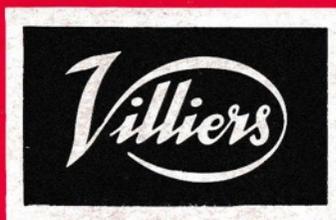


*illustrated*

# Spare Parts List



**STARMAKER**

(TYPE 225 H)

Two-stroke

**MOTOR-CYCLE ENGINE**

## You can purchase spare parts for Villiers Starmaker and AJS Stormer from [www.ajs-shop.co.uk](http://www.ajs-shop.co.uk)

### STARMAKER OR STORMER?

Do you know if you have a Starmaker or a Stormer engine?

There are many differences, and some parts do not interchange.

All Stormer engine numbers begin with A250

Starmaker engines are designated 225H with the following variants:

757D Standard Scrambles with wide fins, wide ratio gearbox and twin Amal monobloc carburetters.

490E Road racer version of 757D but with close ratio gears and a tacho drive.

494E Scrambles, but with 6v direct lighting.

826E Scrambles, with single Amal monobloc carburetter.

827E Scrambles with single Amal monobloc carburetter and 6v direct lighting.

834E Road racer with close finned cylinder and head close ratio gears, tacho drive, outrigger contact breakers, and Amal 3GP2 carburetter.

865E as 834E but with 6v direct lighting.

871E trials engine, with wide ratio gears, and Villiers S.25 carburetter, but without lighting

972E Sports roadster, with single Amal carburetter and 12v rectified lighting.

091F Special, with single Amal monobloc carburetter, but without clutch, gearbox and primary drive.

131F Trials engine with 6v direct lighting.

Visually the Starmaker and Stormer engines look very similar, but in summary the following are the main items of difference:

1. The Stormer piston has a shorter back and has shrouded rings covering the ring pegs. The Starmaker has butted rings and a longer back.
2. The Stormer crankshaft is wider due to the big end having thrust washers either side of the crank pin, where the Starmaker crank does not have thrust washers.
3. The Stormer con-rod has a 3/8" diameter oil hole in the top, the Starmaker rod has a wide (and weaker) oil slot. (fine for trail and trials use)
4. The Stormer has reinforced engine mounting point on the crankcases.
5. The Stormer crankcases are wider inside to accept the wider crankshaft (see point 2)
6. The Stormer has reinforced ribs on the gearbox to frame mounting.
7. The Stormer has a removable cylinder liner, the Starmaker line is "cast in"
8. The Stormer may have close ratio gear ratios, the Starmaker would have had wide ratio, trials or road race gears.
9. The Stormer has a lighter and stronger magneto flywheel than a Starmaker.
10. The Stormer has different clutch friction plates to those of a Starmaker. The Starmaker plated have a riveted centre fitted to them.
11. The Stormer has a larger diameter clutch centre.
12. The Stormer has the spacing of the front chain case screws spaced closer together to give better clearance inside for the primary chain. The Starmaker inner chain case has mounting hole next to the gearbox sprocket, the Stormer does not have this hole. Therefore, they do not interchange.
13. The Stormer has a longer clutch operating pin.
14. The Stormer has an improved clutch pressure plate (not diaphragm spring)
15. The Stormer has an improved gear change quadrant.
16. The Stormer has an improved gear change cam barrel.
17. The Stormer inner magneto case has a sealing O-ring against the crankcase; the Starmaker casing does not have this O ring.
18. The Stormer does not have an exhaust gasket because the exhaust is mounted in a push-fit sleeve. The Starmaker exhaust is clamped to the cylinder and needs a gasket.



Type 225 H

247 c.c. STARMAKER

Competition motor-cycle engines

TECHNICAL DATA

Bore: ....	68 mm. (2.68 in.).
Stroke: ....	68 mm. (2.68 in.).
Capacity: ....	247 c.c. (15.07 cu. in.).
Compression ratios: ....	Scrambler: 12 : 1. Road racer: 13 : 1. Trials: 8 : 1.
Gear ratios: ....	Scrambler: 1, 1.255, 1.66, 2.53 : 1. Road racer: 1, 1.2, 1.45, 2.21 : 1. Trials: 1, 1.58, 2.3, 3.5 : 1.
Final-drive sprockets: ....	Scrambler & Trials: 15T Road racer: 18T.
Sparking plugs: ....	Scrambler & Road racer: Lodge RL49—RL52. Trials: Lodge HH14.

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## Illustrated SPARE-PARTS LIST

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You can purchase spare parts for Villiers Starmaker and AJS Stormer  
from [www.ajs-shop.co.uk](http://www.ajs-shop.co.uk)

Issued by:

**THE VILLIERS ENGINEERING CO. LTD.,**  
**Marston Road, Wolverhampton, England**

Telephone : 22399 (20 lines)    Telegrams : Villiers, Wolverhampton

## STARMAKER SPECIFICATIONS

To meet the differing demands of the competition sphere, Starmaker engines have been built to the following specifications, all of which are covered in this booklet:

SPECIFICATION	DESCRIPTION
757D	Standard scrambles specification, with twin Amal Monobloc carburettors.
490E	Road-racing version of Specification 757D, but with close-ratio gears and tachometer drive.
494E	Scrambler, as Specification 757D, but with 6-volt direct lighting.
826E	Scrambler, with single Amal Monobloc carburettor.
827E	Scrambler, with single Amal Monobloc carburettor and 6-volt direct lighting.
834E	Road racer, with close-finned cylinder and head, close-ratio gears, tachometer drive, outrigger contact breaker and Amal 3GP2 carburettor.
865E	Road racer, as Specification 834E, with 6-volt direct lighting.
871E	Trials engine, with wide-ratio gears and Villiers Type S.25 carburettor, but without lighting.
972E	Sports roadster, with single Amal Monobloc carburettor and 12-volt rectified lighting.
091F	Special, with single Amal Monobloc carburettor, but without clutch, gearbox and primary drive.
131F	Trials engine with 6-volt direct lighting.

When ordering replacement parts or sub-assemblies the engine specification and serial numbers should always be quoted in full.

Starmaker engines are products of high-precision engineering and all replacement parts are manufactured to the same standards and to the accepted tolerances. To ensure the reliability and quality of performance of the engine fit only genuine Villiers Starmaker spares and sub-assemblies, which are available through all Villiers spares stockists.

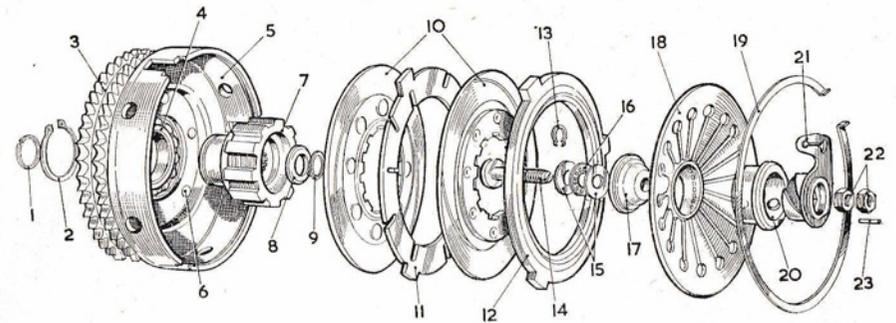


Fig. 1. Clutch assembly

## CLUTCH ASSEMBLY

Illus. No.	Part No.	DESCRIPTION
—	40460	Clutch complete
1	27804	Clutch-locating circlip
2	27806	Chain-sprocket circlip
3	40315	Chain sprocket
4	27831	Clutch ball bearing
5	40739	Clutch housing
6	27845	Chain-sprocket rivets (6)
7	26738	Clutch centre
8	27598	Clutch washer
9	26894	Clutch retaining circlip
10	28336	Clutch-friction plates (2)
11	40738	Clutch intermediate plate
12	40740	Clutch pressure plate
13	27808	Clutch circlip
14	27373	Clutch operating pin
15	27179	Clutch thrust races (2)
16	27180	Clutch thrust bearing
17	27989	Clutch-bearing adaptor
18	28334	Diaphragm spring
19	28335	Retaining circlip
20	A.28275	Clutch outer-scroll assembly
21	A.28709	Clutch inner-scroll assembly
22	28681	Clutch operating locknuts (2)
23	27847	Clutch outer-scroll locating pin

