

**J.A.P.**

34 c.c.

**TWO STROKE  
ENGINE**

**MODEL 0**

**TYPE No. 28**

**INSTRUCTION BOOK**

**AND**

**SPARE PARTS LISTS**

SB/R/14

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**J. A. PRESTWICH INDUSTRIES LTD.  
NORTHUMBERLAND PARK  
TOTTENHAM, LONDON, N.17**

Phone : TOT 3701



## Guarantee

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*WE GUARANTEE, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship; but this guarantee is to extend and be in force for six months only from date of purchase, and the damages for which we make ourselves responsible under this guarantee are limited to the replacement of any part which may have proved defective.*

*WE UNDERTAKE, subject to the conditions mentioned below, to make good at any time within six months any defects in these respects. As equipment is easily liable to derangement by neglect or misuse, this guarantee does not apply to defects caused by wear-and-tear, misuse or neglect.*

### CONDITIONS OF GUARANTEE.

*If an alleged defective part should be found in our equipment, it must be sent to us, carriage paid, and accompanied by an intimation from the sender that he desires to have it replaced free of charge, under our guarantee, stating clearly the nature of the fault, and he must also furnish us at the same time with the number of the Engine, the name of the Agent from whom he purchased, and the date of the purchase. Failing compliance with the above, no notice will be taken of anything which may arrive, but such articles will lie here at the risk of the sender and this guarantee or any implied guarantee, shall not be enforceable.*

### COMPLAINT.

*In all cases of complaint the full nature of the complaint must be stated.*



WORKING & MAINTENANCE  
INSTRUCTIONS  
WITH  
SPARE PARTS LISTS  
MODEL O TYPE 28  
34 C.C. TWO STROKE ENGINE

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Bore—35m/m. Stroke—35m/m. Capacity—34c.c.

Power Output— $\frac{1}{3}$  h.p. @ 2,500/3,500 r.p.m.

Ignition—Wico Flywheel Magneto. Timing  $\frac{3}{32}$ " before Top Dead Centre.

Carburetter—Amal. 360/5 with single lever control.

Lubrication—Petrol mixture in ratio of 1 part oil to 32 parts petrol.

Recommended Lubricants—Castrol XL, Mobiloil A, B.P. Energol SAE 30, Essolube 30, Shell X100-30.

Cooling—Vanes cast on Flywheel Magneto, blowing air directed to the cylinder by a cowl.

Weight— $11\frac{1}{2}$  lbs.

## DESCRIPTION

This two-stroke engine is of robust construction, yet weighs only  $11\frac{1}{2}$  lbs. complete. The connecting rod is a steel stamping with a hardened steel liner pressed into the big end. This consists of a row of  $\frac{1}{8}$ " diameter  $\times$   $\frac{1}{4}$ " long needle rollers which run on a hardened steel shouldered crankpin. Hardened steel washers take the side thrust of the rollers. The crank webs are a press fit on the crankpin. Each crank runs on a ballrace in the crankcase which is an aluminium die-casting. The aluminium alloy deflector type piston has two plain compression rings. The gudgeon pin is

free in the piston bosses and is secured to the split small end eye of the rod by a screw. The cylinder head is an aluminium die-casting held by four screws to the cast-iron cylinder. This is held down to the crankcase by four studs and nuts. On one end of the crankshaft is the flywheel magneto which not only supplies the ignition but also the air cooling to the engine. Vanes are cast on the flywheel which rotates in a cowling attached to the crankcase. Air is directed by the cowl through the cylinder fins and head fins. The starting pulley is attached to the flywheel magneto by three screws. See pages Nos. 5 to 9 for Carburetter details. Fuel is gravity fed from an overhead tank.

# RUNNING INSTRUCTIONS

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## RUNNING INSTRUCTIONS

Fuel must be one part oil (see recommended grades) to 32 parts petrol, the mixture to be well stirred before pouring into the tank.

If a quantity of the mixture has been left in the tank for several hours, rock the machine or agitate the tank before using.

NOTE.—If it is not possible to mix the petrol and oil beforehand, pour the oil into the tank first and add the petrol *afterwards*, then stir the mixture or agitate the tank.

