STANDARD TRIUMPH

1147 c.c. ENGINE

SERVICE TRAINING NOTES

No. T/SE.18

Introduction

The object of the book and its accompanying film strip is to show the main features of the 1147 c.c. engine.

Where the film strip is used for instructional purposes, it should be remembered it is not an end in itself. At best it is an aid from which can be formed an introduction or summary to practical instruction.

Part One – First Line Service deals with servicing and overhauling of the engine in position.

Part Two – Second Line Service deals with overhauling of the engine removed from the car.

The book by itself provides a handy pocket manual for ready reference.

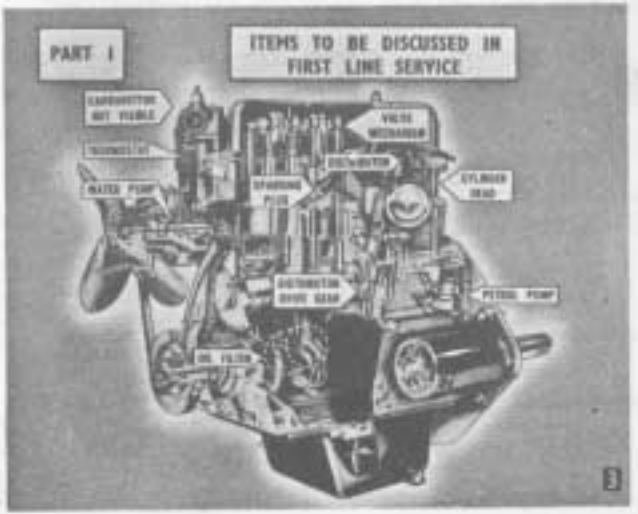
PART 1

Engine	Identification	Code Letters
1200	Engine	GA
1250	Engine	GD
Spitfire	Engine	FC

FRAME No. 3

Items to be discussed in First Line Service

Cylinder Head	Distributor
Valve mechanism	Distributor driving gear
Water Pump	Sparking Plug
Thermostat	Petrol Pump
Oil Filter	Carburettor



FRAME No. 4

The cylinder head is shown with the valve springs being removed. The tool in use is Churchill No. S.130. The latest valve spring compressor is Main Tool 6118A and Adaptor S. 6118-1.

The procedure is as follows.

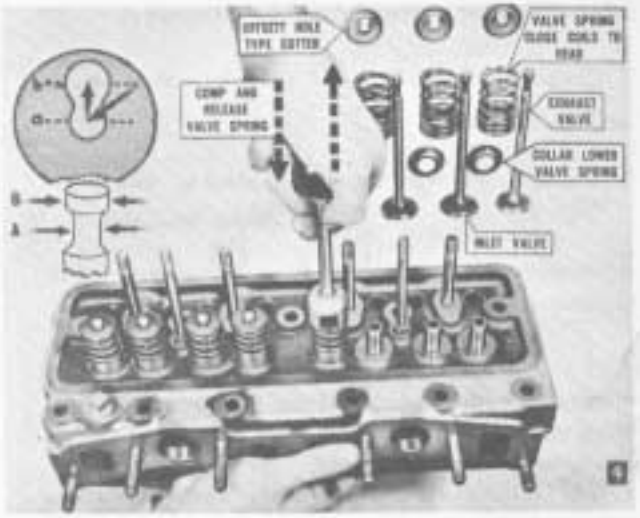
(1) Hold the valve head against the valve seat as shown, or use a block of wood between valve head and bench.

(2) Compress the valve spring until cotter is free in hole "a". Move the cotter sideways so that valve stem "A" is central in hole "B".

(3) Release pressure on cotter and spring allowing hole "b" to pass face of valve stem "B".

The valve assemblies consist of:-

1200 (GA)	1250 (GD)	Spitfire (FC)
Offset Hole Type Cotter	Split Cotters	Split Cotters
-	-	Collar Upper
1. Spring	1. Spring	1. Spring
(Close coils towards the Head)		
Collar Lower Valve	Collar Lower Valve	Collar Lower Valve



FRAME No. 5

Before starting to grind valves it is most important to see that valves are correctly numbered so that they are kept to their respective valve seats.

The following procedure should be adopted:–

(a) Cleanse and polish all valves, valve seats and ports.

(b) Inspect valves for bent stems, eccentricity of head and pock marks.

(c) Inspect valve seats for pocketing, pock marks, cracks and distortion.

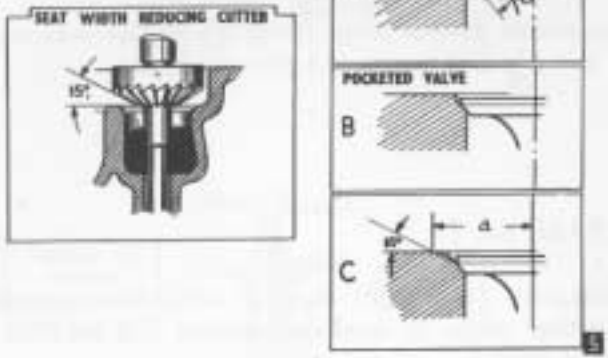
(d) If there are deep pock marks, deglaze and recut valve seats before starting to grind in valves.

"A" Illustrates a correctly seating valve.

"B" Illustrates a pocketed valve. To reduce the width of the valve seat use a 15° cutter.

"C", "a" is bottom limit of the valve seat insert. When using 15° cutter, dimension "a" must not be exceeded.

NOTE. If dimension "a" is exceeded it will be impossible to fit valve seat inserts.



FRAME No. 6

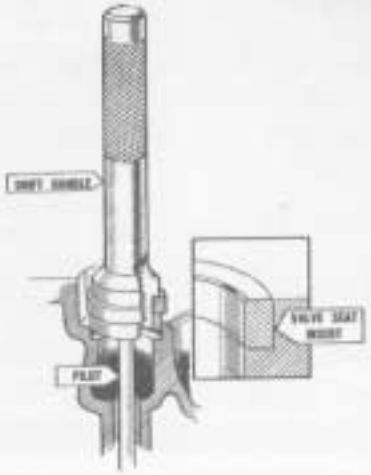
When valve seats become impossible to reface, "Valve Seat Inserts" are available.

To avoide damage when fitting valve seat inserts use a suitable drift handle and pilot as shown.

FRAME No. 7

Churchill Tool (60A) together with the appropriate limiting collar is used for removal and refitting of valve guides.

The correct valve guide height should be 0.75" (19.05mm.).



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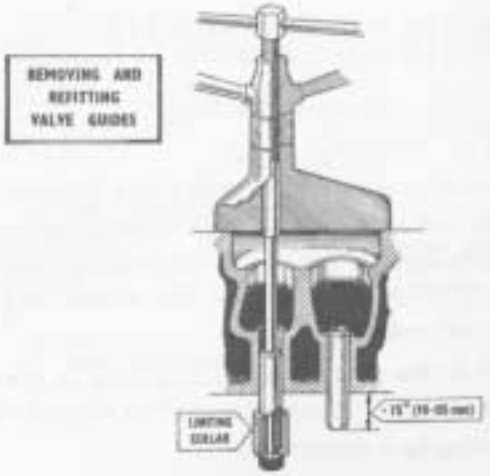

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FRAME No. 8

The numbers shown on the cylinder head nuts indicate the order in which nuts are to be progressively tightened. This procedure is essential to avoid undue distortion of the cylinder head.

The cylinder head nuts are made of high tensile steel.

Identification is by horizontal grooves machined on the corners.

Cylinder head nut tightening torque 42-46 lbs ft (5.8 – 6.36 M.K.G.).

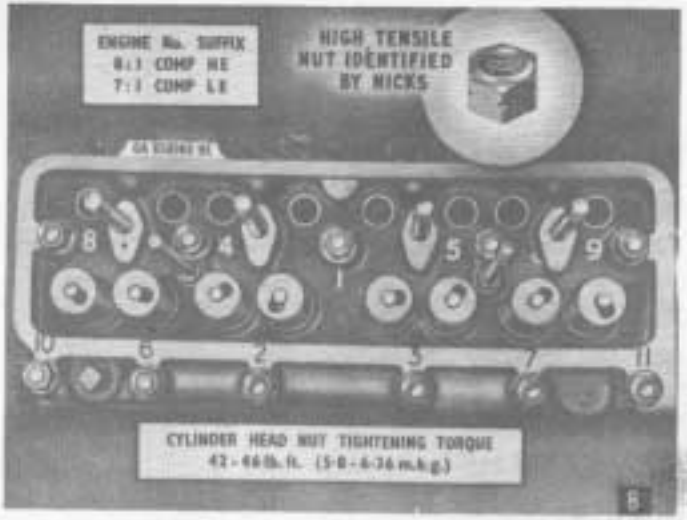
The cylinder head identification for High and Low compression heads is indicated by the last two letters.

