

**ABG**

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# INSTRUCTION BOOK

AUTOCYCLE ENGINE

PROGRESSIVE

AUTOMATIC

CLUTCH

You will never find a better friend than I. I am the VAP engine of your autocycle, I am almost its soul; by me you are exempted from pedalling; always at your disposal I will lead you :

- Anywhere,
- At the hour of your choice,
- at any speed you wish to choose.

We have to do a long stretch together. But set your mind at ease! I am built for reliability; however, learn to know some of my particulars and in turn you will get the best of ME.

The following pages are written for the purpose. Read carefully what you will find inside and you will soon be convinced of my unequalled reputation.

## DESCRIPTION

The VAP 55 is a petrol mixture, one cylinder, air cooled engine, the characteristics of which are :

Bore .....	40 mm
Stroke .....	38 mm
Capacity .....	48 cc.

This engine operates on the two stroke (two cycle) principle. It is of the twin transfer model, with ports on the cylinder and crankcase compression. This is a single speed engine with **progressive automatic clutch**, known as "Self Starter" ignition and lighting are assumed by a fly-wheel magneto.

*What are the principal parts of the VAP 55 ?*

A.- The engine proper including :

1. **Cylinder and crankcase** : the cylinder is of special cast iron alloy without any lining.
2. **Piston and connecting rod assembly** : The connecting rod, small and big ends, runs on needle blocks and the crankshaft on ball bearings. Piston is of light alloy.
3. **Progressive automatic clutch** : The automatic clutch operates according to the centrifugal force principle : for starting the engine there is first a very strong free wheel and two lined shoes which are the clutch engaging parts proper, under centrifugal action the engagement occurs when the engine speed reaches 2,200 r.p.m. Included is also a grooved pulley, which ensures the primary drive through a V belt.
4. **The fly-wheel magneto** : ignition and lighting are ensured by an ABG model 4 VDS/152 fly-wheel magneto mounted at one end of the crankcase, the fixed part (stator) is fitted to the crankcase itself, while the rotative part (rotor) is tight fitted on the corresponding taper (conical) end of the crankshaft : extraction of this rotor is made easy by a mechanical means incorporated in the rotor itself.
5. **The carburettor** : the standard production model of the VAP 55 engine is normally fitted with a special ABG (Viel patent) model V. 54 carburettor; including a float chamber, a jet and a throttle slide for the petrol-air mixture. A valuable feature of this instrument consists in a convenient automatic strangler flap (air choke) acting like a starter from cold. Engines fitted with a ZENITH 12 MS carburettor may also be delivered.

B.- The secondary drive, mounted on the crankwheel spindle and including :

1. A **grooved pulley**, of large diameter,
2. A **sprocket of 12 teeth** which may be coupled to the pulley by means of a very simple device including claws and ratchets.
3. A **coupling plate**, operable at stop only, which couples to or frees the engine from the cycle at every eighth

of a turn - 8 marks engraved on the pulley avoid any false operation.

4. A **"vee" belt**, transmitting the engine rotation to the secondary reduction pulley.
5. Final transmission to the rear wheel is by a conventional chain.

C.- Controls

The handlebar carries all the engine controls :

1. **The throttle control** operating the throttle slide of the carburettor by means of a cable. Minimum travel for this cable is 12 mm (slightly less than 1/2").
2. **The decompressor control** operating by cable the clip of the decompressor, resulting in the opening or closing of the decompressor valve. Minimum travel for this cable is 10 mm (25/64")

## RIDING THE CYCLOVAP 55

Before undertaking anything :

Remember this : "Fair and softly goes far in a day"  
Therefore,

**You must run-in your engine.**

The running-in period must extend over a **minimum distance of 500 km (310 miles) !**

During the running-in period :

**Never exceed 30 km per hour (18 m.p.h.) on the level.**

Give pedal assistance to the engine when starting or going up hill.

- For the lubrication : mix 10% MOTUL MIX COURSES oil to the petrol (avoid the use of high-grade petrol).

After the running-in period :

The riding of your cyclo VAP must be carried out according to the following instructions :

- The proportion of the MOTUL MIX COURSES oil to be mixed to the petrol is to be reduced to 7 or 8 %.