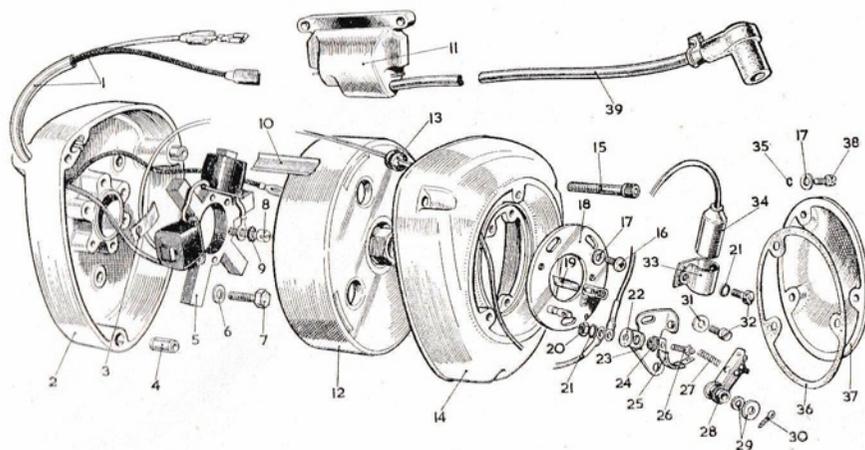


Fig. 2. Magneto and contact-breaker assembly.

## MAGNETO AND CONTACT-BREAKER ASSEMBLY

Illus. No.	Part No.	DESCRIPTION
—	A.27875	Contact-breaker assembly
—	V.1218E	Back-plate sealing ring
1	A.29926	Breather tube, earth and L.T.-lead assembly
—	27756	Connectors (2)
—	27755	Connector insulators (2)
—	29628	Sleeve
2	60027	Back plate
3	28357	Cable clip
4	25615	Back-plate dowels (2)
5	A.27851	Stator and energising-coil assembly
6	E.1430	Back-plate bolt washers (3)
7	25609	Back-plate bolts (3)
8	27764	Stator fixing screws (6)
9	M.2707E	Stator-screw washers (shakeproof) (6)
10	27748	Cable retaining strip
11	A.28851	Ignition coil with H.T. lead assembly
12	20/04/004	Flywheel assembly complete with centre nut/circlip
—	25182	Centre nut
—	M.2641E	Centre-nut circlip
13	M.2788E	Grommet
14	60023	Magneto cover
15	27812	Magneto-cover screws (3)
16	28048	Contact-breaker fixing screws (3)
17	27758	Contact-breaker fixing-screw washers (6)
18	A.27874	Base plate
19	M.2859E	Oil pad

Illus. No.	Part No.	DESCRIPTION
20	27762	Nut
21	27757	Shakeproof washers (2)
22	M.1805E	Insulating washer
23	M.2293E	Point bracket
24	M.2138E	Terminal insulating bush
25	A.28945	Rocker connecting strip and sleeve
26	27761	Point-bracket pin
27	M.2090E	Rocker spring
28	M.2141D/1	Rocker-arm assembly
29	E.5257	Pivot-pin washer ( $\frac{1}{32}$ " )
or	M.3127E	Pivot-pin washer (.015")
or	M.2985E	Pivot-pin washer (.020")
or	M.3128E	Pivot-pin washer (.005")
30	V.111x2E	Split pin
31	M.1802E	Washer
32	27766	Screws (2)
33	28204	Condenser clip
34	A.29848	Condenser with sleeve and tag
—	M.2911E	Condenser tag
—	A.28663	Cover-plate assembly (items 35-38)
35	28676	Retaining circlips (3)
36	25649	Joint gasket
37	A.28502	Contact-breaker cover
38	27764	Cover screws (3)
39	28850	H.T. lead and waterproof-cover assembly
—	26480	Waterproof plug cover

## GEAR CLUSTER

Illus. No.	Part No.	DESCRIPTION
1	25839	Final-drive-sprocket nut
2	28409	Final-drive-sprocket washer
3	40167	Final-drive sprocket, 15T
4	27805	Final-drive-sprocket circlip
5	27818	Final-drive-sprocket "O" ring
6	27817	Gearbox oil seal
7	27825	Output sleeve-gear bearing
8	25844	Output sleeve-gear-bearing thrust washer
9	40455	Mainshaft
10	27804	Mainshaft first-gear/output-gear circlips (2)
11	27826	Mainshaft needle bearings (2)
12	40454	Output sleeve gear
13	25843	Output sleeve-gear-bearing thrust washer
14	28870	Layshaft second gear (sliding)
14A	28870	Mainshaft third gear (sliding)
15	25842	Thrust washers (2)
16	27776	Mainshaft second gear