## STARTING FROM COLD

Pull the fuel tap to "ON" position. Open the throttle approximately one half. Lift the cold starting chamber needle of the carburetter for three to five seconds, to fill the chamber. Wind the cord round the starting pulley and pull cord sharply.

## STARTING FROM HOT

Open the throttle approximately one quarter but do not lift the starting chamber needle.

## TO STOP THE ENGINE

Press the cut-out lever on to the sparking plug terminal.

## MAINTENANCE

Decarbonise approximately every 50 hours running. Check the sparking plug gap periodically and adjust to .018/.020 and clean points if necessary. Check magneto points gap and clean and adjust if required. (See pages 10 and 11 for maintenance of flywheel magneto.)

## CARBURETTER — AMAL TYPE 360/5 WITH STARTING CHAMBER

The float chamber maintains a constant level of fuel at the jet and cuts off the supply when the engine stops. On fuel flowing from the float chamber the float falls and its needle coming away from its seating allows fresh fuel to enter.

Depression caused by movement of the engine piston causes, via the throttle opening, air to flow into the main air intake and fuel to flow through the needle jet into the cross bore and mix with the incoming air forming a petrol/air mixture.

**THE STARTING CHAMBER**, used when starting from cold feeds fuel direct to the carburetter bore on the engine side of the throttle valve from a well formed by a division wall in the float chamber. Sufficient fuel from cold starting is allowed to fill the well by raising a needle in its cover.

## **MAINTENANCE**

**REMOVING AND FIXING CARBURETTER.** If the carburetter is removed from the induction pipe, see that on re-fixing it is pushed right home on the pipe before locking the clip. Never fit the carburetter to a pipe on which it is slack, nor ever drive it on to a tight one. The carburetter should be a good push fit on to the inlet pipe, and should be pushed on true with a screwing motion, after having put a little oil on the pipe. Erratic slow running can be caused if there are air leaks at the point of attachment of the carburetter to the cylinder.

The float chamber, float or its needle and the starting chamber and its needle, may be inspected by removing the float chamber cover which is secured by two hexagon headed pins. The float needle is removed by pushing the needle downwards through the float and extracting it through the needle seating in the base of the float chamber; on re-assembling see that the spring bow on the top engages with the groove in the needle. Ensure that the needles are located in their respective seats when replacing the cover (this is facilitated by filling the float chamber with petrol) and that the joint washer is undamaged.

The throttle valve complete with jet needle and attached to the cable can be withdrawn from the carburetter after the knurled mixing chamber top has been unscrewed.

To separate the throttle valve and jet needle from the cable release the cable at the control end and push the inner cable forward until the nipple in the throttle valve clears its hole, then withdraw the cable through the slot in the throttle valve, the nipple passing through the hole at the extreme end of the slot. On re-assembling pass the nipple through this hole via the inside of the throttle valve, ensure that the cut-away portion of the needle clip is opposite the cable slot in the throttle valve, and then draw the cable forward until the nipple will pass over the bottom end of the throttle valve and sink into its hole. On putting back the throttle valve assembly into the body, see that the key in the carburetter body engages the keyway opposite the cable slot in the throttle valve and that the jet needle is entering the needle jet before attempting to push the assembly home. Access to the main jet is by removing the main jet cover nut. When replacing the main jet take care not to over-tighten.

**CABLE CONTROLS.** See that the cable control fully opens and closes the throttle valve, a cable adjuster with locknut is provided in the top of the carburetter and can be adjusted until correct movement is obtained.



### **ENSURE THAT THE FUEL TAP AND PIPE ARE CLEAR.**

Flooding may be due to a worn float needle or a leaking float, but nearly all flooding with new machines is due to impurities (grit, fluff, etc.) in the fuel tank—so clean out the float chamber periodically until the trouble ceases. If the trouble persists, the fuel tank may be drained, swilled out, etc.

