C0532H

Cyclemaster

THE MAGIC WHEEL THAT WINGS YOUR HEEL

WORKSHOP MANUAL

Published by

CYCLEMASTER LIMITED

38a ST. GEORGE'S DRIVE, VICTORIA, LONDON, S.W.1

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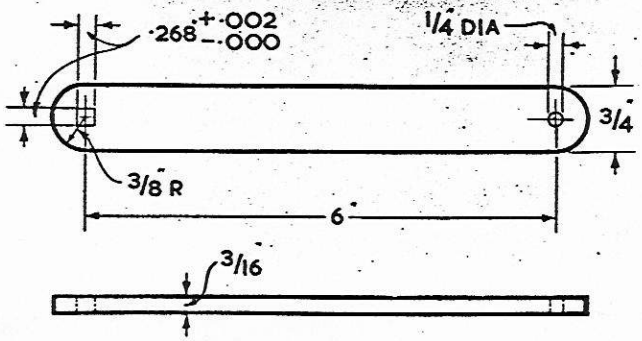
The following special tools and additional equipment have been designed since the main body of this Manual was compiled. In some cases, the tools are alternatives to methods that are suggested in the text, and in others they are additions to the equipment described.

The functions of each tool are described below, and the operation to which it applies is indicated. One point, however, must be made clear. Every workshop operation in this Manual may be carried out by the methods described in the text. These additional tools have been developed as time savers.

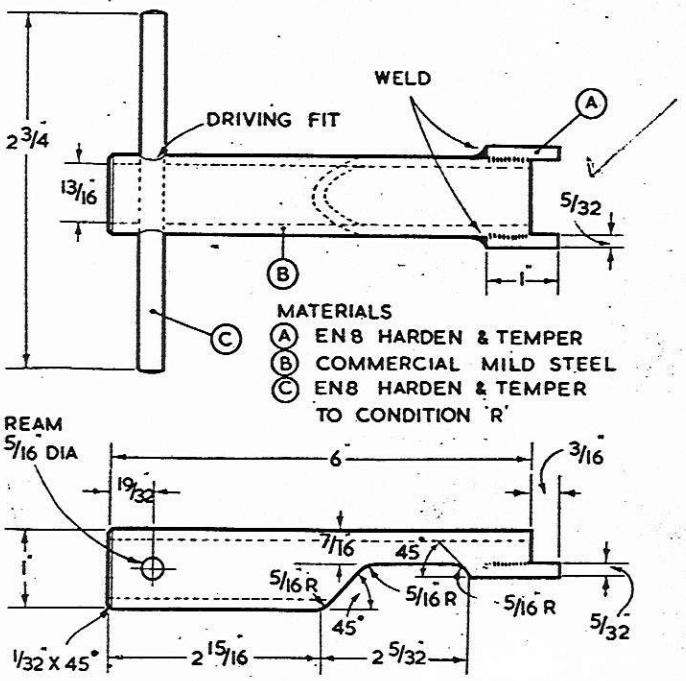
CHAIN ADJUSTING KEY



MATERIAL: CHROM VANADIUM.

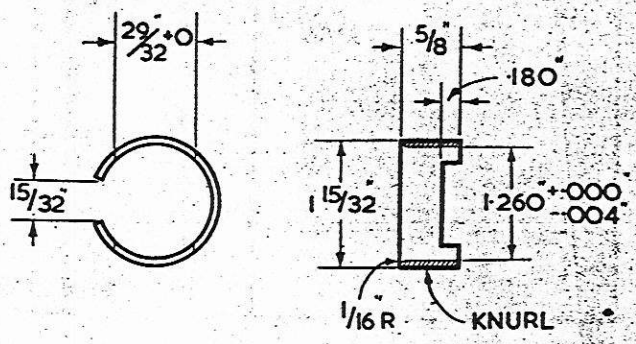
Designed to fit the square end of the hub spindle. An alternative to the procedure described in para. 5 on page 10 and in the upper illustration on page 18.

EXHAUST NUT SPANNER



Special tool for slackening or tightening the ring nut (700195) shown in the exploded drawing on page 7 and described in para. 19 on page 18.

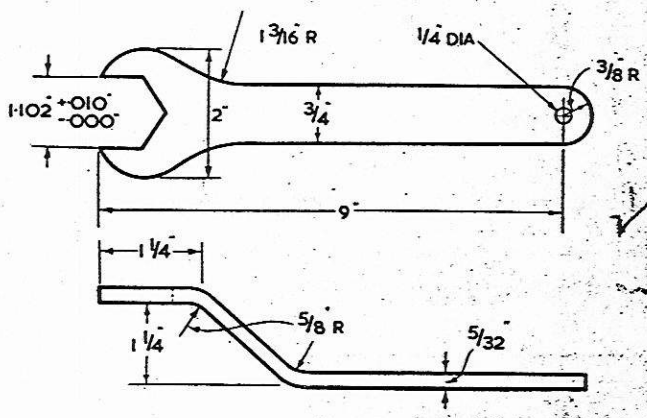
PISTON RING HOLDER



MATERIAL: COMMERCIAL MILD STEEL TUBING.