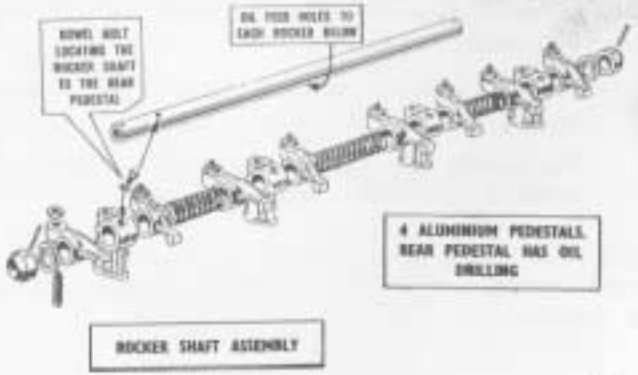
GA 658679 HE (High Compression 8 : 1)
GA 865243 LE (Low Compression 7 : 1)
GD (Compression 8.5 : 1)
FC (Compression 9 : 1)

FRAME No 9.

The rocker shaft assembly is secured to the cylinder head by four studs and nuts locating the aluminium pedeatals to the cylinder head. Pedestal nut tightening torque is 28-30 lb ft (2.489-4.148 M.K.G.) a flat washer is fitted between nut and pedestal.

The oil feed to the rockers is via a drilling in the rear pedestal. the oil hole in the rocker shaft is aligned to the pedestal drilling by a dowel bolt.





FRAME No. 10

Shown in section is a complete water pump assembly. The spindle runs in two ball races located in the main housing. The impeller is located at the inner end of the spindle; the fan pulley at the outer end.

To prevent water leaking past the spindle there is a spring loaded graphite ring which faces the machined surface of the bearing housing. The seal is self adjusting and self lubricating.

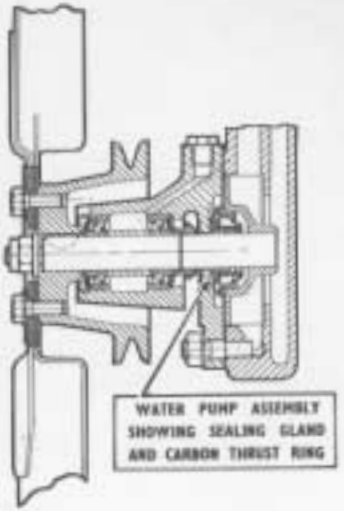
FRAME No. 11

The water pump assembly is shown, with the following points indicated:-

(a) Correct clearance between impeller and bearing housing 0.030 (0.76 mm).

(b) The spindle end soldered to prevent water seeping between spindle and impeller.

NOTE The insert shows the gauge for obtaining the correct clearance of 0.030" (0.76 mm) between impeller and housing.



10

11

FRAME No. 12

There are two thermostats in use at present.

The normal setting is 71° C

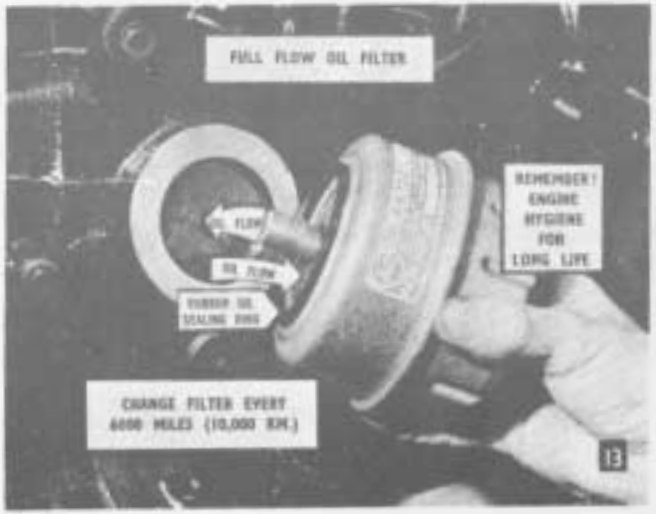
For colder climates the setting is 80° C

NOTE Correct thermostat setting is most important for satisfactory working of the car heater.

FRAME No. 13

The oil filter fitted to this engine is of the full flow type and is a sealed container which is screwed into the side of the cylinder block.

This container should be renewed every 6,000 miles (10,000 KM).



FRAME No. 14

The following procedure should be carried out to adjust the distributor drive gear end float:-

(a) Use a 0.5" (12.7 mm) washer and measure the thickness with a micrometer.

(b) Fit washer (3) on to the spindle (4) of the distributor or drive gear (2) and fit the gear into position.

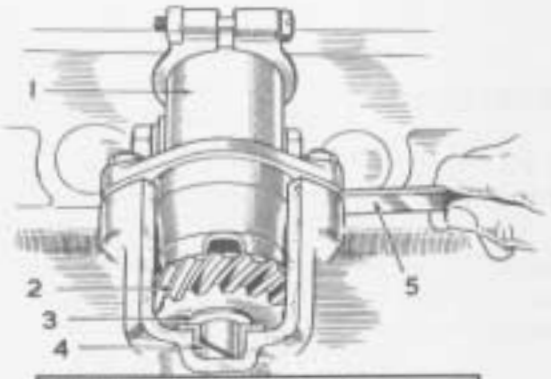
N.B. Make sure the tongue of the gear shaft engages with the oil pump drive shaft.

(c) Fit the distributor pedestal (1) and tighten attachment nuts evenly, finger tight.

(d) Measure the gap between the face of the distributor and cylinder block (5).

(e) Subtract width of gap from thickness of 0.5" (12.7mm) washer, the difference being the number of shims required. Then add shims to the amount of endfloat required 0.003"- 0.007" (0.07-0.17mm).

N.B. Remove 0.5" (12.7mm) washer, fit paper shims and tighten up flange nuts.



DISTRIBUTOR DRIVE GEAR END FLOAT ADJUSTMENT
·003 – ·007 ins (·074 – ·178 mm)

14

FRAME No. 15

To position the drive gear, the engine must be set at TDC compression No.1 cylinder.

When the drive gear is correctly in position the offset slot is towards the cylinder block and in line with the threaded hole for the oil filter attachment.

FRAME No. 16

Before fitting the distributor unit to the engine the following items should be checked:-

(1) Check Distributor shaft for play; if worn, strip out and fit new bushes.
Excessive play in the drive shaft will cause uneven dwell angles from cam lobe to lobe, causing variations of advance at each firing stroke. (Uneven running and roughness).

(2) Remove contact breaker points and check for pitting. Reface or fit a new set of points.

(3) Check vacuum advance plate for freedom of movement.

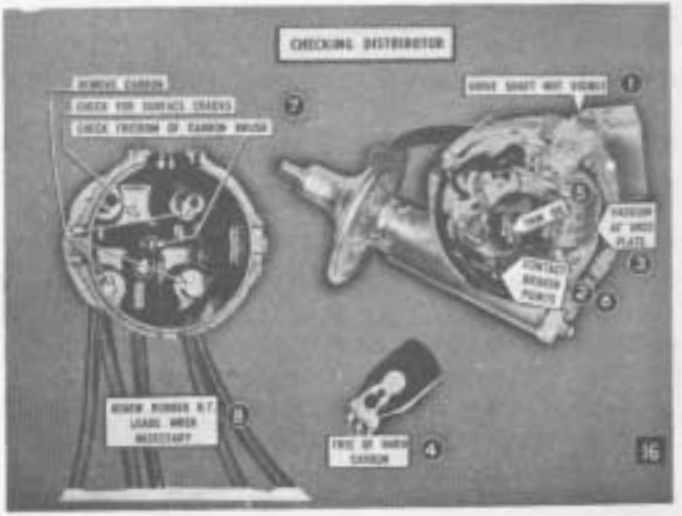
(4) Make sure rotor segment is free of hard carbon build up.

