



AFTER-SALES TECHNICAL DIVISION



INFORMATION
BULLETIN

N° 1 S

20th April 1972

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The enclosed schedule deals with particular points concerning the overhauling of a MASERATI engine in an SM vehicle.

These particular points are taken from WORKSHOP MANUAL 581-3.

This schedule contains 29 cards which can be used as "workshop index cards"

These may be protected with plastic sleeves.

Place the cards in the proximity of the work-bench where the overhaul of components is carried out so that the mechanic can use them for reference.

SM VEHICLES
(SB series SB)

ENGINE

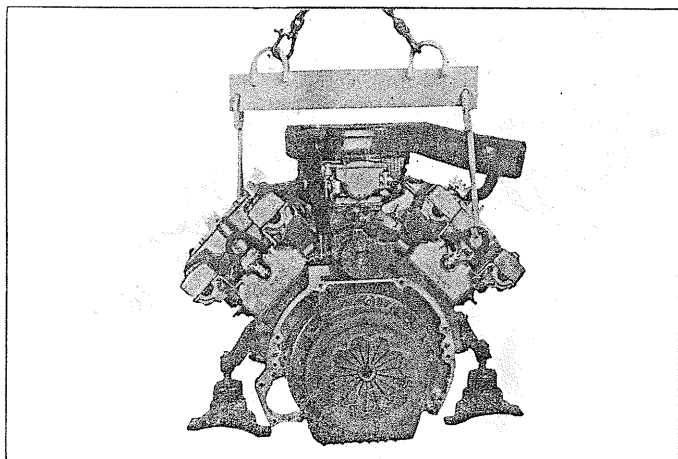
OVERHAULING
THE
ENGINE

DISMANTLING

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

1

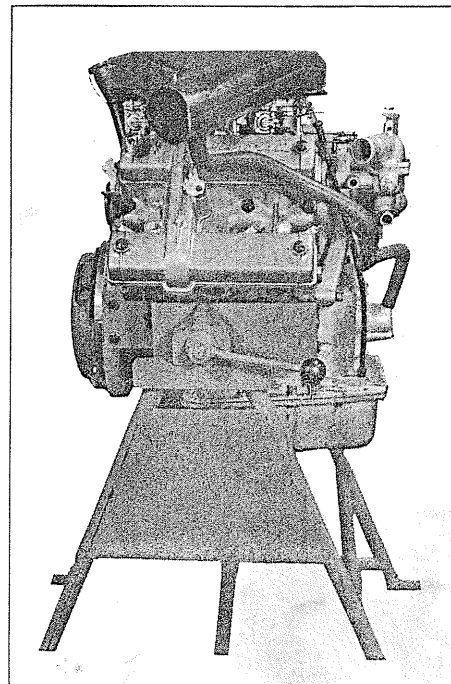
- Raise the engine using the lifting attachments
- Remove :
 - The engine mountings
 - The starter motor
- Use the sling 2517-T



2

Fix the engine on the dismantling support

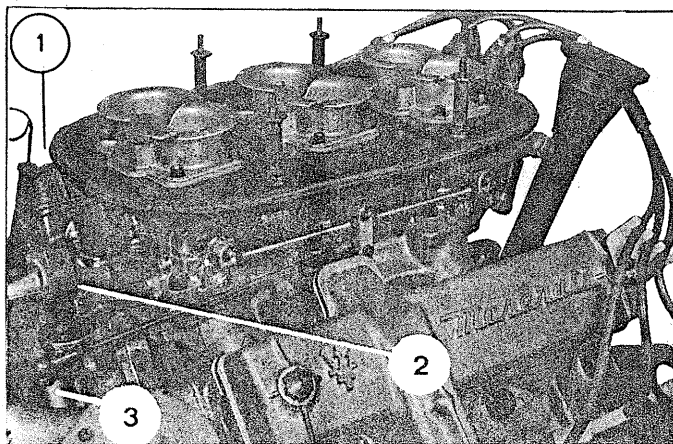
- Stand 2509-T
- Adaptor 2512-T



3

Remove

- The air filter
- The circlips(3) of the accelerator control knuckle
- The air-intake horns
- The base of the filter (1)
- The carburettor/manifold assembly (screw 2).



4

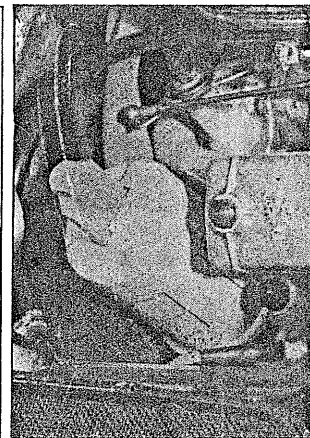
REMOVE THE OIL FILTER

Strap wrench

e.g. FACOM D. 46

Spanner

MR. 630-14/49



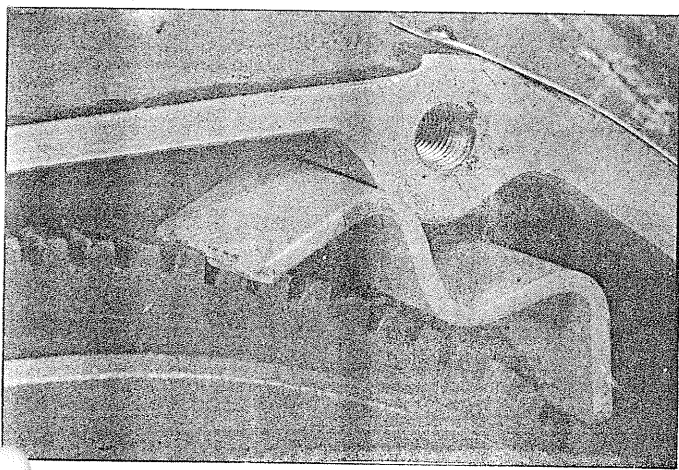
DISMANTLING Contd.

5

Remove the mechanism and the clutch disc

Remove the fly-wheel

Tool E from the set 3064-T

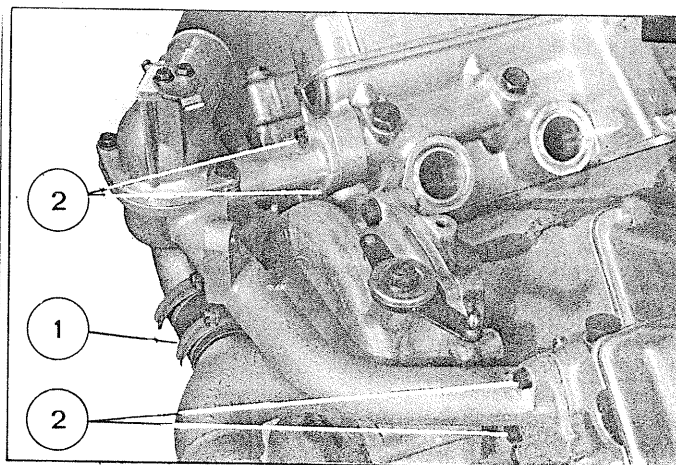


6

Remove the manifold :

- Collar (1)