**EXCESSIVE FUEL CONSUMPTION** may be due to flooding caused by the float needle not shutting off the fuel supply; check that no impurities have got into the float chamber and lodged on the float needle seating, or that the float needle is bent, or that the float is leaking. A rich mixture will also account for excessive fuel consumption. Raising the mixing chamber needle richens; lowering weakens the mixture. Check for impurities being in the starting chamber and on the starting needle seat, thus preventing the needle shutting off the supply of fuel. Check that the needle itself has not been bent or damaged.

### **CARBURATION FAULTS**

There are only two possible faults in carburation, either richness or weakness of mixture.

#### INDICATIONS OF :

##### RICHNESS

Black smoke in exhaust.  
Petrol spraying out of carburetter.  
Two strokes, four-stroking.  
Heavy lumpy running.  
Sparking plug sooty.

##### WEAKNESS

Spitting back in carburetter.  
Erratic slow running.  
Overheating.  
Engine goes better if:  
Throttle valve is not wide open, is partly closed or if starting chamber is kept supplied with fuel.

If richness or weakness is present, check if caused by:

1. **PETROL FEED.**—Check that the main jet needle jet and passages are clear and that there is ample flow of fuel.  
Check there is no flooding of the float chamber or continual supply of fuel to the starting chamber.
2. **AIR LEAKS.**—At the connection of the carburetter to the engine.
3. **DEFECTIVE OR WORN PARTS.**—Has a loose fitting throttle valve, worn needle jet, or loose needle jet or main jet.
4. **AIR FILTER ELEMENTS OBSTRUCTED.**

## AMAL 360/5 CARBURETTER PARTS LIST

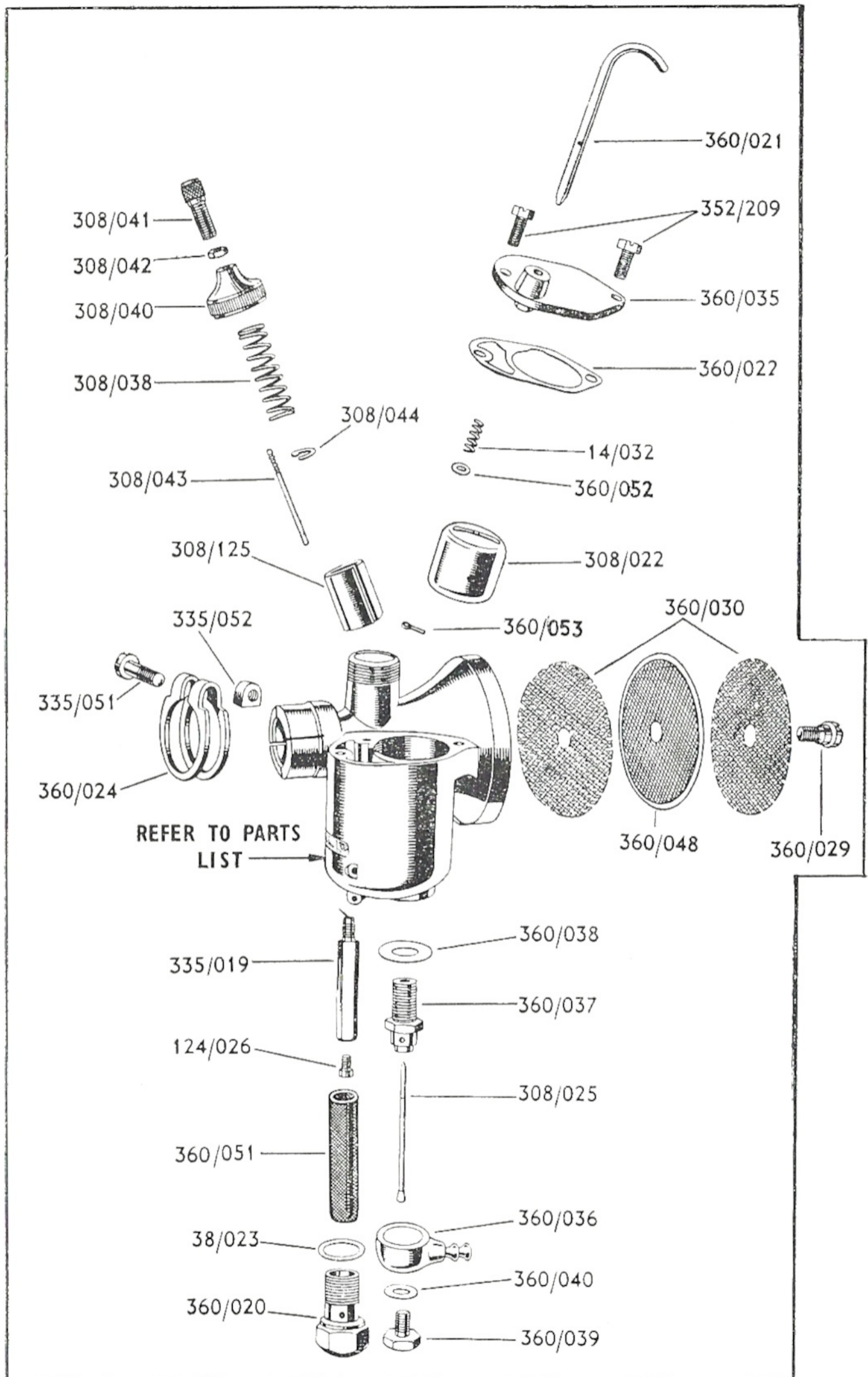
Owing to market conditions, prices are subject to  
alteration without notice.

