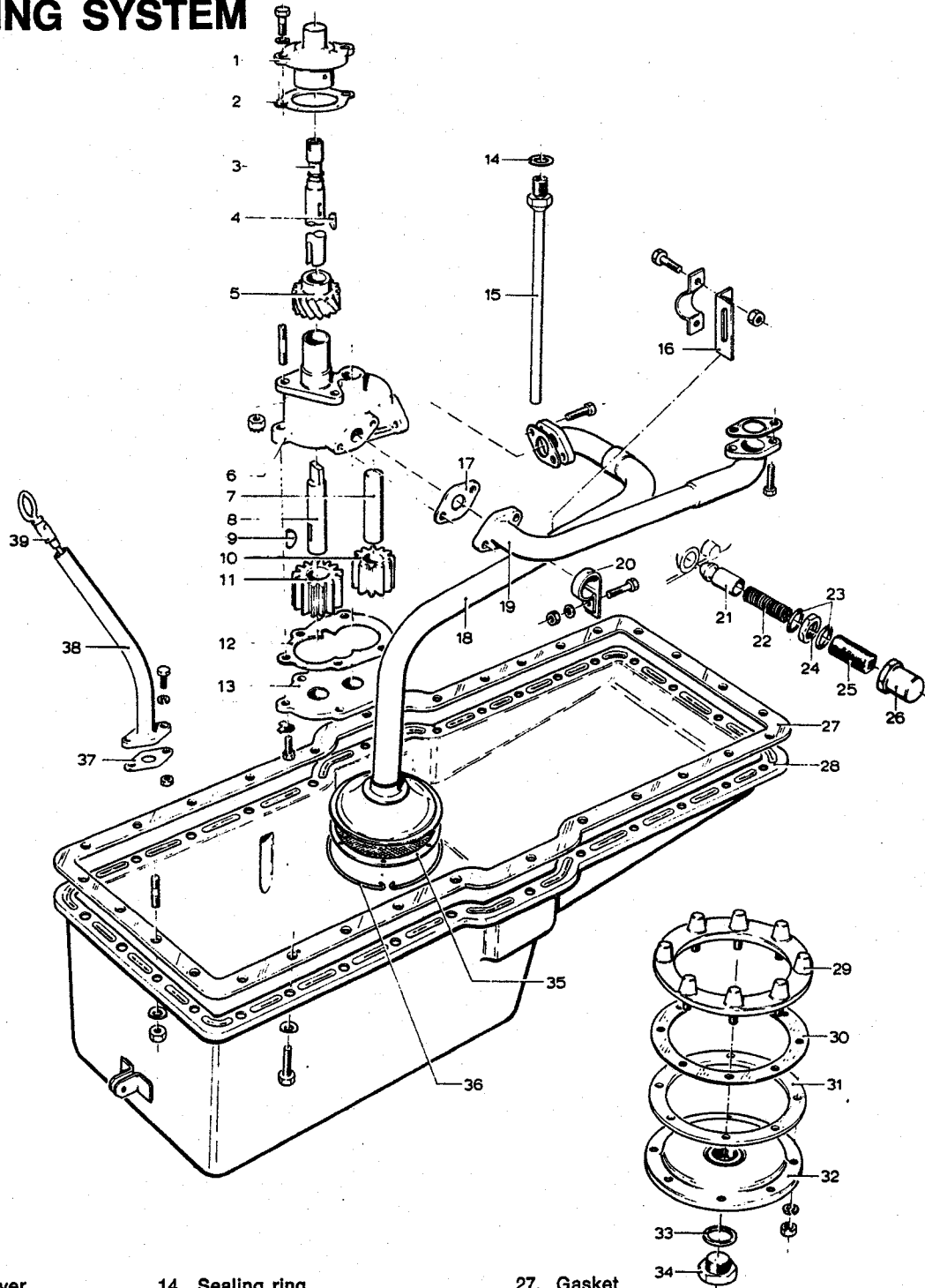
The use of locking wire and the bolts with pierced head for fixing the flywheel housing against the cylinder block has discontinued since April 1977. Since then normal bolts are used here, but these must be fitted with Loctite 242 (or another equivalent product). The old type of bolt may also be used without locking wire, provided that e.g. Loctite 242 is used.
The tightening torque remains unchanged.