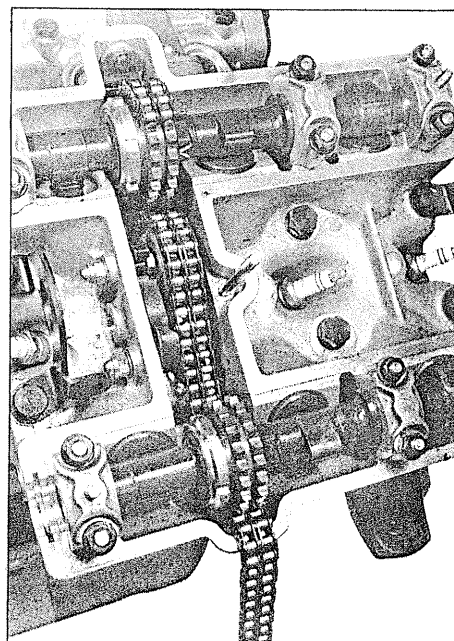
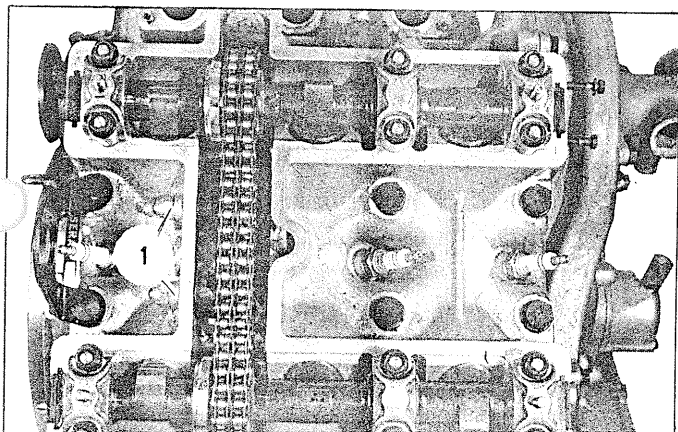
- Screw (2)



7

REMOVING THE CYLINDER-HEADS

- Turn the engine to bring the spring links to the top
- Loosen the chains by slackening the nuts (1)
- Remove the spring links
- Disengage the chains from the "exhaust" camshaft pinions.

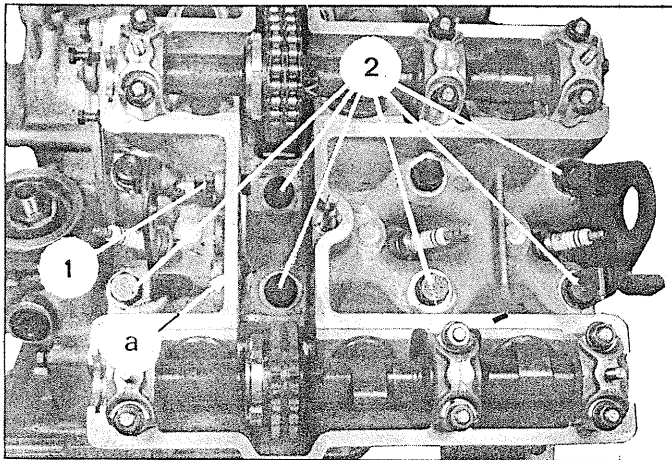


DISMANTLING Contd.

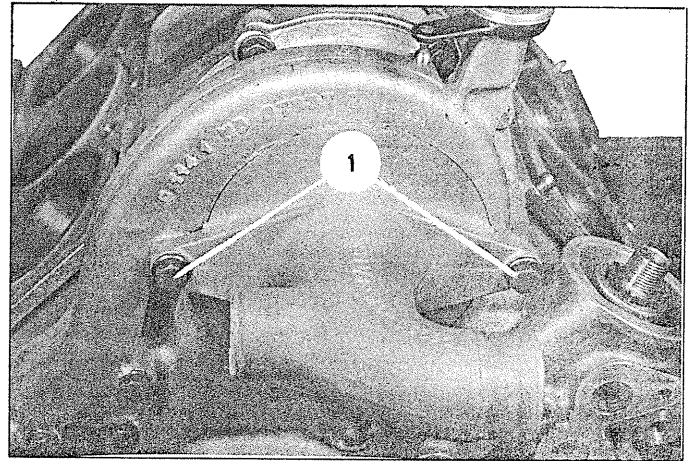
PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

7 Contd.

- Remove the screw at position "a".
- Swivel the tensioner towards the bottom.
- Disengage the screw (1) of the tensioner.
- Remove the chain tensioner
- Remove the cylinder heads (screws 2)

**8**

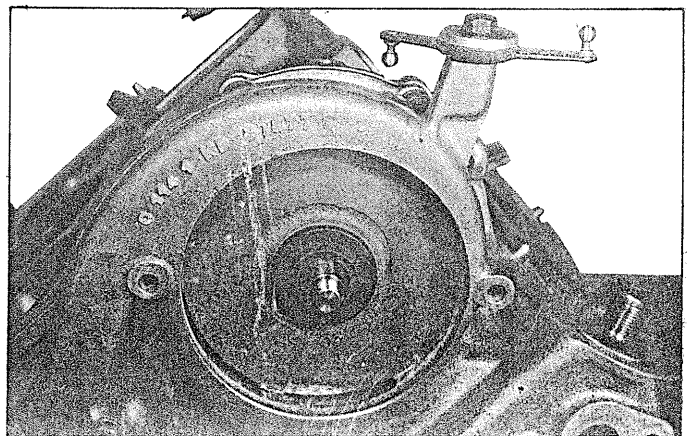
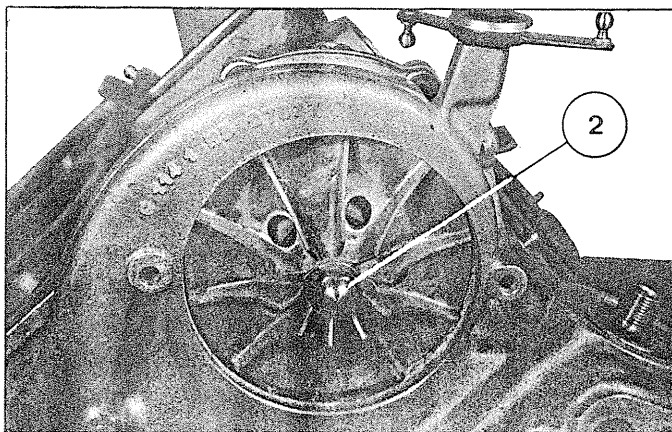
- Remove the water pump cover (screw 1)

**8** Contd.

Removing the water pump

- Unlock the nut (2) and remove it.
- Remove the turbine (be careful with the cotter).

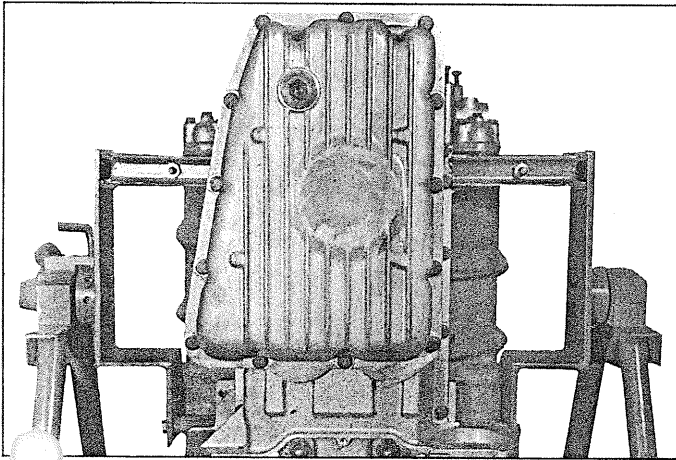
- Remove the sealing ring of the pump shaft.



DISMANTLING Contd.