Part No.	Description	Quantity
360/015	Carburetter Body ... ..	1
360/035	Float Chamber Cover ... ..	1
360/022	Float Chamber Cover Washer ... ..	1
352/209	Float Chamber Cover Screw ... ..	2
308/022	Float complete ... ..	1
308/025	Float Needle ... ..	1
360/037	Float Needle Seating ... ..	1
360/038	Float Needle Seating Washer ... ..	1
360/036	Banjo ... ..	1
360/040	Banjo Washer ... ..	1
360/039	Banjo Bolt ... ..	1
360/021	Cold Start Needle ... ..	1
14/032	Cold Start Needle Spring ... ..	1
360/052	Cold Start Needle Washer ... ..	1
360/053	Cold Start Needle Cotter ... ..	1
308/040	Mixing Chamber Top ... ..	1
308/125	Throttle Valve ... ..	1
308/038	Throttle Valve Spring ... ..	1
308/043	Metering Needle ... ..	1
308/044	Metering Needle Clip ... ..	1
335/019	Needle Jet ... ..	1
124/026	Main Jet—No. 25 ... ..	1
360/051	Petrol Filter ... ..	1
360/020	Main Jet Plug ... ..	1
38/023	Main Jet Plug Washer ... ..	1
360/030	Air Filter Plate, Outer ... ..	2
360/048	Air Filter Gauze, Inner ... ..	1
360/029	Air Filter Retaining Screw ... ..	1
360/024	Outlet Clip ... ..	1
335/051	Outlet Clip Pin ... ..	1
335/052	Outlet Clip Pin Nut ... ..	1
308/041	Cable Adjuster ... ..	1
308/042	Cable Adjuster Locknut ... ..	1
244/1047	Cable, Inner and Outer complete—36" length	1
355/5	Control Lever ... ..	1

It is essential to quote the Engine Number with all symbols,  
when ordering Spares.

Failure to do this may result with incorrect spares being supplied.

Postage and Carriage Charges extra.



**AMAL CARBURETTER — TYPE 360/5**

# DESCRIPTION & SERVICE INSTRUCTIONS

## FOR WICO "MIGEMAG" MAGNETO

### SPECIFICATION I-1263

The "Migemag" has been selected for this engine because of extreme simplicity coupled with reliability. It consists of a flywheel magnetic unit with coil, condenser and breaker mechanism contained on a stator plate.

The "Migemag" should give a high spark output throughout its entire life with little or no attention. **Should ignition failures be suggested, a check should be made before attempting to dismantle.**

#### Checking

Disconnect the ignition lead from the sparking plug. Remove the sparking plug and clean the points making sure that the gap at the points is correctly adjusted to .018"/.020". Make certain that no foreign matter joins these sparking plug points.

With the sparking plug still out, rotate the engine at starting speed. Do this again with the ignition lead held  $\frac{1}{8}$ " away from a point on the engine. With the magneto correctly adjusted a spark should jump this  $\frac{1}{8}$ " gap.