(5) Lubricate bearings and cam.

(6) Adjustment of Lucas and AC Delco contact breaker points is 0.015"±0.001" (0.4mm) check gap on each cam lobe.

(7) Check distributor cap for hair cracks that cause short circuits carbon build up on points, and freedom of carbon brush.

(8) Check all HT leads for short circuiting and renew as necessary.



FRAME No. 17

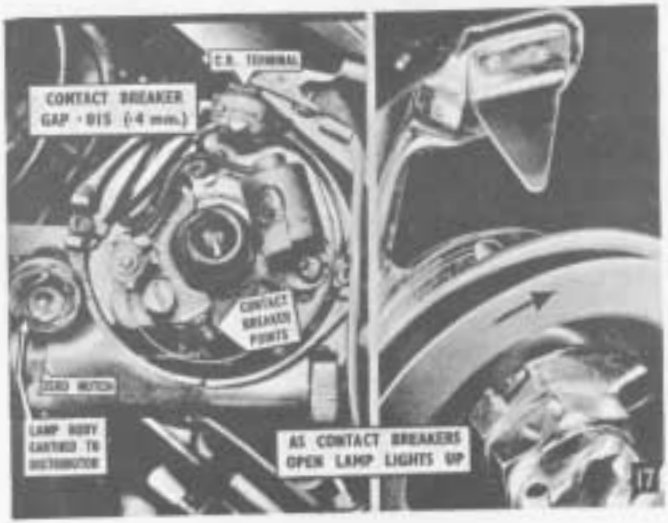
Place the distributor into the pedestal and engage distributor spindle with the offset slot of the drive gear.

Rotate the distributor body so that the contact breaker points are just opening. This will be indicated when the lamp which is coupled to the CB terminal and earthed to the distributor, lights up.

GA The correct ignition timing HC 15° B.T.D.C.
The correct ignition timing LC 15° B.T.D.C.
GD The correct ignition timing 15° B.T.D.C.
FC The correct ignition timing 13° B.T.D.C.

NOTE Each division on the Lucas Vernier scale represents 4° of crankshaft movement.

Each "Click" on the AC adjustment represents 1° of crankshaft movement.



FRAME No. 18

The 1147 cc engine is fitted with Lodge sparking plug - Type CNY.

GA - LE (Low Compression 6.8:1) Gap 0.030" (0.76 mm).

GA)
GD) With Compression
FC) Ratios of 8:1 and above Gap 0.025" (0.65 mm).

When examining plugs the following procedure should be adopted :–

(1) Examine all plugs for consistency of colour.

(2) Removing carbon from within the plug is best done by sandblasting.

(3) Most important make sure the plugs are free of all sand before refitting.

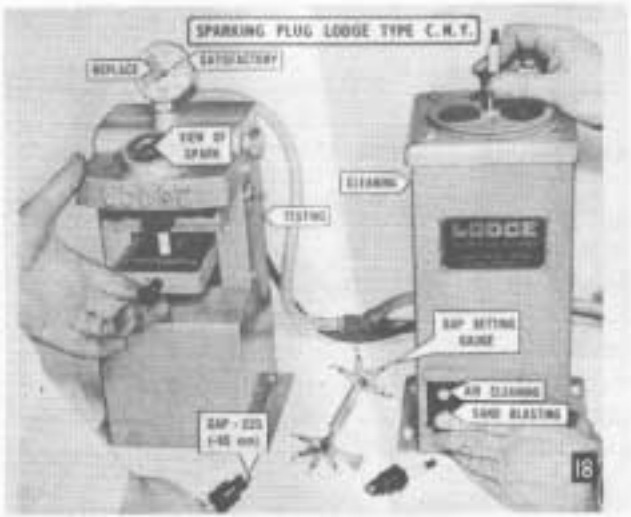
(4) Set points

(5) Check firing of plug under pressure.

(6) Grease plug threads to avoid thread seizure.

NOTE. Correct Torque tightening for a 14 mm plug is 25 lb ft. (3.456 kg.m.)

Correct firing order is 1.3.4.2.



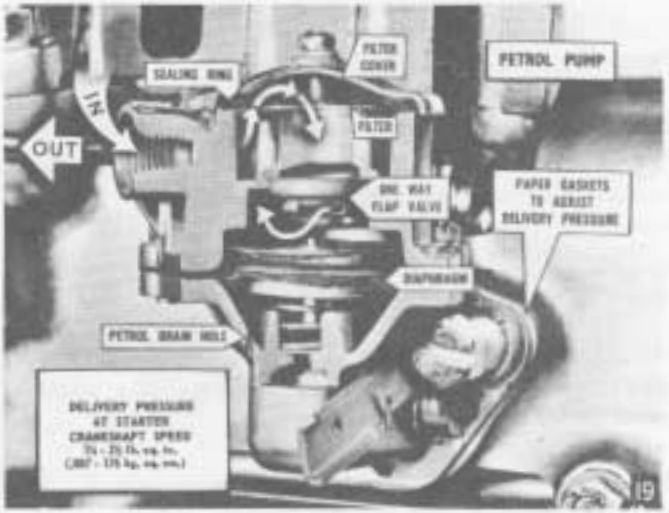
FRAME No. 19

Petrol is supplied to the carburettors by an AC diaphragm type pump driven by an eccentric cam on the camshaft.

A sediment gauze is incorporated in the body of the pump. Diaphragm failure can be detected without dismantling the unit. The underside of the diaphragm housing has a hole through which petrol can escape and be detected.

The delivery pressure at starter crank speed should be 1¼ - 2½ lb. sq. in. (0.087 - 0.176 kg. sq. cm.).

Adjustments of pump pressure are regulated by paper shims between pump flange and crankcase.



FRAME No. 20

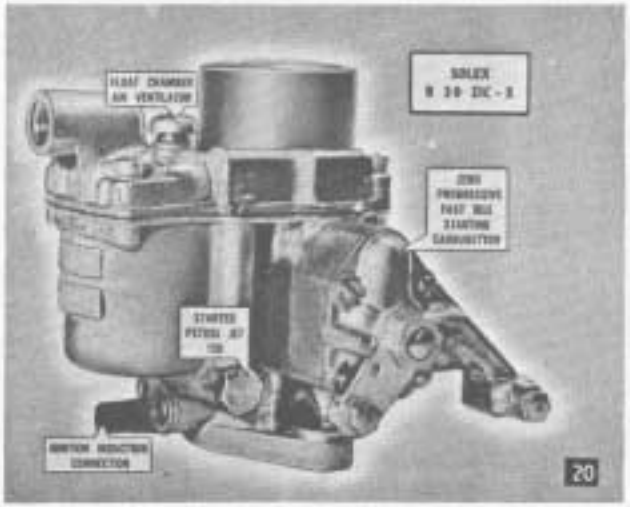
The carburettor fitted to the early 1147 cc engine is the Solex Type B30/ZIC-5.

The main feature visible in this picture is the zero Progressive Fast Idle Starting device. When starting from cold in temperatures below 0°C the choke control must be fully out.

When starting from cold in temperatures above 0°C the choke control must be half out.

NOTE. With this type of starting device the accelerator pedal must not be used.

The other features visible are the "starter petrol jet" the float chamber vent and the ignition induction pipe connection.



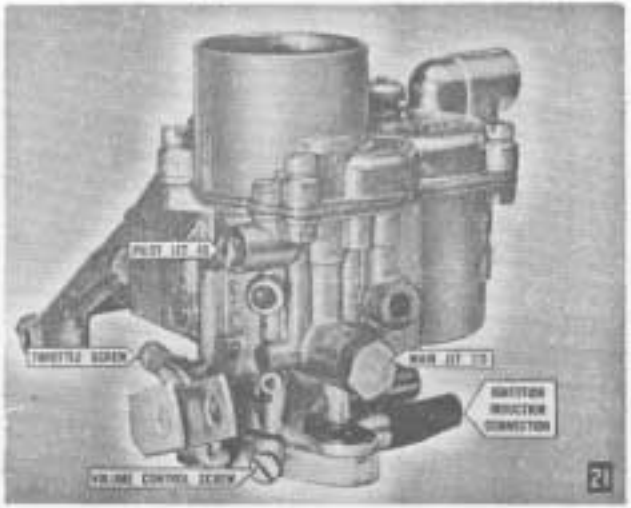
FRAME No. 21

This view shows the throttle screw, volume control screw, Main Jet and Pilot Jet.