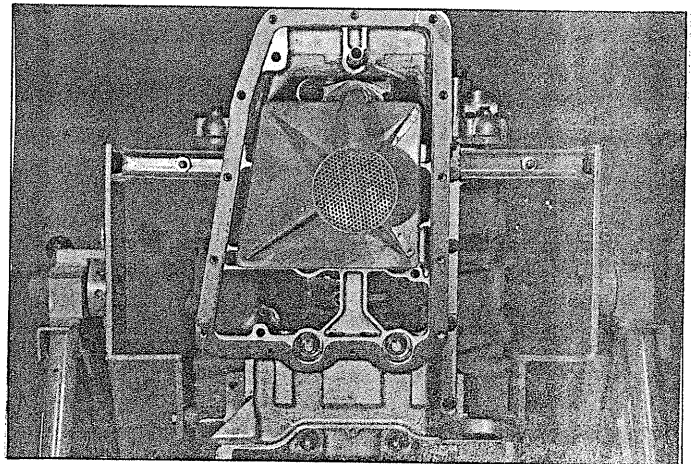
9

- Remove the oil sump



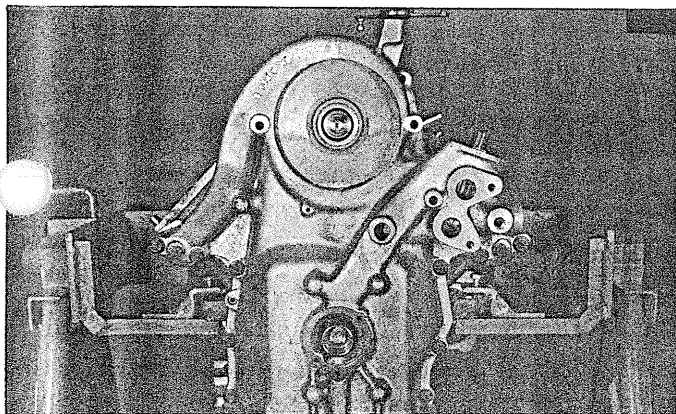
10

- Remove the oil pump filter



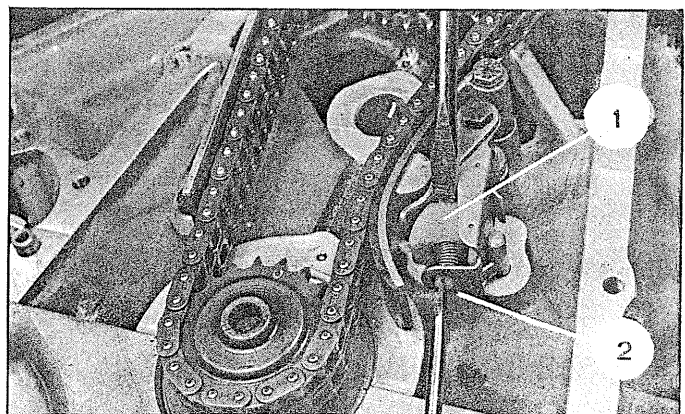
11

- Remove the timing case



12

- Disengage the chain tensioner :
Using a screwdriver apply pressure to the lug (1) and turn the spindle (2) a quarter of a turn.
- Remove the chain guide and the tensioner (take care with the flat washers between the tensioner and the housing).



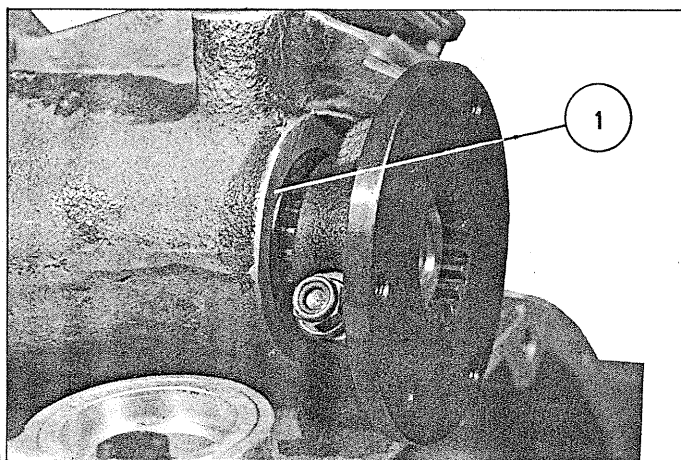
DISMANTLING Contd.

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

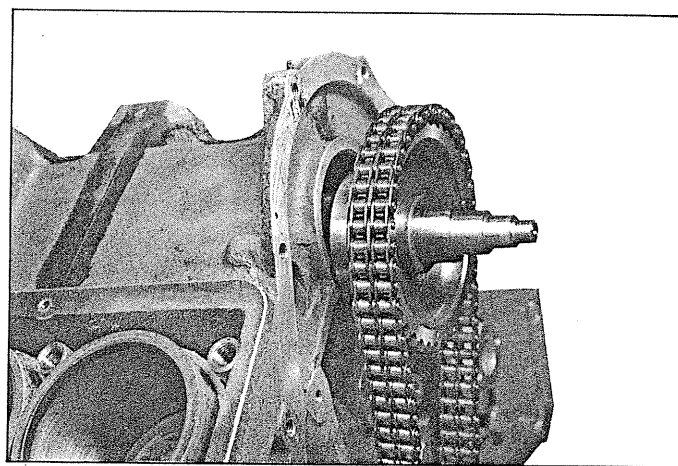
13

REMOVING THE INTERMEDIATE TIMING SHAFT

Remove the driving flange from the H.P. pump control shaft.

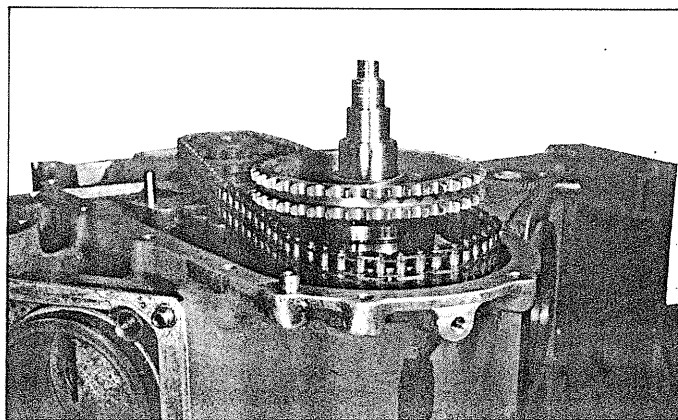


Disengage the intermediate timing shaft



13 Contd.

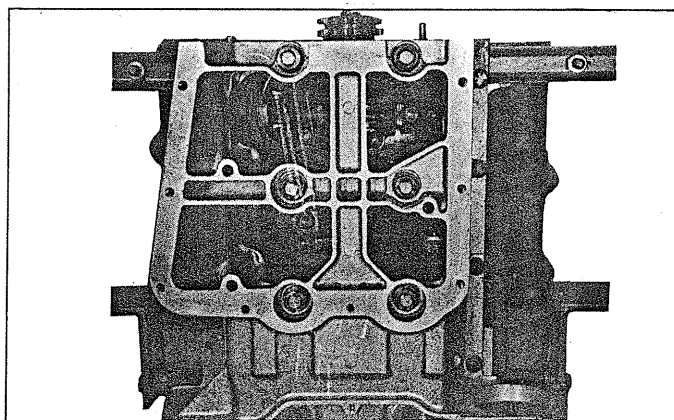
- Disengage the timing chain between the housing and the pinion.
- Remove the intermediate timing shaft.
- Disengage the chain
- Remove the sealing ring (1)
(extractor tube $\phi = 39$ mm, length = 400 mm)



14

Remove the lower housing and its gasket.

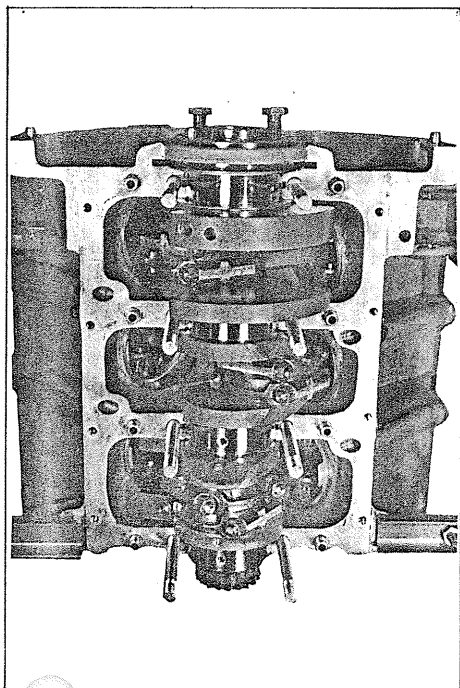
N.B. : This housing is held by
8 dowels



DISMANTLING Contd.

