



Illustrated
SPARE PARTS LIST
FOR
MARK 3K
(50 c.c.)
**TWO-STROKE TWO-SPEED
ENGINE-GEAR UNIT**

THE VILLIERS ENGINEERING CO. LTD.
WOLVERHAMPTON . . ENGLAND.

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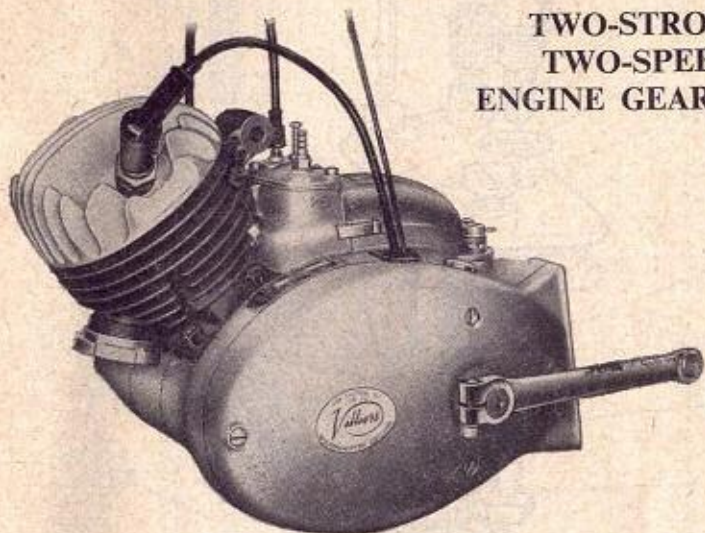
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Villiers

Mark 3K

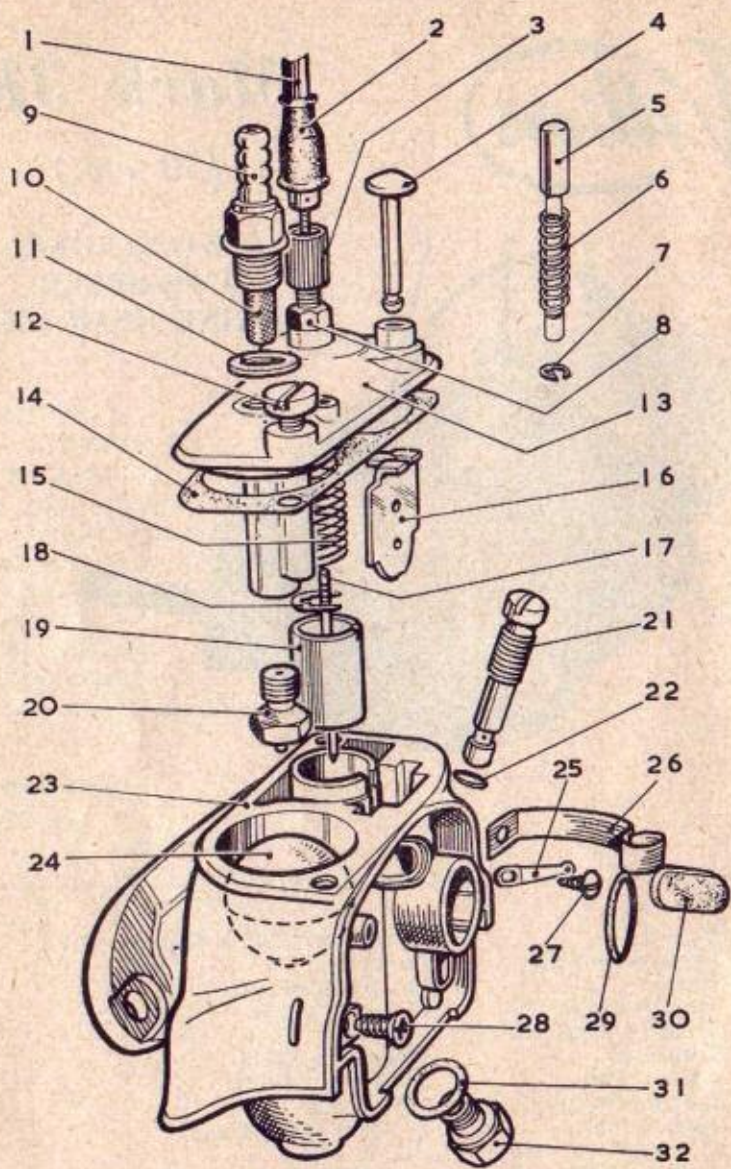
(50 c.c.)