Replaces
Vervangt
Ersetzt

2-35-2

To insert after
Voegen achter
Einfügen hinter

LUBRICATING SYSTEM



- 1. Thrust bearing cover
- 2. Gasket
- 3. Transmission shaft
- 4. Key
- 5. Drive gear
- 6. Oil pump housing
- 7. Secondary pump shaft
- 8. Primary pump shaft
- 9. Key
- 10. Secondary gear
- 11. Primary gear
- 12. Gasket
- 13. Cover

- 14. Sealing ring
- 15. Suction pipe
- 16. Attachment
- 17. Gasket
- 18. Suction pipe
- 19. Pressure line
- 20. Clip
- 21. Pressure relief valve
- 22. Spring
- 23. Sealing ring
- 24. Lock nut
- 25. Set screw
- 26. Cap nut

- 27. Gasket
- 28. Oil sump
- 29. Clamping ring
- 30. Gasket
- 31. Gasket
- 32. Cover
- 33. Sealing ring
- 34. Drain plug
- 35. Strainer
- 36. Lock washer
- 37. Gasket
- 38. Dipstick holder
- 39. Dipstick

Lubricating oil pump

Operation

Ratio

Diametrical clearance of driving spindle in bush

Inside dia. of pump housing

Pump housing depth

Outside dia. of pump gears

Height of pump gears

Backlash between gears

Driving spindle dia. (primary gear)

Diametrical clearance of spindle in housing

Driven spindle dia. (secondary gear)

Tight fit of spindle in housing

Clearance, driven spindle in driven gear

Min. pump delivery at 4 kg/cm² counterpressure,
SAE 30 lubricating oil, 80° C

Shaft driven from camshaft

1 : 1

0.051— 0.083 mm

53.677—53.703 mm

44.487—44.513 mm

34.875—34.925 mm

53.57 —53.60 mm

44.385—44.410 mm

34.887—34.913 mm

0.37 — 0.63 mm

17.408—17.418 mm

0.037— 0.067 mm

17.345—17.355 mm

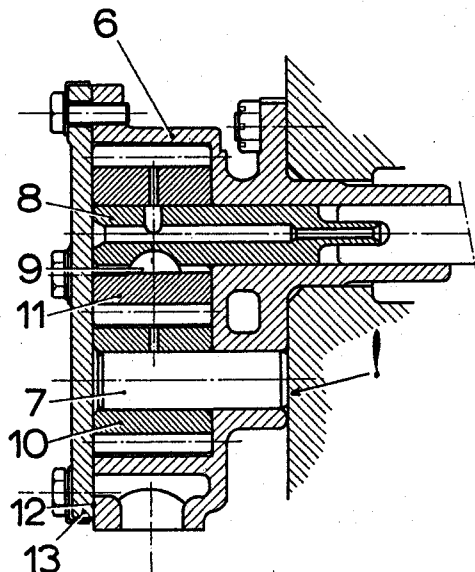
0.009— 0.031 mm

0.032— 0.054 mm

35 litres/min. at 1200 r.p.m. pumpspeed

5.5 litre/min. at 250 r.p.m. pumpspeed

INSTRUCTIONS FOR REPAIR



- 6. Oil pump housing
- 7. Driven (sec.) pump spindle
- 8. Driving (prim.) pump spindle
- 9. Key
- 10. Secondary gear
- 11. Primary gear
- 12. Gasket
- 13. Cover

Press down secondary pump spindle until bearing surface of oil pump.

ENGINE OIL CONSUMPTION TEST

(To be used for dealing with warranty questions only)

In view of the important consequences related with the results of an engine oil consumption test, such a test should be effected with the utmost accuracy.

Measuring oil level with dip-stick is absolutely insufficient.

Moreover, it is little use to carry through such a test before the vehicle has covered 5,000 km, as a higher consumption of oil during the running-in period may be considered as normal.

To be able to verify an oil consumption indication made by the customer, the test drive should be made under the same conditions as usual with the customer. It is recommended therefore to measure oil consumption during the daily routine operation and the vehicle driven by the man who is driving it regularly. The test drive should cover a distance of 200 to 300 km.