15

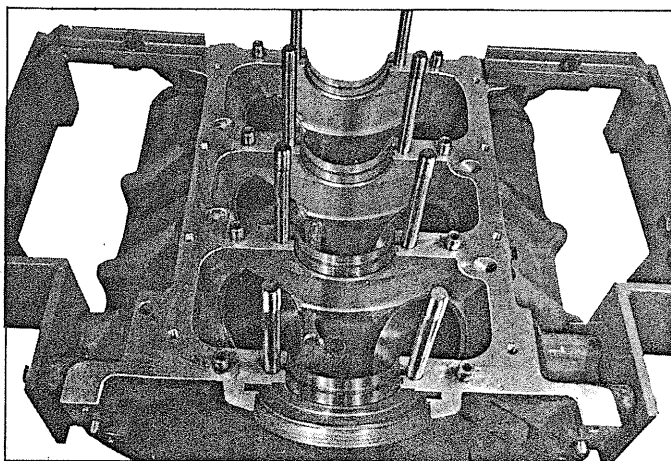
- Remove the con rod caps (socket of 14 mm and adaptor of 3/8").



- Remove the crankshaft
- Remove the con rod piston assemblies

16

- Remove :
- The crankshaft bearing shells
- The end float adjusting shims.



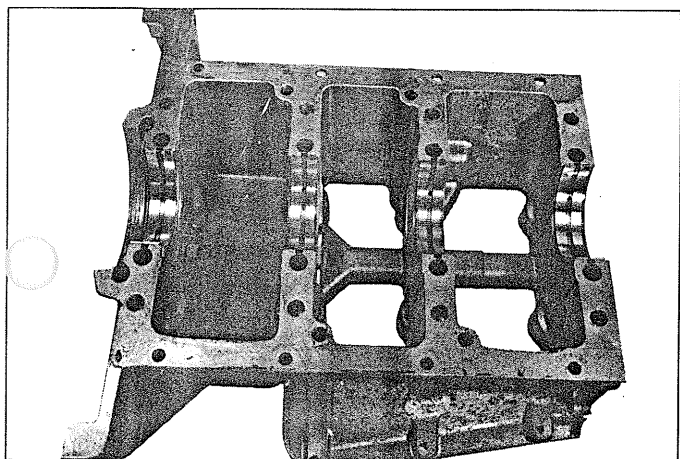
16 Contd.

CLEANING

Carefully clean all the parts and the joint surfaces.

Blow with compressed air.

NOTE : Alcohol should be used to remove CURTYLON.



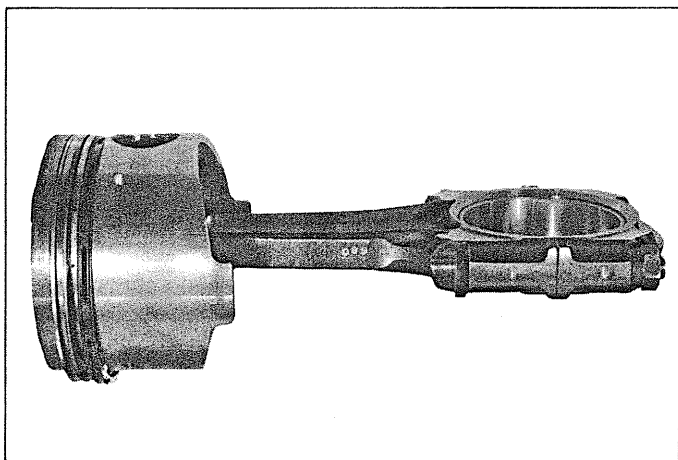
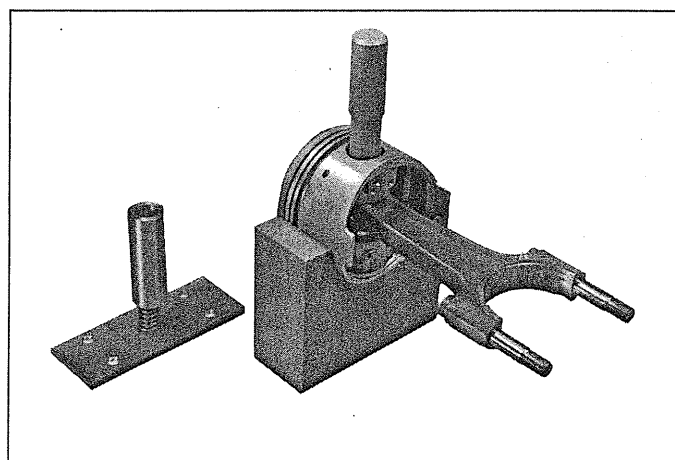
DISMANTLING Contd.

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

17

WORK ON THE CON ROD PISTON ASSEMBLIES

Remove the rings

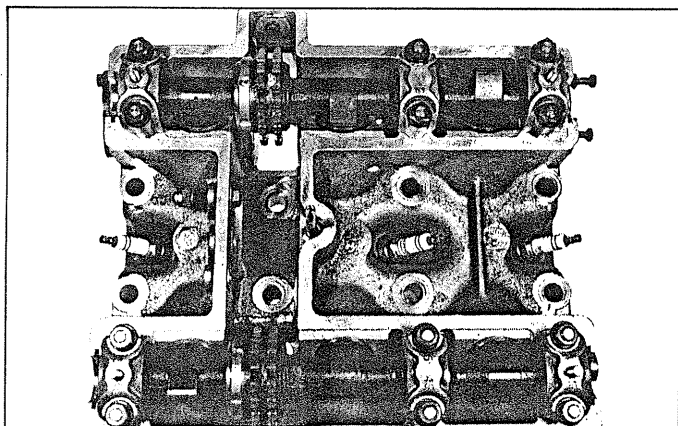
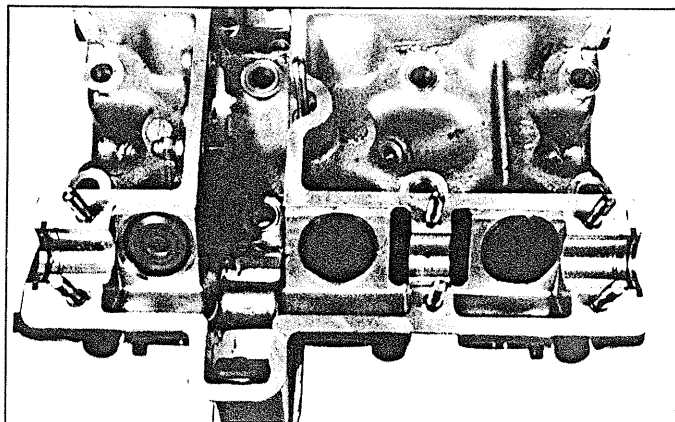
Remove the gudgeon pin
Tool G from the set 3064 - T

18

STRIPPING THE CYLINDER-HEADS

Remove :

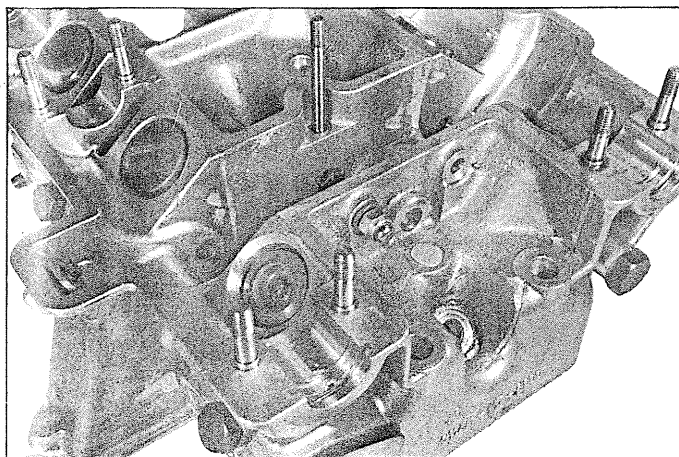
- The sparking plugs
- The camshafts

Remove the valve push rods and the capsules
for adjusting the clearance, marking their
respective positions.

