OPERATING INSTRUCTIONS

AND

SPARE PARTS LIST FOR THE VILLIERS TWO STROKE ENGINES

Mk. 24C & Mk. 25C

ALL PRICES IN THIS LIST ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SEPT. 1950

Price 6d.

The Villiers Engineering Co. Ltd.

WOLVERHAMPTON, England

ESTABLISHED 1898

Telegrams: "VILLIERS" WOLVERHAMPTON

Telephone: 21666-7-8 WOLVERHAMPTON 20851 SERVICE DEPT.

KEEP THIS BOOK SAFELY FOR REFERENCE

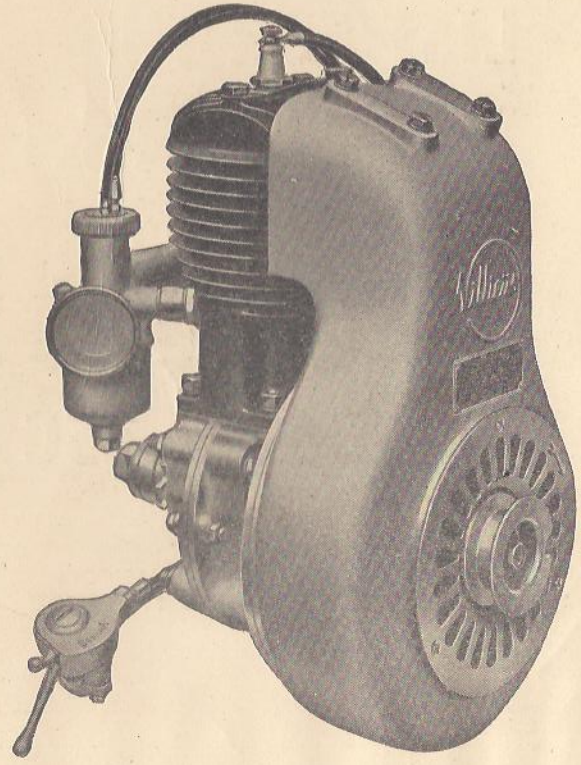
OPERATING INSTRUCTIONS

FOR THE

VILLIERS ENGINES

TWO **Mk. 24C & Mk. 25C** *STROKE*

Bore : 55 mm. Stroke : 62 mm. Capacity : 147 cc



BEFORE STARTING THIS ENGINE FOR THE FIRST TIME READ OPERATING INSTRUCTIONS CAREFULLY

THE Mk. 24C & Mk. 25C ENGINES

OPERATING INSTRUCTIONS

1. FIXING.

The engine should be securely fixed and stand reasonably upright, otherwise lubrication and carburation will be adversely affected.

2. BEFORE STARTING.

This engine is lubricated by petroil, which is a mixture of oil and petrol in the proportion of half a pint of lubricating oil to one gallon of petrol. The useful life and amount of good service the engine will give, depends almost entirely upon the way it is lubricated, especially during the early stages of its life.

PATENT CASTROL XL OIL, obtainable at most garages, has been found to give good results, and as it is advisable always to use one particular brand of oil and not to change from one to another, Villiers owners are advised to adopt this brand regularly.

The Villiers engine is as reliable as engineering skill can make it, and the only constant attention which the owner is asked to give it, is to ensure that the correct oil is thoroughly mixed with the petrol before putting into fuel tank,

An oil measure is fitted to the tank filler cap, the required number of measures being stated on the cap.

3. TO START — WHEN COLD.

Mk. 24C Engine :—STANDARD CARBURETTER, LIGHT-WEIGHT, TWO-LEVER CONTROL.

After putting petroil mixture in fuel tank turn tap on. Raise carburetter needle by moving short control lever to position marked "RICH." Press tickler at side of carburetter body until petroil is seen to drip, there is no need to allow fuel to run to waste.

Open throttle control lever about one-third of its full opening.

In the case of invalid chairs, trucks, etc., see that the gears are in neutral before attempting to start engine.

The engine can now be started by the usual hand lever fitted on invalid chairs, or rope in the case of stationary engines, in the latter case, the rope is wound round the starter pulley in a clockwise direction, placing the plain end in the notch provided. Give a brisk pull to rotate the engine, pulling the rope clear of starting pulley.

After engine has started, gradually lower needle by moving control lever towards "WEAK" position (marked on Top Plate

Illustration 38, page 20) as far as possible consistent with good running, when it should not be necessary to move the jet lever until again starting from cold.

Mk. 25C Engine.

Two types of carburetter are fitted to this engine, both having a single control lever. (1) The "Junior" Pattern; (2) The "Lightweight" Model. The strangler fitted to the "Junior" carburetter has to be closed for starting, there being no separate control to raise the taper needle. Where the "Lightweight" carburetter is fitted the needle is raised by turning needle bar (Illustration 29, page 18) anti-clockwise as far as possible, the needle being lowered to the running position after starting by turning needle bar clockwise.

The engine is arranged for starting by a rope as described above for the Mk. 24C Engine.

4. TO START — WHEN HOT.

The same procedure as for cold starting should be adopted, except that it should not be necessary to raise the taper needle, close strangler, or to flood by pressing tickler.

FAILURE TO START.

If the engine will not start after a reasonable number of trials, ascertain whether this is due to lack of compression, faulty fuel supply, or faulty ignition.

COMPRESSION should be felt when the engine is rotated at normal starting speeds with throttle partly open.

FUEL SUPPLY.

Depress tickler at side of carburetter body. If fuel is reaching float chamber it will spurt out of vent at top of tickler.

IGNITION SYSTEM.

Unscrew sparking plug from cylinder head and place it with ignition cable attached, on a metal portion of the engine. When the engine is rotated a spark should be visible at the plug points, if the plug and ignition system are in order. If there is no spark, try a new plug or alternatively check whether spark occurs at the end of the ignition cable when this is held about one-eighth inch away from a clean metal part of the engine.

After these preliminary tests it will be clear where a more detailed examination may be required.

5. RUNNING IN.

Whilst the engine is new, it is advisable to add a little extra oil to the petrol and also to set the carburetter needle adjustment a little on the "rich" side rather than too weak.

MAINTENANCE AND REPAIRS

1. DECARBONISING.

Decarbonising the Villiers Two-Stroke Engine is quite straightforward, because of the simplicity of this type of unit, the following points, however, are worth special attention.

When removing and replacing the cylinder, care should be taken not to twist it round the piston—it should be pulled off or pushed on straight so that the rings cannot catch in any of the ports and break.

All carbon should be removed from inside the piston head, as well as from the top of the piston and from the cylinder head. The ports in the cylinder—particularly the exhaust port, should receive careful attention, and should be kept clean, but on no account must the size or shape of these ports be altered by filing.

Piston ring grooves must be kept free from carbon in order to leave the rings quite free. Piston rings should be bright round their surface which makes contact with the cylinder bore. Should wear cause the joint gap to exceed 1/32 in. when in the cylinder, the piston ring should be replaced.

Carbon will form on the gudgeon pin at either side of the small end bush, and this should be carefully removed, otherwise difficulty will be experienced in removing the pin from the piston. The small end bush and the piston bosses should be kept quite free from carbon.