**TWO-STROKE
TWO-SPEED
ENGINE GEAR UNIT**



TECHNICAL DATA

Capacity	40 m.m. bore x 39.7 m.m. stroke = 50 c.c.
Compression Ratio ...	7 to 1
Power	2 b.h.p. @ 5,500 r.p.m.
Gearbox Reductions ...	1 to 3.06, 1 to 1.71
Primary Drive Reduction	1 to 3.16
Carburettor	Villiers Type SM.10
Sparking Plug	Lodge BN. 14 m.m.
Sparking Plug Gap018" to .022"
Ignition Timing	$\frac{1}{2}$ " before top dead centre
Contact Breaker Gap012" to .015"
Lighting Coil Output ...	6 volts 18 watts
Exhaust Pipe	1" outside diameter
Lubrication—Engine ...	Petroil—1 part Castrol XL to 24 parts petrol
Lubrication—Gearbox ...	$\frac{1}{8}$ pint Castrol XL



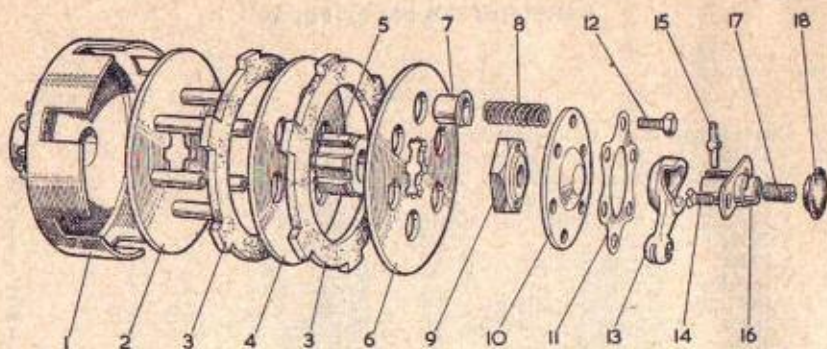
CARBURETTER TYPE SM. 10 Fig. 1

CARBURETTER SM.10 Fig. 1

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
1	Quote Engine No.	Cable, throttle	1	6	0	0
2	V.826E	Cover, cable adjuster	1		9	
3	V.120 × 5E	Adjuster, cable	1	10		
4	V.1571E]	Knob, strangler	1	6		
—	V.1710E]	Spring, (not fitted on later engines)	1	1		
5	V.2031E]	Tickler	1	3		
6	V.2036E	Spring, tickler	1	4		
7	V.1590E	Circlip	1	2		
8	V.105 × 2E	Nut, cable adjuster	1	2		
—	V.1687E	Nipple, control cable	1	1		
9	V.986E	Union, fuel supply	1	2	0	
or	V.1341E	Banjo union	1	10		
with	V.1342E	Bolt	1	2	6	
10	V.1387E	Gauze, fuel union	1	9		
11	V.1397E	Washer, fuel union	1 or 2	1		
12	V.1575E	Screw, top cover	2	5		
13	V.1601C	Cover, top	1	1	3	
14	V.1899E	Washer, joint, for body	1	2		
15	V.1299E	Spring, throttle	1	1		
16	V.1988E	Plate, strangler	1	3		
17	V.2030E	Needle, taper, No. 7A	1	2	0	
18	V.1569E	Clip, taper needle	1	1		
—	V.2069E	Circlip, retaining clip on taper needle	1	1		
19	V.1763E	Throttle No. 3	1	1	6	
20	V.1459E	Fuel needle, assembly	1	3	3	
21	V.1964E	Main jet, assembly	1	1	6	
22	V.1995E	Ring, sealing, main jet	1	4		
23	V.1557C	Body, carburetter	1	6	3	
24	V.1031E	Float	1	2	9	
25	1035 × 6E	Clip, spring, strangler plate	1	1		
26	V.1349D	Clip, filter	2	5		
27	E.11531	Screw, strangler plate spring	1	1		
28	E.11532	Screw, filter clip	2	1		
29	V.1864E	Ring, sealing filter/carburetter	1	6		
30	V.1781E	Plug, sealing, rubber	1	2		
31	V.1633E	Washer, bottom plug	1	1		
32	V.1577E	Plug, bottom, body	1	5		