The correct settings are as follows:–

Choke Tube	21 mm.
Main Jet	112.5
Correction Jet	160
Pilot Jet	45
Pilot Air Bleed	100
Emulsion Tube	65
Starter Pilot Jet	120
Float	11 gr.
Needle Valve	1.2 mm.

NOTE. Always refer to latest specifications for changes in jet sizes.



FRAME 22

This shows the carburettor with the float chamber cover removed.

The following items are shown :–

Float Chamber Cover

Needle valve and ventilator.

Float, Float toggle, and float chamber cover gasket.

Main Carburettor body

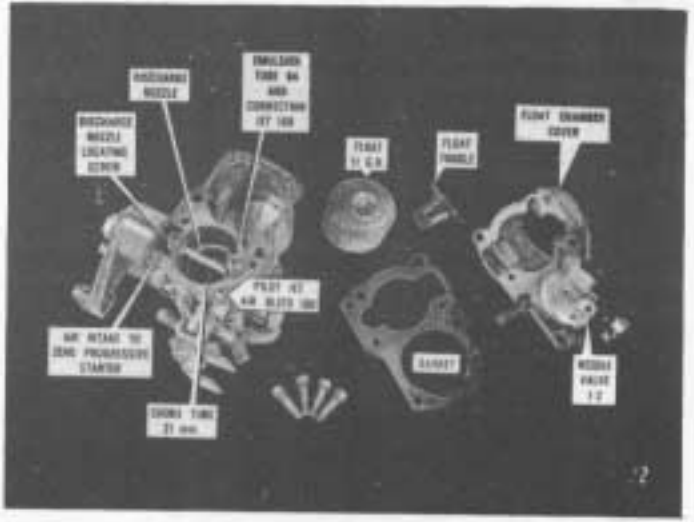
Emulsion tube

Discharge nozzle.

Discharge nozzle locating screw.

Air intake to zero Progressive starter.

NOTE. The Discharge nozzle locating screw is situated behind the zero progressive starter. This unit has to be removed if the Discharge nozzle needs to be re-positioned.



FRAME No. 22A

A later carburettor fitted to the 1147 cc engine is the Solex type B 30 PSEI, fitted to engine types GA and GD.

The main features are :–
Strangler type cold starting device and diaphragm accelerator pump.

* The correct settings are as follows.

Choke	21.5
Main Jet	110
Air correction	175
Pilot Jet	45
Air Bleed	85
Esconostat Petrol Jet	100
Esconostat Air Bleed	1.2

Adjustment of interconnecting linkage between throttle and strangler mechanism is as follows :–

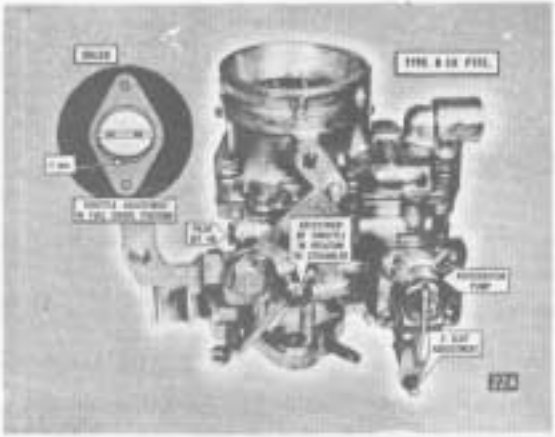
1. Slacken pinch bolt on choke to throttle connecting rod.
2. Pull choke to full strangle position.
3. Adjust throttle butterfly opening clearance to 0.7 mm.
4. Tighten connecting rod pinch bolt.

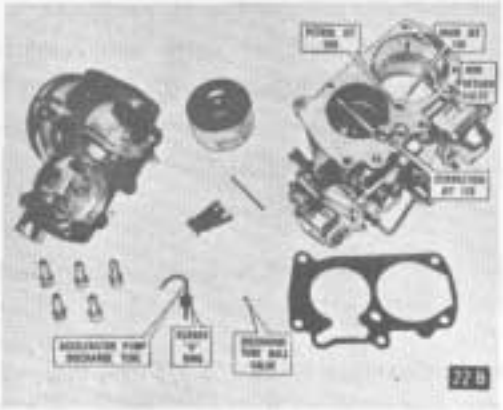
NOTE This setting can only be carried out with the carburettor detached from the manifold.

An approximate check with carburettor in position may be made by the following method :–

(1) Thoroughly warm up engine .
(2) Choke full out.
(3) Hold strangler blade vertical.
(4) Engine should run at 3000 – 3200 r.p.m. approx.

* See Page 30





NOTE If the engine revs. are below 3000 r.p.m. adjust on throttle strangler linkage.
Normal setting for accelerator pump linkage is to give minimum pump stroke i.e. With pump rod connection at outer slot position.

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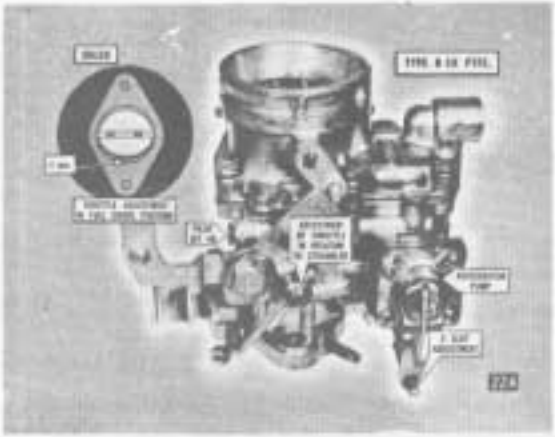

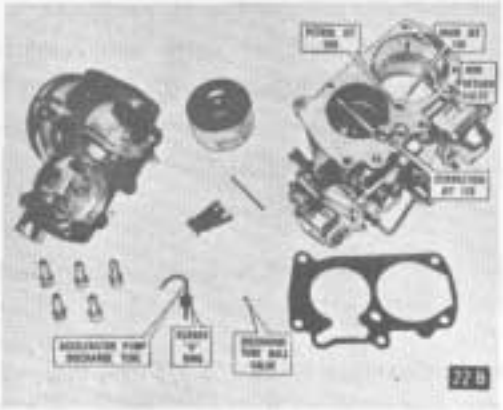

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Normal setting for accelerator pump linkage is to give minimum pump stroke i.e. With pump rod connection at outer slot position.

FRAME No. 22D

This view shows the carburettor with the float chamber cover removed.

Front Chamber Cover

Needle valve and throttle type starting device. Float 11. GR, Float toggle, Float chamber, cover gasket and accelerator pump discharge tube with rubber "O" ring for ceiling to carburettor body.

NOTE. There is a steel ball valve underneath the accelerator pump discharge tube.

Spitfire is fitted with twin S.U. Carburettore type HS2. The correct settings are as follows:-

Needle A.N.

Jet 0.090 "

Fuel Level adjustment 0.125" (3.175 mm) dia. rod between inverted float chanber lid flange and float.

END OF SECTION 1

QUESTIONS

FRAME No. 23

(1) Cylinder head nuts should be tightened in their order and to correct TORQUE .....?

Answer Torque (42 - 46 lb. ft) (5.8 - 6.36 kg.m.

(2) When recutting valve seats the correct seat width should be .....?

Answer 0.10" - 0.06" (2.54 mm. - 0.52 mm).

(3) When replacing valve springs the close coils should be fitted towards the head (True or False?).....

Answer True

(4) No. 4 rocker pedestal is drilled to feed oil to the rocker shaft (True or False?).....

Answer True

(5) The valve rocker clearance should be set to:-

(a) IN 0.010" (0.25mm) EX0.010" (0.25mm) when hot

(b) IN 0.010" (0.25mm) EX0.010" (0.25mm) when cold

(c) IN 0.010" (0.25mm) EX0.012" (0.30mm) when hot

(d) IN 0.010" (0.25mm) EX0.012" (0.30mm) when cold

Answer (b)

(6) Static ignition timing for the 8 :1 compression head is:- (a) 12°B.T.D.C. (b) 10°B.T.D.C. (c) 8°B.T.D.C. (d) 15°B.T.D.C.