It is of the utmost importance that silencers and exhaust pipes are kept quite clean internally, and that a heavy deposit of carbon is not allowed to accumulate. This would cause back pressure and loss of power.

It is important that air leaks should be avoided.

The connection between carburetter and induction pipe must be absolutely airtight, and after dismantling an engine, new washers should always be fitted at the induction pipe joint, and cylinder base joint, if the original ones have been disturbed.

2. SPARKING PLUG.

The type recommended for the Mk. 24C Engine is the Lodge H3, and for the Mk. 25C, Lodge C3, both 18 mm. dia. thread.

Clean and reset the points .025 in. gap after each 100 hours operation.

Adjustment of the gap should be done by moving the points attached to the outer body of the plug. *Never bend the centre pin.* Keep the outside of the plug insulation free from water and dirt. When screwing the plug in the cylinder head, should any undue stiffness be experienced, do not use force but examine the thread for any particles

of grit or carbon which may be present. These must be removed, otherwise the threads in the cylinder head may be damaged. It is a good plan to smear a little graphite grease on the plug threads before replacing.

3. PETROIL FILTER.
A filter gauze is fitted to the banjo bolt connecting fuel pipe to carburetter and where the fuel tank is fitted to top of cowling a petrol gauze is part of the fuel tap. These filters should be examined occasionally and cleaned by dipping in petrol.

4. AIR FILTER.
This must be removed every 100 hours, or more frequently under very dusty conditions, and washed in petrol, then dip in *thin oil*, and allow surplus to drain off before refitting. Oil bath filters should be dismantled and the old oil drained away, the filter should then be washed and re-filled with oil to level indicated on container.

5. CONTACT BREAKER.
The contact breaker points should be checked occasionally to see that they are clean, that the gap when fully opened is between .012 in. and .016 in., and that they open and close properly.

To obtain access to the points the starting pulley has to be removed, but before this can be done the cowling has to be taken off. The cowl is attached by three screws to armature plate and two screws to cylinder head. When a fuel tank is fitted, this can be left in position on cowl after disconnecting fuel pipe connection.

6. MAGNETO TIMING.
The magneto is timed to give a spark when the piston is 5/32 inch *before* top dead centre, with the points commencing to open. When building the engine the timing is set as above, flywheel tightened on shaft, then rotated until piston is at *top* of stroke. Two timing marks are then punched directly opposite one another, one on the boss provided on back of armature plate, the other on the flywheel rim, as close as possible to armature plate. Timing must be checked whilst cowling is removed.

7. FLYWHEEL REMOVAL.
The cam operating the contact breaker is rivetted to the flywheel which is driven by a taper on the crankshaft, and if alteration to magneto timing is necessary, the flywheel must be released, by unscrewing the centre nut with the box spanner provided in the tool kit. This *nut* has a right-hand thread and is imprisoned in the flywheel and it should be unscrewed until the flywheel is just free to revolve on the crankshaft. With the piston in its correct position, the flywheel should then be moved round until the points commence to open, then tighten up the nut firmly and re-check timing. This nut must be

tightened up hard by hitting with a hammer on the end of the tommy bar.
The taper of shaft and cam must be clean and dry; if any oil is present on the surfaces it will be impossible to secure an effective drive.
It is important that the cowling and fan should be in position when the engine is running.

8. CARBURETTER.
(1) "LIGHTWEIGHT" PATTERN WITH TWO-LEVER CONTROL. (Mark 24C Engine.)
Remote control to taper needle is essential in the case of invalid carriages, etc., where necessary adjustments for starting have to be made without leaving the driver's seat. This control, however, is intended to be used solely as an aid to starting, and once being set after engine has warmed up, should not again be used until starting from cold. On no account must this control be used as an ordinary "air control," it should remain stationary except when deliberately wishing to alter the size of jet.
The throttle position is controlled by a separate cable to which is attached a hand lever, or in some cases, a twist grip, the movement being inwards to open throttle.

TO DISMANTLE.
First detach carburetter from engine after releasing clip screw, unscrew the top ring, then pull out the throttle taking care not to damage taper needle, turn carburetter upside down, unscrew bottom nut, remove fibre washer, float cup and fibre washer. To gain access to the fuel needle it is necessary to remove centrepiece, but before this can be done, the compensating tubes (Illustration 15, page 20) must be unscrewed; after removal of centrepiece, the fuel needle lever (Illustration 17) will swing on one side to allow fuel needle to be lifted out.

TO CHANGE THE TAPER NEEDLE.
Having unscrewed top ring and removed throttle, unscrew the hexagon throttle extension and take needle out—put needle spring on new needle, taking care that small coil of spring is at top, underneath head of needle, place needle in throttle, replace hexagon extension after threading control cable through top ring. Replace throttle in body at the same time guiding taper needle into centrepiece, screw on top ring after placing top disc in position with locating pip in slot in top of body.

TO ASSEMBLE CARBURETTER.
("LIGHTWEIGHT" PATTERN, SINGLE AND TWO-LEVER CONTROL.)
See that every part is clean. Place centrepiece in position with fibre washer under head, screw in compensating tubes after making sure that fuel needle and lever are in position. Now place float on

centrepiece and check petrol level by measuring gap between float and underside of body, which should be 7/32 inch when fuel needle is fully raised. Place large fibre washer on float cup seating, then cup and small fibre washer, and finally bottom nut, taking care not to use too much force when tightening.

(2) "LIGHTWEIGHT" PATTERN WITH ONE-LEVER CONTROL. (Mk. 25C Engine.)

TO DISMANTLE.
Exactly as for the carburetter with two-lever control.

TO CHANGE THE TAPER NEEDLE.
First unscrew the knurled ring on the top of the throttle barrel and pull out the throttle assembly. Then undo the slotted screw in the centre of the recess at the bottom of the throttle, the tapered needle with spring being taken out at the same time. If it is necessary to remove the damper spring, screw down the needle rod as far as it will go, when it will be found that the damper spring will project through the hole left open by the slotted screw. It can then be easily gripped with the fingers and pulled clear of the throttle.
When re-assembling, care should be taken not to twist the damper spring by the end of the two tongues of the needle rod, as by this means the damper might easily be distorted or fractured.
When replacing the needle, first of all place spring on the needle, taking care small coil of spring is at top of needle, that is, underneath the head. Then fit the slotted screw over the needle and insert in throttle screwing up the slotted screw until tight.

(3) "JUNIOR" PATTERN WITH ONE-LEVER CONTROL. (Mk. 25C Engine.)
TO DISMANTLE.
Exactly as for the "Lightweight" pattern carburetter, except that to remove the centrepiece it is necessary to take out the locating screw (Illustration C3, page 16) situated at the bottom of throttle chamber close to the fuel pipe union.

ADJUSTMENT AND REMOVAL OF TAPER NEEDLE.
In the centre at top of throttle is situated a slotted screw, which when turned clockwise, lowers needle and weakens mixture by reducing size of jet orifice. Turn anti-clockwise to give a richer mixture. To replace needle remove slotted screw after taking note how far needle projects from end of throttle. To adjust give half a turn at a time until the correct setting is found.