An alternative to the Piston Ring Assembling Clamp described and illustrated on page 28.

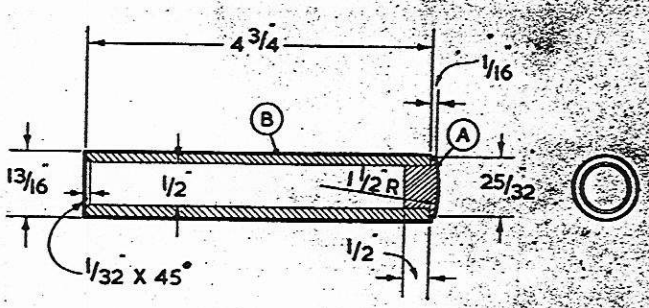
CHAIN ADJUSTING SPANNER



MATERIAL: CHROM VANADIUM

A special spanner for use instead of the conventional spanner shown in the right-hand illustration on page 10.

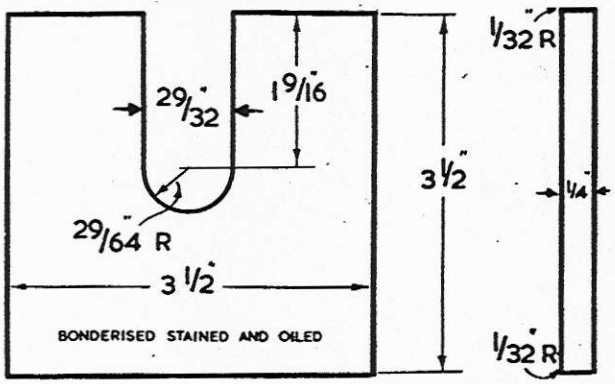
TUBE FOR PRESSING ON BALL RACES



MATERIALS.
A. B.S.S. 970. EN 3B
B. COMMERCIAL MILD STEEL TUBING

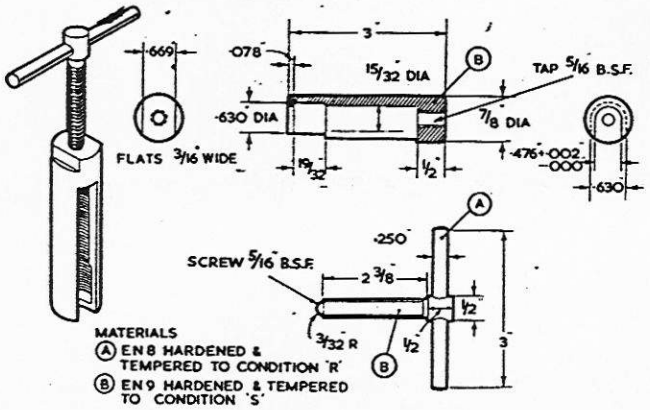
The uses of this tool are shown on pages 26 and 27.

PLATE FOR ASSEMBLING PISTON



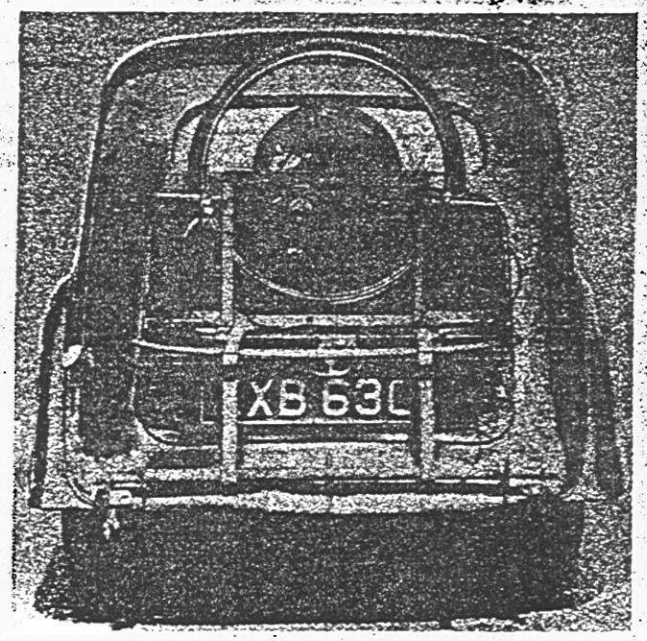
A special support for use in assembling the piston (see pages 27 and 28).

MAGNETO CAM REMOVER



For use in the operation described in para. 27 on page 18.