If the engine misses at high speed, first check the sparking plug. Properly adjusted and with a good sparking plug the magneto should fire a spark when the ignition lead is held  $\frac{1}{16}$ " away from the sparking plug terminal. Should this check suggest a fault in the magneto and a further examination necessary it will be essential to remove the flywheel from the engine.

#### Removal of Flywheel

1. Remove the engine cowl.
2. Remove the engine starting pulley by releasing the three screws which secure this to the flywheel.
3. Remove the hexagon nut which secures the flywheel to the shaft.
4. By the use of a wheel puller the flywheel can now be withdrawn.

NOTE--A wheel puller is the ideal tool to use when withdrawing the flywheel, but this tool must be correct. The flywheel can be withdrawn by other means in common use but these should be understood to avoid damage to engine shaft or

flywheel. Force is unnecessary and can cause damage. Remember that the shaft is tapered to receive the flywheel and that a wheel puller applies effort in two directions, a pull on the flywheel a push on the shaft, actions which can be copied in a number of ways. If you arrange a method of pulling either by hand or some other means, a light tap on the shaft end will give the desired result, but protect the threaded shaft end to avoid damage.

### **Adjustment of Breaker Points**

The only adjustable part on the magneto is the breaker plate which provides adjustment for the breaker points.

Rotate the engine until the breaker points are fully open and measure opening with a feeler gauge. The opening should be .018".

If points need adjusting loosen the screw which locks the breaker plate and move the latter, to give the proper point setting, by turning the eccentric headed screw. Then lock the plate securely again by tightening the breaker plate screw. The breaker plate moves about the axis of the breaker arm stud and thus assures proper alignment of contact surface.

The breaker point setting should only be adjusted in the manner described and **at no time should the breaker arm be filed to provide adjustment.**

The moving contact is integral with the breaker arm. If the contact points need replacement it is recommended that both the fixed and movable points be replaced at the same time.

The breaker arm bearing is packed with cam lubricant at the time of assembly and should not need any other lubrication. A small amount of this lubricant is also packed on the breaker arm shoe and wipes off on the cam surface, providing permanent lubrication between these rubbing surfaces.