TO ASSEMBLE.
See that every part is clean. Place centrepiece in position with fibre washer under head, making sure that fuel needle and lever are in position. Fit screw to locate centrepiece correctly. Check petrol level and complete assembly as described for the "Lightweight" carburetter.

HINTS AND TIPS

1. Always thoroughly mix the oil and petrol before putting in tank.

2. It is wise to filter your petroil mixture through a fine wire gauze when putting in tank.

3. Do not flood carburetter before starting when engine is warm.

4. Stop engine by turning off fuel tap if engine is not to be used for several days.

5. Do not experiment with cheap sparking plugs, use type recommended.

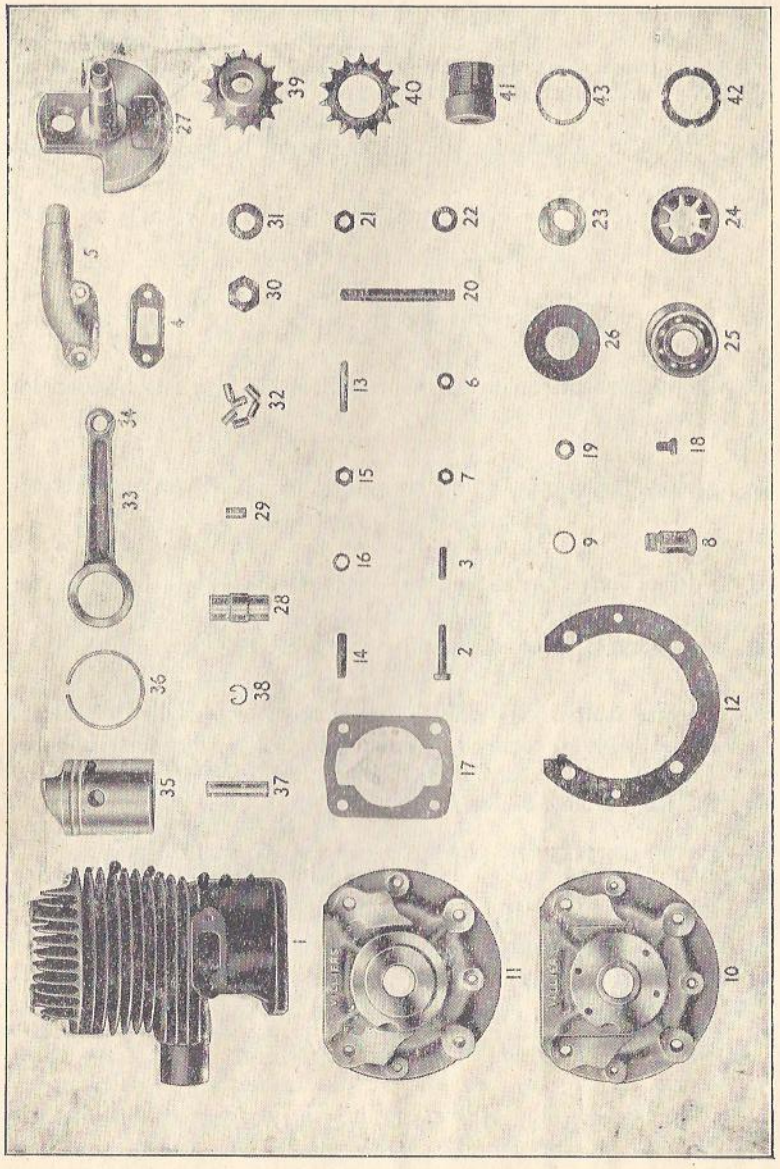
6. Always quote engine number when ordering spares or asking for advice. The number with prefix letters and/or numbers is stamped on crankcase below cylinder base, at rear of engine.

7. Driving shafts should only be taken apart by a skilled mechanic. Special tools are required for ensuring alignment when re-assembling, and as the makers have these facilities, repairs can be undertaken by them at the lowest cost.

8. It is important that air leaks should be avoided at the following points :—
   (*a*) Between inlet pipe and cylinder.
   (*b*) Between inlet pipe and carburetter.
   (*c*) Between cylinder base and crankcase.
   (*d*) Between the two halves of crankcase.

9. When decarbonising the engine it is very important that silencers and exhaust pipes are also cleaned out.

10. Avoid all sharp bends in the carburetter control cables.



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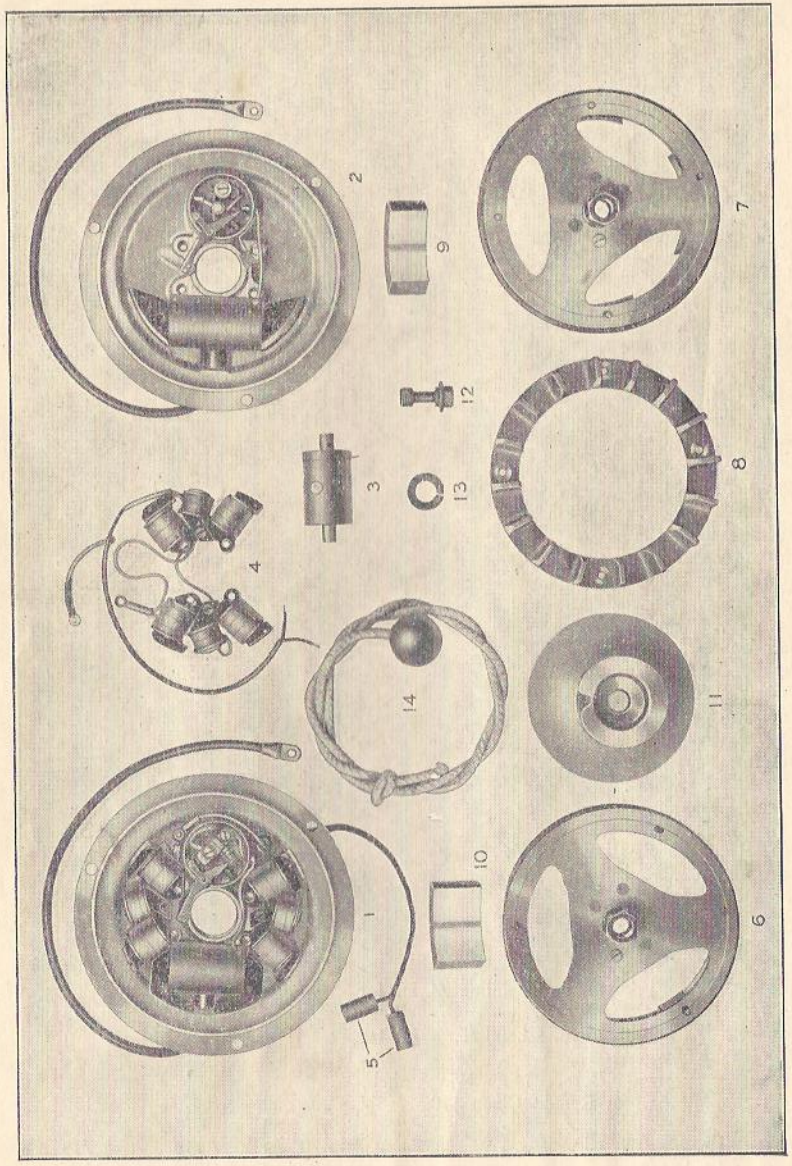
ENGINE.