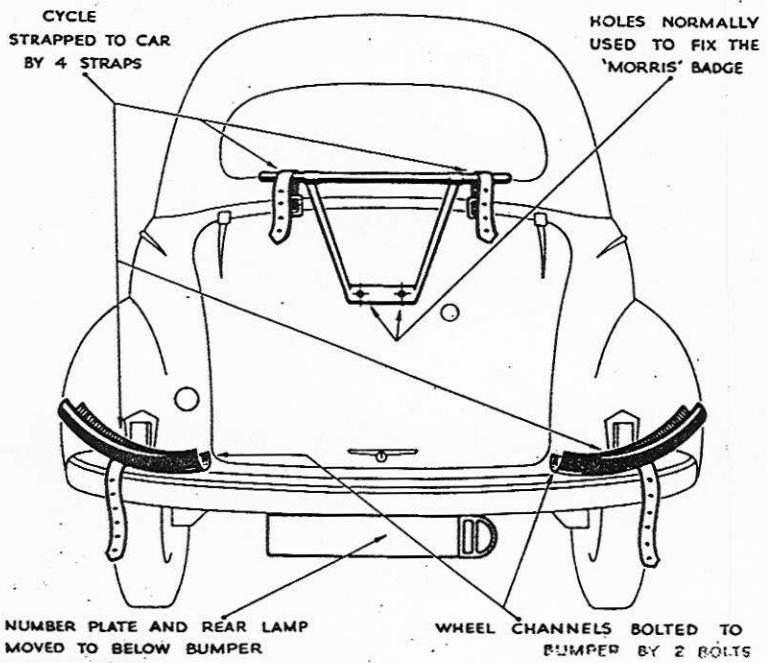
DEMONSTRATION RIG

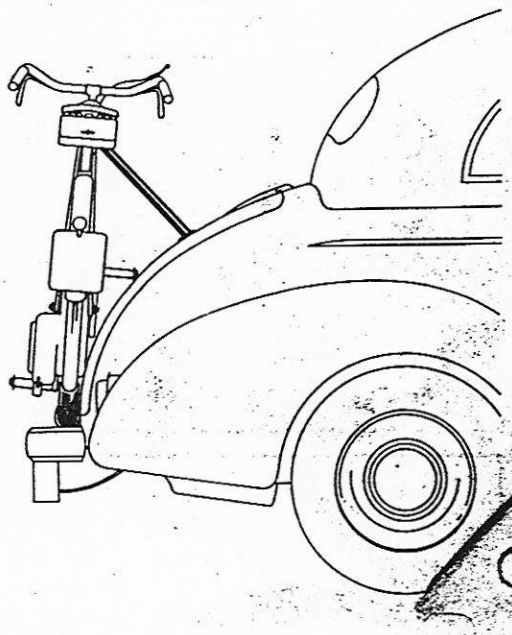


A test or demonstration rig which can be attached to most private cars. It can be built in any workshop quite easily.

CYCLE CARRIER

A simple method of carrying a complete machine on the back of a private car. In this drawing the car is a current production "Morris," but the carrier may be adapted to fit any car, and is simple to build.





Supplement No. 2
CYCLEMASTER WORKSHOP MANUAL
EADIE COASTER HUB
(Engine No. 50,001 onwards)

TO REMOVE THE ENGINE

1 to 6. These operations are as detailed in original manual.

7. Remove lock ring (14.4009) and washer.

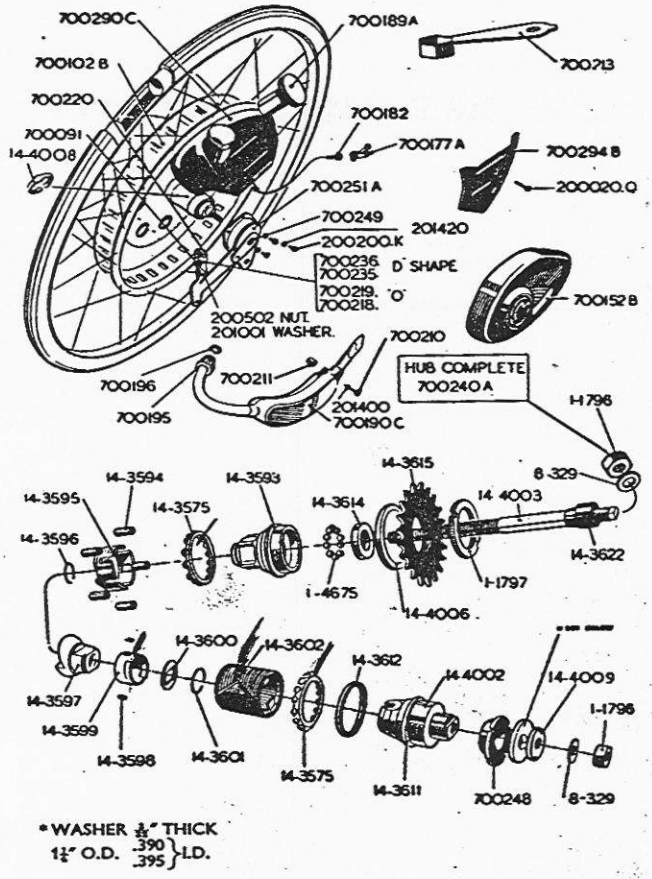
8. Gently lever off brake arm (700249) which is a push fit on the cone.