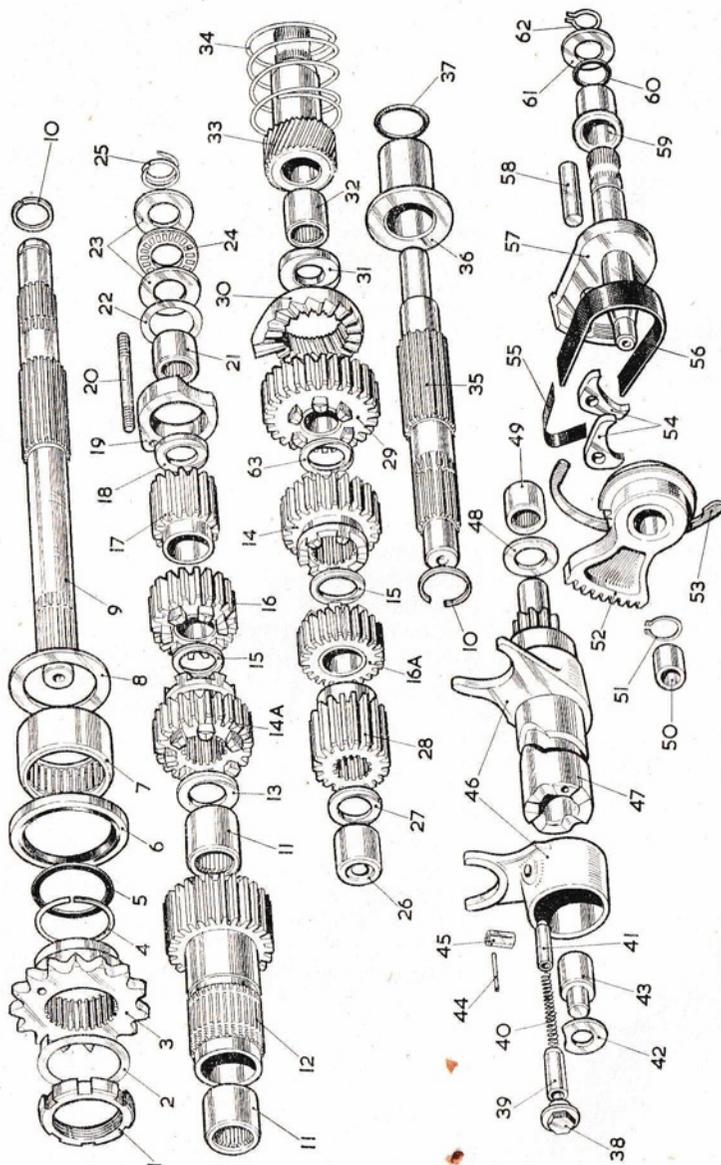


Fig. 3. Gear cluster

Illus. No.	Part No.	DESCRIPTION
16A	27776	Layshaft third gear
17	27779	Mainshaft first gear
18	25937	Mainshaft first-gear thrust washer
19	25940	Kickstart-ratchet stop
20	26261	Mainshaft cover-plate stud
21	27827	Mainshaft cover-plate bearing
22	25936	Third-gear thrust-bearing shims (as required)
23	25938	Mainshaft thrust races (2)
24	27833	Third-gear thrust bearing
25	28216	Mainshaft retaining ring
26	27828	Layshaft bearing
27	28856	Layshaft output-gear thrust washer
28	27777	Layshaft output gear
29	27780	Layshaft first gear
30	D.8534	Kickstart ratchet
31	25845	Layshaft first-gear thrust washer
32	27829	Kickstart-shaft bearing
33	25838	Kickstart shaft
34	E.8177	Kickstart-ratchet spring
35	27775	Layshaft
36	E.8159	Kickstart-shaft bush
37	E.9721	Kickstart-shaft "O" ring
38	28410	Cam-barrel-plunger end plug
39	E.8540	Cam-barrel-plunger bush
40	E.8783	Cam-barrel-plunger spring
41	E.8539	Cam-barrel plunger
42	E.8097	Cam-barrel-bearing thrust washer
43	E.8096	Cam-barrel-bearing pin
44	27801	Gear-selector-fork pins (2)
45	25935	Gear-selector-guide pins (2)
46	28871	Gear selectors (2)
47	40456	Cam barrel
48	27598	Cam-barrel-bearing thrust washer
49	27830	Cam-barrel bearing
50	E.6595	Gear-change-spindle bush
51	26894	Gear-change-spindle circlip
52	E.11883	Quadrant assembly
53	28338	Spring keeper plate
54	25743	Gear-control pawls (2)
55	E.11886	Gear-control-pawls spring
56	E.11875	Gear-control spring
57	D.11884	Gear-change-spindle assembly
58	E.11876	Gear-control-stop pin
59	E.11877	Spindle end-cover bush
60	27820	Gear-change-spindle "O" ring
61	E.4150	Gear-change-spindle washer
62	E.6552	Gear-change-spindle circlip
63	29577	Layshaft first-gear thrust washer

# TWIN AMAL MONOBLOC CARBURETTORS

## Type 389/89 and 389/90

Illus. No.	Part No.	DESCRIPTION
1	Quote Eng. No.	Throttle cables (2)
2	V.826E	Cable covers (2)
3	4/035	Cable adjusters (2)
4	4/241	Fixing-cap spring screws (2)
5	4/137A	Top-cap bolts (2)
6	29/201	Cap springs (2)
7	389/065	Cap rings (2)
8	389/064	Top caps (2)
9	389/092	Throttle-valve springs (2)
10	389/060	Throttles—No. 3½ (2)
11	4/230	Needle clips (2)
12	389/063	Taper needles—Type D (2)
13	343/011	Tickler body
14	376/086	Tickler-body rod
15	376/087	Tickler spring
16	376/091	Banjo bolt
17	1482	Cable nipples (3)
18	376/097	Banjo
19	376/093	Filter gauze
20	376/088	Needle seating
21	376/089	Float needle
22	376/085	Float spindle
23	376/083	Float
24	376/078	Float-cover joint
25	376/077	Float covers (2)
26	376/079	Float-cover screws (second carburettor) (3)
27	376/094	Float-spindle bush
28	389/002	Body (second carburettor)
29	389/026	Body (first carburettor)
30	32/038	Plug screws (2)
31	244/1048	Flange-joint sealing rings (2)
32	332/017	Air-adjusting screw
33	4/148	Adjusting-screw spring
34	376/070	Locating jet-block pegs (2)
35	376/069	Throttle-stop-screw spring
36	376/068	Throttle-stop screw
37	28645	Petrol balance feed pipe
38	376/129	Float-cover screws (first carburettor) (3)
39	376/074	Washers (fibre) (4)
40	376/141	Banjos (2)
41	376/072	Needle jets—.109 in. (2)
42	376/140	Main-jet holders (2)
43	376/100	Main jets—380 c.c. (389/89), 210 c.c. (389/90)

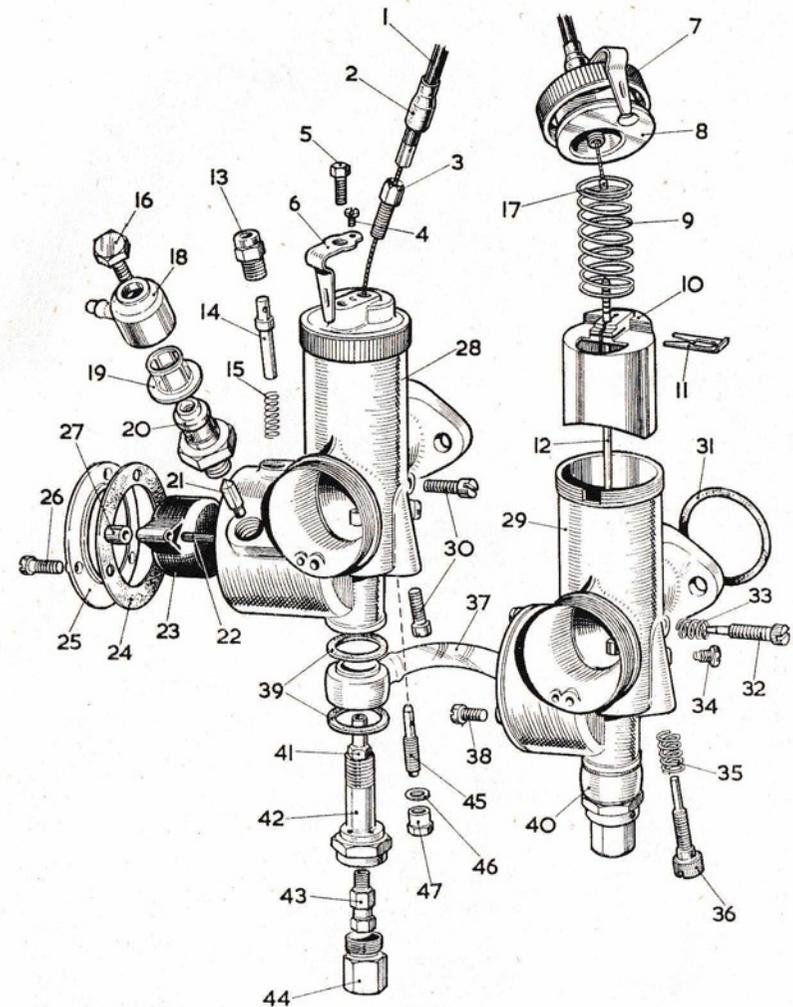


Fig. 4. Twin Amal Monobloc carburettors

Illus. No.	Part No.	DESCRIPTION
44	376/075	Main-jet cover nuts (2)
45	376/076	Pilot jets—20 c.c. (2)
46	116/162	Pilot jet-nut washers (2)
47	376/095	Pilot-jet cover nuts (2)
—	389/109	Jet blocks complete (2)
—	376/067	Jet-block washers (2)