Answer (d)

(7) Distributor drive gear end float is.....

.....?

Answer 0.003" - 0.007" (0.07mm - 0.17mm).

(8) When the distributor drive gear is correctly in position the offset slot is:-

(a) towards the front of the engine.

(b) towards the back of the engine.

(c) nearest to the block.

(d) away from the block.

Answer (c)

(9) The correct clearance between water pump impeller and housing is 0.030" (0.76mm). (True or False?).....

Answer True

(10) To prevent water leaking between impeller and pump spindle the end of the shaft must be soldered (True or False?).....

Answer True

(11) The full flow oil filter has a spring loaded valve to prevent starvation of the bearings should the filter element become blocked (True or False?).....

Answer True

(12) The correct height of the valve guide protruding above the face of the cylinder head is .....
.....

Answer 0.75" (9.05 mm)

(13) The valve springs are located to the valve stems with an .....

Answer Offset hole type cotter.

(14) The correct tightening torque for a 14 mm sparking plug is :–

(a) 30 lb. ft. (4.148 kg.m.)

(b) 25 lb. ft. (3.456 kg.m.)

(c) 20 lb. ft. (2.765 kg.m.)

(d) 15 lb. ft. (2.074 kg.m.)

Answer (b)

(15) The AC petrol pump delivery pressure at starter crankshaft speed should be .....
.....

Answer 1¼ - 2½ lb. sq. in. (0.008 - 0.176 kg.sq.cm.)

(16) When the Zero Progressive starting device is in use the.....must not be used.

Answer (Accelerator Pedal)

PART 2

FRAME No. 24

Items to be discussed in "Second Line Service".

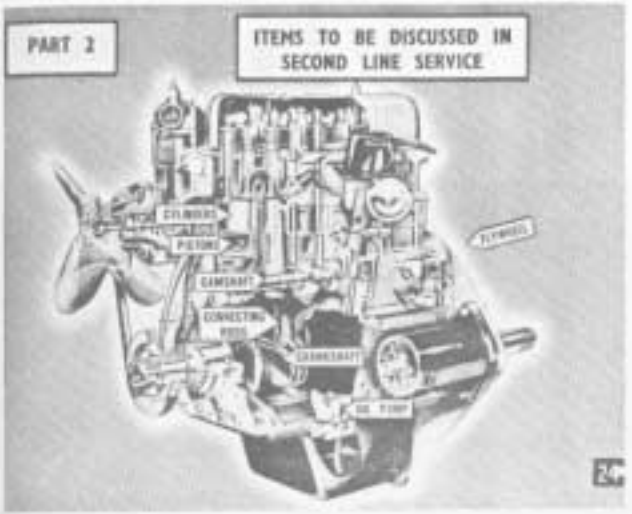
Crankshaft	Pistons
Flywheel	Camshaft
	Timing
Connecting Rods	Oil Pump

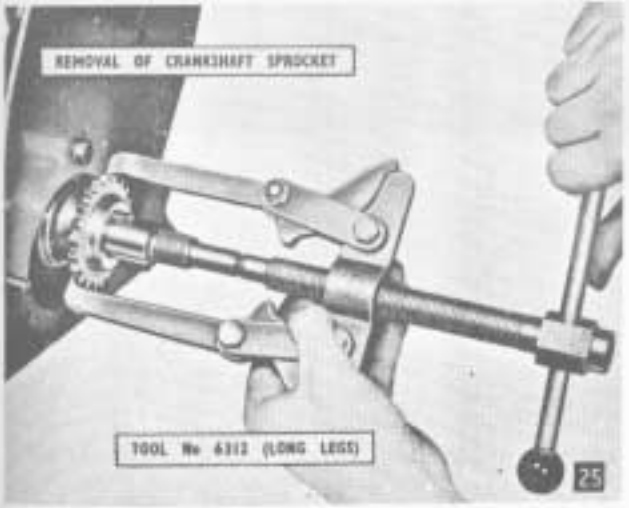
FRAME No. 25

With the aid of a Universal Puller such as Churchill No. 6312 all risk of damage to the crankshaft is eliminated.

For removing the sprocket use Long legs .

For removing the pulley use Short legs .



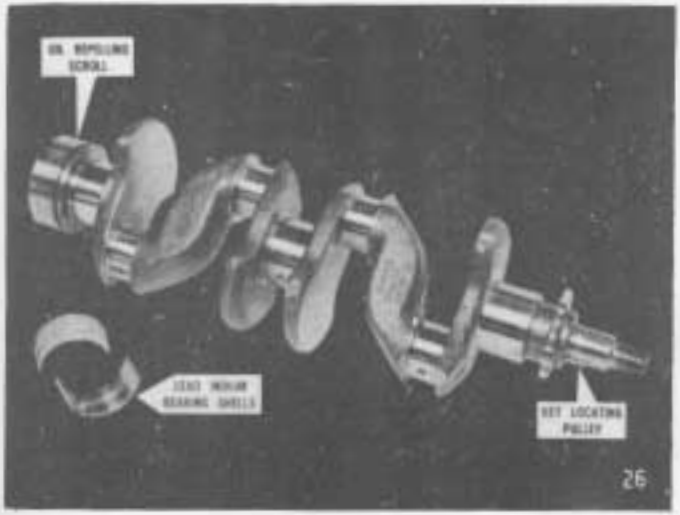


FRAME No. 26

The crankshaft has three main bearings. At the front end the timing chain sprocket and pulley are both keyed to the shaft.

The rear end has an oil repelling scroll.

During overhaul the crankpins and main journals should be checked for ovality and taper which must not exceed in either case more than 0.002'' (0.05mm).



FRAME No. 27

The correct procedure for fitting bearings and caps is as follows :–

(1) Fit all bearing shells into position.

(2) Lubricate all bearings thoroughly.

(3) Place crankshaft into crankcase.

(4) Lubricate bearing caps.

(5) Fit bearing caps in their correct order.

NOTE:

The front and centre bearing caps are the same. The centre cap is identified by a double stamping. The rear bearing cap is wider than the other caps to locate the thrust washers.

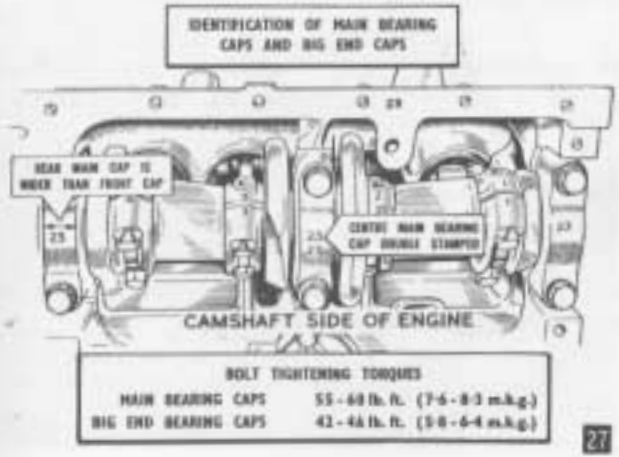
The cap numbers and flange numbers must read the same way round.

The big end caps are numbered as shown with the cap towards the camshaft side of the engine.

Bolt tightening Torques :–

Main Bearing Caps 55 - 60 lb. ft.
(7.6 - 8.3 kg.m.)

Big End Bearing Caps 42 - 46 lb. ft.
(5.8 - 6.4 kg.m.)



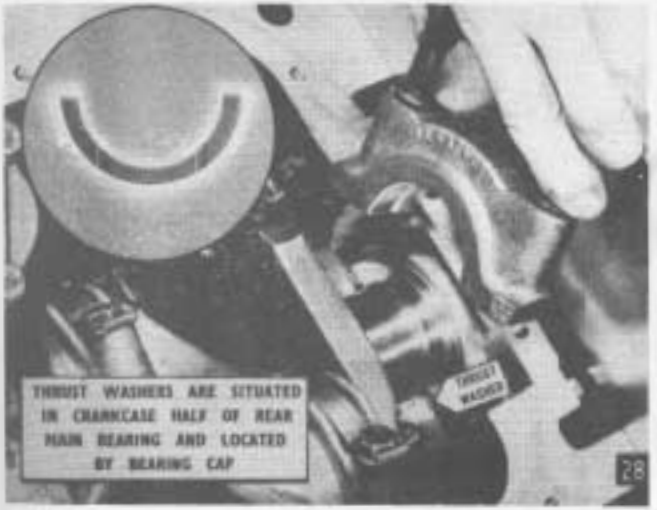
27

FRAME No. 28

The crankshaft endfloat is controlled by two thrust washers in the crankcase half of the rear main bearing.