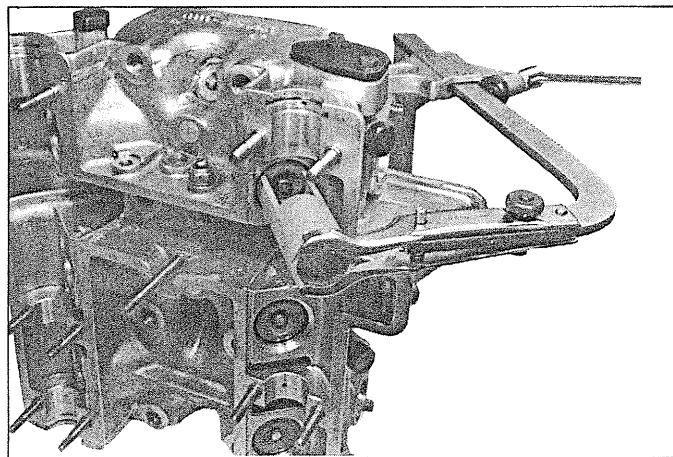
DISMANTLING Contd.

18 Contd.

Remove the free-play limiter of the chain.



Remove the valves
(universal compressor and tool D from
the set 3064-T)



18 Contd.

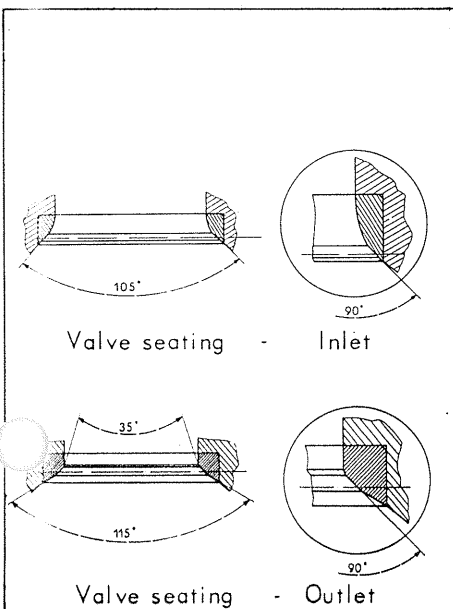
- Grind the seatings and the valves (grindstone
1630-T)

Width of the bearing faces of the seatings

Inlet : 2.5 mm

Outlet : 2.2 mm

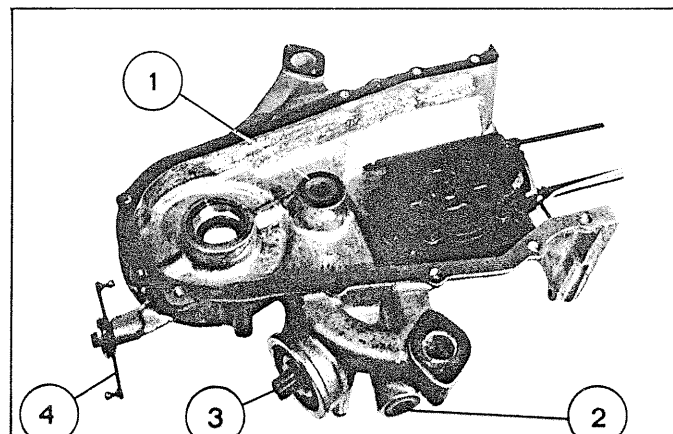
- Grind the valves
in.
After grinding in,
clean the parts
carefully and blow
them with compressed
air in order to
eliminate all trace
of abrasive
materials.



Stripping the timing case

Remove :

- The oil pump
- The gasket (1) (tube spanner ϕ : 33 mm
length : 100 mm)
- The accelerator control return lever (4)
- The plug (2)
- The union (3) and the by-pass valve
(if necessary).



ASSEMBLY

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

IMPORTANT NOTES

GASKETS

ALL gaskets must be systematically renewed

All gaskets should be fitted greased with tallow (except the **REINZ** cylinder-head gaskets which must be fitted dry).

TIGHTENING TORQUES

On this engine, all tightening torques **MUST** be respected.

Failure to do this results in deformation which adversely affects the correct running of the engine.

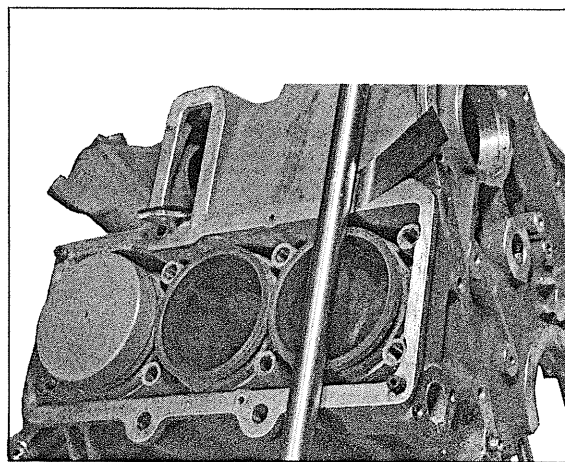
NOTE : Nuts and bolts must be fitted with their threads oiled.

Check how far the barrels are recessed.

1) In relation to the joint face of the cylinder casing :
0.02 - 0.05 mm.

2) Amongst themselves, the barrels should be in the same plane to within : 0.02 mm.

Straight edge 1698-T + foil. Correct if necessary with tool A from set 3064 - T



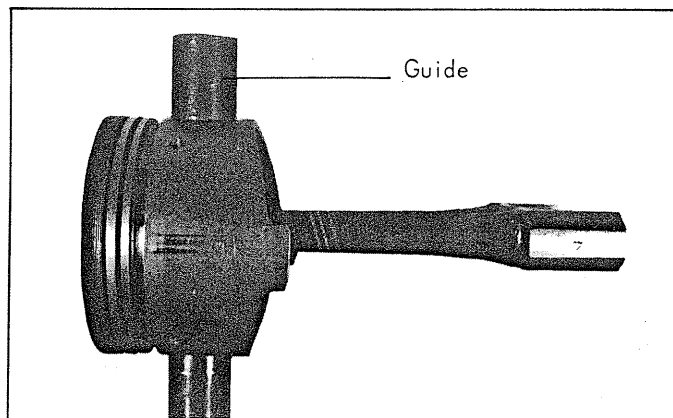
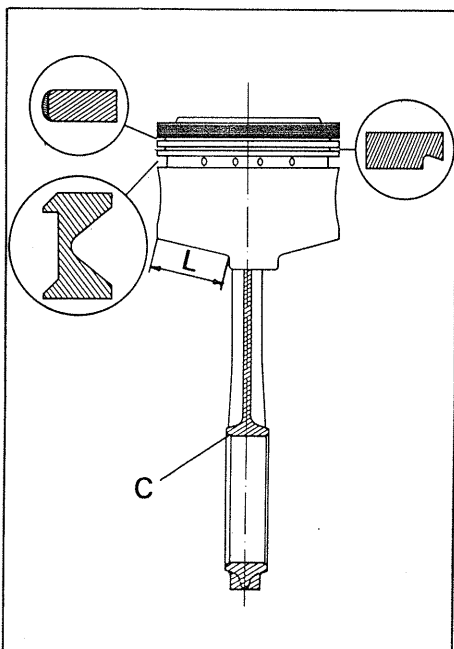
20

PREPARING THE PISTON/CON ROD ASSEMBLIES

- When assembling the pistons and con rods, the chamfer C should be on the same side as the longer slope L.