Component	Illus. No.	No. per Eng.	Mk. 24C Part No.	Mk. 25C Part No.	List Price each £ s. d.
Cylinder, less Studs	1	1	B6850	B6850	3 6 0
Bolt, Inlet Manifold	2	1	E7100	E7100	4
Stud ,, ,,	3	1	E392	E392	2
Joint Washer, Inlet Manifold	4	1	E6965	E6965	3
Inlet Manifold, ¾in. Stub, for "Junior" Carb.	5	1	—	D7127	8 9
,, ,, 1in. ,, ,, "L/W." ,,	5	1	D7428	D6960	8 9
Washer, ¼in. plain	6	10	E2924	E2924	1
Nut, ¼in.	7	5	E401	E401	2
Plug, Release Valve Hole	8	1	E7008	E7008	7
Joint Ring for Plug	9	1	E1238	E1238	2
Crankcase Half, Magneto side	10	1	B6961	B6961	1 10 0
,, ,, Drive side	11	1	B6962	B6962	1 10 0
,, Joint Washer	12	1	D6964	D6964	5
,, ,, Stud	13	2	E3392	E3392	3
Stud, Cylinder Base	14	4	E363	E363	3
Nut for Stud, $\frac{5}{16}$in.	15	5	E364	E364	2
Spring Washer, $\frac{5}{16}$in.	16	4	E1050	E1050	2
Joint Washer, Cylinder Base	17	1	D6963	D6963	7
Drainscrew, Crankcase	18	2	E1962	E1962	3
,, ,, Washer	19	2	E1905	E1905	2
Engine Fixing Stud	20	4	E835	E835	5
Nut for Stud, ⅜in.	21	8	E834	E834	2
Washer for Stud, ⅜in. plain	22	8	E373	E373	2
Gland Bush, Crankcase	23	2	E5109	E5109	2 6
,, ,, Spring	24	2	E7013	E7013	10
Ball Bearing, Crankshaft	25	2	MS8	MS8	*
Bearing Sealing Washer	26	2	E5039	E5039	4
Driving Shaft	27	2	D6958	D6958	1 0 0
Crankpin	28	1	E6378	E6378	7 6
,, Plug	29	2	E5593	E5593	3
Nut for C'shaft, Drive side	30	1	E422	E422	5
Washer for C'shaft, Drive side	31	1	E424	E424	2
Roller, Crankpin, Bronze	32	7	E1899	E1899 } set	3 0
,, ,, Steel	32	7	E375	E375 } set	
Con. Rod with Small End Bush	33	1	D2692	D2692	16 0
Bush for Con. Rod	34	1	E1729	E1729	2 6
Piston only, Bushed	35	1	C6954	C6954	1 0 0
Piston Ring	36	2	E6928	E6928	2 3
Gudgeon Pin	37	1	E5042	E5042	2 6
,, ,, Circlip	38	2	E4047	E4047	4
Sprocket, 14T × ½in. pitch, Chainline $2\frac{15}{32}$in. for Renold Chain 110044	39	1	E7125	E7125	8 3
Sprocket, 12T × ½in. pitch, Chainline $2\frac{15}{32}$in. for Renold Chain 110044	39	1	E7006		8 3
Sprocket, Screwed Bore, 14T × ½in. pitch, Chainline 3in. for Renold Chain 110044	40	1	E1904	E1904	5 0
Sprocket Boss	41	1	D7036	D7036	12 6
,, Lockring	42	1	E779	E779	10
,, Lockwasher	43	1	E778	E778	3

* *Manufacturers Current Price.*



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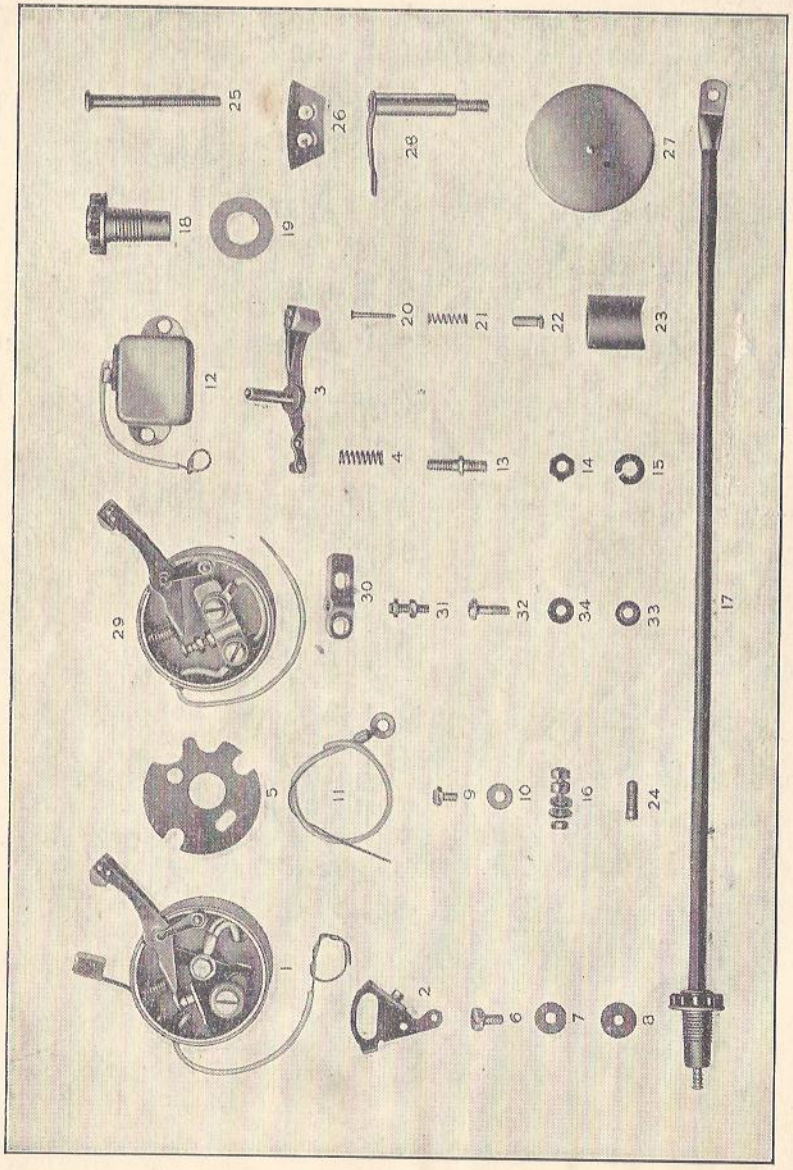
MAGNETO.