9. Rotate eccentric (700248) until chain from clutchshaft to drum is at its slackest. If the engine is then rocked gently the eccentric may be withdrawn with the fingers.

10. Tilt engine slightly so that chain can be removed from clutchshaft sprocket, and remove engine.

GENERAL NOTE: Whenever engine is removed the opportunity should be taken of examining chain and sprockets for wear, and also of cleaning the drum.

HUB SERVICING: Detailed instructions for servicing the hub are given on pages 10A and 11A.



Supplement No. 2
CYCLEMASTER WORKSHOP MANUAL
EADIE COASTER HUB
(Engine No. 50,001 onwards)

REBUILDING THE ENGINE

1 to 73 inclusive. All these operations apply equally to wheels with coaster hub.

74. Bolt 700084 is now longer, and is fitted with a lock nut. Bolt must be tightened hard down on to the steel sleeve before lock nut is fitted.

75-76. Both still apply.

77. Does not apply.

78-79. Both still apply.

80. Refit eccentric sleeve (700248) with thick side of bush to top.

80a. Position brake arm (700249) with slotted hole over the flats of the brake cone and the smaller hole bearing on the pin of the engine suspension bracket.

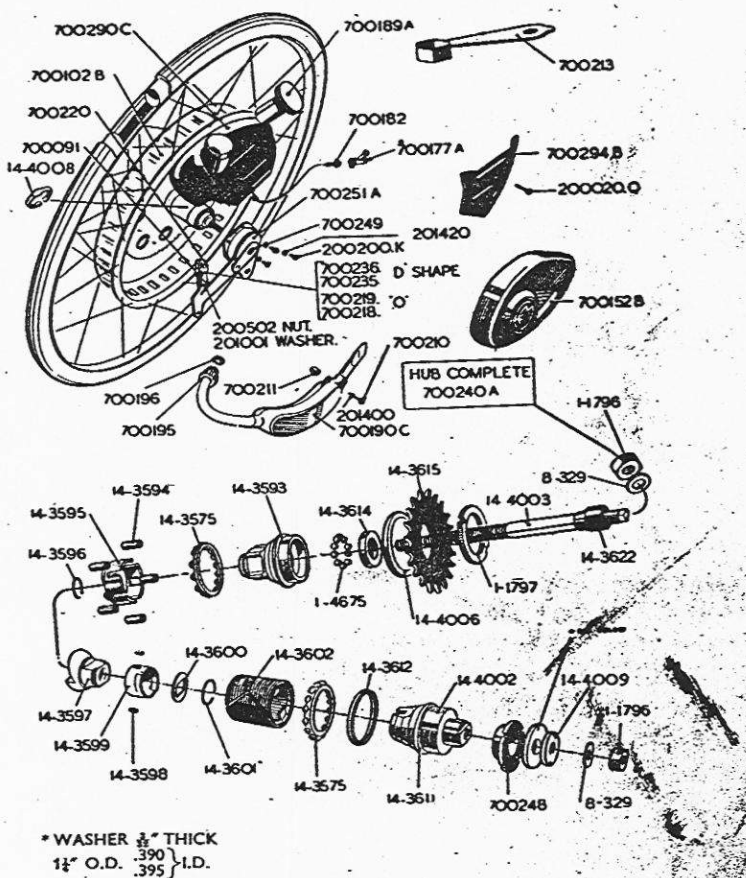
80b. Refit washer and lock ring (14.4009) on the end of the spindle.

81. Adjust chain from clutchshaft to drum by means of eccentric. Total up-and-down movement should be $\frac{1}{2}$ in.

81a. Tighten lock ring (14.4009) hard up against brake arm (700249).

82-94. All apply.

CHECK HUB BEARING ADJUSTMENT BEFORE ROAD-TESTING. (See page 9A).



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Supplement B
CYCLEMASTER WORKSHOP MANUAL
ADDITIONAL INFORMATION

WHEEL

The Cyclemaster rim is of heavier gauge steel than is used in a normal type wheel, and the angle of the spokes is different. These two reasons make it undesirable to build a Cyclemaster engine into any other type of rim.