- Heat the con rod to 200° - 250°C (392-482°F) (oven).

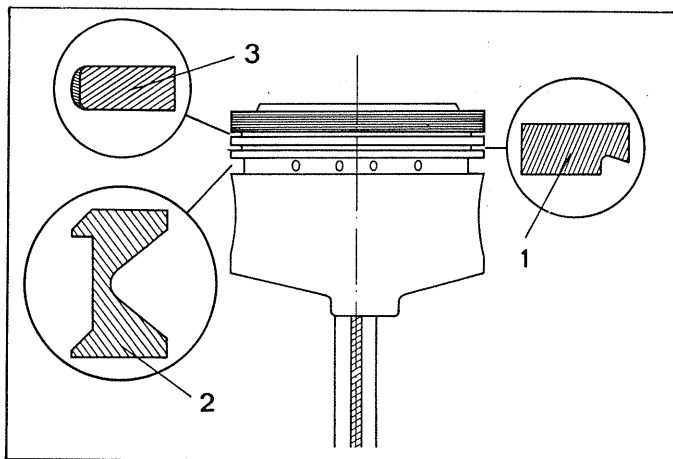
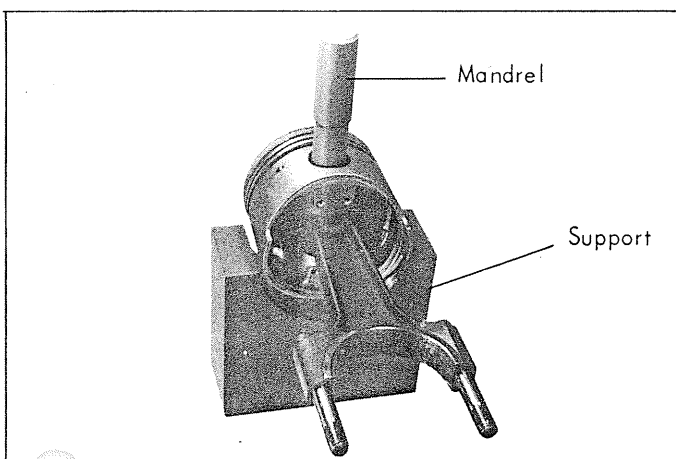
- Position the con rod in the piston (guide of assembly G of set 3064-T)



ASSEMBLY Contd.

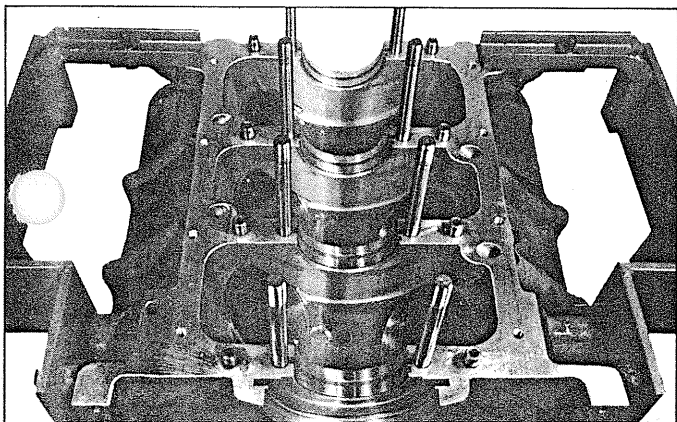
20 Contd.

- Place the piston/con rod assembly on the support of assembly G, set 3064-T.
- Fit the spindle in place (press and mandrel of assembly G, set 3064-T).
- Fit the rings.
 - a) Oil control ring (2) - gap : 0.25 - 0.40 mm - "TOP" mark at the top
 - b) Scraper ring (1) - gap, 0.30-0.45 mm - " TOP " mark at the top
 - c) Compression ring (3) - gap : 0.35 - 0.45 - unmarked

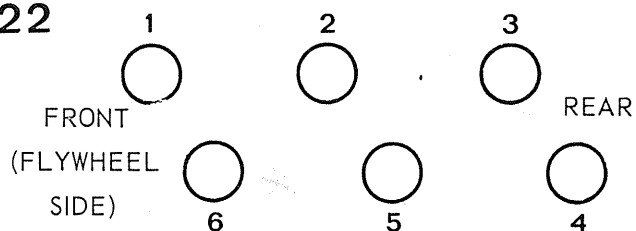


21

- Fix the engine casing on the support
- Fit the half bearings in the casing

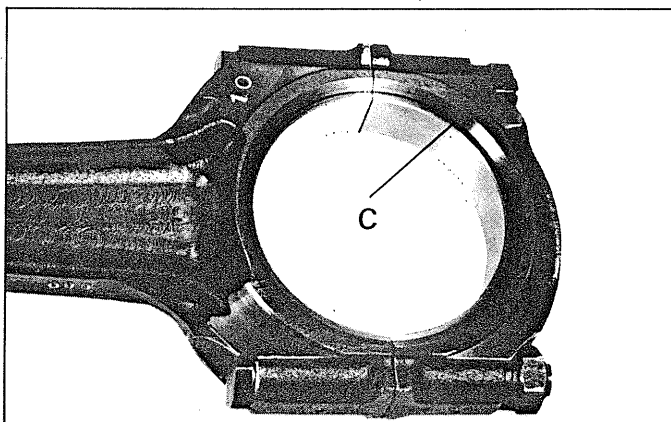


22



For con rods 1,2,3, chamfer C towards front

For con rods 4,5,6, chamfer C towards rear



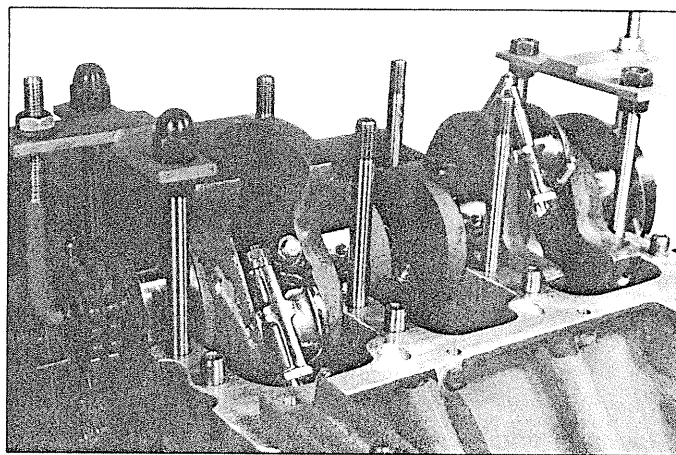
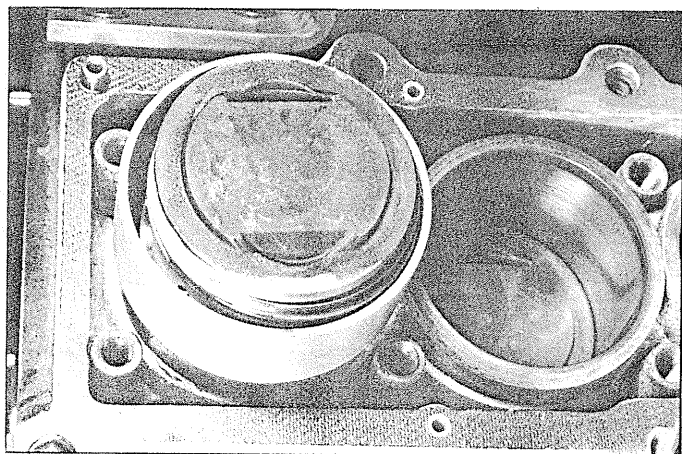
ASSEMBLY Contd.

