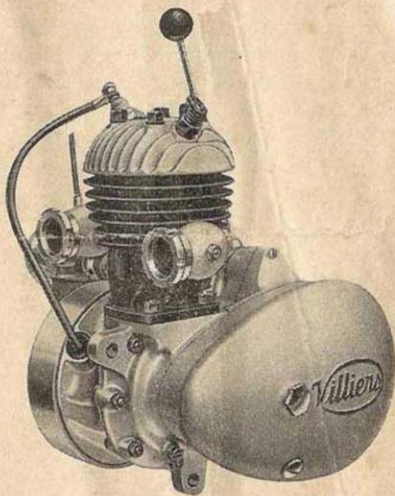


All Prices in this List are increased
by 5% from September 1st, 1936.

The VILLIERS

125 c.c.

ENGINE—GEAR UNIT



Manufactured by

THE VILLIERS ENGINEERING Co. Ltd.,
WOLVERHAMPTON, ENGLAND.

Telephone No.
21666 (3 lines).

Telegrams: "VILLIERS,
WOLVERHAMPTON."

Code: 'BENTLEYS.

RUNNING INSTRUCTIONS FOR VILLIERS 125 c.c. AND 98 c.c. UNITS.

Specification.

The VILLIERS 125 c.c. Unit is an extremely compact Engine in one assembly with a Three-speed Gearbox. The Engine is of the very latest Flat Top Piston design, Ball and Roller Bearings throughout, and the Gearbox of up-to-date construction is of the sliding dog type with a very smooth single-plate clutch. The primary chain is totally enclosed, and runs in an oil bath. The whole of the Unit is of "clean" design externally.

It is fitted with a new VILLIERS Flywheel Magneto, smaller in size than the type standardised on the larger Engine models, but built on exactly the same principle, and equally efficient both for ignition and lighting. The Flywheel Magneto is fitted with a front cover which renders it dust-proof and water-tight. A Standard VILLIERS "MIDGET" Carburetter with a really efficient Air Intake Filter is standardised on this Unit.

The complete specification of the Engine includes:—

- Flywheel Magneto.
- Carburetter with Single-lever Control and Air Cleaner.
- Sparkign Plug.
- Exhaust and Inlet Manifolds and Exhaust Pipe Nuts.
- Three-speed Gearbox.
- Clutch.
- Kick-Starter.
- Change-speed Lever.
- Primary Chain.
- Chain Cover.
- Final Drive Sprocket.

Lubrication of the Engine is by petrol, whilst separate accessible fillers are provided for the Gearbox and Primary Chain compartments.

SIZE OF ENGINE: 50 m/m Bore \times 62 m/m Stroke = 122 c.c.

This Unit is also made in 98 c.c. (50 m/m Bore \times 50 m/m Stroke), otherwise identical with the 125 c.c. Unit.

BEFORE USE.

TANK.

Fill up tank with a mixture of half a pint of Patent Castrol X.L. lubricating oil to one gallon of any No. 1 Petrol, the mixture to be made and well stirred before putting into tank.

GEARBOX.

By means of a coin remove the filler plug, which is situated on the magneto side of crankcase, midway between the cylinder and change speed control. It will not be necessary to insert oil on a new engine, but after 1,200 miles insert a quarter pint of Castrol "D" Oil.

CHAINCASE.

Remove filler plug in side of case near bottom, and insert as much Castrol "D" Oil as will enter, the plug hole being so placed as to act as a level with machine standing vertically.

STARTING.

WHEN COLD.

Turn petrol tap to ON position. Open throttle lever (inwards) about one-third and lift the strangler as far as it will go, then flood the carburetter by depressing the tickler. If the back wheel is on the ground, place gear in neutral position, then give a sharp kick on starter pedal when the engine should start. Gradually push strangler down to its fully open position, as engine warms. In very cold weather it may not be possible to do this immediately, in which case leave partly open until engine is warmed up.

WHEN HOT.

Do not flood carburetter and leave the strangler down.

FAILURE TO START.

If repeated kicks meet with no success after flooding well, (when cold), open the throttle fully and turn off petrol and resume kicking, when the engine will probably go after several half-hearted starts. The throttle should then be closed and the petrol turned on again. If this fails, clean the sparking plug, and if plug is wet with petrol remove drain plug at bottom of crankcase. The engine should then be kicked round several times with drain plug and spark plug out,

Running Instructions—contd.

petrol turned off and throttle wide open; this will blow out any surplus petroil mixture.