ALTERATIONS TO GENERAL DATA

Bore: 36 mm. (from Wheel No. 73501).
Capacity: 32 c.c. (from Wheel No. 73501).
Developed b.h.p. 0.8 approx. (from Wheel No. 73501).
Engine Oil: SAE 30.
Ignition: Wipac Series 90 magneto with lighting coil (from Engine No. 77771).
Fuel Consumption: 230 m.p.g.

TYRE PRESSURE

The correct pressure of the standard tyre fitted to a Cyclemaster (Dunlop "Carrier" 26 in. x 1½in. with Schrader valve) should be 45/50 lb. per sq. inch according to the weight of the rider.

MULTI-SPEED GEARS

Internal hub-type multi gears cannot be used with Cyclemaster. The external chain type can be used, but no addition of this kind is recommended.

TANDEMS

Cyclemaster can be used with tandems, but naturally performance and economy will be affected by the greater weight.

WHEEL NUMBERS

Owing to the great number of machines sold, it is most difficult to trace any one without a wheel number, and we just cannot deal with a guarantee claim without that number. So would you please quote the wheel number in any correspondence dealing with either a complete unit or parts returned for inspection.

NEW PETROL TANK and CARBURETTOR COVER

From wheel No. A55636 a new type petrol tank and carburettor cover plate are fitted. Comparative part numbers are:

	Old	*New*
Petrol tank	700179 B	700290 C
Cover Plate	700116 B	700294 B

The two tanks are interchangeable but the cover plates can only be used with their respective tanks as shown above. As supplies become available 700290 C and 700294 B will be supplied against all replacement orders. (See sheet 7A of Supplement No. 2).

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Supplement B
CYCLEMASTER WORKSHOP MANUAL
ADDITIONAL SERVICING INFORMATION

TO FIT WHEEL

The $\frac{3}{8}$ in. diameter of the Cyclemaster spindle may be too great for the existing lugs in the fork. If it is, the lugs should be filed so that the spindle slips into them freely—but with the minimum of play. When filing the lugs take an equal amount of metal off both lower edges. Whenever possible, file the lower edges *only*, but if the top edges must be filed as well take an equal amount off each.

Generally it is necessary to open out the rear forks slightly when fitting a Cyclemaster.

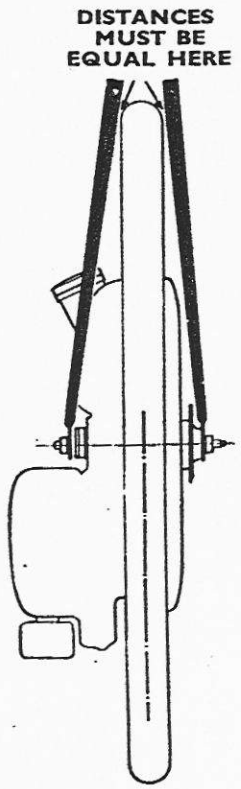
In order to maintain satisfactory alignment (*a*) of front and rear wheels, and (*b*) the chain from pedals to rear wheel, the increased width of the Cyclemaster wheel has to be allowed for on the left-hand side of the machine looking towards the front.

The total width required is $4\frac{15}{16}$ in. but for the reason given above it is necessary to open out the left leg of the seat and chain stays slightly more than the other.

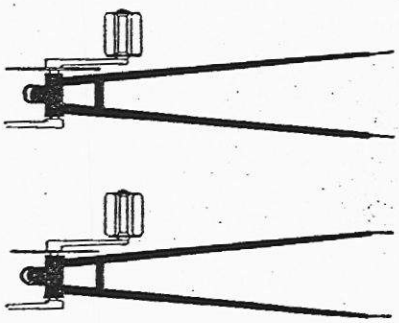
When the wheel is in position, check the distances between the rim (at the top) and each seat stay. They should be the same. If they are not, adjust as necessary; movement of the forks to the left will bring the rim nearer to the left-hand seat stay, and vice versa.

After the forks have been opened out, the lugs must be returned to parallel both in the horizontal and the vertical plane with each other and with the rim of the wheel. When this has been done return wheel into frame and check that rim is still central between the seat stays, and then proceed as under "To fit wheel" (paras. 2 to 13).

Connect head and tail lamp leads if new type lighting unit is fitted (see B/16).



This diagram shows the vertical forks. The lugs which take the spindle must be parallel in this plane, also, with each other and with the rim of the wheel. Note how the increased width of the Cyclemaster wheel is allowed for on the left-hand side.



The above two diagrams show "plan" views of the forks. When they are opened out, the lugs will be at an angle (top diagram) and it is important that they should be parallel as in lower diagram, not only with each other but also with the rim of the wheel.

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Supplement B
CYCLEMASTER WORKSHOP MANUAL
ADDITIONAL SERVICING INFORMATION

DECARBONISING

Before the need for decarbonising is decided, it is always wise to check that the exhaust fishtail is clean. If it is blocked, free it with a piece of stiff wire and then road test the machine.