### **Magneto Timing**

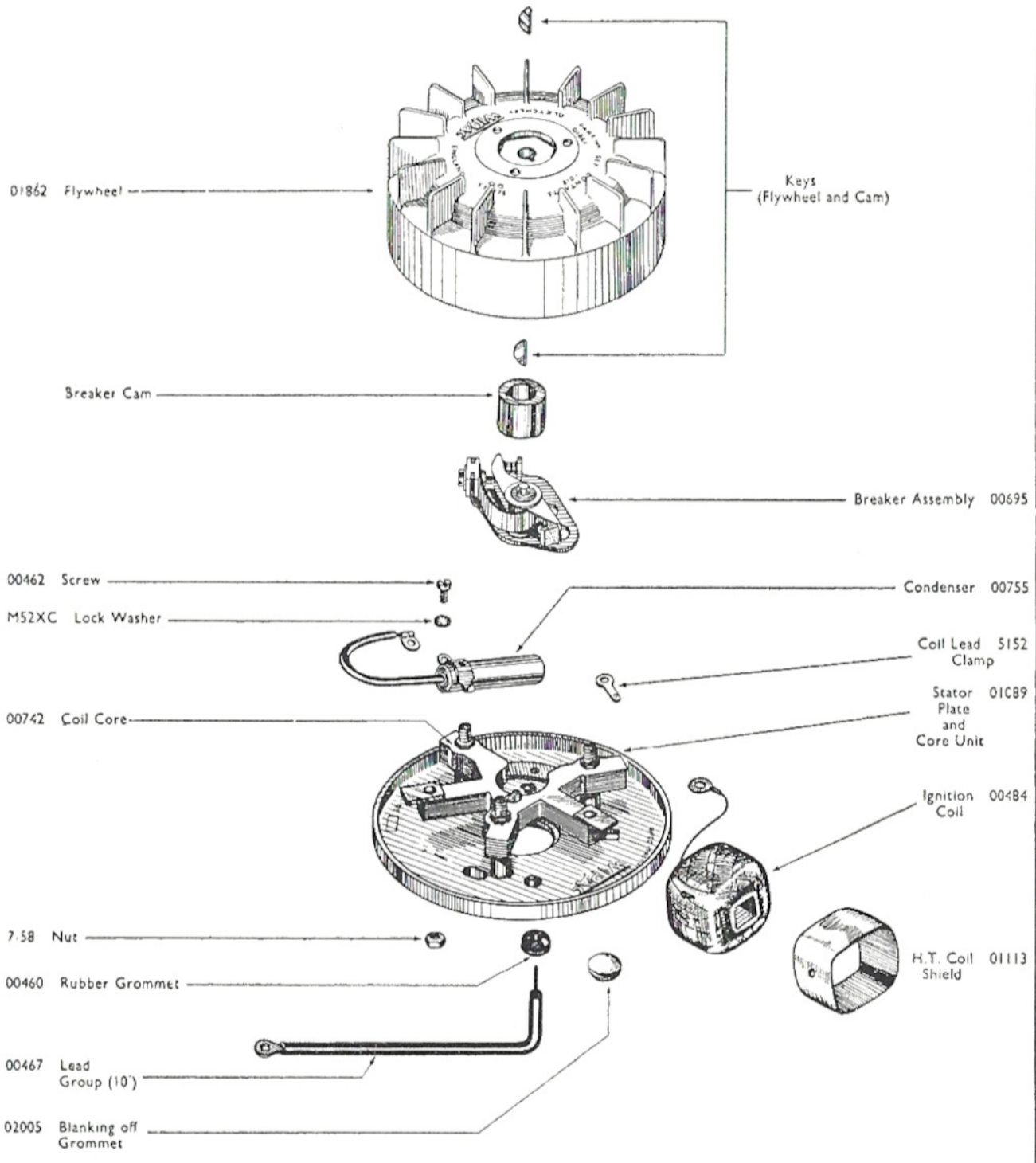
The magneto contact breaker points commence to open  $3/32''$  before the piston is at top dead centre.

### **Removal of Condenser**

To remove the condenser, disconnect the breaker connection and the primary connection from the live end of the condenser and remove the screw holding the condenser clamp, taking care not to lose the locking nut, which is fitted to the rear of the stator plate.