Reference to Villiers general Engine Instruction Book should be made if engine still refuses to start.

STOPPING THE ENGINE.

If the engine is stopped by turning off petrol tap instead of closing the throttle, an easier start will be made if the machine has to stand for a long time before re-starting.

SPECIAL DETAILS.

General instructions regarding the engine, magneto and carburetter, etc., are given in the Villiers Handbook "How to get the Best Results from VILLIERS TWO STROKE ENGINES," but there are certain special features of the Unit models not covered by the Handbook.

ENGINE.

The Gudgeon Pin is parallel and held in position by circlips which can be removed with a pair of thin-nosed pliers. The nuts holding cylinder to crankcase cannot be removed without lifting cylinder the last few threads. Forcing the nuts will result in stripped threads.

GEARBOX.

The gear lever positions are as follows:—

Bottom gear	... right back.
Neutral	... next notch forward.
Middle gear	... next notch forward.
Top Gear	... right forward.

CLUTCH.

The position of gear lever can be altered by releasing dome nut and as the centre is not keyed but fitted on a taper only, this will come off by giving a sharp tap on end of nut. When required position is obtained, lock up nut securely.

Play between end of push rod in mainshaft and clutch operating lever is taken up by screwing in operating pin after slackening lock nut. Slackness in clutch cable is taken up by means of adjuster at the top and back of gear box.

CHAIN ADJUSTMENT.

The cover of the oil bath chain case is removable for clutch and chain inspection by unscrewing the nut in centre of cover.

No chain adjustment is provided, as the chain runs in an oil bath and wear is negligible. If after long

Running Instructions—contd.

running the chain becomes too slack obtain a replacement from VILLIERS. This chain is endless and has no spring link to avoid any possibility of the chain coming off sprockets.

To fit new chain remove both engine and clutch sprockets. The engine sprocket has two tapped holes into which can be screwed set screws to act as an extractor with a plate across hexagon nut. The six springs must be removed, when the clutch sprocket will come away complete with ball race. The chain is then placed on the sprockets which are re-fitted together.

When replacing the cover take care to fit the gasket flat and intact.

MAGNETO.

The flywheel should not be removed unless absolutely necessary, and then it is advisable to use a Villiers "Hammer Tight" spanner for the centre nut. The centre nut is right hand thread, and will unscrew a small distance and then tighten again as the flywheel is extracted. When replacing flywheel the correct timing, which is $\frac{5}{16}$ " before T.D.C., is obtained by placing mark on flywheel rim opposite mark on armature plate (this will be found near the H.T. terminal) with the piston at dead top of stroke. After checking this lock up the centre nut. Access to contact breaker points, etc., is obtained by removing the cover from front of magneto, this is held in place by three small screws, which must be tight when replaced.

A connection is provided in the lighting cable a short distance from the magneto; unscrew this when removing engine from frame. Do not attempt to remove cable from inside of magneto; keep in position the rubber sleeve over the connection, otherwise a short-circuit may occur.

In the VILLIERS Lighting Set used with this Flywheel Magneto the correct Bulbs are:—

Head Lamp Main Bulb, 6 volt, .5 amp.
Pilot Bulb, 3.5 volt, .3 amp. screw in.
Tail Lamp, 3.5 volt, .3 amp. screw in.

CARBURETTER.