NOTE The white metal surface and grooves towards the rotating face of the crankshaft.

To prevent the thrust washers from rotating, No. 3 main bearing cap is wider than the other caps, and overlaps the ends of the thrust washers.



FRAME No. 29

To check the crankshaft endfloat the following procedure should be followed:–

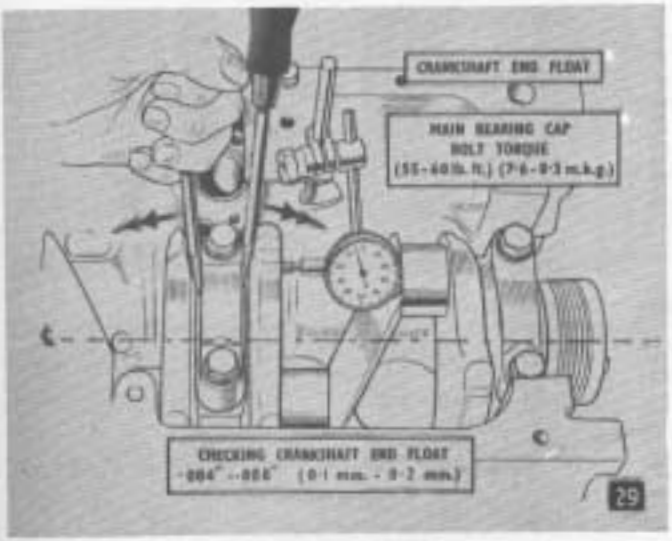
(1) Make sure all main bearing caps are tightened to their correct torque – (55-60 lb. sq.in.) (7.6-8.3 kg.m.).

(2) Position a clock on the crankcase as shown or at the end of the crankcase with the dial indicator plunger positioned on the end of the crankshaft.

NOTE Make sure the clock is parallel to the centre line of the crankshaft to avoid any errors in readings.

(3) With a screwdriver as shown placed between bearing cap and web, oscillate the crankshaft. The total movement of the dial indicator shows the amount of crankshaft endfloat. (0.004"-0.008") (0.1 mm - 0.2 mm).

NOTE Adjustment of excessive endfloat is by oversize shims. Adjustment of insufficient endfloat is by rubbing the STEEL side of the thrust washer on fine emery cloth on a surface table.



FRAME No. 30

Rear end oil sealing is achieved by an oil return scroll in the crankshaft and an oil return scroll in the aluminium housing. A paper joint is fitted between the housing and crankcase faces.

FRAME No. 31

As the crankshaft rotates in the aluminium housing the oil is driven back into the sump by the oil scroll.

To obtain satisfactory oil sealing the following points must be observed :–

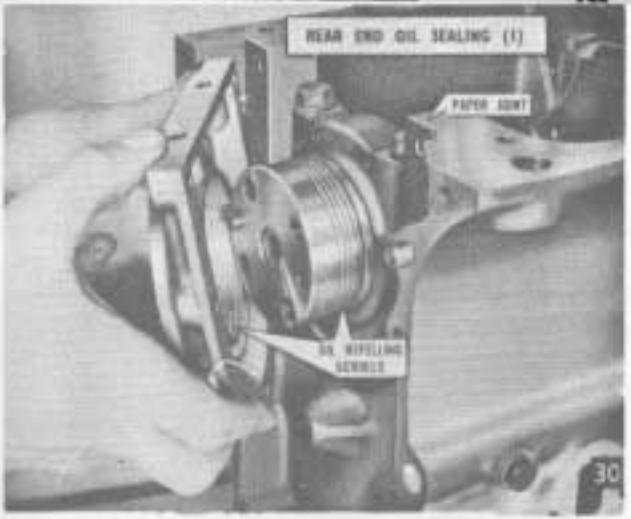
(1) Place paper joint between crankcase and aluminium housing.

(2) Fit aluminium housing, leaving the 7 bolts lightly nipped.

(3) Position housing so that there is a clearance all round of 0.003" (0.07 mm) with the aid of feeler gauges. (Or strip of shim steel wrapped round end of crankshaft).

(4) Tighten the 7 housing bolts. Re-check with feeler gauges making sure the clearance is 0.003" (0.07 mm) all round.

If necessary, slacken off the 7 bolts and re-adjust.



FRAME No. 32

The oil sealing at the front end consists of an aluminium block located by two set screws.

The following procedure should be observed:-

(1) Paint the end of the aluminium block with jointing compound, and position wooden sealing pads (A).

(2) Place aluminium block into position.

(3) Screw set screws into crankcase but do not fully tighten (B).

(4) Check alignment of Sump face and crankcase end face with a straight edge.

(5) Tighten set screws and re-check both faces.

NOTE - any errors of alignment in these two faces will cause an oil leak.

FRAME No. 33

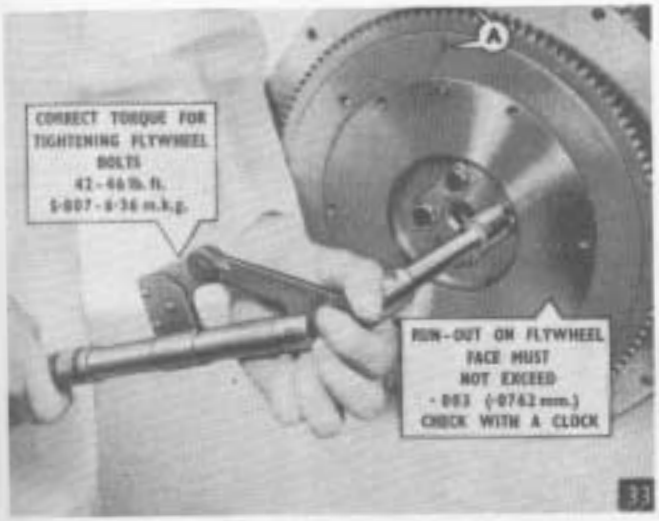
Before fitting the flywheel make sure the crankshaft end is flat. **NOTE** Remove any high spots around bolt holes with a smooth file or flat stone and thoroughly clean.

The flywheel is located to the crankshaft by a dowel and four bolts. The correct torque is 42 – 46 lb.ft. (5.807 to 6.36 kg.m.). The bolts are locked by tab-washers.

When the mark on the flywheel is aligned to the mark on the back plate (A) the position of the crankshaft and pistons is 1 & 4 T.D.C.

NOTE It is important to check flywheel face run out, which must not exceed 0.003" (0.07mm.).

The starter ring is shrunk on the flywheel and can be replaced if the teeth become worn.



FRAME No. 34

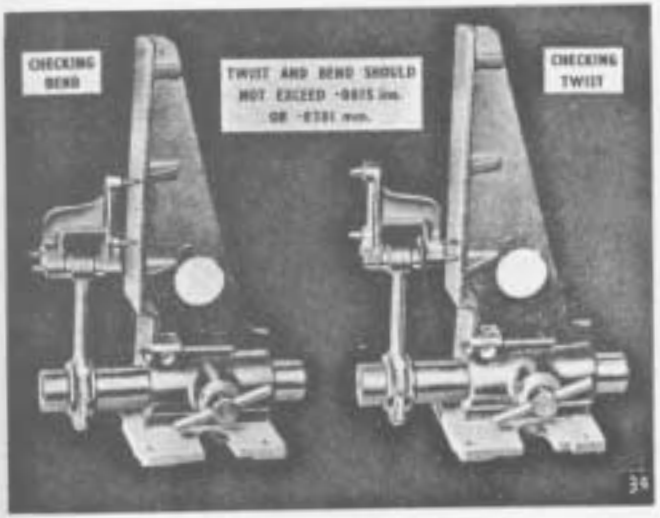
To check the alignment of the connecting rod use Churchill Fixture No. 335

The left hand illustration shows the fixture set for checking BEND.