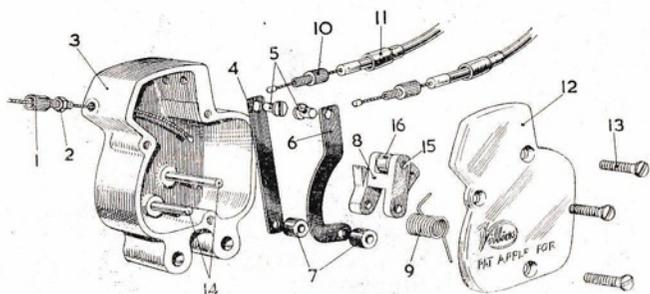


Fig. 5. Throttle control box

## THROTTLE CONTROL-BOX ASSEMBLY

Illus. No.	Part No.	DESCRIPTION
—	A.28386	Throttle control-box assembly
1	V.105x1E	Cable adjuster (long)
2	V.105x2E	Cable-adjuster nut
3	40548	Control box
4	28382	Arm lever (second carburettor)
5	28383	Pivot pins (2)
6	28381	Arm lever (first carburettor)
7	28398	Spacers (2)
8	40549	Combination lever
9	28399	Return spring
10	28538	Cable locators (2)
11	V.826E	Cable covers (3)
12	28380	Control-box cover
13	EG.527	Cover screws (3)
14	28384	Lever shafts (2)
15	28388	Pin rollers (2)
16	28385	Rollers (2)

## ENGINE PARTS

Illus. No.	Part No.	DESCRIPTION
1	27782	Cylinder nuts (4)
2	27861	Cylinder washers (4)
3	80248	Cylinder head
4	27781	Cylinder studs (4)
5	80236	Cylinder
6	E.8750	Exhaust-joint ring
7	27783	Exhaust flange
8	27837	Exhaust-flange screws (3)
9	25592	Exhaust-flange washers (3)
10	25088	Cylinder-base gasket

Illus. No.	Part No.	DESCRIPTION
11	27848	Inlet-pipe gasket
12	27838	Inlet-pipe screws (3)
13	A.40547	Inlet pipe
14	29134	Piston rings (2)
15	28624	Piston assembly
—	27871	Piston (.020" O/S)
—	27873	Piston (.030" O/S)
—	29135	Piston rings (.020" O/S) (2)
—	29136	Piston rings (.030" O/S) (2)
16	27866	Circlips (2)
17	27867	Gudgeon pin
18	26617	Connecting rod
19	26682	Crankpin plugs (2)
20	29503	Caged needle-roller bearing
21	26616	Crankpin
22	40464	Crankshaft, left-hand
23	40465	Crankshaft, right-hand
24	27760	Engine-sprocket and flywheel keys (2)
25	M.2333E	Ignition-cam key
26	27832	Crankcase roller bearings (2)
27	27844	Shims (as required)
28	28893	Crankcase oil seals (2)
29	27824	Crankcase needle-roller bearing
30	26749	Engine sprocket, 20T
31	27797	Engine-sprocket nut
32	80268	Crankcase (left-hand)
33	80017	Crankcase (right-hand)
34	25573	Crankcase studs (2)
35	25592	Crankcase washers (8)
36	EM.1565	Crankcase nuts (8)
37	27814	Crankcase bolts (4)
38	E.7619	Crankcase/gearbox end-cover dowels (4)
39	27839	Crankcase/gearbox bolt
40	25955	Gearbox/crankcase joint washer (as required)
41	V.476E	Crankcase drain-plug washer
42	25602	Crankcase drain plug
43	E.8401	Chaincase inner joint washer
44	80084	Chaincase (inner)
45	27819	Chaincase oil seal
46	40611	Chaincase joint washer
47	26043	Chaincase/gearbox dowel
48	E.10967	Chaincase oil-filler plug
49	E.6593	Oil filler-plug washers (2)
50	27835	Chaincase/crankcase bolt
51	25597	Washers (spring) (8)
—	29637	Chaincase/gearbox/crankcase washers
52	27836	Chaincase/gearbox bolt
53	80151	Chaincase, outer

Illus. No.	Part No.	DESCRIPTION
54	27816	Clutch-cable "O" ring
55	27887	Clutch-cable bush
56	27812	Chaincase screws (2)
57	26040	Chaincase dowels (2)
58	EM.1677	Chaincase drain and level plugs (2)
59	E.1905	Plug washers (3)
60	28337	Chaincase screws (2)
61	27697	Clutch-cover joint washer
62	26718	Clutch-cover plate
63	27846	Clutch-cover joint screws (3)
—	V.826E	Clutch-cable cover
64	27799	Primary chain
65	27371	Gearbox oil-filler plug
66	27633	Gearbox breather tube
67	27815	Gearbox/crankcase-stud nuts (3)
68	28330	Gearbox/crankcase studs (3)
69	80269	Gearbox
70	C.11905	Gearbox end-cover joint washer
71	27811	Gearbox end-cover screws (5)
72	60271	Gearbox end cover
73	E.1962	Gearbox oil-level screw
74	V.107x3E	Gearbox drain-plug washer
75	28412	Gearbox drain plug
76	27794	Mainshaft cover plate
77	25608	Mainshaft cover-plate washers (3)
78	26105	Mainshaft cover-plate nut
79	25521	Mainshaft cover-plate bolts (2)
80	E.8175	Kickstart return spring
81	E.10123	Kickstart return-spring cap
82	E.4098	Kickstart lever pivot pin
83	E.9776	Kickstart lever pivot ball
84	E.4270	Kickstart lever pivot spring
85	E.4096	Kickstart-lever pedal
86	E.8467	Kickstart lever-pedal rubber
87	D.10234	Kickstart-ratchet lever
88	E.4252	Kickstart lever bolt nut
89	E.4251	Kickstart lever bolt
90	E.11713	Gear-change-lever bolt
91	E.1050	Gear-change washer
92	E.364	Gear-change nut
93	D.9199	Gear-change lever
94	D.6861	Gear-change-lever rubber
95	E.9596	Kickstart shaft-cover washer
96	E.8479	Kickstart-shaft screw
97	27789	Ignition cam
98	E.9732	Ignition-cam circlip
99	27835	Carburettor bolts (4)

Illus. No.	Part No.	DESCRIPTION
100	A.28389	Carburettor flanges (2)
101	28546	Clips (4)
102	27842	Inlet/carburettor pipes (2)
103	40469	Amal Monobloc carburettor, 389/89
104	40470	Amal Monobloc carburettor, 389/90

**NOTE :** In the following specifications the component variations from the standard 757D are listed, but in all requests for replacement parts it is advisable to quote the specification and serial numbers in addition to the part number.

## SPECIFICATION 494E

Scrambler with 6-volt direct lighting

As Specification 757D but with the following substituted and/or additional magneto components:

Part No.	DESCRIPTION
20/04/001	Flywheel assembly
A.28792	Stator assembly
A.29557	Lighting harness
A.29558	Stop-light lead assembly
A.29560	Lighting-lead assembly
29568	Sleeve
25562	Grommets (2)
29519	Insulators (2)
29125	Terminals (2)
60316	Backplate
28989	Connectors (2)

## SPECIFICATION 826E

Scrambler with single Amal Monobloc carburettor

As Specification 757D with the exception of the following substituted components:

Part No.	DESCRIPTION
40566	Inlet pipe
29367	Inlet-pipe screws (3)
27848	Inlet-pipe gasket
E.11866	Carburettor flange-joint washer
27835	Bolts (carburettor-to-inlet pipe) (2)
25597	Washers for inlet-pipe bolts (2)
—	Amal Monobloc carburettor 389/54. (See page 16).