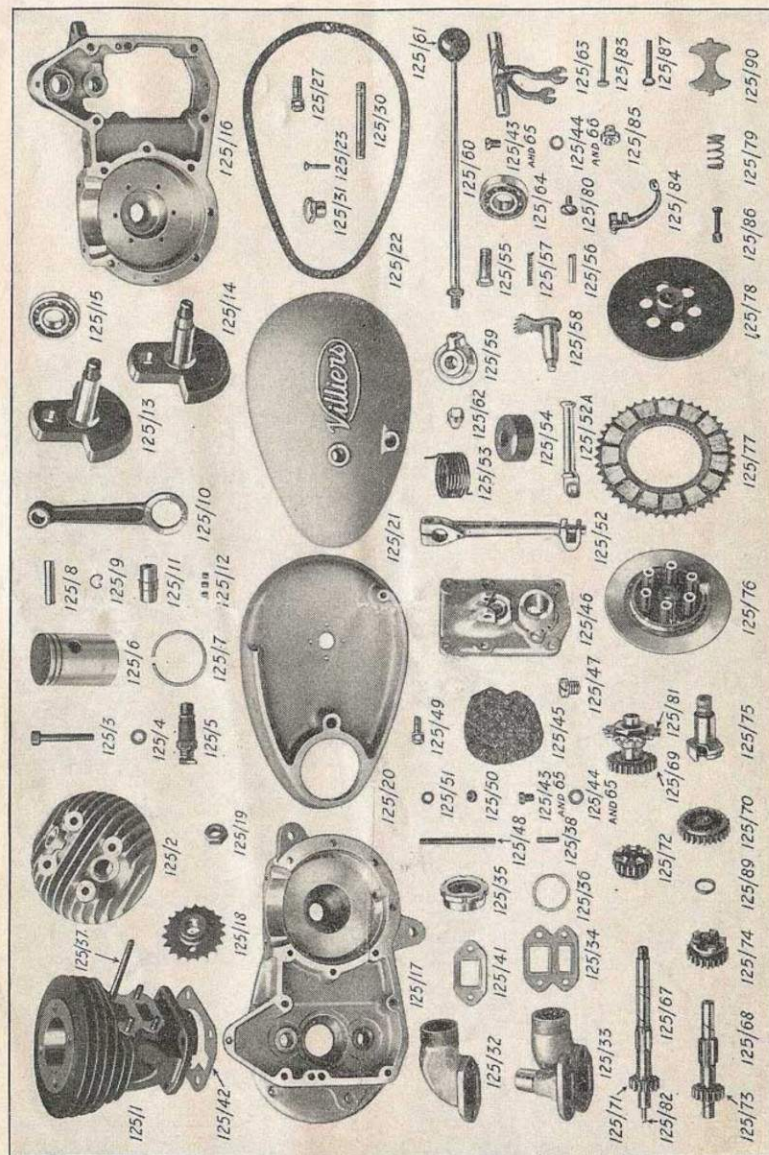
This is our Midget type, full instructions for which are given in a separate leaflet. The correct position of needle is $1\frac{3}{32}$ " measured from face of throttle to end of needle.

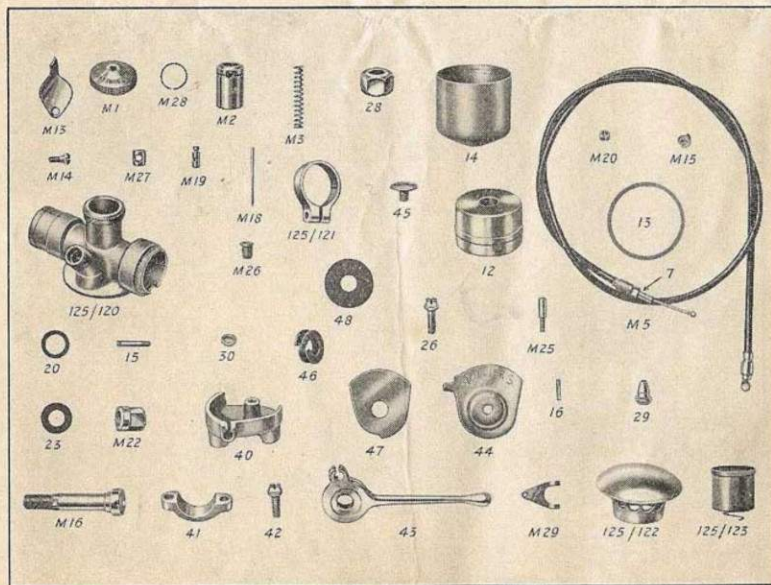
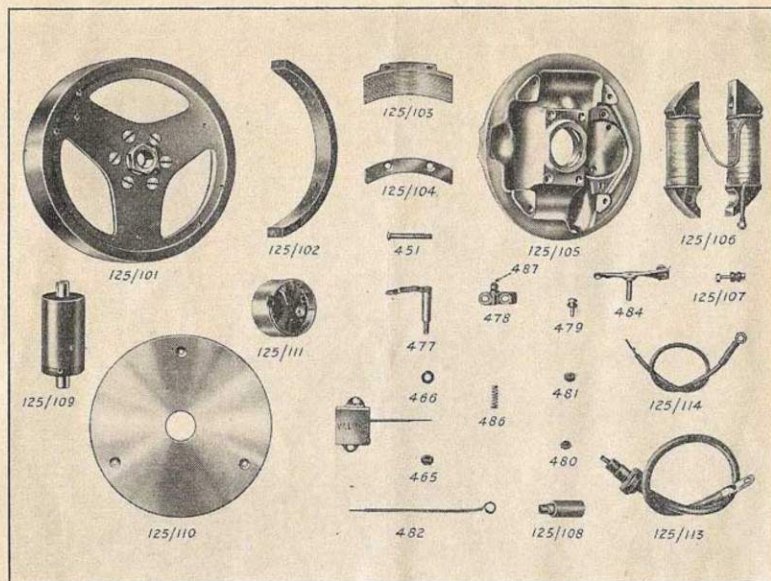
LIST OF REPLACEMENT PARTS FOR **VILLIERS 98 c.c. AND 125 c.c. UNIT ENGINES.**