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

22 Contd.

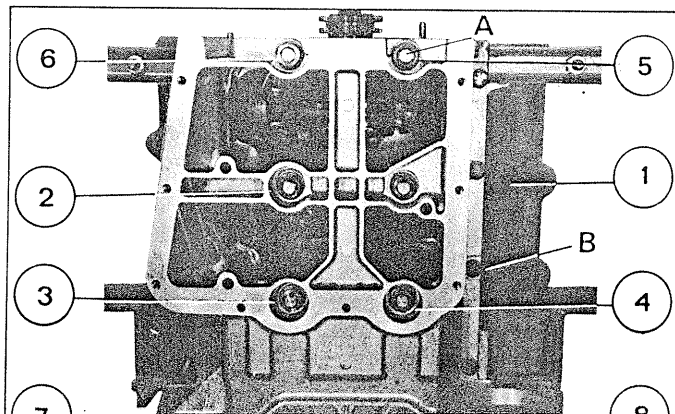
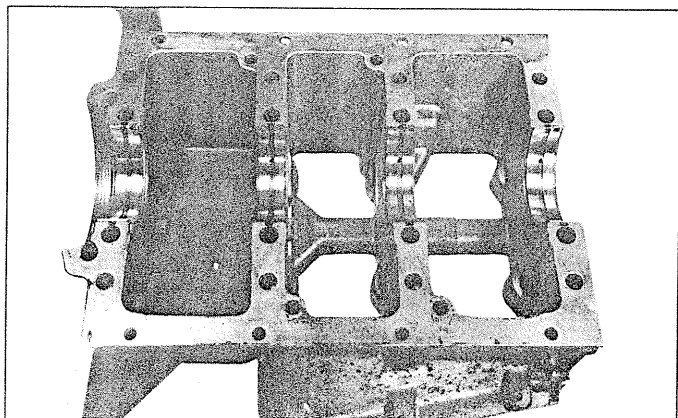
FITTING THE ENGINE HARNESS

- Offer up the crankshaft. Hold it above the bearings (plates F of set 3064- T in order to avoid damaging the half bearings whose interior diameter, in a free state, is smaller than the diameter of the crankshaft pin).
- Fit the piston/con rod assemblies (normal ring fitting collar) in the order 1-6, 2-5, 3-4 tighten to 68 mAN (6.8 m.kg 49 ft/lbs) socket 14 + reducer 3/8"
- Withdraw the plates and lower the crankshaft onto its bearings.
- Fit the bearing half shells (without tongue) : clearance 0.15-0.22 mm : the oil reserves should be on the crankshaft side.

**23**

FITTING THE SUMP

- Fit the half-bearings : the half shells (tongued), stuck together with grease.
- Coat the surface of the gasket with CURTYLON
- Fit the sump half and tighten the nuts A of the bearing to 95 - 97 mAN (9.5-9.7 m.kg, 68-69 ft/lbs). Observe the tightening sequence.
- Tighten the bolts (B) to 15-20 mAN (1.5-2 m.kg, 10.8-14.4 ft/lbs).



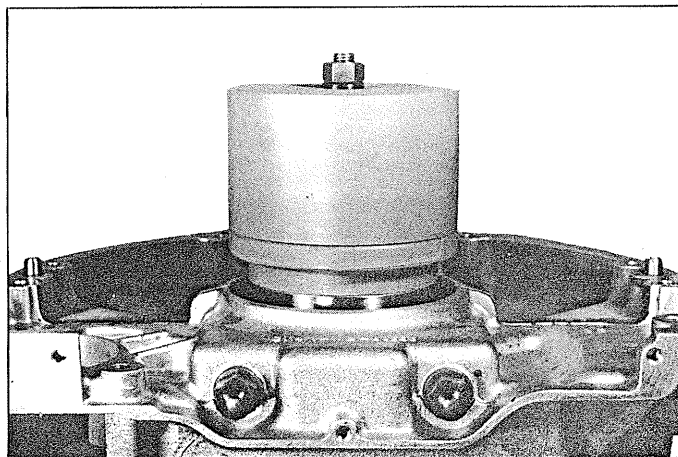
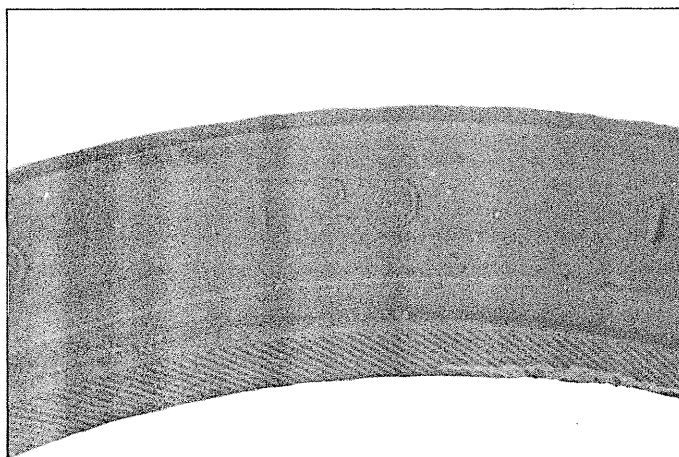
ASSEMBLY Contd.

24

FITTING AN OIL SEAL

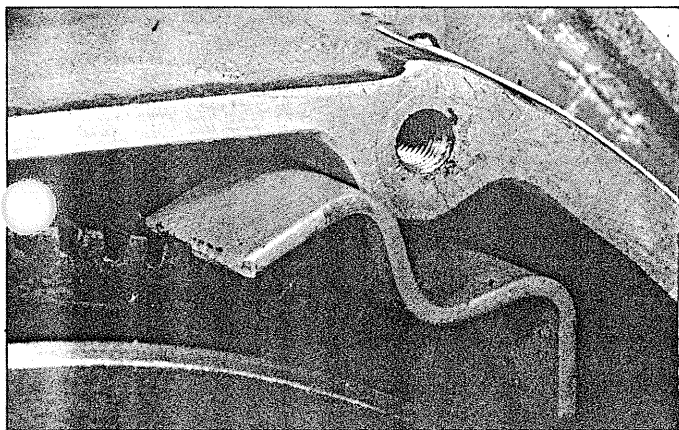
(Orange-coloured gasket with micro-turbine on lip)

- Lightly grease the lip of the seal
- Fit the seal. Tool MR. 630-34/32



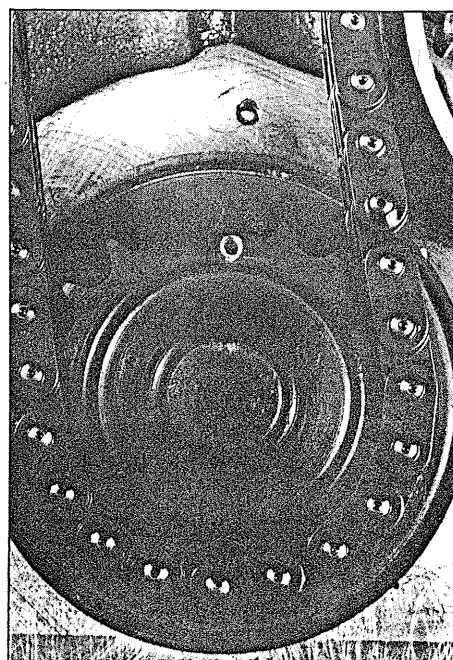
25

- Fit the engine flywheel
- Tighten the bolts : 120 mAN (12 m.kg, 86 ft/lbs)
- Immobilize the flywheel. Tool E of set 3064-T.