SERVICE TOOLS

PART NO.	DESCRIPTION	PRICE		
		£	s.	d.
ST.2285D	Sprocket extractor		6	0
ST.2289D	Clutch nut and exhaust nut spanner		5	0
ST.2290D	Flywheel extractor		5	0
ST.2291D	Piston heating tool	10	0	0
ST.2301D	Clutch hub extractor	12	6	
ST.2302D	Connecting rod clamp		6	0
ST.2312D	Oil seal insertion tool		6	0
ST.2313D	Oil seal insertion tool		4	0



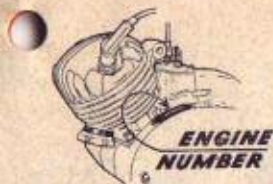
CLUTCH ASSEMBLY Fig. 2

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
1	D.11118	Cage, driving with 10T sprocket ...	1	15	0	
or 2	D.11716	Cage, driving with 12T sprocket ...	1	15	0	
3	D.11112	Plate, rear ...	1	8	9	
4	D.10867	Plate, friction ...	2	4	0	
5	D.10765	Plate, centre ...	1		9	
6	E.10790	Hub, splined ...	1	8	6	
7	D.10764	Plate, front ...	1	3	6	
8	E.10798	Cup, spring ...	6		8	
9	E.10429	Spring, actuating ...	6		7	
10	E.10801	Nut, R.H. drive shaft ...	1	2	9	
11	E.10763	Plate, pressure ...	1	1	0	
12	D.10800	Plate, locking, pressure plate bolts ...	1		3	
13	E.10793	Bolt, pressure plate ...	6		5	
14	E.10081	Lever, clutch ...	1	15	0	
15	E.10912	Screw, clutch lever bush ...	2		4	
16	E.10078	Spindle, clutch follower ...	1		2	
17	E.10077	Bush, clutch lever location ...	1		9	
18	E.10089	Screw, clutch adjusting ...	1		4	
	E.10848	Plug, sealing, clutch adjuster ...	1		3	

TOOLS, SPARK PLUG and COVER

PART NO.	DESCRIPTION	PRICE EACH		
		£	s.	d.
M.2715E	Screwdriver		2	3
M.2693E	Feeler gauge			6
Lodge BN	Sparking plug, 14 mm			†
M.2490E	Cover, sparking plug with built-in suppressor		4	6

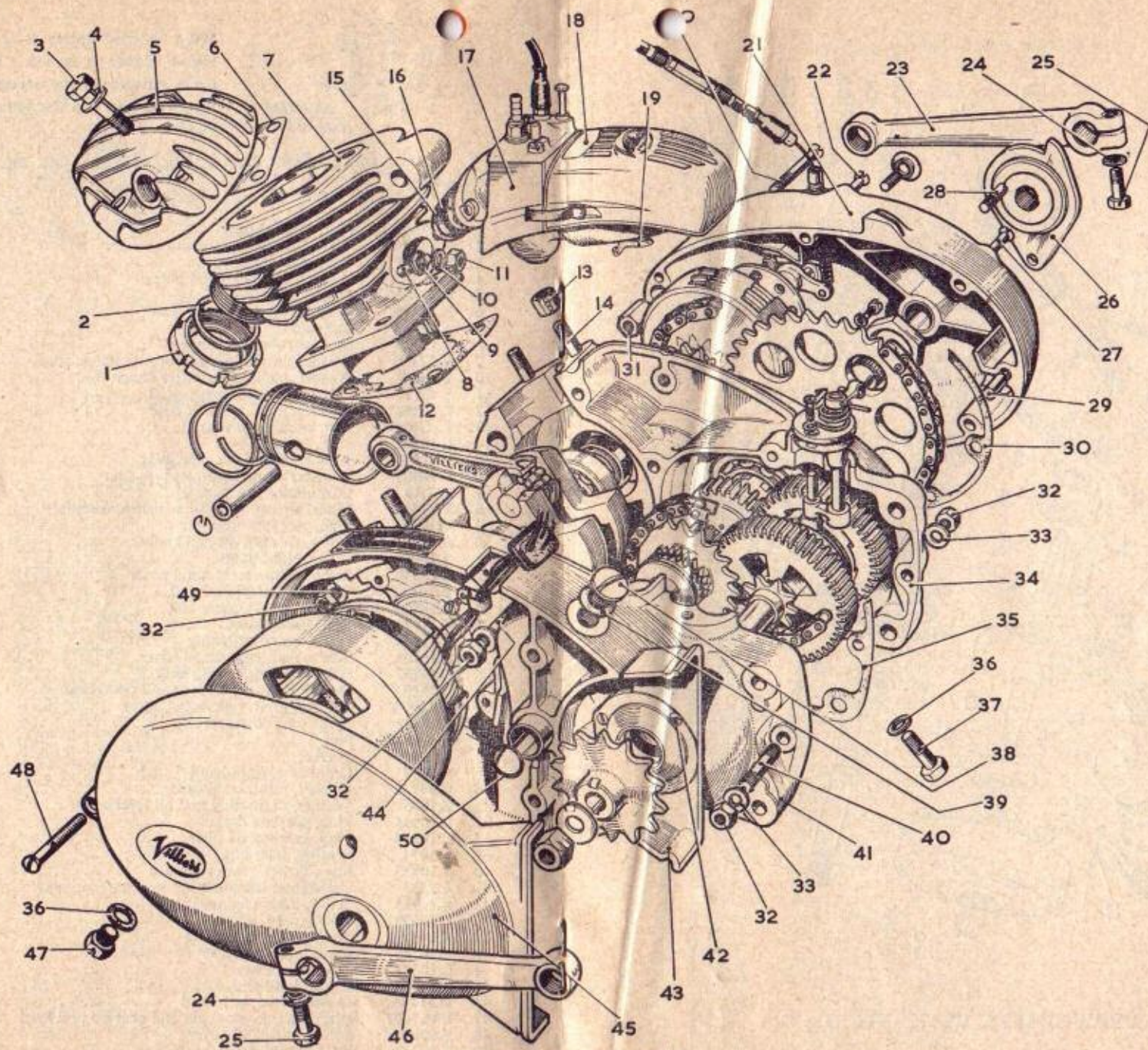
† Manufacturers current price.