(The majority of spare parts are interchangeable in both 98 c.c. and 125 c.c. Models, but where they differ a separate Part Number is quoted in the list below).

PART No.	DESCRIPTION.	PRICE.
		s. d.
125/1	Cylinder barrel	25 0
98/1	Cylinder barrel	25 0
125/2	Cylinder head	15 0
98/2	Cylinder head	15 0
125/3	Cylinder head bolt each	3 3
125/4	Cylinder head bolt washer each	1 1
125/5	Release valve complete	3 3
125/6	Piston only (bushed)	12 0
98/6	Piston only (bushed)	12 0
125/7	Piston ring each	1 3
98/7	Piston ring each	1 3
125/8	Gudgeon pin	1 6
98/8	Gudgeon pin	1 6
125/9	Gudgeon pin circlip per pair	6 6
125/10	Connecting rod with bush	9 0
125/11	Crankpin	3 0
125/12	Crankpin rollers per set	2 0
125/13	Driving shaft, right-hand half	12 0
98/13	Driving shaft, right-hand half	12 0
125/14	Driving shaft, left-hand half	12 0
98/14	Driving shaft, left-hand half	12 0
125/15	Crankshaft journal bearings each	7 6
125/16	Crankcase half, magneto side	30 0
125/17	Crankcase half, drive side	36 0
125/18	Engine drive sprocket	2 6
125/19	Sprocket nut	2 2
125/20	Chaincase inner half	12 6
125/21	Chaincase outer half	9 0
125/22	Joint washer	3 3
125/23	Chaincase screws each	1 1
125/24	Crankcase stud	2 2
125/25	Crankcase stud nut	1 1
125/26	Crankcase stud washer	1 1
125/27	Cylinder stud	1 1
125/28	Cylinder stud nut	1 1
125/29	Cylinder stud washer	1 1

THE VILLIERS 125 c.c. ENGINE—GEAR UNIT.