Component	Illus. No.	No. per Eng.	Mk. 24C Part No.	Mk. 25C Part No.	List Price each. £ s. d.
Armature Plate, complete Assembly	1	1	A102		4 12 0
„ „ „ „	2	1		A56	2 15 0
Ignition Coil - - - - -	3	1	M1361	M1634	1 0 0
Lighting Coils, Head and Tail -	4	1 Set	M1774	—	1 3 9
Lighting Cable Connector with Sleeve - - - - -	5	2	1106 × 14	—	7
Flywheel complete, less Fan -	6	1	M1844		4 17 9
„ „ „ „ -	7	1		M1845	2 18 0
Fan only, 3 hole fixing - -	8	1	D6858		7 0
„ „ 4 „ „ - -	8	1		D7048	9 0
Magnet - - - - -	9	2		M1507	8 9
„ - - - - -	10	5	M1468		9 0
Starting Pulley - - - -	11	1	CM509	CM509	7 0
„ „ Bolt - - -	12	1	M531	E6753	1 3
„ „ Washer - -	13	1	E424	E424	2
„ Rope - - - -	14	1	M557	M557	2 0



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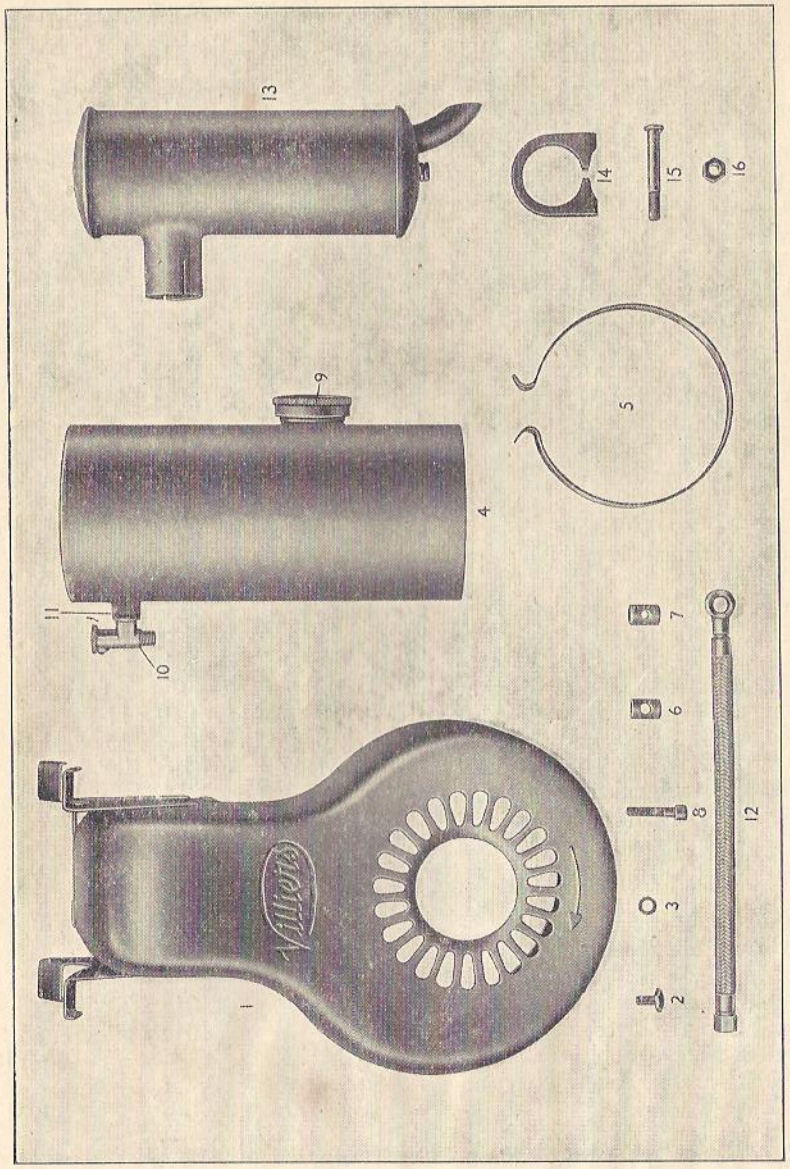
	Illus. No.	No. per Eng.	Mk. 24C Part No.	Mk. 25C Part No.	List Price each. £ s. d.
Condenser Box, complete Assembly	1	1	—	M1864	18 6
Box with Condenser, Studs, Nuts and L.T. Lead	—	1	—	M1884	11 0
Box with Rocker Clip, Bushes and Oil Pad	—	1	—	M1872	5 0
Bracket with Point and Pivot Pin	2	1	—	M1873	2 3
Rocker with Point and Pad	3	1	M1632	M1714	4 6
Rocker Spring	4	1	—	1047 × 3	3
Insulating Pad	5	1	—	M1803	3
Locking Screw, Point Bracket	6	1	—	M1801	4
Brass Washer for Screw	7	1	—	M1802	2
Insulating Washer for Screw	8	1	—	M1805	2
L.T. Lead Connection Screw	9	1	—	1006 × 3	2
4BA Washer for Screw	10	1	—	1113 × 5	1
L.T. Lead with Sleeve	11	1	482	482	6
Condenser only	12	1	M1750	M1750	4 6
„ Fixing Stud	13	2	1053 × 1	1053 × 1	3
„ „ Nut	14	6	1002 × 15	1002 × 15	2
„ „ Washer	15	6	1002 × 13	1002 × 13	2
Lighting Terminal Screw, Nuts, and Washers	16	1	1113 × 3	—	7
High Tension Lead complete, 17in.	17	1	494	494	4 6
„ „ Terminal	18	1	1124 × 8	1124 × 8	1 0
„ „ „ Felt Washer	19	1	E869	E869	3
„ „ „ Wood Screw	20	1	491	491	2
„ „ „ Spring	21	1	1010 × 11	1010 × 11	2
„ „ „ Pad	22	1	1046 × 13	1046 × 13	2
„ „ „ Rubber Sleeve	23	1	M1673	M1673	4
Locking Screw, Ignition Coil	24	2	—	V561	3
Screw, Pole Shoe, 1½in. long	25	1	—	1002 × 9	3
„ „ „ and Fan, 1¾" long	25	4	—	M1797	3
„ „ „ „ „ 1¾" „	25	9	M1797	—	3
„ „ „ „ „ 2⅛" „	25	3	M1789	—	3
Armature Plate Fixing Screw	25	4	M1797	1124 × 9	3
Top Plate, Pole Shoe, Iron	26	4	M1822	—	3
„ „ „ „ Brass	26	2	M1411	—	3
Condenser Box Cover	27	1	—	1015 × 7	4
Post and Clip for Cover	28	1	—	1015 × 6	7
Condenser Box Assembly	29	1	M1715	—	18 6
Box with Condenser, Studs, Nuts and L.T. Lead	—	1	M1776	—	11 0
Con. Box Clamp	30	1	1022 × 7	—	10
Adjustable Contact Point with Nut	31	1	487	—	3 0
Clamp Screw	32	2	1013 × 3	—	3
„ Bush, Top	33	2	1013 × 13	—	3
„ „ Bottom	34	2	1013 × 12	—	3