If there is still a falling off in power, decarbonising is probably indicated. The best way to check this is to inspect the exhaust port. Unscrew the ring holding the exhaust pipe to the cylinder and remove the exhaust system. Looking into the cylinder you should see a well-defined rectangle approximately $\frac{5}{8}$ in. wide by $\frac{5}{16}$ in. deep. Any substantial change in size or shape indicates that decarbonising is necessary.

Proceed as under " Decarbonising " and when refitting the exhaust system afterwards tighten all bolts with the engine *hot*.

If the port is free from carbon and yet the engine still loses power, check the ignition timing as described under " Ignition." (B/17)

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Supplement B
CYCLEMASTER WORKSHOP MANUAL
IGNITION
MODELS WITH NEW MAGNETO/LIGHTING UNIT
(Wheel No. 77771 onwards)

GENERAL DESCRIPTION

From wheel No. 77771 onwards the Bantamag magneto has been replaced by a new unit embodying a lighting coil. This is the Wipac Series 90 magneto. It is interchangeable with the Bantamag, but the complete unit (stator-assembly, rotor and crankshaft cam) must always be used together. In no circumstances should any attempt be made to use the rotor of one type with the stator of the other.

The new unit consists of two main parts:

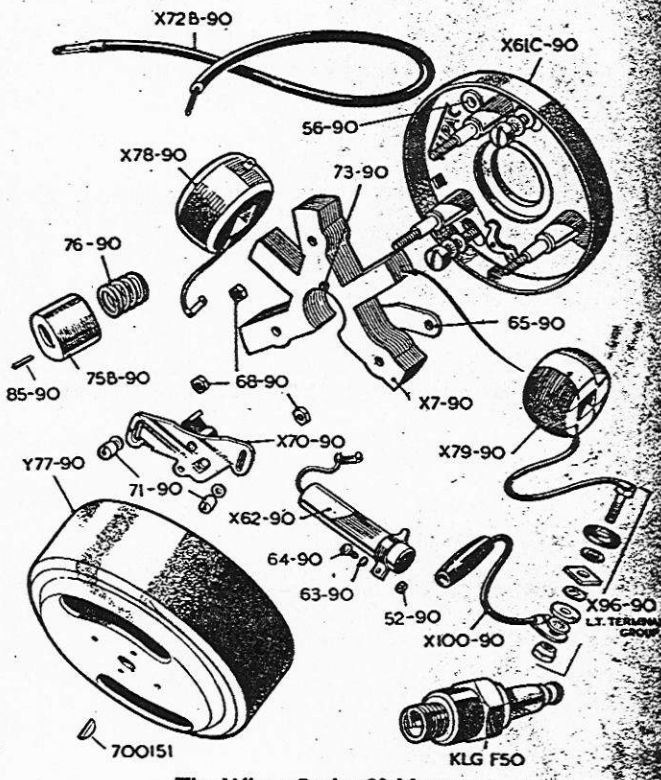
(*a*) the rotor flywheel which is balanced statically and which houses the magneto.

(*b*) the stator which carries the condenser, coil and contact breaker for the ignition, and the lighting coil.

The lighting lead is connected to a terminal at the back of the stator, and it protrudes from the crankcase in the form of a " push-in " connector. The leads from head and tail lamps fit in this connector.

The total output is 6 volts, 8.7 watts, and bulbs which together give this capacity should be fitted to the lamps. For the headlamp we recommend a 6 volt 1 amp. bulb (6 watts) and for a rear light a 6 volt .45 or .5 amp. bulb (3 watts).

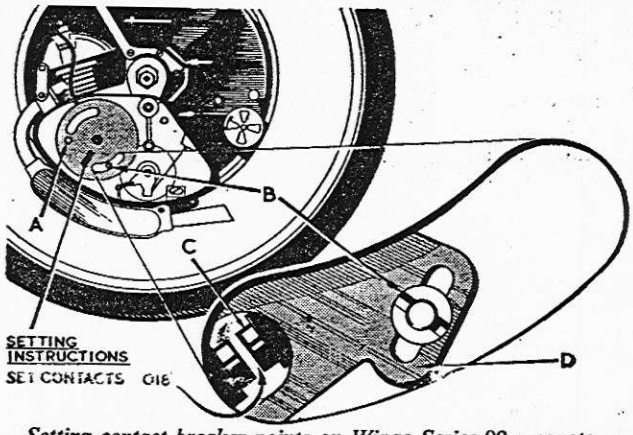
From the point of view of routine maintenance, all previous instructions hold good except for the method of adjusting the points. This is described below.



The Wipac Series 90 Magneto

CONTACT BREAKER

Turn the rotor until the slots are in the " setting " position shown in the drawing—that is so that the contact breaker points (C) are *just* visible immediately beneath the words " Set Contacts .018."