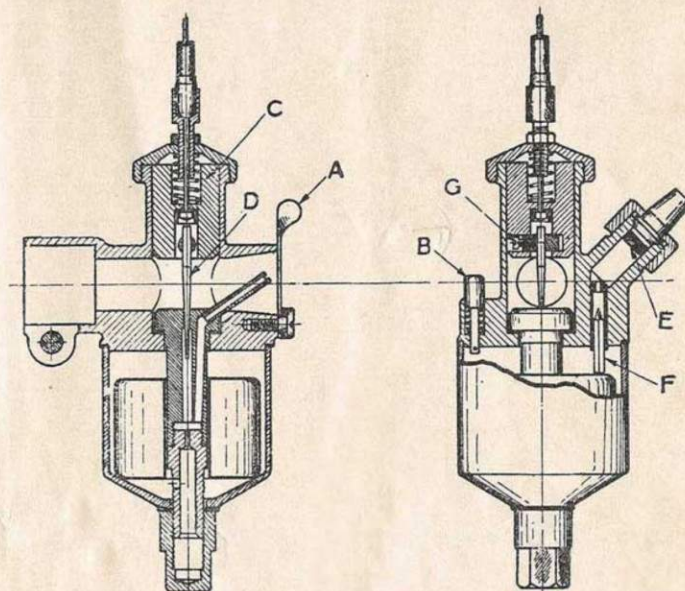


PART No.	DESCRIPTION.	PRICE.	
		s.	d.
125/30	Chain cover stud	...	3
125/31	Nut for ditto	...	1
125/32	Exhaust manifold	6	0
125/33	Combined exhaust and inlet manifold	10	0
125/34	Gasket for ditto	...	4
125/35	Exhaust pipe nut	1	0
125/36	Exhaust nut washer	...	2
125/37	Long stud for manifold	...	2
125/38	Short stud for manifold	...	1
125/39	Stud nut	...	1
125/40	Stud washer	...	1
125/41	Exhaust manifold gasket	...	3
125/42	Cylinder base washer	...	3
125/43	Crankcase drain plug	...	2
124/44	Drain plug washer	...	1
125/45	Primary drive chain	5	0
125/46	Gearbox end cover (bushed)	12	0
125/47	Gearbox filler plug	...	3
125/48	Gearbox stud (long)	...	1
125/49	Gearbox stud (short)	...	1
125/50	Nut for same	...	1
125/51	Washer for same	...	1
125/52	Kick starter lever with pedal and pivot pin	7	6
125/52A	Pedal only	2	0
125/53	Kick starter return spring	...	6
125/54	Return spring cap	1	0
125/55	Plunger box	...	6
125/56	Plunger	...	6
125/57	Plunger spring	...	3
125/58	Quadrant and spindle	2	6
125/59	Gear lever centre	5	0
125/60	Gear lever with knob (less centre)	3	0
125/61	Gear lever knob only	...	6
125/62	Dome nut	...	3
125/63	Gear selector	12	6
125/64	Gearbox ball bearing	7	6
125/65	Gearbox drain plug	...	2
125/66	Drain plug washer	...	1
125/67	Gearbox main spindle	7	6
125/68	Lay shaft	5	0
98/68	Lay shaft	5	0
125/69	High gear pinion	7	6
125/70	Kick starter pinion	7	6
125/71	Main shaft pinion	3	0

PART No.	DESCRIPTION.	PRICE.
		s. d.
125/72	Main shaft slider	4 0
125/73	Lay shaft pinion	3 0
125/74	Lay shaft slider	4 0
125/75	Kick starter shaft	7 0
125/76	Back clutch plate	7 6
125/77	44 T clutch sprocket with cork inserts ...	8 0
125/78	Front clutch plate	2 6
125/79	Clutch springs each	3
125/80	Clutch pins	3
125/81	Final drive sprocket 12 T or 13 T ...	4 0
125/82	Operating push rod	9
125/83	Push rod end	6
125/84	Clutch lever	1 9
125/85	Barrel adjuster and nut	4
125/86	Cable adjuster and nut	3
125/87	Clutch cotter and nut	3
125/88	Lock ring	9
125/89	Thrust washer	6
125/90	Sliding Operator	1 0
125/101	Flywheel with cam and nut	12 6
125/102	Magnets per pair	12 0
125/103	Pole shoes per pair	2 0
125/104	Pole shoe top plates per pair	2
451	Pole shoe screws each	1
125/105	Armature plate	6 0
125/106	Lighting coils per pair	10 0
125/107	Lighting terminal screw	3
125/108	Cable connector and sleeve	6
125/109	Ignition coil complete with core ...	15 0
125/110	Magneto cover	3 0
125/111	Condenser box only	3 0
125/112	Condenser only	5 0
478	Point clamp	6
479	Point clamp screw	1
480	Point clamp top bush	1
481	Point clamp bottom bush	1
484	Rocker arm with contact point and pad... ..	3 0
487	Screwed contact point with lock nut ...	2 0
125/113	High tension lead complete	2 9
745	6 volt, 0.5 amp. single contact main bulb	2 6
793	Pilot bulb	6
793	Tail Lamp Bulb	6

For Replacement Parts for CARBURETTER on this Engine, see Standard "MIDGET" Carburetter List.

Instructions for using VILLIERS MIDGET CARBURETTER



TO START.

Close strangler (A), press tickler (B) until petrol appears. Open throttle about $\frac{1}{3}$ and Engine should start easily. Gradually open strangler (A) as Engine warms up until fully open. If correctly set, Engine should give good two stroking in the tick-over position and take full throttle without hesitation when warm.

GENERAL RUNNING.

If four stroking occurs, throttle slide (C) should be withdrawn, and needle (D) lowered $\frac{1}{8}$ in. at a time, by slacking off screw (G) and then re-tightened.

If firing back through the carburetter occurs, needle (D) should be raised in the same manner.

Filter (E) should be cleaned periodically or petrol will not flow freely. On no account should it be left out, or grit, etc., will get into the needle (F) seating, and cause flooding.

MIDGET CARBURETTER SPARE PARTS LIST.