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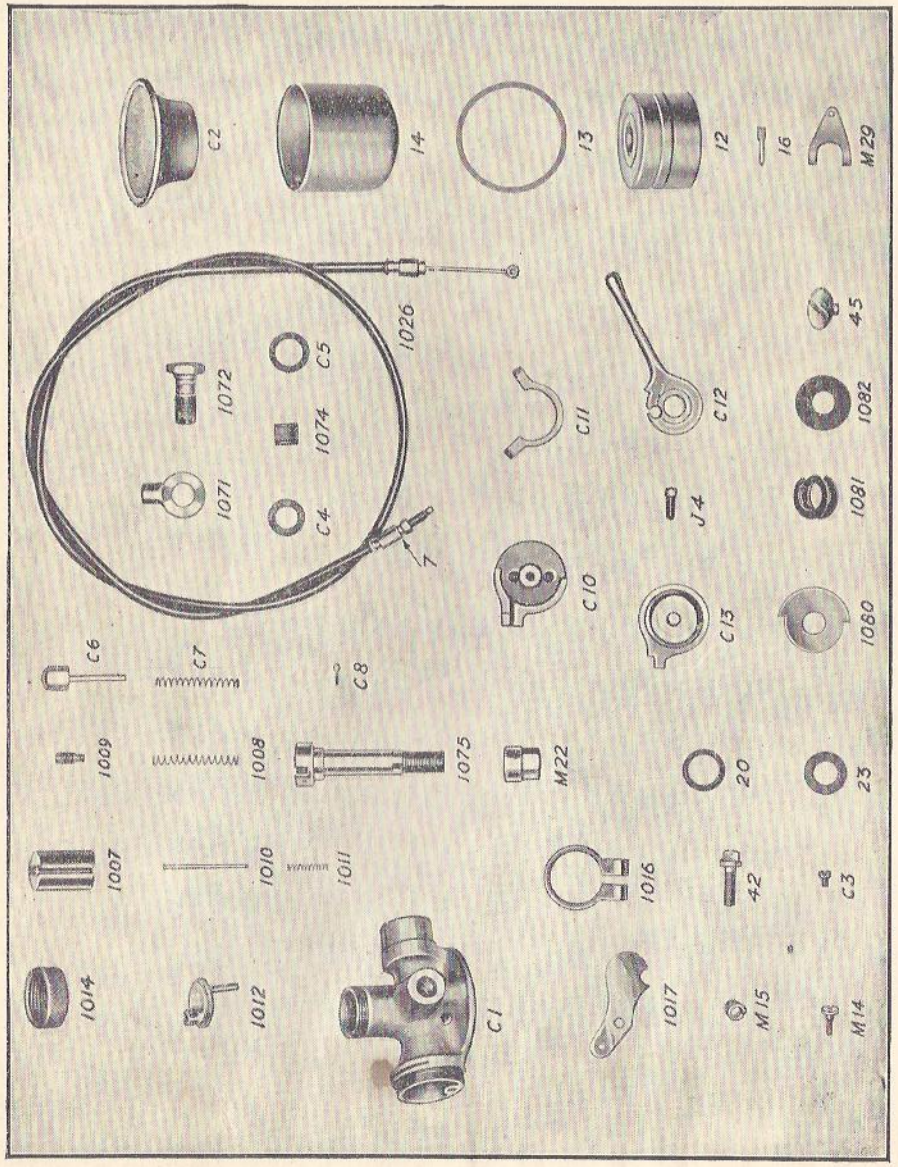
MISCELLANEOUS.

Component	Illus. No.	No. per Eng.	Mk. 24C Part No.	Mk. 25C Part No.	List Price each £ s. d.
Cowl with Tank Brackets	1	1	C7107	C7107	1 8 0
Cowl without Tank Brackets		1	B7047	B7047	1 5 0
Cowl Fixing Screw	2	5	EM539	EM539	6
Spring Washer, ¼in.	3	2	E1430	E1430	2
Fuel Tank, ½ gall., with Cap, P426	4	1	C5946	C5946	1 1 0
Fuel Tank Strap	5	2	DG513	DG513	1 6
„ „ Trunnion, plain hole	6	2	EM276	EM276	9
„ „ „ tapped hole	7	2	EG532	EG532	6
„ „ „ Screw	8	2	E781	E781	3
„ „ Filler Cap with Oil Measure, Marking No. 24	9	1	P426	P426	5 0
Fuel Tap	10	1	No. 468	No. 468	3 6
Fuel Tap Washer	11	1	V107 × 4	V107 × 4	2
Fuel Pipe	12	1	EM551	EM551	9 0
Silencer, fixed to Cylinder	13	1	D7089	D7089	1 5 0
„ separate		1	D7009		1 5 0
„ Clip, to Cylinder	14	1	E1130	E1130	2 0
„ „ Bolt	15	1	E435	E435	6
„ „ „ Nut	16	1	E364	E364	2



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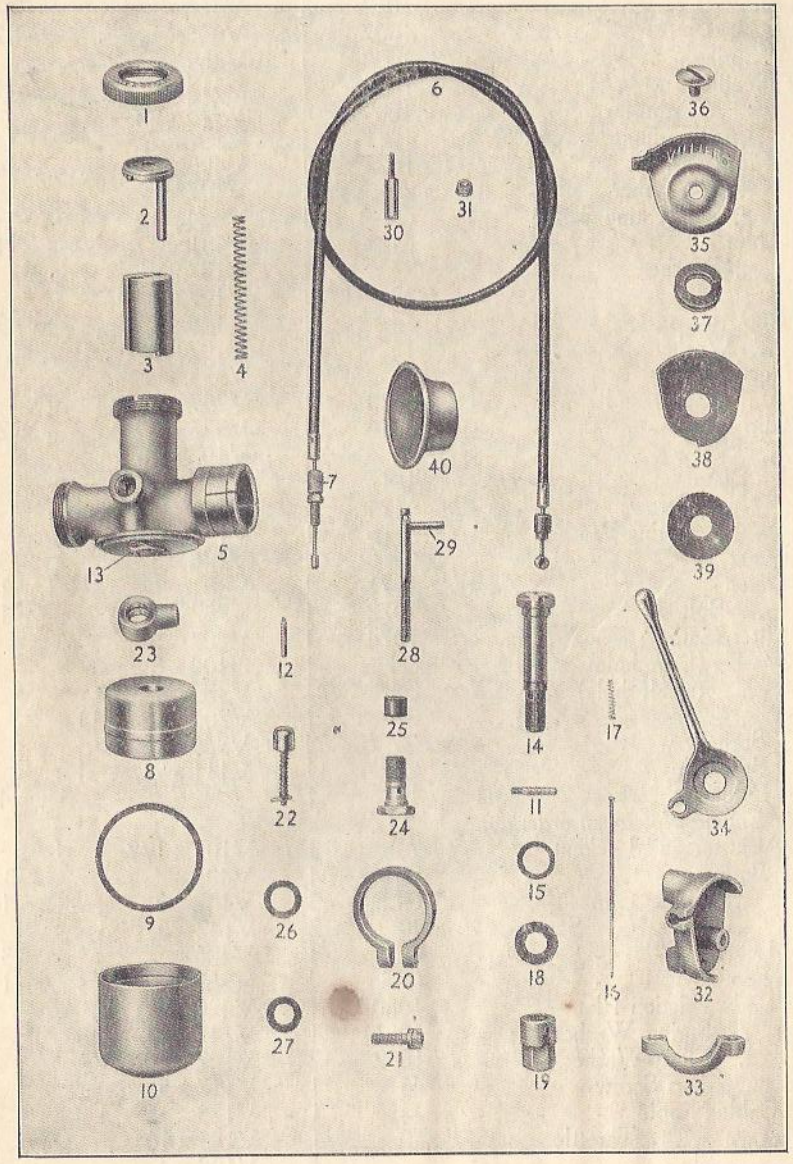
"JUNIOR" CARBURETTER.