Setting contact breaker points on Wipac Series 90 magneto. A and B are locking nuts; C the points and D the movable plate.

In this position the contact breaker points will be fully open, and a .015 in. feeler gauge should *just* pass between them. (.018 in. is the maximum gap).

If the points need adjustment, slacken nut B (which is already visible) half a turn. Then move the rotor until nut A becomes visible. Slacken this half a turn also. Next, turn the rotor until the points are, once again, just visible beneath the words " Set Contacts .018 in." Move the plate (D) until the gap between the points (C) is correct.

Tighten the two nuts B and A again in that order. It is necessary to turn the rotor when tightening the contact breaker assembly plate, but it should always be turned back to the " setting " position for the purpose of re-checking the gap after tightening the nuts.

The contact points are mounted on a plate as an assembly, and complete assemblies only are supplied. When fitting a contact plate assembly make sure that the lower end of the arm [illegible]

(TO FACE PAGE 17)

the location hole of the breaker arm support plate before fitting the nuts.

Connections from this assembly to the condenser and coil are soldered.

The condenser can be removed without dismantling the core, by disconnecting the lead and then undoing the clamp screw. The condenser can then be withdrawn between the core and the edge of the stator.

Both lighting and ignition coils can be taken off the core. When replacing them, or fitting new ones, it is most important that they should be pushed right home and that the brass location plate should be turned over securely. The earth connection of the lighting coil is soldered to the brass plate.

The new type cam is held away from the crankshaft shoulder by a spring and the cam should be in contact with the inner face of the rotor hub. Care must be taken not to assemble this cam the wrong way round, or incorrect point timing will result. An arrow shows the direction of rotation. Always check this on assembly. The timing as before should be adjusted so that the points just start to open at 24 deg. before T.D.C. (see below).

If the cam has been removed from the crankshaft, make certain when refitting it that the heel of the moving contact is clear of the side face of the cam. The rotor should not be refitted until the cam is almost in its working position, and there is no danger of breaking the moving contact by side pressure. The contact assembly plate should be moved as far as possible in an anti-clockwise direction during this operation, since this movement will lift the heel of the moving contact away from the cam.

When refitting the stator screws, care must be taken to avoid damaging the leads connecting coil and condenser to the moving contact. On a few early models of this latest magneto, it is necessary to insert the lower screw before the stator is offered up to the crankcase. On current production there is more clearance but great care is still necessary.

ADDITIONAL SERVICING INFORMATION

VENTILATION (All Models)

A hole is now drilled at the lowest point in the Cyclemaster cover, so that any excessive moisture may drain away. Should any machines pass through your hands without this modification we recommend that it should be carried out. The size of the hole should be $\frac{1}{8}$ in. in diameter and approximately $\frac{3}{8}$ in. from the inside edge of the cover in line with the centre of the Cyclemaster nameplate.

IGNITION TIMING (All Models)

To check the timing, remove the spark plug and turn the engine until the piston is in the T.D.C. position. Mark the flywheel and crankcase in line, and then rotate the flywheel in an anti-clockwise direction for almost one complete turn. When the mark on the flywheel is about $\frac{7}{8}$ in. to the right of the mark on the crankcase, the contact breaker points should just be starting to open. If adjustment is necessary proceed as under "Ignition Timing" on page 16.

GENERAL (Bantamag)

There must always be a good clearance between the condenser connecting tag and any other part of the magneto. When fitting a new coil make certain that the laminations of the core fit squarely on the backplate. Insulation material in this joint may affect the position of the coil in relation to the magnets of the flywheel.

The insulation bush which covers the joint made by the hard wire from the coil and the spark plug lead should be replaced at once if it shows any signs of breakdown or tracking. When replacing this bush see that its larger end goes into the magneto backplate.

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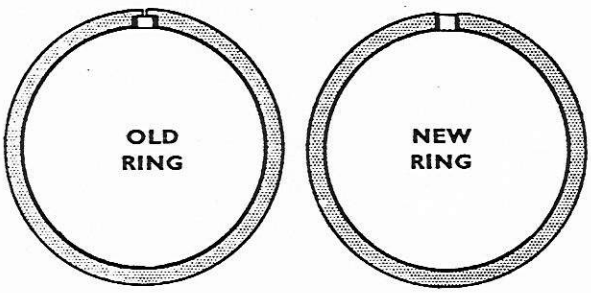
Supplement B
CYCLEMASTER WORKSHOP MANUAL
ADDITIONAL SERVICING INFORMATION

PISTON RINGS

New pistons are supplied complete with rings. Should you have to replace broken rings in service, it is most important to see that the grooves are thoroughly clean.