JANUARY, 1937.

	s.	d.		s.	d.
M.1. Top Ring - - -		8	23. Bottom Nut Washer -		1
M.2. Throttle - - -	1	8	M.22. Bottom Nut - - -		4
M.3. Throttle Spring - - -		3	M.23. Body Clamp Bolt - -		3
M.4. Body - - -	7	0	M.24. Body Clamp Bolt Nut		1
M.5. Cable complete - - -	2	6	M.25. Float Tickler complete		6
7. Cable Adjuster and Nut		6	M.26. Union Filter - - -		3
M.8. Gauze End Cap (Small)	2	0	M.27. Sleeve, Needle		
M.9. Gauze End Cap (Large)	3	0		Alignment	6
12. Float - - -	2	0	M.28. Retaining Ring,		
13. Cup Washer - - -		3		Throttle	2
14. Cup - - -	2	0	23. Union Nut - - -		3
15. Compensating Tube - -		3	29. Union Nipple - - -		3
16. Fuel Needle - - -		6	M.29. Fuel Needle Lever -		6
M.13. Strangler - - -		6	30. Gauze - - -		2
M.14. Strangler Screw - -	2		40. Control Body - - -	2	6
M.15. Strangler Spring			41. Control Body Clip - -	1	0
			42. Control Body Screw -		3
			43. Control Lever - - -	2	0
M.16. Centrepiece and Jet -	2	6	44. Top Plate - - -		8
20. Centrepiece Washer -		1	45. Top Screw - - -		3
M.18. Taper Needle - - -		4	46. Spring Washer - - -		1
M.19. Taper Needle Holder			47. Washer - - -		3
and Screw - - -	5		48. Fibre Washer - - -		3
M.20. Washer for Cable Nipple	1				

The numbers prefixed "M" are parts exclusive to the Midget Carburetter. Other parts are common with the Lightweight Carburetter.

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WE give the following guarantee with VILLIERS Engines and Accessories, in place of any implied guarantee by statute or otherwise, all such guarantees being in all cases excluded. No statement or representation contained in this catalogue shall be construed as enlarging or varying this guarantee.

In the case of engines and accessories which have been used for "hiring out" purposes, or from which our trade mark, name, or manufacturing number has been removed, no guarantee of any kind is given or is to be implied.

In the case of Engines and accessories used for purposes other than Motor Cycles, no guarantee is given or implied unless the purpose for which they are used has been approved and agreed in writing by us to come under this Guarantee.

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 three months only from the date the engines or accessories are despatched by us, and the damages for which we make ourselves responsible under this guarantee are limited to the replacement of a part manufactured by us which may have proved defective.

We do not undertake to re-fit or bear the cost of replacement or re-fitting such new part. We guarantee, subject to the conditions mentioned below, to make good at any time within three months any defects in these respects. As VILLIERS Engines and Accessories are liable to derangement by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse and neglect.

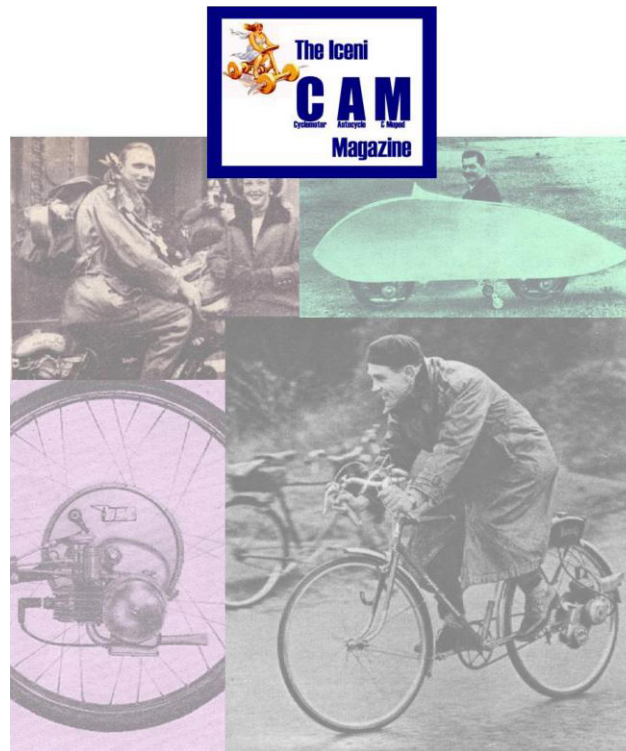
Conditions of Guarantee.

If a defective part should be found in our engines or accessories, it must be sent to us carriage paid and accompanied by an intimation from the sender that he desires to have it repaired free of charge, under our guarantee, and he must also furnish us at the same time with the number of the engine, and full particulars of purchase. Failing compliance with the above, no notice will be taken of anything that 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.

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