You can purchase spare parts for Villiers Starmaker and AJS Stormer  
from [www.ajs-shop.co.uk](http://www.ajs-shop.co.uk)

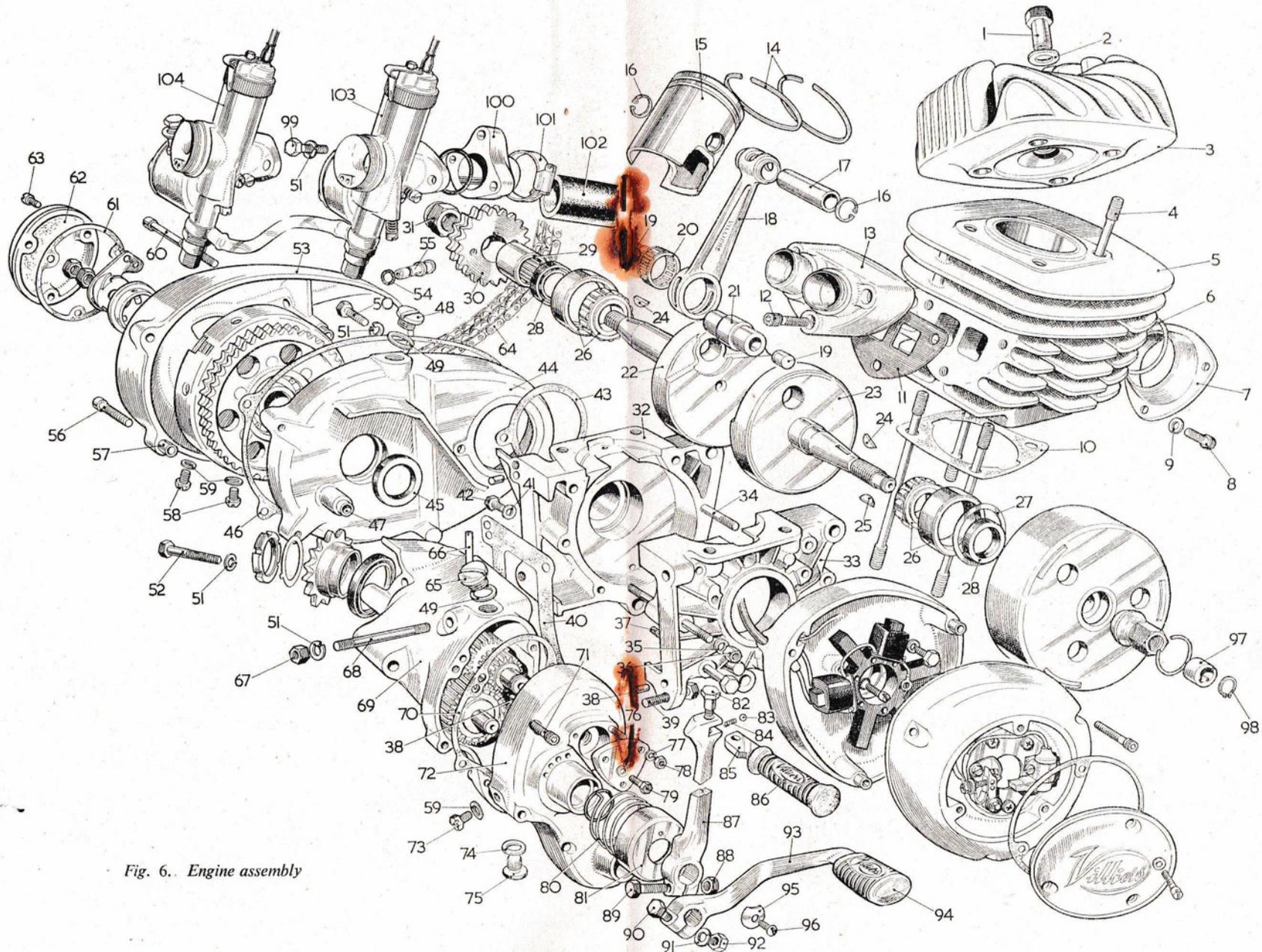


Fig. 6. Engine assembly

# AMAL MONOBLOC CARBURETTOR

## Type 389/54

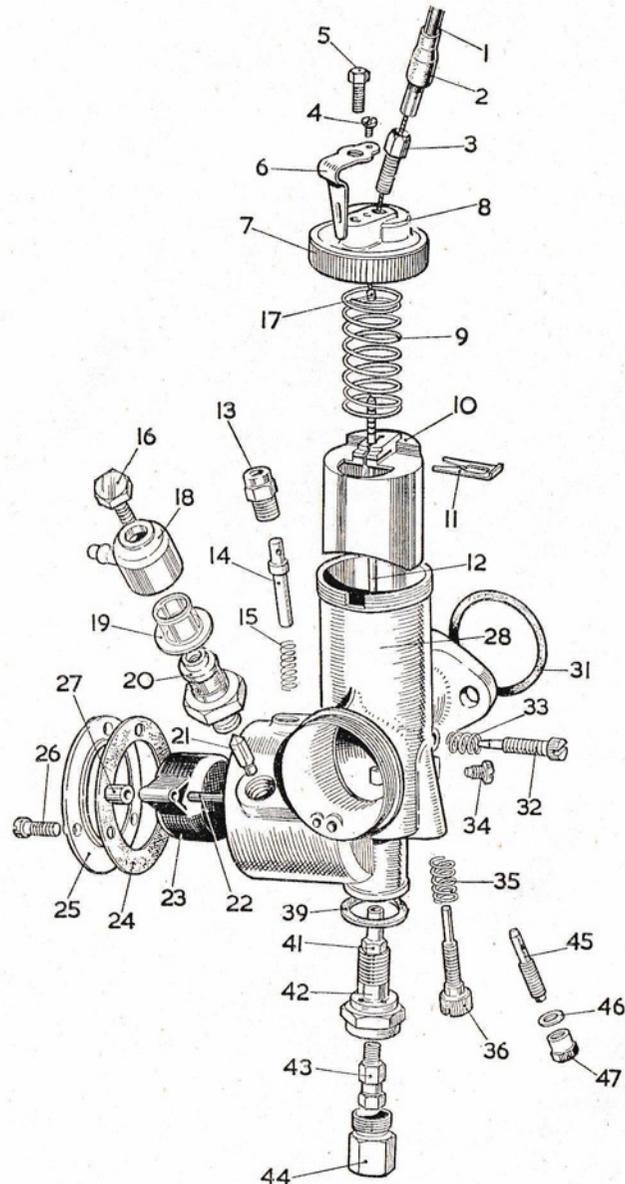


Fig. 7. Amal Monobloc carburettor, Type 389/54

Illus. No.	Part No.	DESCRIPTION
1	Quote Eng. No.	Throttle cable
2	V.826E	Cable cover
3	4/035	Cable adjuster
4	4/241	Fixing-cap spring screw
5	4/137A	Top-cap bolt
6	29/201	Cap spring
7	389/065	Cap ring
8	389/064	Top cap
9	389/092	Throttle-valve spring
10	389/060	Throttle valve—No. 3½
11	4/230	Needle clip
12	389/063	Taper needle—Type D
13	343/011	Tickler body
14	376/086	Tickler-body rod
15	376/087	Tickler spring
16	376/091	Banjo bolt
17	1482	Cable nipple
18	376/097	Banjo
19	376/093	Filter gauze
20	376/088	Needle seating
21	376/089	Float needle
22	376/085	Float spindle
23	376/083	Float
24	376/078	Float-cover joint
25	376/077	Float cover
26	376/079	Float-cover screws (3)
27	376/094	Float-spindle bush
28	389/002	Body
31	244/1048	Sealing-flange joint ring
32	332/017	Air-adjusting screw
33	4/148	Adjusting-screw spring
34	376/070	Locating-jet-block peg
35	376/069	Throttle-stop-screw spring
36	376/068	Throttle-stop screw
39	376/074	Washer (fibre)
41	376/072	Needle jet—.109 in.
42	376/140	Main-jet holder
43	376/100	Main jet—370 c.c.
44	376/075	Main-jet cover nut
45	376/076	Pilot jet—20 c.c.
46	116/162	Pilot jet-nut washer
47	376/095	Pilot-jet cover nut
—	389/109	Jet block complete
—	376/067	Jet-block washer