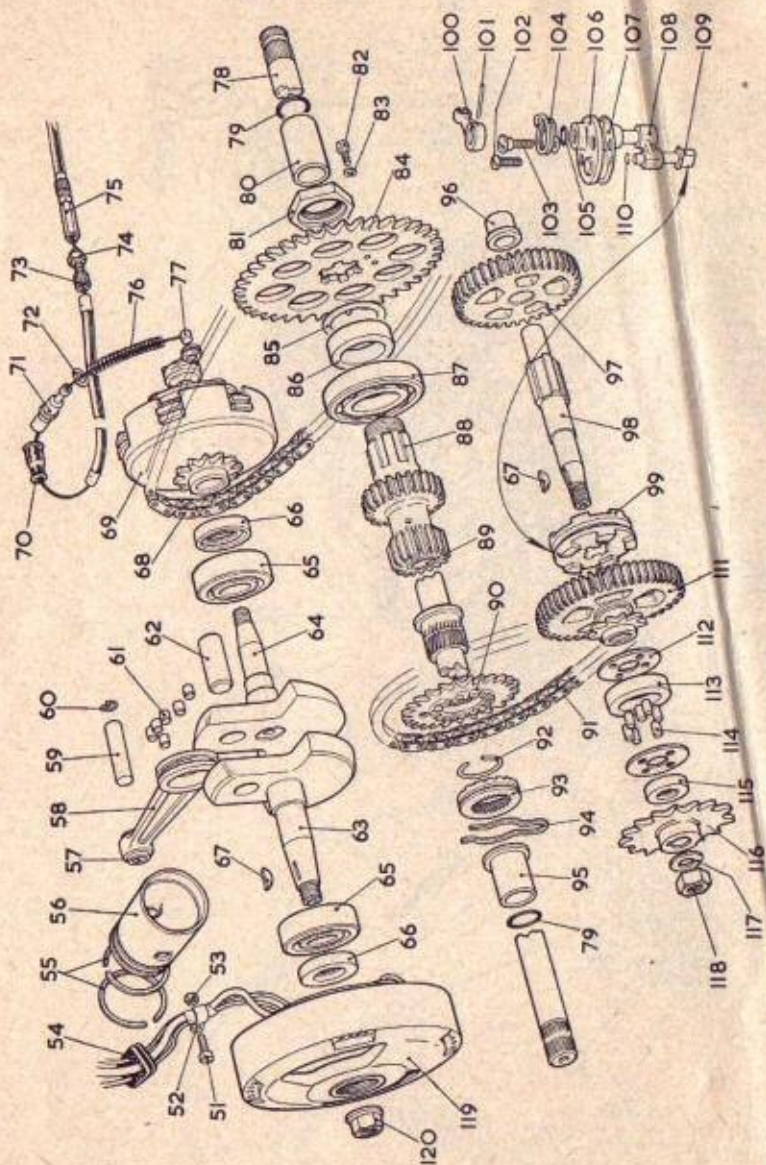
When ordering spares it is important that the engine number is quoted. This number will be found stamped on the nameplate. Always quote the part number and description, not the illustration number.