The engine oil consumption is — just like the fuel consumption — dependent on the operating conditions, such as city traffic or long distance haulage, flat or hilly roads, full or partial loading of the vehicle etc. For this reason, during the test drive both oil consumption and fuel consumption should be measured to enable to express engine oil consumption in a percentage of fuel consumption.

Before carrying through the test drive, carefully check engine for leakage, for instance at pipe connections, oil filter, valve cover etc. It is also very important that no oil gets lost through the brake system air compressor.

To avoid discussions on differences in consumption between fresh and older lubricant, it is advisable to carry through the consumption test shortly after the engine lubricant has been changed.

Example:

sump capacity	:	20 litres
weight of prescribed quantity of oil	:	20 × 900*) = 18,000 grammes
weight of empty reservoir	:	5,000 grammes
weight of reservoir + prescribed quantity of oil	:	23,000 grammes
weight of reservoir + drained-off oil	:	21,000 grammes
quantity of oil to be added	:	2,000 grammes

*) average specific gravity of engine lubricant.

Engine lubricant consumption test

1. Prepare a clean reservoir (for instance a fuel tank with sprue) for receiving the lubricant. Measure the exact weight of the empty reservoir.
2. Bring engine to operating temperature, in other words to a coolant temperature of abt. 80° C.
3. Place the vehicle on level ground and mark this position to enable the vehicle to be parked on exactly the same position after the test drive.
4. Shift stop lever in cab to STOP and check whether stop lever on governor is effectively in stop-position.
5. Take off sump drain plug and allow oil to drain away in the reservoir mentioned under point 1 and this during 15 minutes. Reinstall and tighten sump drain plug.
6. Place the reservoir with drained-off oil on a balance with graduation in grammes and add oil until the prescribed weight is obtained.
7. Use ALL oil from the reservoir to refill the engine lubrication system. Keep the reservoir apart as it will be used again afterwards. Do not use it for other purposes and do not clean it as otherwise mistakes during measuring may occur.
8. Top up fuel tank until an easily visible level in the filler neck of the tank and mark this level clearly.

Date : Customer's name and address:

Number plate :

Chassis type :

Chassis no. :

Distance recorder reading :

Type of body :

Total weight of laden vehicle or of tractor/(semi)trailer combination :

Operating conditions (for instance city traffic, long distance haulage, off-the-road operations etc.) :

Weather conditions (including outside temperature) :

Test drive conditions :

Engine oil make, class and viscosity :

Engine oil pressure (idling speed, operating temperature) :

Coolant temperature :

Weight of oil reservoir + prescribed quantity of oil, before test drive	:		grammes
Weight of oil reservoir + drained off quantity of oil, after test drive	:	<u> </u>	grammes
Engine oil consumption during test drive	:	a	grammes
Distance recorder reading after test drive	:		km
ditto before test drive	:	<u> </u>	km
Number of kilometres covered	:	b	km
Fuel quantity topped up after test drive	:	c	litres

Engine oil consumption

$$\text{in litres per 1,000 km } V_m = \frac{a}{0,9 \times b} = \text{ litres / 1,000 km.}$$