## SPECIFICATION 827E

### Scrambler with single carburettor and 6-volt direct lighting

As Specification 757D, with the following variations to the magneto and carburettor:

ENGINE	
Part No.	DESCRIPTION
40566	Inlet pipe
29367	Inlet-pipe screws (3)
27848	Inlet-pipe gasket
E.11866	Carburettor flange-joint washer
27835	Bolts (carburettor-to-inlet pipe) (2)
25597	Washers for inlet-pipe bolts (2)

MAGNETO	
Part No.	DESCRIPTION
20/04/001	Flywheel assembly
A.28792	Stator assembly
A.29557	Lighting harness
A.29558	Stop-light lead assembly
A.29560	Lighting-lead assembly
29568	Sleeve
25562	Grommets (2)
29519	Insulators (2)
29125	Terminals (2)
60316	Backplate
28989	Connectors (2)

CARBURETTOR	
Part No.	DESCRIPTION
—	Amal Monobloc carburettor 389/54. (see page 16).

## SPECIFICATION 972E

### Sports roadster with single carburettor and 12-volt rectified lighting

As Specification 757D with the following variations:

ENGINE	
Part No.	DESCRIPTION
40566	Inlet pipe
29367	Inlet-pipe screws (3)
27848	Inlet-pipe gasket
E.11866	Carburettor flange-joint washer
27835	Bolts (carburettor-to-inlet pipe) (2)
25597	Washers for inlet-pipe bolts (2)

## MAGNETO

Part No.	DESCRIPTION
20/04/001	Flywheel assembly
A.29507	Stator complete
60405	Backplate
29713	Stator fixing screws (6)
28040	Rectifier
29524	Connector
29535	Lead assembly
29536	Lead assembly
25562	Grommets (3)
29125	Terminals (3)
29519	Insulators (3)
M.2490E	Waterproof plug cover with built-in suppressor

## CARBURETTOR

Part No.	DESCRIPTION
—	Amal Monobloc carburettor 389/54. (see page 16).

## SPECIFICATION 490E

### Road racer

As Specification 757D, but with the following parts substituted:

GEARBOX	
Part No.	DESCRIPTION
40590	Output sleeve gear
29111	Mainshaft third gear (sliding)
28455	Layshaft third gear
28767	Layshaft output gear
40365	Final-drive sprocket, 18T
28735	Kickstart-shaft retaining clamp
28736	Kickstart-shaft retaining-clamp screw

## CLUTCH ASSEMBLY

Part No.	DESCRIPTION
28391	Engine-drive sprocket nut
28392	Drive adaptor, tachometer
80321	Chaincase, outer

## CARBURETTOR

Part No.	DESCRIPTION
40599	Amal carburettor, 389/99
40600	Amal carburettor, 389/98

## SPECIFICATION 834E

Road racer with Amal 3GP2 carburettor

As Specification 757D, with the exception of the following substituted components:

### ENGINE

Part No.	DESCRIPTION
80377	Cylinder
80378	Cylinder head
29746	Connecting rod
29564	Crankpin
29503	Caged-needle bearing
28391	Engine-sprocket nut
29371	Exhaust flange
27837	Exhaust-flange screws (3)
25592	Exhaust-flange washers (3)
29460	Joint ring
29637	Chaincase/crankcase-bolt washers (2)
40611	Chaincase joint washer

### GEARBOX

Part No.	DESCRIPTION
28392	Drive adaptor, tachometer
80321	Chaincase, outer
40590	Output sleeve gear
29111	Mainshaft third gear (sliding)
28455	Layshaft third gear
28767	Layshaft output gear
40365	Final-drive sprocket, 18T
28735	Kickstart-shaft retaining clamp
28736	Kickstart-shaft retaining-clamp screw

### MAGNETO

Part No.	DESCRIPTION
20/04/004	Flywheel assembly

### RACING CONTACT-BREAKER ASSEMBLY

Illus. No.	Part No.	DESCRIPTION
1	M.2333E	Ignition-cam keys (2)
2	E.9732	Ignition-cam circlips (2)
3	29374	Crankshaft adaptor
4	29528	Set screw
5	29375	Intermediate adaptor
6	29373	Extension shaft
7	29378	Extension-housing circlip
8	29377	Ball bearings (2)
9	29372	Extension housing

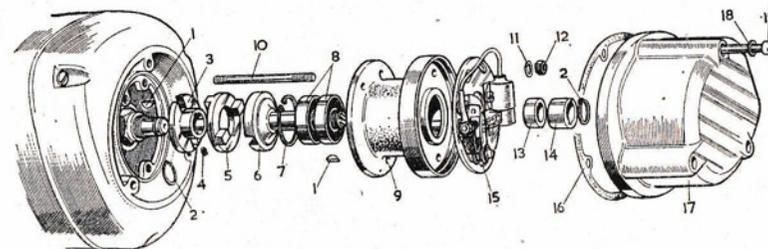


Fig. 8. Racing contact-breaker assembly

Illus. No.	Part No.	DESCRIPTION
10	29379	Extension-housing studs (3)
11	25608	Extension-housing washers (3)
12	26105	Extension-housing nuts (3)
13	29376	Spacer
14	27789	Ignition cam
15	A.27875	Contact-breaker assembly
16	25649	Contact-breaker cover joint washer
17	40665	Contact-breaker cover
18	27758	Contact-breaker-cover washers (3)
19	29380	Contact-breaker-cover screws (3)

## AMAL TYPE 3GP2 CARBURETTOR with Type 510 float chamber

Illus. No.	Part No.	DESCRIPTION
1	316/083	Throttle cable-adjuster sheath
2	316/159	Adjuster for throttle cable
3	3369	Adjuster locknut
4	316/412	Mixing-chamber cap
5	316/414	Mixing-chamber top
6	316/466	Throttle-valve spring
7	316/413	Throttle valve (No. 3)
8	316/465	Jet needle (standard)
—	316/408	Jet needle (weak)
9	316/015	Jet needle-clip screw
10	316/021	Jet-needle clip
11	2626	Air valve-cable adjuster
12	2627	Air valve cable-adjuster locknut
13	2507	Air-barrel top
14	2558	Air-valve spring
15	2502	Air valve
16	2503	Air valve-nipple holder
17	316/402	Lockspring for mixing-chamber cap
—	316/499	Air tube
18	316/411	Air-tube lock ring