CRANKCASE, GEARCASE, COVERS, Etc. Fig. 3

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
1	E.9928	Nut, exhaust pipe	1		6	3
2	E.9929	Washer, exhaust pipe nut	1			4
3	E.10871	Bolt, cylinder head	4			6
4	E.2667/1	Washer, cylinder head bolt	4			1
5	B.10754	Head, cylinder	1	10		6
6	E.11338	Washer, joint, cylinder head	1			4
7	A.10827/1	Cylinder	1	3	15	0
8	E.11715	Stud, carburetter flange	2			5
9	V.1735E	Washer, insulating, carburetter flange stud	2			1
10	W.210E	Washer, plain, carburetter flange stud	2			1
11	E.10911	Nut, carburetter flange stud	2			2
12	E.10352	Washer, joint, cylinder base	1			1
13	EM.1669	Nut, cylinder base stud	4			3
14	E.10908	Stud, cylinder base	4			8
15	E.11041	Washer, thin, inlet pipe joint	3			1
16	E.10505	Washer, insulating, inlet pipe joint	2			1
17	SM.10	Carburetter (see page 2)	1	1	9	0
18	V.1721C	Filter, air and induction silencer assembly	1		7	0
19	V.1726E	Plug, air filter oil drain	1			3
20	E.9906	Screw, front, right-hand cover	1			5
21	A.10064	Cover, right-hand	1	1	6	0
22	E.10349	Screw, centre right-hand cover	1			5
23	D.10386	Crank, pedal, right-hand	1	18		0
24	E.10856	Washer, pedal crank bolt	2			3
25	E.11723	Bolt, pedal crank	2			8
26	E.11054	Lever, brake actuating	1	7		3
27	E.10702	Screw, rear, right-hand cover	2			5
28	E.10752	Stop, brake actuating lever	1			3
29	E.7619	Dowel, right-hand cover and crankcase	2			5
30	D.11090	Washer, joint, right-hand cover	1			1
31	E.10351	Nut, front dowel screw	1			2
32	EM.1565	Nut	11			2
33	E.2924	Washer	11			1
34	A.9834	Crankcase, right-hand	1	3	0	0
35	C.10738	Washer, joint, crankcase	1			1
36	E.1905	Washer, drain plug and oil level screw	3			1
37	E.10933	Plug, gearbox drain	1			4
38	E.10954	Plug, gearbox oil filler	1			6
39	V.107 × 3E	Washer, filler plug	1			1
40	E.10935	Stud, dowel, rear crankcase	1			4
41	A.9833	Crankcase, left-hand	1	3	10	0
42	E.10913	Screw, inner chainguard	3			3
43	C.10339	Chainguard, inner	1	2		9
44	E.10345	Stud, centre, crankcase	2			5
—	E.10346	Stud, top, crankcase	1			5
—	E.10347	Stud, crankcase	3			5
45	A.10720	Cover, left-hand	1	15		0
46	D.11726	Crank, pedal, left-hand	1	18		6
47	EM.1677	Screw, crankcase drain and gear box oil level	2			2
48	E.9907	Screw, left-hand cover	3			5
49	E.10343	Stud, dowel, front, crankcase	1			5
50	E.11926	Ring, sealing, left-hand cover	1			6