# WICO TYPE "MIGEMAG" MAGNETO

Specification 1-1263



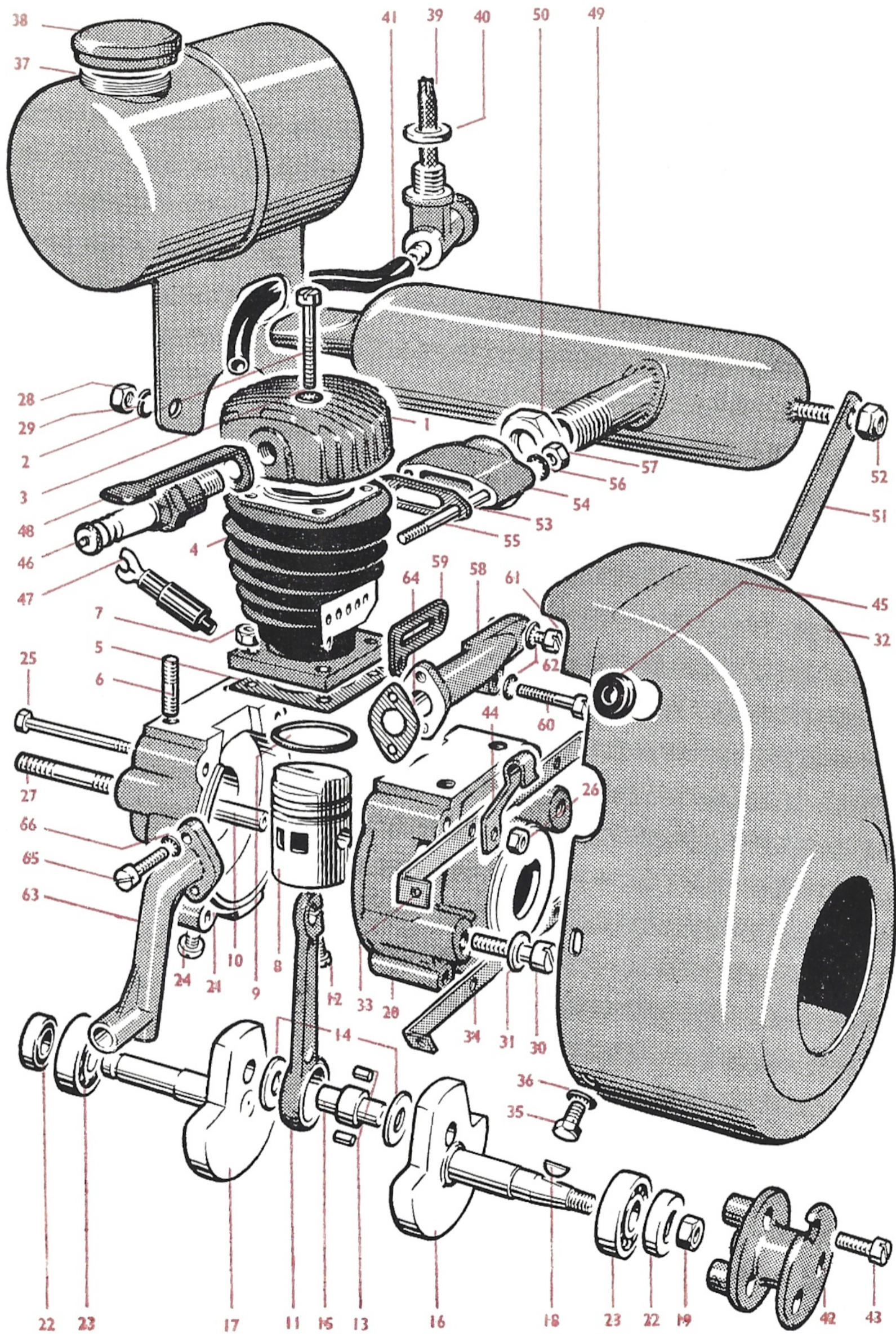
## SPARE PARTS LIST FOR WICO MIGEMAG—I-1263

Owing to market conditions, prices are subject to  
alteration without notice.

Part No.	Quan.	Description
01862	1	Flywheel ... ..
1146C	1	Flywheel Key ... ..
02342	1	Breaker Cam ... ..
1146	1	Breaker Cam Key ... ..
00742	1	Coil Core ... ..
00460	1	Rubber Grommet for H.T. Lead ...
00467	1	H.T. Lead Group—10" ... ..
00695	1	Breaker Assembly ... ..
00687	1	Breaker Assembly Fixing Screw ...
M55XA	1	Breaker Assembly Fixing Screw Lock Washer ... ..
00688	1	Breaker Assembly Fixing Clamp Nut ...
00755	1	Condenser ... ..
00462	1	Condenser Fixing Screw ... ..
M.52XC	1	Condenser Fixing Screw Lock Washer...
7-58	1	Condenser Fixing Screw Nut ... ..
5152	1	Coil Lead Clamp ... ..
01089	1	Stator Plate and Core Unit ... ..
02005	1	Blanking Off Grommet ... ..
00484	1	Ignition Coil ... ..
01113	1	H.T.Coil Shield ... ..
I.1263	1	Magneto Complete ... ..

Postage and Carriage Charges extra.

Customers' Patterns not returned unless specially requested.