The right hand illustration shows the fixture set for checking TWIST.

The amount of error is indicated by mis-alignment of the "V" block pegs in relation to the machined face.

The tolerance should not exceed 0.0015" (0.0381 mm) TWIST or BEND.



FRAME No. 35

In the process of manufacture the pistons are graded for size F,G or H. The difference between each graded is .0004" (.01016 mm.). On the right hand side of the cylinder block will be found the letters F,G or H stamped along a groove beside each cylinder, Indicating to the assembler the grade of piston for each bore. The grade letter will be found stamped on the piston crown.

The ring layout is common to the Herald 1200, 1250 and Spitfire.

The rings fitted are:–

Top Chromium

Centre Taper (the taper is 1½ and on the top face is the letter " T" or "Top", the narrow part of the taper being to the top).

Bottom Scraper

NOTE. When the cylinder block is rebored the graded letters no longer have any significance.

FRAME No. 36

The piston and connecting rod assembly is installed from the top of the cylinder block.

The following procedure should be adopted :–

(1) Space the piston ring gaps out evenly; making sure that no gap is on the thrust side.

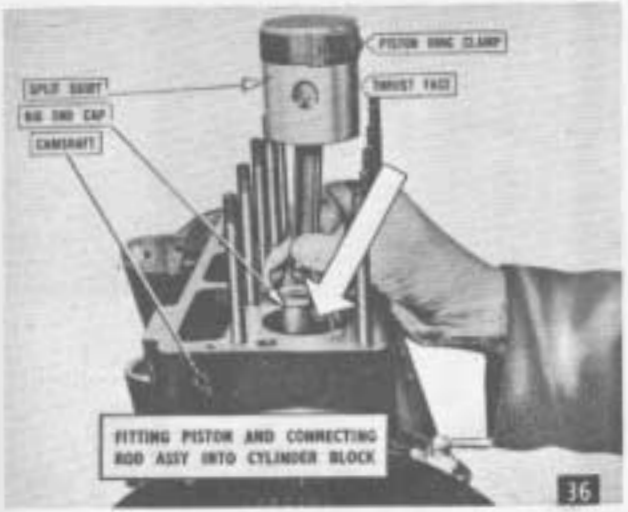
(2) Lubricate the ring and piston thoroughly.

(3) Fit a ring clamp around the rings.

(4) Feed Piston and rod assembly into bore as illustrated, making sure the split skirt is NOT on the thrust face side.

NOTE Split skirt and big end cap are towards the camshaft side as shown in the illustration. "Front" is marked on Piston Crown.

IMPORTANT When re-assembling pistons and connecting rods they must go back in their original order as should all other mating assemblies.



FRAME No. 37

The camshaft has 4 journals with scrolled oil grooves around them. (1) The Front Journal has the locating "C" washer. (2) The Rear Journal has two flats which line up with the oil drilling in the block delivering the oil to the rocker assembly. As the holes are uncovered simultaneously each revolution, for a fractional period of time. This acts as a metering device to prevent excess oil reaching the valve assembly.

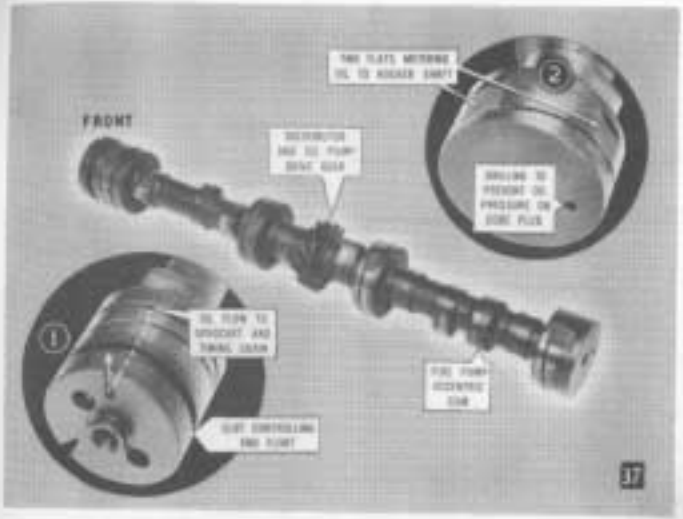
Nos. 1 & 4 journals are lubricated by drillings from their opposite main bearings.

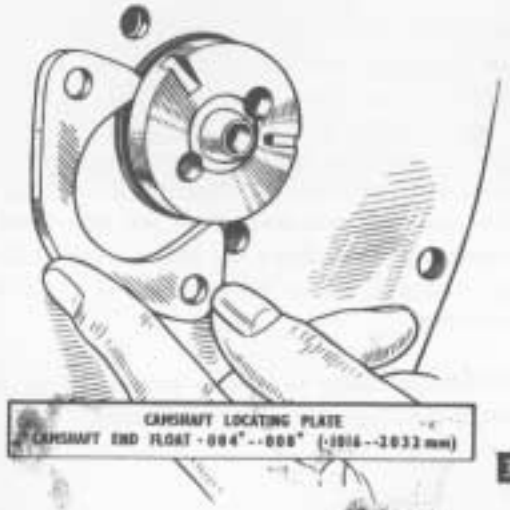
Nos. 2 & 3 journals are lubricated by drillings from the main oil gallery.

FRAME No. 38

The camshaft is located by a "C" washer on the front journal. The thickness of the "C" washer determines the amount of endfloat which is 0.004" - 0.008" (0.10 0.20 mm).

NOTE Adjustment. To increase the amount of the endfloat, rub one side of the "C" washer on smooth emery cloth on a surface table. To reduce endfloat, obtain a new "C" washer and adjust as necessary, with emery cloth on a surface table.





FRAME No. 39

To time the Camshaft to the Crankshaft the following procedure must be carried out :–

(1) Rotate the crankshaft until No.1 piston is at true T.D.C. (Using a clock gauge on top of the piston).

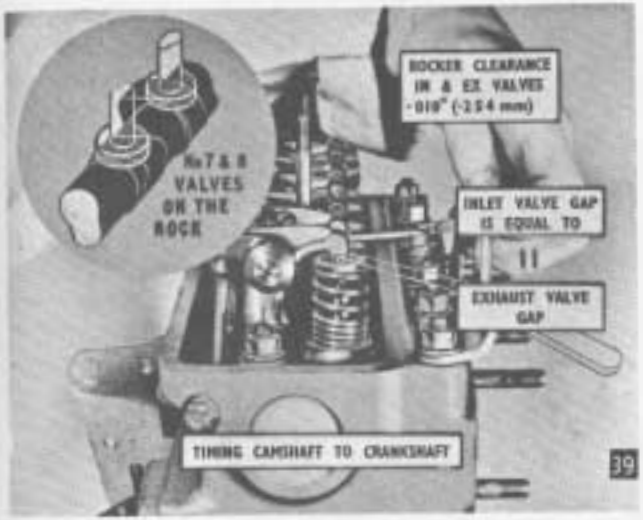
(2) With the crankshaft disconnected from the camshaft, adjust Nos. 7 and 8 valve clearances to .040" (1.02 mm).

(3) Rotate the camshaft until the inlet valve (No.7) is about to open and the exhaust valve (No.8) just about to close.

(4) Oscillate the camshaft until the same feeler gauge gap is obtained for Nos. 7 and 8 valves.
NOTE The actual valve clearance does not matter so long as the valve clearance in both valves feels the same.

(5) The camshaft and crankshaft are now timed in relation to each other : i.e. No. 1 piston T.D.C., and 1 and 2 valves fully closed (T.D.C. Compression).

(6) Fit timing chain to couple crankshaft to camshaft. (Details shown in next frame).



FRAME No. 40

In the process of coupling the crankshaft to the camshaft the following procedure must be adopted:–

(1) Check alignment of crankshaft sprocket to camshaft sprocket, as shown, with a straight edge.