ENGINE GROUP Fig. 3



DRIVE SHAFTS, GEARS ETC. Fig. 4

DRIVE SHAFTS, GEARS, Etc. Fig. 4

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
51	E.11777	Screw, clip, H.T. and L.T. leads ...	1			4
52	D.10928	Clip, H.T. and L.T. leads ...	1			3
53	E.11778	Nut, lead clip screw ...	1			1
54	M.3095E	Grommet, rubber, 3 holes ...	1			3
55	E.10876	Ring, piston, standard size ...	2	1		6
or	E.11535	Ring, piston, .015" O/S ...	2	1		6
or	E.11536	Ring, piston, .030" O/S ...	2	1		6
—	E.12016	Ring, Expander ...	1			6
56	E.11530	Piston, standard size ...	1	13		6
or	E.11533	Piston, .015" O/S ...	1	13		6
or	E.11534	Piston, .030" O/S ...	1	13		6
57	E.10860	Bush, connecting rod small end ...	1			0
*58	D.10859	Connecting rod, standard size ...	1	1	15	0
*or	E.11539	Connecting rod, .001" O/S ...	1	1	15	0
59	E.10858	Pin, gudgeon ...	1	2		0
60	E.10880	Circlip, gudgeon pin ...	2			2
61	E.9777	Rollers, crankpin, $\frac{1}{8} \times \frac{3}{16}$ " ...	24			4
*62	E.7647	Crankpin, standard ...	1	2		9
*or	E.9024	Crankpin, .001" O/S ...	1	2		9
*63	D.10717	Shaft, driving, left-hand ...	1	1	16	6
*64	D.10799	Shaft, driving, right-hand ...	1	1	16	6
65	17×40×12	Bearing, ball ...	2		†	
—	Mk. 3K	Driving Shaft Assembly ...	1	4	15	0
66	E.11069	Seal, oil ...	2	1		3
67	E.4873	Key, woodruffe ...	2			5
68	110037	Chain, primary, .225" wide, 44 pitches ...	1		†	
69	—	Clutch, (see page 4)				
—	Quote Engine No.	Clutch cable assembly ...	1	8		9
70	V.826E	Cover, waterproof, clutch cable ...	1			9
71	D.11044	Bush, clutch cable ...	1	1		3
72	E.11045	Washer, clutch cable ...	1			1
73	V.683E	Adjuster, clutch cable ...	2			10
74	V.105×2E	Nut, clutch cable adjuster ...	2			2
75	E.8098	Sleeve, clutch cable adjuster ...	1	1		0
76	E.11627	Spring, clutch cable ...	1			1
77	E.11049	Nipple, clutch cable ...	1			2
78	D.10719	Shaft, pedal ...	1	1	18	6
79	E.11071	Ring, sealing, pedal lever shaft ...	1			6
80	E.9845	Bush, plain, pedal lever shaft (right-hand) ...	1	1		9
81	E.11722	Locknut, primary chainwheel ...	1	1		3
82	E.5561	Lockscrew, primary chainwheel nut ...	1			3
83	E.7529	Washer, spring, lockscrew ...	1			1
84	D.11697	Chainwheel, primary, 38T ...	1	13		0
85	E.10675	Shim, chainwheel, .006" ...				1
—	E.10676	Shim, chainwheel, .012" ...				1
—	E.10677	Shim, chainwheel, .024" ...				1
86	E.9860	Distance piece, primary drive sprocket ...	1	1		3
87	25×52×9	Bearing, ball, pedal shaft ...	1		†	
88	D.10757	Gear cluster with bush ...	1	2	4	6
89	E.11053	Bush, gear cluster ...	1			9
90	D.9903	Sprocket, pedal shaft chain ...	1	1	1	9
91	E.11075	Chain, pedal shaft, 26 pitches ...	1		†	
92	E.11079	Circlip, retaining chain sprocket ...	1			1
93	D.9902	Sleeve, ratchet pedal shaft ...	1	8		3
94	D.9923	Spring, drag, ratchet sleeve ...	1			2
95	E.9846	Bush, headed, pedal shaft (left-hand) ...	1	2		3
96	E.9844	Bush, countershaft bearing ...	1	1		9