Mk. 25C

Component	Illus. No.	No. per Engine	Part No.	List Price each £ s. d.
Carburetter Body	C1	1	V508	9 3
Top Ring	1014	1	V367	1 3
„ Disc	1012	1	V368	1 6
Throttle	1007	1	V365	2 3
„ Spring	1008	1	V369	6
Taper Needle	1010	1	V514	1 0
„ „ Adjuster	1009	1	V413	6
„ „ Spring	1011	1	V107 × 7	3
Centre Piece and Jet	1075	1	V408	4 0
„ „ Washer	20	1	V107 × 3	2
„ „ Locating Screw	C3	1	V424	3
Bottom Nut	M22	1	V581	1 0
„ „ Washer	23	1	V107 × 4	2
Float	12	1	V107 × 1	3 6
„ Cup	14	1	V146 × 6	3 3
„ „ Washer	13	1	V107 × 2	6
Fuel Needle	16	1	V355	9
„ „ Lever and Pin	M29	1	V257	7
Body Clip	1016	1	V326	2 0
„ „ Screw	42	1	V107 × 16	6
Strangler Plate	1017	1	V373	9
„ „ Screw	M14	1	V626	3
„ „ Spring Washer	M15	1	V146 × 2	2
Air Cleaner	C2	1	V148 × 3	3 0
Banjo Union	1071	1	V381	1 9
„ „ Bolt	1072	1	V382	1 0
„ Filter Gauze	1074	1	V404	6
Fibre Washer (large hole)	C4	1	H104 × 8	3
„ „ (small hole)	C5	1	V383	3
Tickler	C6	1	V207	
„ Spring	C7	1	V369	9
„ Split Pin	C8	1	V111 × 2	
Control Cable complete (*Quote Engine No. when ordering*)	1026	1		4 6
Cable Adjuster and Locknut	7	1	V105 × 1/2	9
Control Body	C10	1	V405	3 6
„ „ H'bar Clip	C11	1	V142 × 7	1 6
„ „ „ „ Screw	J4	2	V142 × 5	2
„ Lever	C12	1	V406	3 0
„ Top Cover	C13	1	V387	1 3
„ Body Friction Plate	1080	1	V429	6
„ „ Spring Washer	1081	1	V142 × 11	3
„ „ Fibre Washer	1082	2	V142 × 10	3
„ „ Top Screw	45	1	V117 × 5	6
„ Cable Nipple	—	1	V123 × 15	2
„ „ „ Throttle	—	1	V145 × 16	2
„ „ Sleeve	—	1	V108 × 4	4

VILLIERS Mk. 25c ENGINE
"LIGHTWEIGHT" PATTERN CARBURETTER.
SINGLE-LEVER CONTROL.

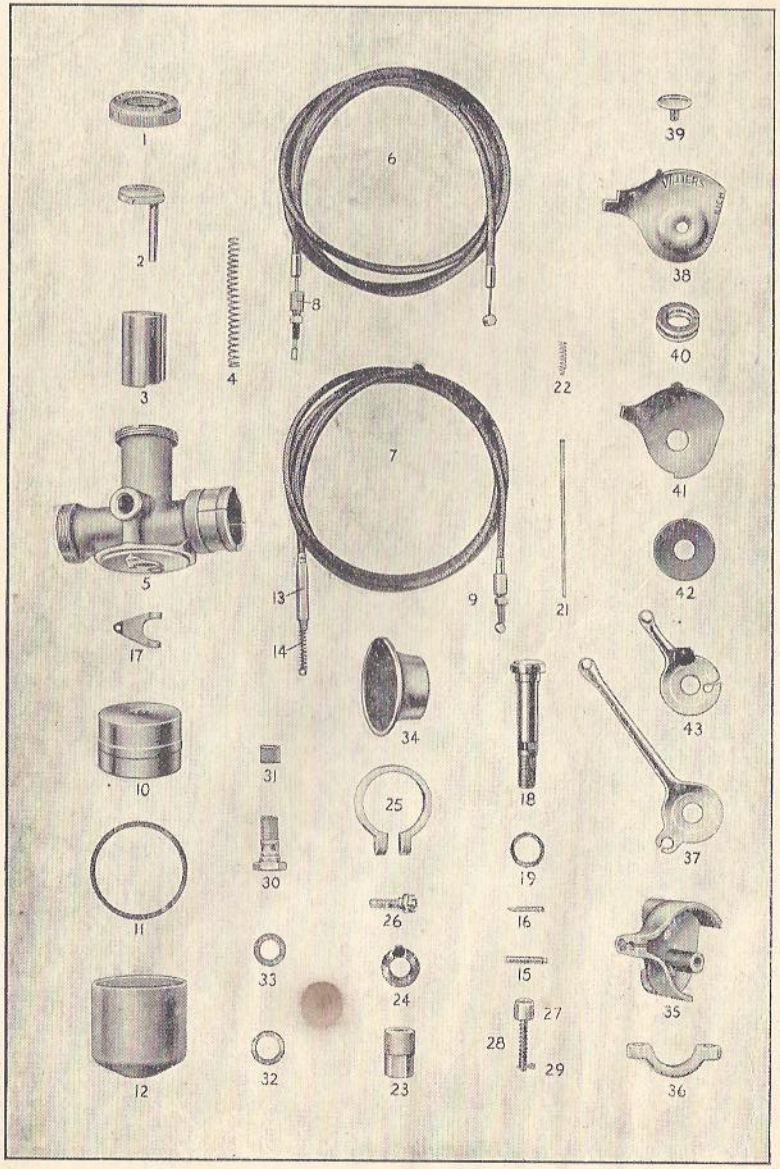


Always quote Engine No. when ordering spares.

"LIGHTWEIGHT" PATTERN CARBURETTER.
SINGLE-LEVER CONTROL.