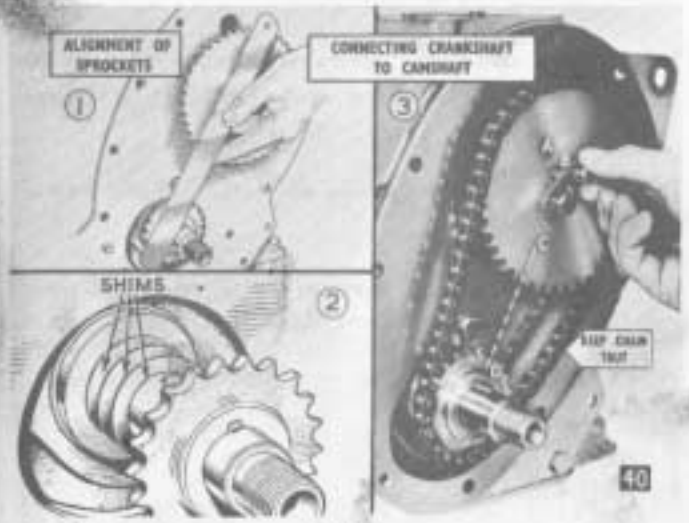
(2) If there is mal-alignment between sprockets, adjustment is by shims behind the CRANKSHAFT sprocket. There are two sizes of shims

0.004" (0.10 mm).
0.006" (0.52 mm).

(3) Encircle both sprockets with the timing chain and offer up the camshaft sprocket to the camshaft. Make sure pockmark "A" lines up with pockmark "B" on the camshaft. Also scribed line "C" lines up on both sprockets. Tighten up the two bolts and bend over the tab washers.

If a new camshaft sprocket is fitted, find the suitable pair of holes to line up with the camshaft holes and mark pockmarks "A" and "C" on new sprockets.

NOTE When timing, always keep the chain taut on the right hand (Drive side), by taking up slack on opposite side. The crankshaft may now be rotated and all valve clearances adjusted to 0.010" (0.254 mm).



FRAME No. 41

The oil pump is a "Hobourn Eaton" type consisting of an inner and outer rotor. The following points should be checked during overhaul.

(a) Inner and outer rotors when assembled in the pump body must not exceed 0.004" (0.10 mm) endfloat.

(b) The end plate must be perfectly flat and free of scores.

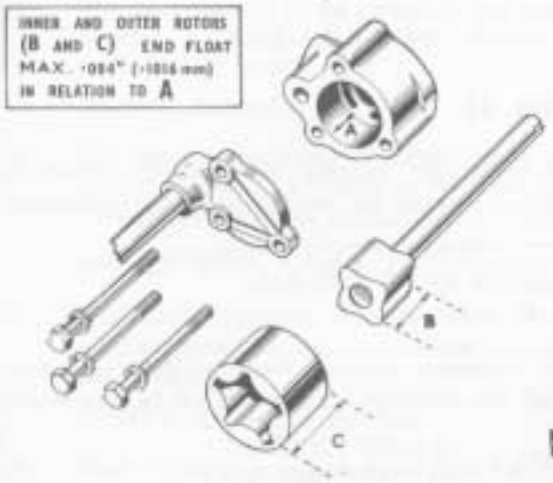
(c) The clearance between outer rotor and pump body must not exceed 0.008" (0.20 mm).

NOTE That chamfer on inner rotor is innermost.

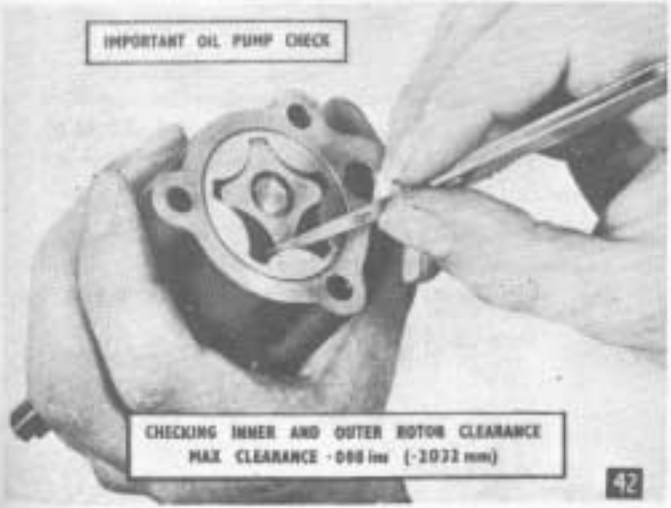
FRAME No. 42

Clearance between the inner and outer rotors is very important and must not exceed 0.010 (0.25 mm).

When the engine is assembled the pressure relief valve is set to an oil pressure of 65 lb sq. in.(4.57 kg sq.cm).



41



42

END OF SECTION 2

QUESTIONS

FRAME No. 43

(1) The crankshaft journals and crankpins should be checked for taper and ovality which must not exceed .....

ANSWER 0.002" (0.05 mm).

(2) The clearance between the crankshaft oil return scroll and aluminium housing must not be less than:–

(a) 0.002" (0.05mm)
(b) 0.003" (0.07 mm)
(c) 0.004" (0.10 mm)
(d) 0.006" (0.15 mm)

ANSWER (b)

(3) A common cause of heavy oil consumption can be a bent connecting rod. The connecting rod should be checked for Bend and Twist.The tolerance must not exceed.....

ANSWER 0.0015" (0.03 mm)

(4) The main bearing and big end shells are:–

(a) White metal (b) Lead indium

(c) Lead bronze (d) Phosphor bronze

Answer (b)

(5) The rear journal of the camshaft has two flats which.....the correct amount of oil to the rocker shaft.

ANSWER Controls

(6) The camshaft endfloat is controlled by a "C" washer fitted in a groove on the front journal. The correct endfloat is.....

ANSWER 0.004" - 0.008" (0.10 -0.20mm.)

(7) Crankshaft endfloat is controlled by thrust washers fitted in.....of the..... main bearing.

ANSWER Crankcase half/rear

(8) When timing the camshaft set Nos 7 & 8 valve clearances to 0.040"(1.016 mm.) with a pair of feelers. Rotate the camshaft until Nos. 7 & 8 valve clearances feels the.....

ANSWER Same

(9) The engine oil pump is the Double Rotor type.
(a) The endfloat of the rotors should not exceed.....
(b) The clearance of the outer rotor to the pump body should not exceed.....

ANSWER (a) 0.004" (0.10 mm)
(b) 0.010" (0.25 mm)

(10) Run out on the face of the flywheel must not exceed :

(a) 0.002" (0.05 mm)
(b) 0.003" (0.07 mm)
(c) 0.004" (0.10 mm)
(d) 0.006" (0.15 mm)

Answer (b)

(11) The pressure relief valve is pre-set to 65 lb sq. in. (4.57 k.g.sq. cm). (True or False?).

Answer True

1147c.c.ENGINE.

No of cyl.	4
Compression ratio	GA. 8 or 7 : 1 GD. 8.5 : 1 FC. 9 or 7 : 1
Bore of cylinders	69.3 mm (2.728 in).
Stroke of Crank	76 mm 2.992 in).
Capacity	1147 cc (70 cu. in).
R.A.C. Rating	11.9 HP
Piston Area	151 sq.cm. (23.4 sq.in).
Connecting Rods	40 Ton steel with floating gudgeon pins.
Crankshaft	Robust construction with integral balance weights. Three main bearings.
Bearings	Precision Lead indium bearings.
Valves	Push rod operated overhead valves.
Camshaft	4 bearing hyposine cams. Chain drive.
Cooling system circulation	Pump. Thermostatically controlled flow.
Fan	12¼" (311.15 mm) diameter with four blades for all markets.
Pump	Mechanically operated. Diaphragm type.
Carburettor	GA and GD Single downdraught solex. FC. Twin S.U.
Manifold	GA and GD Inlet and exhaust integral hotspot. FC separate inlet and exhaust manifold.
Air Cleaner	GA and GD combined air cleaner and silencer. FC wire mesh type.
Lubrication Oil Pump	High capacity internal gear rotor. Feed to main bearings, big end and all camshaft bearings under pressure.

Oil Cleaner	Full flow type filter.	
Ignition	Coil, centrifugal and vacuum automatic advance control.	
Flywheel	Cast iron with hardened steel starter gear ring.	
Capacities		
Engine sump	7 pints	4 litres
Water cooling system	8½ pints	5 litres

STANDARD TRIUMPH

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STANDARD-TRIUMPH SALES LIMITED

COVENTRY - ENGLAND

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