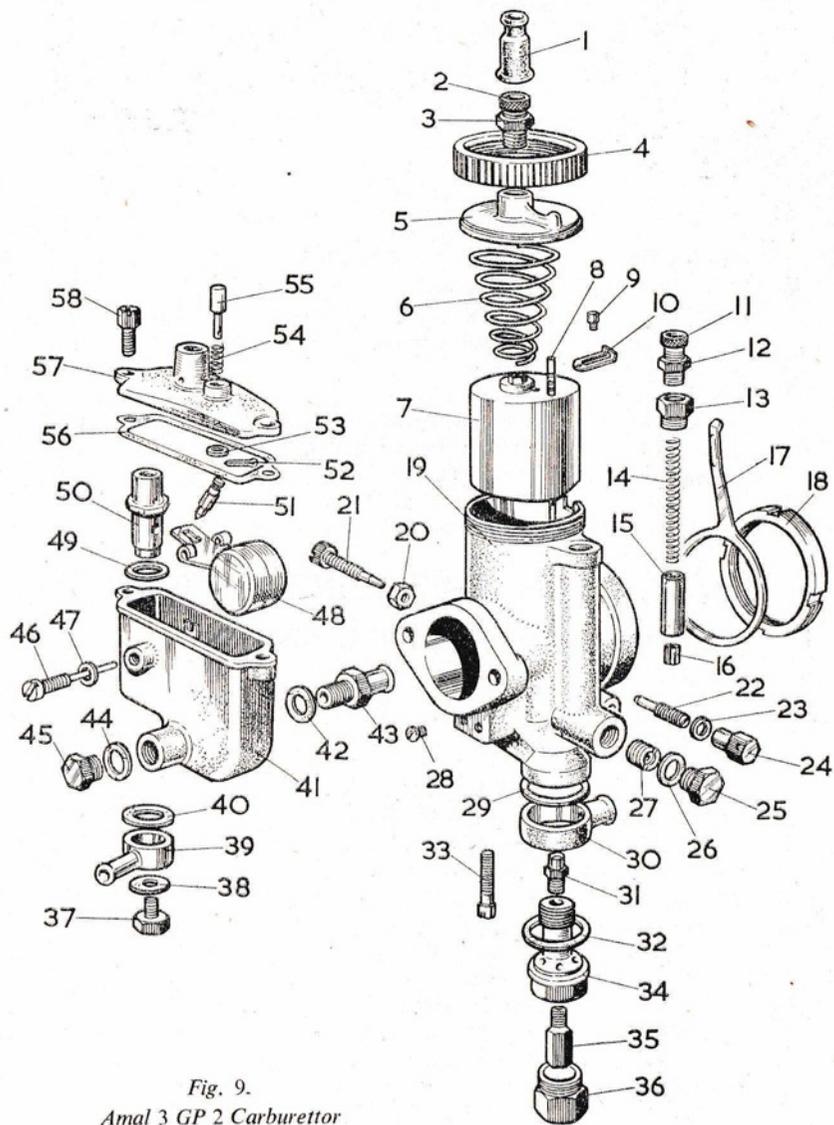


Fig. 9.  
Amal 3 GP 2 Carburettor

Illus. No.	Part No.	DESCRIPTION
19	Quote engine no.	Mixing-chamber body
20	332/020	Pilot air-adjuster locknut
21	332/017	Pilot-air adjuster
22	376/076	Pilot jet, 25 c.c.
23	116/162	Pilot-jet cover-nut washer
24	376/095	Pilot-jet cover nut
25	316/456	Air jet-plug screw
26	38/023	Air jet plug-screw washer
27	316/052	Air jet, .125 in.
28	2403	Plug screws (3)
29	36/006	Banjo washer
30	14/218	Banjo
31	316/065	Needle jet, .107 in.
32	36/006	Banjo washer
33	316/489	Choke adaptor securing screws (2)
34	316/027	Jet holder
35	3326	Main jet, 540 c.c.
36	316/028	Jet holder-plug screw
37	510/011	Banjo bolt
38	178/035	Banjo-bolt washer
39	510/021	Banjo
40	510/012	Banjo washer
41	510/001	Float-chamber body
42	14/336	Float-chamber connection washer
43	14/219	Float-chamber connection
44	14/336	Plug-screw washer
45	510/019	Plug screw
46	510/018	Float-hinge spindle complete
47	116/162	Float hinge-spindle washer
48	510/009	Float
49	14/047	Needle-seating washer
50	510/005	Needle seating
51	510/006	Float needle
52	14/033	Tickler cotter
53	14/189	Tickler washer
54	14/032	Tickler spring
55	14/333	Tickler
—	510/1	Float chamber complete
56	510/004	Float chamber-cover washer
57	510/003	Float-chamber cover complete
58	302/009	Cover fixing screws (2)
—	29370	Insulator
—	29598	Air tube
—	EM.1568	Carburettor-mounting studs (2)
—	29502	Carburettor-mounting-joint washers (2)
—	E.2667	Carburettor-mounting-joint washers (2)
—	27798	Carburettor-mounting-joint nuts (2)

## SPECIFICATION 865E

The road-racing engine can also be equipped with 6-volt direct lighting, in which case the following magneto parts differ from Specification 834E:

Part No.	DESCRIPTION
20/04/001	Flywheel assembly
A.28792	Stator assembly
A.29557	Lighting harness
A.29558	Stop-light lead assembly
A.29560	Lighting-lead assembly
29568	Sleeve
25562	Grommets (2)
29519	Insulators (2)
29125	Terminals (2)
60316	Backplate
28989	Connectors (2)

## SPECIFICATION 091F

As Specification 757D, less clutch, gearbox and primary drive and with single Amal Monobloc carburettor and the following substituted components:

ENGINE	
Part No.	DESCRIPTION
29503	Crankpin caged-needle bearing
40566	Inlet pipe
29367	Inlet-pipe screws (3)
11866	Carburettor flange joint washer
27835	Carburettor/inlet-pipe bolts (2)
25597	Carburettor/inlet-pipe bolt washers (2)

CARBURETTOR	
Part No.	DESCRIPTION
—	Amal Monobloc 389/54 (Page 16)

## SPECIFICATION 871E

### Trials engine without lighting

As Specification 757D with the exception of the following substituted components:

ENGINE	
Part No.	DESCRIPTION
80383	Cylinder head
40696	Driveshaft (left-hand)
40697	Driveshaft (right-hand)
29503	Caged needle bearing

## CLUTCH ASSEMBLY

Part No.	DESCRIPTION
29637	Chaincase-bolt washer
40611	Chaincase-joint washer

## GEARBOX

Part No.	DESCRIPTION
40682	Output sleeve gear
29453	Mainshaft first gear
29455	Mainshaft second gear
28870	Mainshaft third gear (sliding)
29454	Layshaft first gear
29577	Layshaft first gear, thrust washer
29456	Layshaft second gear (sliding)
27776	Layshaft third gear
29457	Layshaft output gear

## MAGNETO

Part No.	DESCRIPTION
20/04/003	Flywheel assembly

## CARBURETTOR

Part No.	DESCRIPTION
—	Villiers Type S.25/6 (Page 26)

## SPECIFICATION 131F

### Trials with 6-volt direct lighting.

Trials engines with 6-volt lighting are identical to Specification 871E, with the exception of the following magneto components:

Part No.	DESCRIPTION
20/04/002	Flywheel assembly
A.28792	Stator assembly
A.29557	Lighting harness
A.29558	Stop-light lead assembly
A.29560	Lighting-lead assembly
29568	Sleeve
25562	Grommets (2)
29519	Insulators (2)
29125	Terminals (2)
60316	Backplate
28989	Connectors (2)