26

- Bring the marks on the crankshaft and the housing into line.
- Fit the control chain of the intermediate shaft on the pinion.



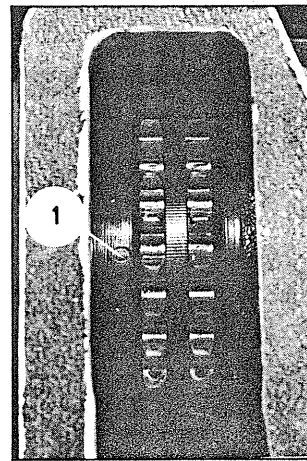
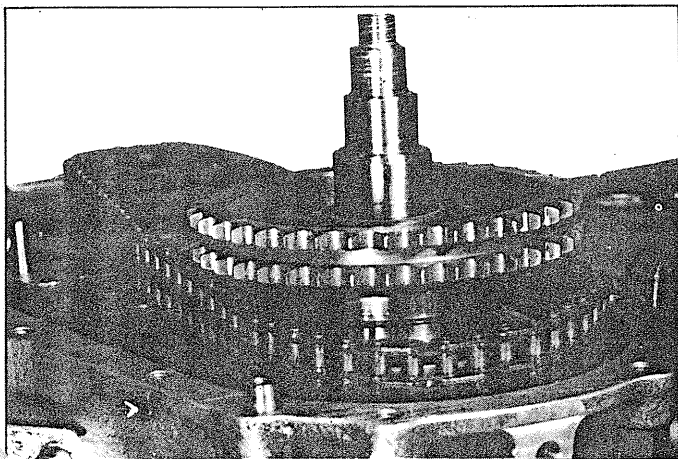
ASSEMBLY Contd.

PARTICULAR POINTS ON DISMANTLING AND ASSEMBLY

26 Contd.

FITTING AND ADJUSTING THE INTERMEDIATE TIMING SHAFT

- Position the control chain (see photo)
- Fit the intermediate shaft.
 - a) Bring the marks on the pinion and the housing into line.
 - b) The marks (1) should be visible in the timing chain passage.

**26** Contd.

Engage the chain on the control pinion.

Engage the intermediate shaft on the bearings.

Fit the tensioner (2) (washer between tensioner and housing)

Tighten to 10-12 mAN (1-1.2 m.kg 7.2-8.7 ft/lbs)

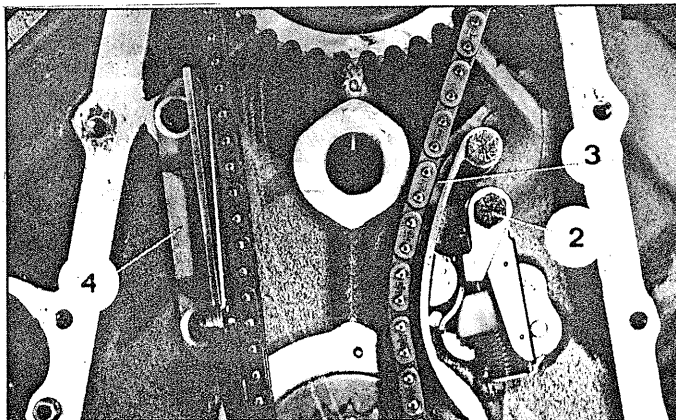
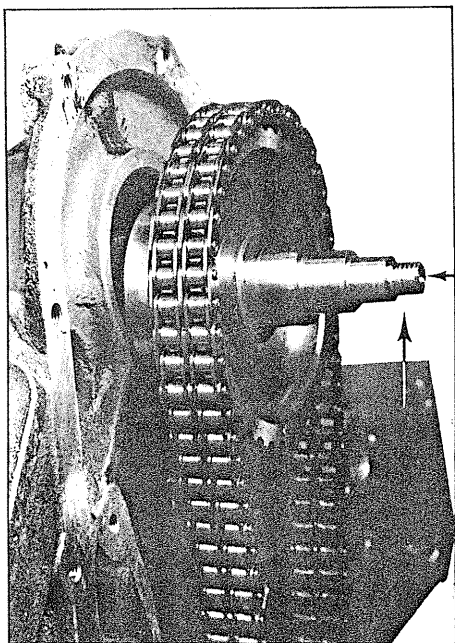
Fit the runner (3) (washer between runner and housing).

Tighten to 9-11 mAN (0.9-1.1 m.kg 6.5-8 ft/lbs)

Set the chain tensioner.

Fit the free play limiter (4) Clearance of : 0.2 mm between limiter and chain.

Tighten to 9-11 mAN (0.9-1.1 m.kg 6.5-8 ft/lbs)



ASSEMBLY Contd.

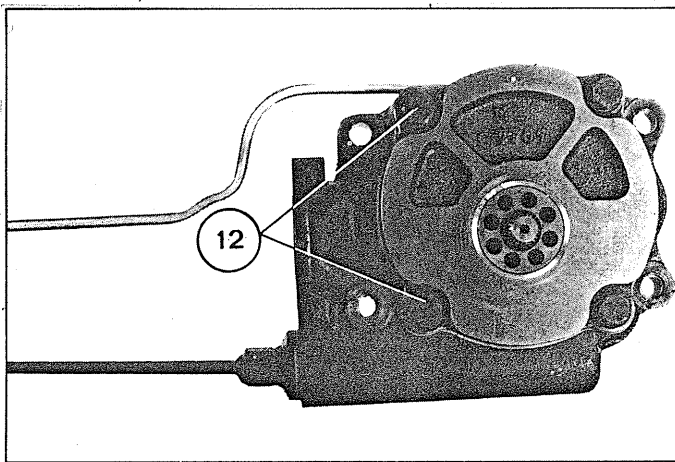
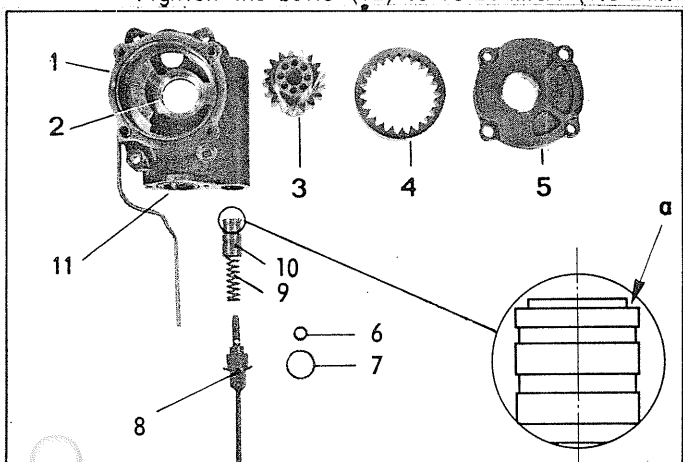
27

PREPARING THE OIL PUMP

Fit on the body of the pump :

- The piston (10), the spring (9) and the return pipe (8), the adjusting washer (6) and the copper gasket (7). Tighten to 30 mAN (3 m.kg 22 ft/lbs)
- The ring seals (1) (2) and (11). Grease before fitting.
- The wheel (4), the pinion (3).
- The pump cover (5).
- Tighten the bolts (12) to 18-20 mAN (1.8-2 m.kg. 13-14.4 ft/lbs)

NOTE : It is essential to fit a piston with a shoulder at « a ».



28

PREPARING THE TIMING CASE

- Fit the by-pass valve. Screw the valve into the case.
- Fit the oil filter union (4) : 90-100 mAN (9-10 m.kg 65-72 ft/lbs).
- Fit the oil seal (2) in place (mandrel $\phi = 36$ mm, length = 100 mm).
- Fit the accelerator control return lever (3).
- Tighten the nut to : 25-27 mAN (2.5-2.7 m.kg 18.1-19.5 ft/lbs).