The average specific gravity of engine oil can be put at 0.9

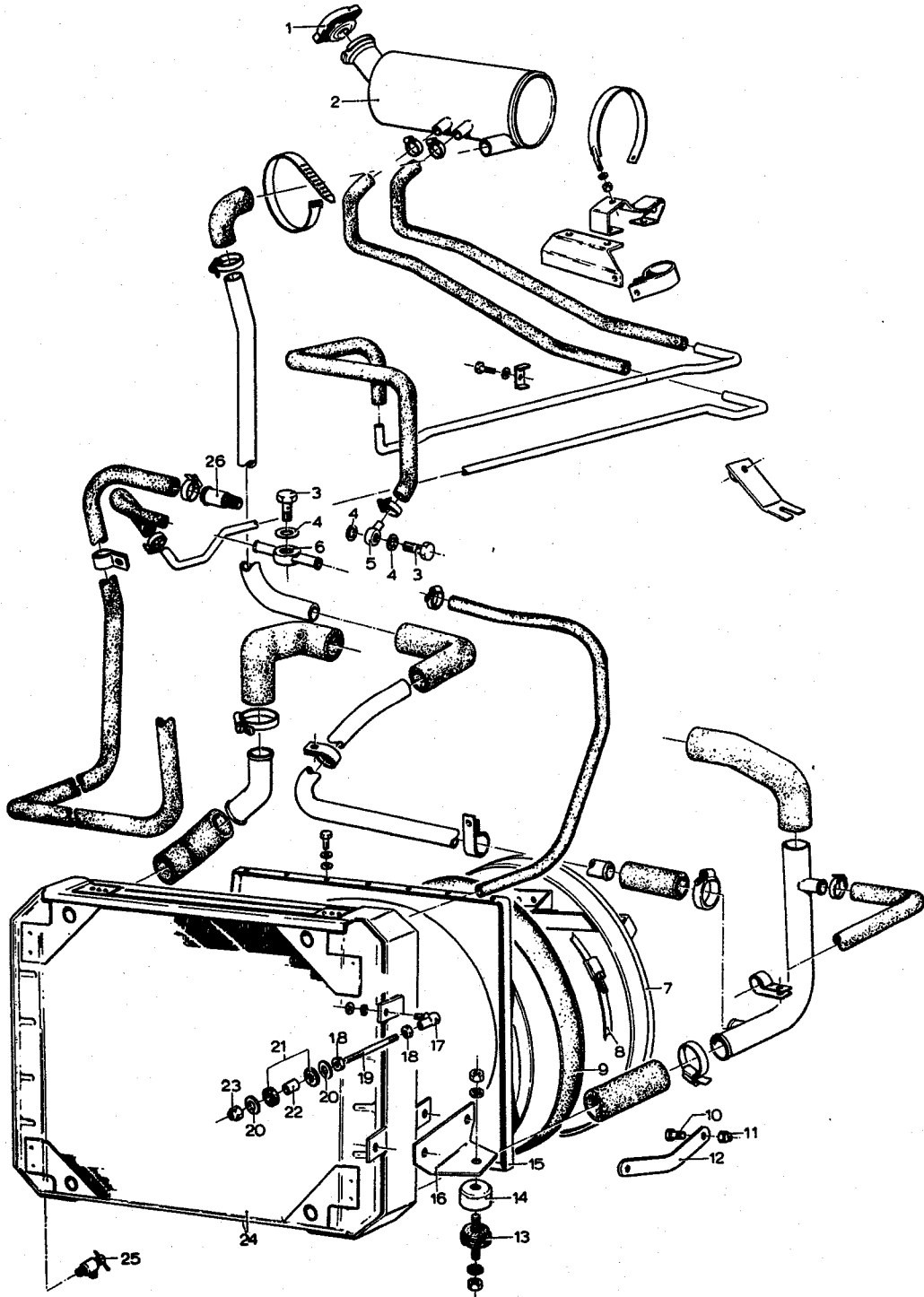
Fuel consumption

$$\text{in litres per 1,000 km } V_b = \frac{c}{b} \times 1,000 = \text{ litres/1,000 km.}$$

Engine oil consumption in a percentage

$$\text{of fuel consumption} = \frac{V_m}{V_b} \times 1,00\% = \text{ \%}.$$

COOLING SYSTEM

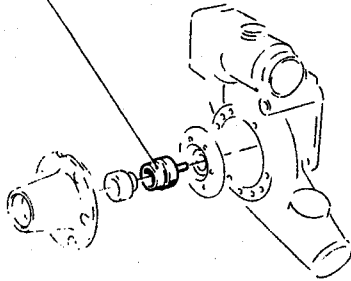


1. Filler plug
2. Expansion tank
3. Hollow screw
4. Sealing ring
5. Banjo union
6. Double banjo union
7. Guide ring
8. Clamping strip (2 x)
9. Rubber strip