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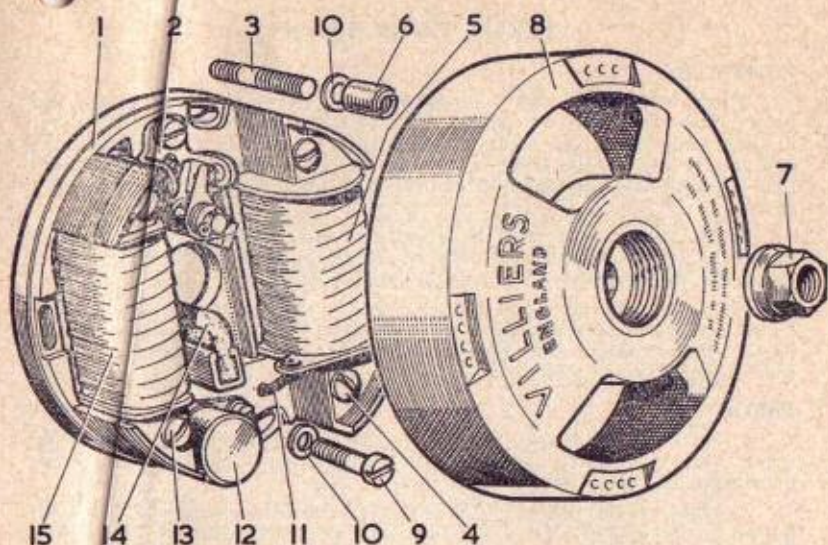
ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
97	D.10755	High gear wheel	1		19	6
98	D.11428	Countershaft	1	1	5	0
99	E.9856	Hub, gear selector	1		14	0
100	E.9919	Lever, gear-change	1		7	0
101	E.11072	Pin, taper	1			2
102	E.9911	Screw, gear bracket, short	1			4
103	E.9912	Screw, gear bracket and spring location	1			4
104	E.9922	Spring, gear selector lever	1			4
105	EM.2152	Ring, sealing, rubber	1			5
106	E.9835	Bracket, gear change	1	3	6	
107	E.11114	Washer, joint, gear-change bracket	1			1
108	E.9843	Lever, gear selector	1		9	6
109	E.9918	Slider, gear selector	1	1	0	
110	E.11073	Circlip, gear selector slider	1			1
111	D.9875	Low gear wheel and countershaft sprocket	1	1	13	9
112	E.11426	Washer, thrust, countershaft bearing	2			8
113	E.11425	Bearing, countershaft outer race	1		7	6
114	E.9311	Roller, countershaft bearing, $\frac{3}{16} \times \frac{3}{16}$	12			4
115	E.11437	Seal, oil, countershaft	1		1	6
116	D.11403	Sprocket, final drive, 12T	1	16	6	
117	E.10748	Lockwasher, final drive sprocket	1			1
118	E.10747	Nut, final drive sprocket	1			9
119	R.243/A.43	Flywheel magneto (see page 11)				
120	E.10927	Nut, flywheel fixing (see page 11)				

*These items can be supplied, but the separation of the crankshaft assembly should not be attempted in the normal workshop as re-assembly is a specialised factory operation. The standard size crankpin must be used only with new left and right-hand drive shafts.

†Manufacturers current price.

continued from opposite page

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH		
				£	s.	d.
13	V.1440E	Screw, lighting coil	2			1
14	M.2981E	Pad, lubricating	1			1
15	M.2993E	Coil, lighting	1	9	0	
—	M.2911E	Shoe, L.T. lead	2			1
—	M.3106E	Lead, lighting coil (yellow)	1			8
—	M.3107E	Lead, cut-out (black)	1			8
—	M.3108E	Lead, H.T.	1	4	0	
—	E.4873	Key, Woodruffe	1			5



FLYWHEEL, ARMATURE PLATE and CONTACT BREAKER Fig. 5

ILLUS. NO.	PART NO.	DESCRIPTION	QTY.	PRICE EACH
				£ s. d.
1	A.40	Armature plate complete (with coils, contact breaker, condenser, etc.)	1	3 15 0
or	A.43	Armature plate complete (with cut-out lead)	1	3 15 0
2	—	Contact breaker assembly comprising the following parts:—		
	M.2979D	Rocker arm	1	6 0 0
	M.2982D	Point bracket	1	2 0 0
	M.3019E	Screw, fixing point bracket	1	2
	M.3114E	Washer, point bracket and terminal screws	2	1 1
	M.2763E	Bolt, point bracket L.T. lead terminal	1	2
	M.2138E	Bush, insulating, for L.T. terminal bolt	1	5
	M.1805E	Washer, insulating, L.T. lead terminal	1	1 1
	M.2714E	Washer, shakeproof, L.T. lead terminal	1	1 1
	EM.1001	Nut, point bracket bolt, brass	1	1 1
	M.2984E	Cam, point bracket adjuster	1	3
	M.2986E	Washer, fibre, rocker pivot pin	2	1 1
	M.2985E	Washer, brass, rocker pivot pin	1 or 2	1 1
	M.3127E	Washer, rocker pin	as	1 1
	M.3128E	Pin, split, " " " " " "	reqd.	1 1
	V.111 × 2E	Pin, split, rocker pivot	1	1 1
3	E.10705	Stud, armature plate fixing	1	5
4	M.3111E	Screw, ignition coil fixing	2	2
—	M.3112E	Washer, shakeproof, coil screws	4	1 1
5	M.2994E	Coil, ignition	1	1 10 0
—	M.3136E	Screw, H.T. coil pick-up pad	1	1 1
6	E.10905	Nut, armature plate stud	1	2
7	E.10927	Nut, flywheel fixing	1	9
8	R.243	Flywheel complete	1	2 17 6
9	E.10936	Screw, armature plate fixing	2	4
10	M.2973E	Washer for screws and stud	3	1 1
11	M.3105E	Lead, ignition coil to contact breaker	1	4
12	M.2754E	Condenser	1	5 6
—	M.3019E	Screw, condenser fixing	1	2
—	M.2714E	Washer, shakeproof, condenser screw	1	1