## MODEL " O " TYPE 28 SPARE PARTS LIST

Owing to market conditions, prices are subject to  
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Illus. No.	Part No.	Description	No. Off
1	17700	Cylinder Head ... ..	1
2	11964	Cylinder Head Fixing Screw ... ..	4
3	17690	Cylinder Head Fixing Screw Washer ... ..	4
4	16465	Cylinder Barrel ... ..	1
5	17622	Cylinder Base Joint Washer ... ..	1
6	10330	Cylinder Base Fixing Stud ... ..	4
7	3574	Cylinder Base Fixing Stud Nut ... ..	4
8	16468	Piston ... ..	1
9	16478	Piston Ring ... ..	2
10	16479	Piston Gudgeon Pin ... ..	1
—	SA.3044	Crankshaft Assembly Complete (items 11—17) ... ..	1
11	19723	Conrod ... ..	1
12	16480	Conrod Screw—Small End ... ..	1
13	17552	Conrod Roller—Big End ... ..	18
14	17551	Conrod Washer—Big End ... ..	2
15	16484	Crankpin ... ..	1
16	19988	Crank-Magneto Side ... ..	1
17	21462	Crank—Drive Side ... ..	1
18	20404	Crankshaft Key—Magneto Side ... ..	1
19	285	Crankshaft Nut—Magneto Side ... ..	1
20	19791	Crankcase Half—Magneto Side ... ..	1
21	19790	Crankcase Half—Driving Side ... ..	1
22	19806	Crankcase Oil Seal ... ..	2
23	17572	Crankcase Ball Bearing ... ..	2
24	19986/1	Crankcase Drain Plug ... ..	1
25	21425	Crankcase Clamping Bolt ... ..	4
26	6731	Crankcase Bolt Nut ... ..	4
27	21505	Crankcase Stud Drive Side $\frac{5}{16}$ " B.S.C. ... ..	2
28	285	Crankcase Stud Nut Drive Side $\frac{5}{16}$ " B.S.C. ... ..	2
29	18321	Crankcase Stud Spring Washer $\frac{5}{16}$ " ... ..	2
30	12121	Crankcase Screw—Magneto Fixing ... ..	2
31	9308	Crankcase Screw Washer—Magneto Fixing ... ..	2

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Illus. No.	Part No.	Description	No. Off
32	21355	Cowl ... ..	1
33	19983	Cowl Fixing Bracket—Top ... ..	1
34	19984	Cowl Fixing Bracket—Bottom ... ..	1
35	13648	Cowl Fixing Screw ... ..	4
36	17690	Cowl Fixing Screw Washer ... ..	4
37	21460	Fuel Tank with Bracket ... ..	1
38	SA.3048	Fuel Tank Cap Assembly ... ..	1
39	21375	Fuel Tap ... ..	1
40	18317	Fuel Tap Washer ... ..	1
41	21360	Fuel Pipe ... ..	1
42	19982	Starting Pulley ... ..	1
43	13531/1	Starting Pulley Fixing Screw ... ..	3
44	14414	H.T. Cable Clip ... ..	1
45	14413	H.T. Cable Grommet—Fit to Cowl ... ..	1
46	17639	Sparking Plug ... ..	1
47	21463	Sparking Plug Suppressor ... ..	1
48	21471	Sparking Plug Cut Out ... ..	1
—	21470	Sparking Plug Protector ... ..	1
49	21371	Silencer ... ..	1
50	18739	Silencer Locknut ... ..	1
51	—	Silencer Bracket ... ..	1
52	—	Silencer Bracket Locknut ... ..	1
53	17624	Exhaust Adaptor Flange Washer ... ..	1
54	20161	Exhaust Adaptor ... ..	1
55	17642	Exhaust Adaptor Stud ... ..	2
56	17690	Exhaust Adaptor Stud Washer ... ..	2
57	6731	Exhaust Adaptor Stud Nut ... ..	2
58	17547	Inlet Pipe ... ..	1
59	17621	Inlet Pipe Flange Washer ... ..	1
60	16610	Inlet Pipe Fixing Screw—Long ... ..	1
61	5250	Inlet Pipe Fixing Screw—Short ... ..	1
62	17690	Inlet Pipe Fixing Screw Washer ... ..	2
63	21479	Inlet Pipe Extension ... ..	1
64	17623	Inlet Pipe Extension Flange Washer ..	1
65	8124	Inlet Pipe Extension Fixing Screw ...	2
66	17690	Inlet Pipe Extension Fixing Screw Washer ... ..	2
—	14880A&B	Starting Cord and Toggle ... ..	1
—	14967	Sparking Plug Spanner ... ..	1
—	16811	Spanner Tommy Bar ... ..	1

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