10. Bolt
11. Selflocking nut
12. Bracket
13. Mounting rubber
14. Cap
15. Air funnel
16. Bracket
17. Ball joint
18. Nut

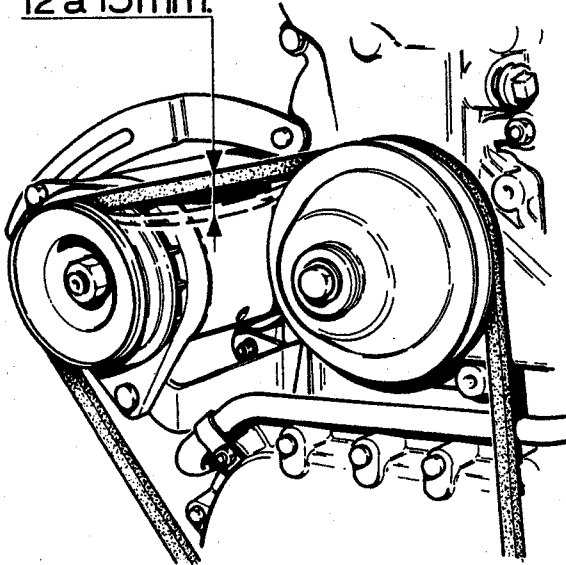
19. Pull rod
20. Washer
21. Rubber ring
22. Spacer bush
23. Selflocking nut
24. Radiator
25. Drain plug
26. Coupling sleeve

2-99-535655



For pressing water seal into position, use drift 2-99-535655.

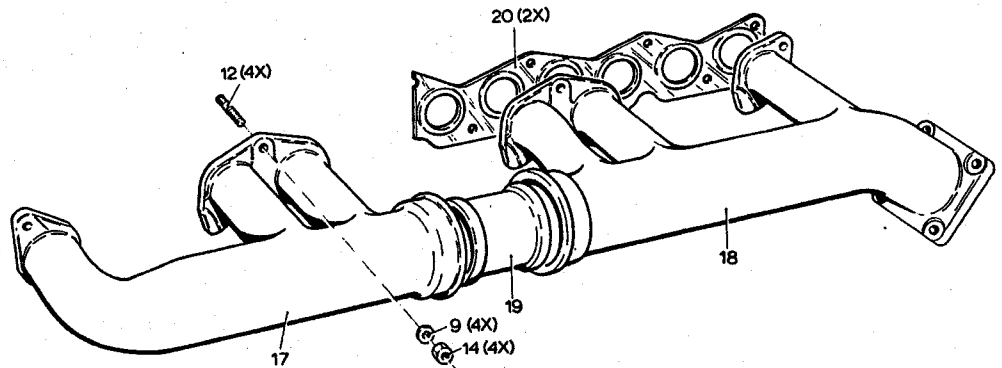
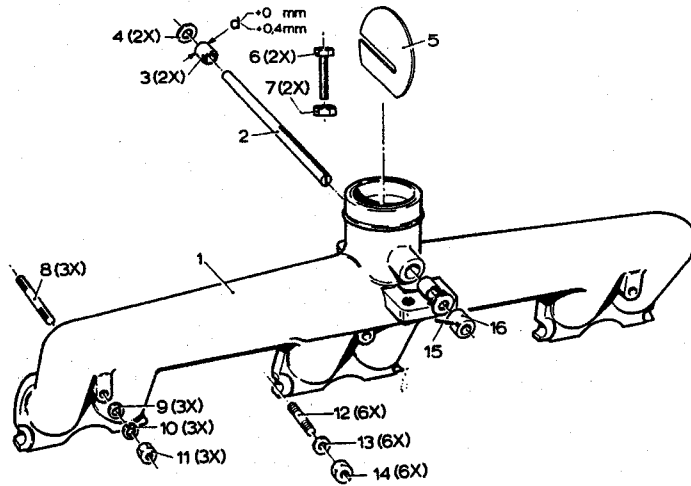
12 à 15mm.



After replacing the Vee-belt, check tension already after driving abt. 50 km and again after 500 km. Subsequently check tension at regular intervals.

MANIFOLDS

1. Inlet manifold
2. Butterfly valve spindle
3. Bearing bush
4. Washer
5. Butterfly valve
6. Stop bolt
7. Nut
8. Stud
9. Washer
10. Spring washer
11. Nut
12. Stud
13. Washer
14. Nut
15. Lock pin
16. Lock ring
17. Exhaust manifold, front part
18. Exhaust manifold, rear part
19. Connecting tube
20. Gasket



Tightening torques

Nuts of manifold

3.8—4.2 mkg (27—29 ft.lbs)

INSTRUCTIONS FOR REPAIR

Inlet and exhaust manifolds should be fitted free from stress.

After renewing the exhaust manifold gaskets, run the engine until it reaches operating temperature and immediately thereafter retighten manifold nuts with prescribed torque.