The new type rings are not machined with special end faces for clearing the locating peg. The ring with the plain gap is thicker, and has therefore greater radial pressure. This ring replaces all previous types without alteration to the piston, but the new type piston is fitted with a longer locating pin and the original pattern ring must not be fitted to it. With the new rings the minimum clearance between locating pin and piston ring ends should be .006 in., and this can best be tested by fitting one ring to its mating groove, inserting the piston and ring into the bottom of the cylinder bore, rotating the piston lightly to and fro to make certain that there is a minimum of .006 in. clearance. The gap in this ring is cut to .067 in. during manufacture and this clearance gives satisfactory results. When testing the ring do not push the piston too far in the cylinder, otherwise there is a danger of fouling one of the ports.



CASTINGS

(*a*) In no circumstances should any attempt be made to switch separate castings between different engines. Each set must always be kept *as a set*.

PISTON CLEARANCE

The piston of the Cyclemaster is tapered towards the top, to allow for the greater expansion at the top caused by its proximity to the burning gases. Clearance should be :

Wheel No. 1 to 73500

.004″ at crown: .002″ at bottom of skirt.

Wheel No. 73501 onwards

.0046″ at crown: .003″ at bottom of skirt.

If wear has taken place, we do not recommend re-boring or honing, as special equipment is required for this delicate operation. A new cylinder and piston should be fitted.

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Supplement B
CYCLEMASTER WORKSHOP MANUAL
ADDITIONAL SERVICING INFORMATION

ENGINE BOLTS (PARAS. 73-74)

It is most important that the engine bolts (700079 and 700084) should be *fully* tightened on to the steel distance sleeves inside the rubber mounting bushes. It is not sufficient to tighten the bolts until the resistance to the rubber is felt. Bolt No. 700084 is now being supplied slightly longer so that a locknut may be fitted.

ENGINE MOUNTING BUSHES (PARAS. 73-74)

From wheel No. A53283 (Export from 50017) the steel sleeve (700081) has been shortened slightly to allow for an alteration to the crankcase boss. The new sleeve is supplied under Part No. 700268.

The new sleeve (700268) is for use in those machines where the crankcase mounting boss is machined in line with the outer end of the clutch shaft bore. The old sleeve (700081) can be used with any model.

The respective lengths of the sleeves are:

700081 (OLD)	..	2.124 in.
700268 (NEW)	..	2.104 in.

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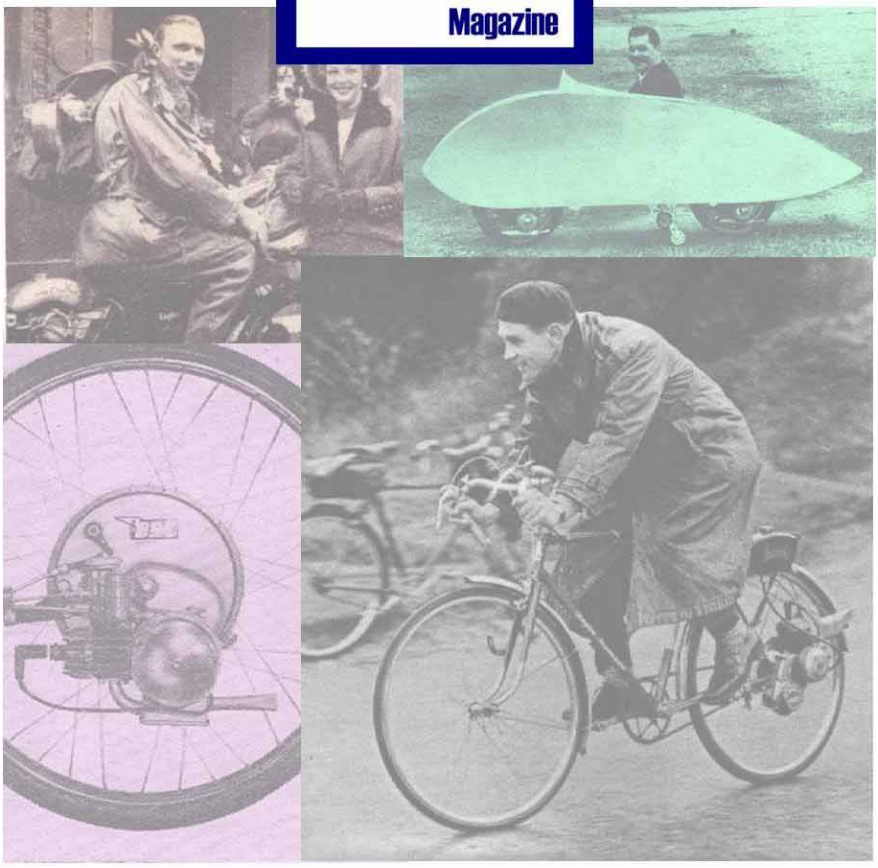

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