TERMS OF BUSINESS

ESTIMATES

If requested at the time of despatch, we are prepared to give an estimate before proceeding with any repair. This entails a certain amount of labour in dismantling to ascertain what new parts will be required, and therefore, in the case of any estimate not being accepted, a charge is made for our mechanic's time in taking down the engine for report and the re-building, and return carriage costs.

Estimates must be treated as approximate only. We reserve the right to include additional parts should these be found, on further examination or on bench test, to be necessary, to make the repair satisfactory.

We do not undertake to fit to engines sent to us for overhaul parts specified by the customer if we consider that other parts are necessary to make an efficient repair. In such cases, we are prepared to supply the customer's requirements in spares, but we do not undertake to fit them.

IMPORTANT

1.—In correspondence, and when ordering replacement assemblies or spares, always quote the Engine Specification and Serial Number stamped on the nameplate. (See page 5 for example).

The **Magneto** also bears a SPECIFICATION Number (example: R.243/A.40) but no Serial Number. The "R" (Rotor or Flywheel), and "A" (Armature Plate) Number is stamped on the Rim of the Flywheel.

The **Carburetter** bears no identification marks.

2.—When sending parts for replacement, repair or as pattern, the name and address of the sender should always be securely attached, and full instructions explaining what is required must also be sent separately by post. In no circumstances should instructions be sent only with the parts as they are liable to be lost or damaged in unpacking.

3.—If an engine is sent for repair, it should be well packed in a strong wooden box. Cardboard or a sack is insufficient, and engines so packed are liable to get seriously damaged in transit. Packing cases are not returnable unless specially asked for at the time of sending to us.

4.—All goods must be consigned to us carriage paid, addressed to "Service Dept." Goods returned by rail are consigned carriage paid.

5.—As we are not the manufacturers of complete vehicles or other machines, **only the engine, magneto and carburetter should be sent to us.** If machines are forwarded an extra charge will be made for dismantling the engine from the machine and returning the components that are not of our manufacture.

6.—We prefer to bench test every repaired engine before returning it, therefore it is always advisable to send the engine complete with its magneto, sparking plug and carburetter.

7.—When forwarding a flywheel magneto for overhaul, send the armature plate, flywheel and contact breaker assembly.

8.—Any engine or sub-assembly sent to our Works for repair and not paid for within 12 months from the date of our estimate or from the date the owner is notified of completion of repair, will be dealt with under The Disposal of Uncollected Goods Act, 1952.

9.—An extra amount must always be included in remittances to cover the cost of postage or carriage and packing on spare parts. This is 5% extra up to £10 value. Minimum extra is 1/-. Stamps cannot be accepted for items over 1/- (one shilling) in value.

10.—When making remittances by telegraph money order, the name and address of the sender must be included in the space provided on the Post Office Requisition Form for a private message from remitter to payee. Unless this is done, the Post Office does not give this information upon the telegram.

GUARANTEE

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.

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 to be in force for six 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 cannot accept responsibility for the replacement of any proprietary articles or parts not manufactured by us, unless the makers of these parts agree to replacement.

We do not undertake to refit or bear the cost of replacement or refitting such new part. We guarantee, subject to the conditions mentioned below, to make good at any time within six 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.

THE TERM "AGENT" is used in a complimentary sense only, and those firms whom we style our agents are not authorised to advertise, incur any debts or transact any business whatsoever on our account other than the sale of goods which they may purchase from us, nor are they authorised to give any warranty or make any representations on our behalf or sell subject to or with any conditions other than those contained in the above guarantee.

The guarantee becomes void if any parts not made or supplied by THE VILLIERS ENGINEERING COMPANY, LTD., are fitted to a VILLIERS engine. To safeguard his own interests, the owner should always insist upon genuine VILLIERS parts.

THE VILLIERS ENGINEERING COMPANY LTD.

Marston Road - - - - Wolverhampton.

TELEPHONES:—

22399 (20 lines)

TELEGRAMS:—VILLIERS,

WOLVERHAMPTON.

Villiers

*The Power and the Heart
of a fine machine*