Component	Illus. No.	No. per Engine	Mk. 25C Part No.	List Price each £ s. d.
Top Ring	1	1	V107×5	1 3
Top Disc and Guide Peg	2	1	V644	1 9
Throttle	3	1	V136×10	4 3
,, Spring	4	1	V107×8	6
Body	5	1	V577	13 3
Cable complete, Inner and Outer, with Adjuster and Nut	6	1	Quote Engine No.	5 0
Cable Adjuster and Nut	7	1	V105×1/2	9
Float	8	1	V107×1	3 6
Cup Washer	9	1	V107×2	6
Float Cup	10	1	V146×6	3 3
Compensating Tube	11	2	V105×10	6
Fuel Needle	12	1	V355	9
,, ,, Lever	13	1	V257	9
Centrepiece and Jet, .083	14	1	V595	5 0
,, Washer	15	1	V107×3	2
Taper Needle, No. 2½	16	1	V137	9
,, ,, Spring	17	1	V107×7	3
Bottom Nut Washer	18	1	V107×4	2
Bottom Nut	19	1	V105×7	1 0
Body Clip	20	1	V107×15	2 0
,, ,, Screw	21	1	V107×16	6
Tickler	22	1	V207	5
,, Spring	22	1	V369	3
,, Split Pin	22	1	V111×2	1
Banjo Union	23	1	V381	1 9
,, ,, Bolt	24	1	V382	1 0
,, ,, Gauze	25	1	V404	6
,, Fibre Washer, large hole	26	1	H104×8	3
,, ,, ,, small ,,	27	1	V383	3
Needle Rod with Bar	28	1		2 3
,, ,, Bar only	29	1	V105×11	3
,, ,, Damper Spring	30	1	V136×3	1 9
,, ,, ,, Screw	31	1	V136×15	5
Control Body	32	1	V117×1	3 6
,, ,, Clip	33	1	V117×3	1 9
,, ,, ,, Screw	21	2	V107×16	6
,, Lever	34	1	V117×2	3 0
,, Top Plate	35	1	V117×4	1 3
,, ,, Screw	36	1	V117×5	6
,, Spring Washer	37	1	V117×8	2
,, Friction Plate	38	1	V117×6	6
,, Fibre Washer	39	2	V117×7	3
Air Cleaner (Air Maze Type)	—	1	V496	11 6
,, ,, Adaptor	—	1	V497	2 3
,, ,, Clip	—	1	V599	
,, ,, ,, Screw	—	1	V597	2 3
,, ,, ,, ,, Nut	—	1	V598	
,, Filter	40	1	V148×3	3 0

VILLIERS Mk. 24c ENGINE
"LIGHTWEIGHT" PATTERN CARBURETTER.
TWO-LEVER CONTROL.



Always quote Engine No. when ordering spares.

"LIGHTWEIGHT" PATTERN CARBURETTER.
TWO-LEVER CONTROL.

Component	Illus. No.	No. per Engine	Mk. 24C Part No.	List Price each £ s. d.
Top Ring	1	1	V107×5	1 3
Top Disc and Guide Peg	2	1	V646	1 9
Throttle	3	1	V122×1	4 3
,, Spring	4	1	V107×8	6
Body	5	1	V577	13 3
Throttle Cable complete, Inner and Outer, with Adjuster and Nut	6	1	St'd Length 2ft. 6in.	5 0
Jet Cable complete, Inner and Outer, with Adjuster and Nut	7	1	St'd Length 2ft. 6in.	5 0
Adjuster and Nut, Throttle Cable	8	1	V105×1/2	9
,, ,, ,, Jet Cable	9	1	V120×5	9
Float	10	1	V107×1	3 6
Cup Washer	11	1	V107×2	6
Float Cup	12	1	V146×6	3 3
Throttle Extension	13	1	V120×2	1 3
Jet Control Spring	14	1	V122×14	6
Compensating Tube	15	2	V105×10	6
Fuel Needle	16	1	V355	9
,, ,, Lever	17	1	V257	9
Centrepiece and Jet, .083in.	18	1	V595	5 0
,, Washer	19	1	V107×3	2
Taper Needle, No. 2½	21	1	V591	9
,, ,, Spring	22	1	V107×1	3
Bottom Nut	23	1	V105×7	1 0
,, ,, Washer	24	1	V107×4	2
Body Clip	25	1	V107×15	2 0
,, ,, Screw	26	1	V107×16	6
Tickler	27	1	V207	5
,, Spring	28	1	V369	3
,, Split Pin	29	1	V111×2	1
Banjo Union	—	1	V381	1 9
,, ,, Bolt	30	1	V382	1 0
,, ,, Gauze	31	1	V404	6
,, ,, Fibre Washer, large hole	32	1	H104×8	3
,, ,, ,, ,, small hole	33	1	V383	3
Dust Cap	34	1	V148×3	3 0
Air Cleaner (Air Maze Type)	—	1	V496	11 6
,, ,, Adaptor	—	1	V497	2 3
Control Body	35	1	V117×13	3 6
,, ,, Clip	36	1	V117×3	1 9
,, ,, ,, Screw	26	2	V107×6	6
,, Lever, Throttle	37	1	V117×2	3 0
,, Top Plate	38	1	V117×11	1 3
,, ,, Screw	39	1	V117×5	6
,, Spring Washer	40	1	V117×8	2
,, Friction Plate	41	2	V123×2	6
,, Fibre Washer	42	2	V117×7	3
Jet Control Lever	43	1	V117×14	2 6

IMPORTANT

1.—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 should be sent separately by post. In no circumstances should instructions be enclosed with the parts, as they are liable to be lost or damaged in unpacking.

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

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

4.—In correspondence, always quote the engine number, and prefixed letter(s) stamped on the crankcase below the cylinder base.

5.—As we are not manufacturers of complete motor cycles or other machines, only the engine should be sent to us. If machines are forwarded, extra expense will be charged for dismantling the engine from the frame and refitting same.

6.—We prefer to bench test every repaired engine before returning it to its owner. It is therefore, 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 and the flywheel complete. These parts should in no circumstances be separated, as certain magnetic flux is lost thereby.

8.—Always quote the magneto number and letter(s) (if any) which is stamped on the face of the flywheel, when corresponding about your flywheel magneto.

9.—Old or worn-out parts sent as patterns, which we consider obsolete, are not returned unless specially asked for by the owner at the time of sending them to us.

10.—Any engines or parts sent to our Works for repair, not paid for within six months from the date of our estimate, will be offered for sale by us elsewhere to defray expenses.

ESTIMATES

If required, we are always 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 for special reasons, a small charge is made for our mechanics' time in taking down the parts for report.

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, any parts specified by the customer when we consider that other parts are necessary to make an efficient repair. In such cases, we are prepared to supply the customers' requirements in spares, but we do not undertake to fit them.

TERMS OF BUSINESS

Repairs and spares must always be treated on a cash basis. Ledger accounts will be opened for items of £5 (five pounds) and upwards for approved accounts.

An extra amount must always be included in remittance to cover the cost of postage or carriage and packing on spare parts. This is 5 per cent. extra up to £5 value. Minimum extra is 6d. Stamps cannot be accepted for items over 1/- (one shilling) in value.

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 Acessories 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 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 VILLLIERS 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 of 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.

OPERATING INSTRUCTIONS

AND

SPARE PARTS LIST FOR THE VILLIERS TWO STROKE ENGINES Mk. 24C & Mk. 25C

ALL PRICES IN THIS LIST ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SEPT. 1950

Price 6d.

The Villiers Engineering Co. Ltd.

WOLVERHAMPTON, England

ESTABLISHED 1898

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