## VILLIERS TYPE S.25/6 CARBURETTOR

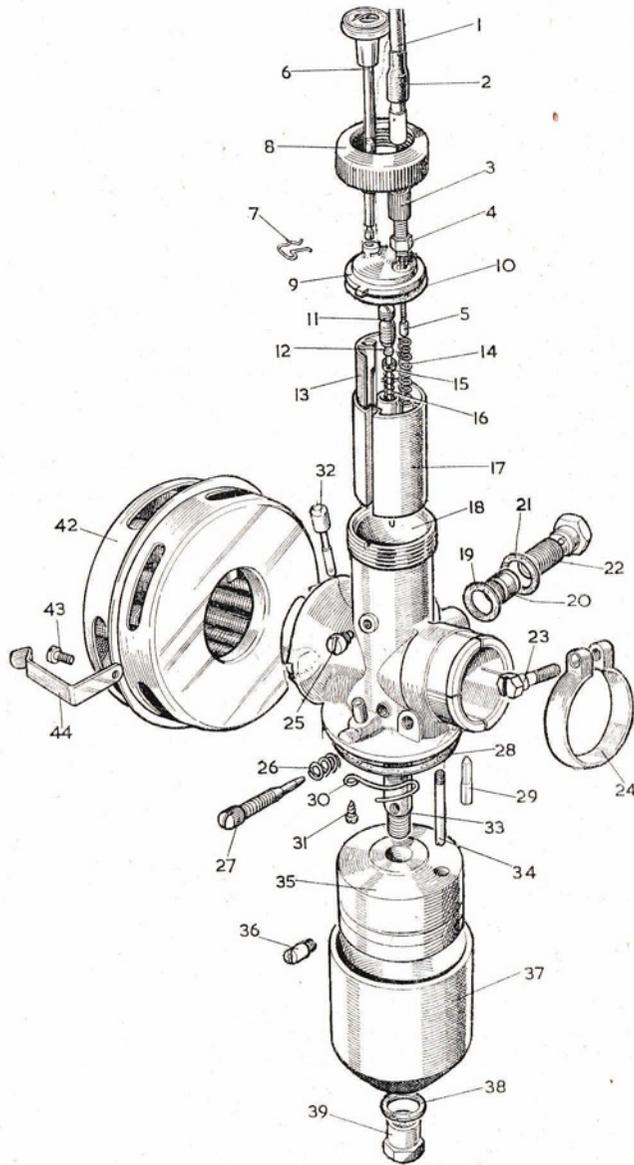
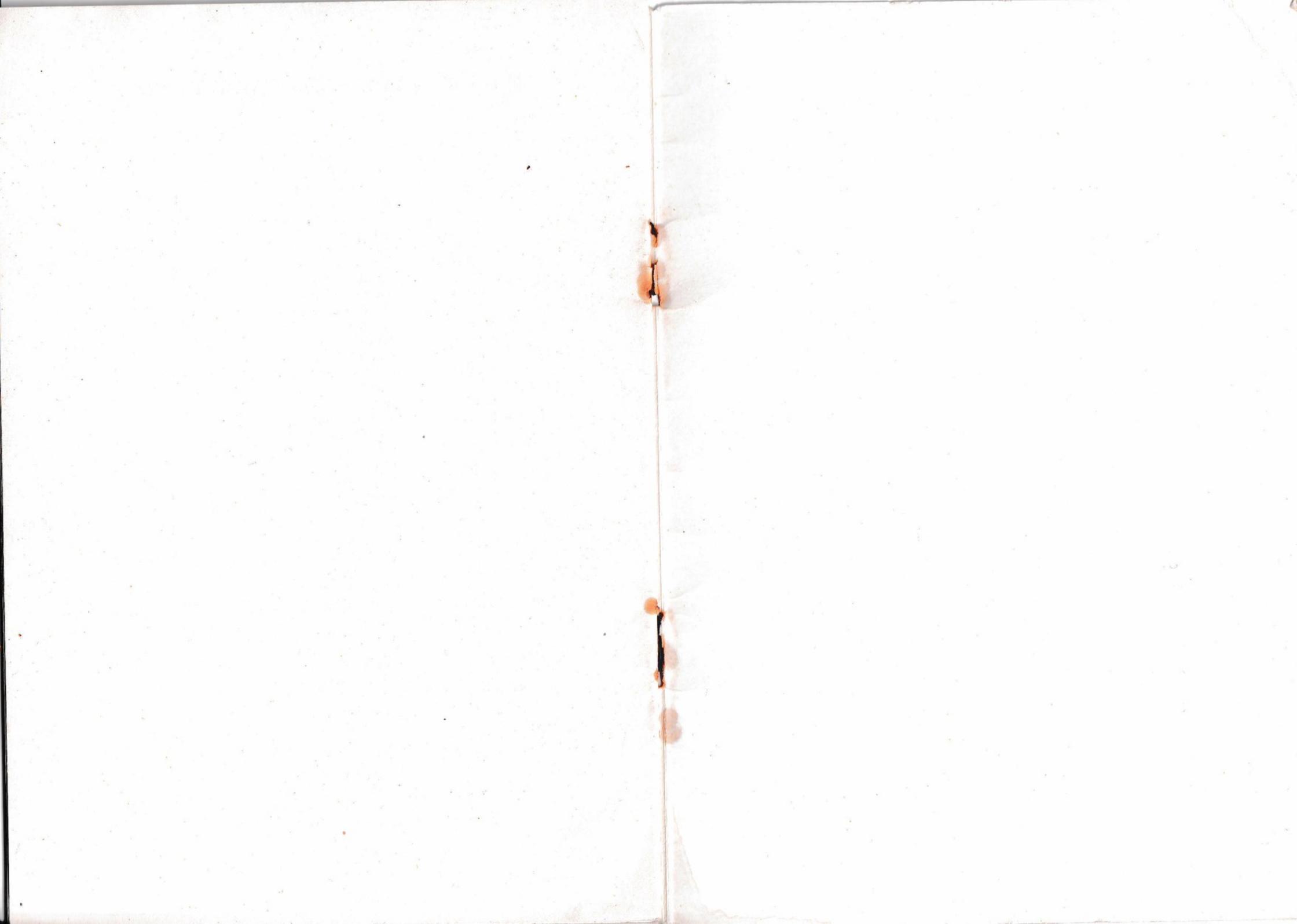
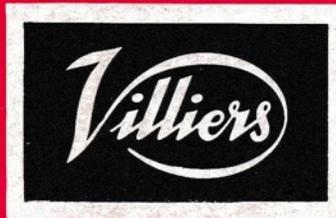


Fig. 10. Villiers Type S.25/6 carburettor.

Illus. No.	Part No.	DESCRIPTION
—	40695	Inlet pipe
—	29367	Inlet-pipe screws (3)
1-5	Quote Engine No.	Cable complete
6	V.1167E	Control knob and spindle
7	V.1178x1E	Spring clip
8	V.815E	Top-disc ring
9	V.1161E	Top disc
10	V.828E	Top-disc washer
11	29526	Needle-adjusting screw
—	29527	Needle adjusting-screw insert
—	V.776	Needle jet
12	V.748E	Needle, No. 3½
13	V.958x1D	Strangler slide
14	V.107x8E	Throttle spring
15	V.787E	Needle collar
16	V.1235E	Needle-jet spring
17	V.2023E	Throttle, No. 3
18	V.1437D	Carburettor body
—	V.381E	Banjo union
19	V.383E	Banjo washer
20	V.404E	Banjo gauze
21	H.104x8E	Banjo washer
22	V.382E	Banjo screw
23	V.754E	Carburettor-body-clip screw
24	V.818E	Carburettor-body clip
25	V.829x1E	Throttle-guide screw
26	V.749E	Pilot-jet needle spring
27	V.775E	Pilot-jet needle
28	V.125x8E	Cup washer
29	V.1254E	Fuel needle
30	V.830E	Tickler spring
31	V.2704E	Tickler-spring screw
32	V.742E	Tickler-rod
33	V.827E	Centrepiece
34	V.717E	Pilot jet, 35 c.c.
35	V.1076E	Fuel-needle float
36	29542	Main jet, 165 c.c.
37	V.773E	Float cup
38	V.107x3E	Bottom-nut washer
39	V.361E	Bottom nut
42	V.1800B	Air cleaner
43	V.831E	Air-cleaner-clip screws (2)
44	V.1134E	Air-cleaner clips (2)



You can purchase spare parts for Villiers Starmaker and AJS Stormer  
from [www.ajs-shop.co.uk](http://www.ajs-shop.co.uk)



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