- On steep gradients, when the auticycle speed decreases without any fading of the engine power, never hesitate to give pedal assistance if the speed drops under 22/25 km. per hour (13/15 m.p.h.). This additional effort is not so important and is very useful to unload the engine which in such a case is not cooled enough by the airstream relatively to the full-load going.

- Riding on level or moderate hilly countries, does not need any special care. However full throttle openings for a long while is to be avoided. The VAP 55 engine can afford speeds up to 50 or even 55 km per hour (31/34 m.p.h.), but such figures may be reached exceptionally ; normal speed is of about 40 km. per hour (25 m.p.h.).

CAUTION - The ABG/VIEL carburettors as fitted to the majority of the

VAP engines, are normally equipped with a N°52 jet. If in the running-in period engine power seems to be too weak, temporarily replace this jet by a N°54. Once the running-in is over, switch back to the n°52 jet.

#### A.- COLD START

Proceed as follows :

- a) Fill up the tank with a mixture of ordinary petrol and MOTUL MIX COURSES oil at 7% (10% for running-in), for this refer to the section of this book dealing with lubrication.
- b) Inspect whether the engine drive is coupled to the cycle. To check this, push the cycle by hand, if you feel some resistance, coupling is "on"; if not, give 1/8 th. turn to the coupling plate mounted on the crankwheel spindle just in front of the secondary drive pulley; this operation may be done either by hand or by the toe. When the noise of a steady engagement is heard and the fins of the coupling plate are lined up with the marks on the pulley, the coupling is over.
- c) Open the petroil tap.
- d) Close the air choke or strangler flap (in very hot weather this must be let open); ride the autocycle; slightly open the throttle (1/3 rd of the twist grip travel) and pull on the decompressor lever. Give 3 or 4 turns to the pedals and release the décompressor lever, the engine must start immediately.
- e) Further open the throttle and pedal a while in order to unload the engine.
- f) After a travel of about 100 yards, open the throttle to the full, the autocycle will then accelerate.

CAUTION - You must know that in the case of VIEL/ABG carburettors, the air choke must remain closed just for the short time required by the warming up of the engine. Once this is over the throttle must be open fully then immediately put back to its normal riding position, thus the air flap remains fully open. A partially closed air choke will result in excessive petrol consumption.

#### B.- STARTING A WARMED ENGINE

Proceed as stated above, except for :

- The operation of the air flap, and
- the operation of the throttle which can be open at full, if desired, once the engine is started.

CAUTION - Once accustomed to the cyclo VAP 55, pedal starting may be replaced by something easier. A quick push of the autocycle, the throttle being slightly open, is widely enough to start the engine. This is a valuable feature for starting on steep gradients.

#### C.- TEMPORARY STOP (traffic lights for instance)

Don't stop your cycloVAP by only applying the brakes, this may result in defective cooling of the engine.

Reduce the throttle opening to a minimum, this will disengage the automatic clutch and the engine will keep its pace in a gentle idling, without overheating. The cycloVAP

will stay at stop without any assistance of the brakes. To start again from that position open the throttle to the 3/4 of its total travel then pedal for a few yards.

D.- FINAL STOP : fully close the throttle and operate the decompressor lever. Also close the petroil tap.

#### E.- TRANSFORMING THE AUTOCYCLE INTO A PEDAL CYCLE.

While at stop, give the coupling plate 1/8th of a turn, thus you render the cycle free from the engine drive.

## LUBRICATION

### I.- ENGINE LUBRICATION

The engine is lubricated by mixing MOTUL MIX COURSES oil to ordinary petrol (pool petrol). The petroil mixture must be very homogeneous, and carried out separately before filling up the fuel tank of the cycloVAP. Filtering of the mixture, is highly recommended whenever possible.

#### Correct proportions for the petroil mixture

During the running-in period only, 10% MOTUL MIX COURSES oil is to be mixed with petrol. Normal proportions after this period is 7 to 8% in volume. The normal colour of the exhaust smoke is then slightly blue; but the overlubrication when running-in results in a heavier smoke.

### II.- AUTOMATIC CLUTCH LUBRICATION

- 1) The roller free-wheel is definitely greased at the factory and does not, normally, require further lubrication. However, if the automatic clutch is to be dismantled for cleaning, the rollers and their races must be greased with a high melting point grease (min. temperature 140°C = 284°F). A very convenient grease for the case is the MOTUL 5039
- 2) The bushing revolving at the end of the crankshaft is self-lubricating. This part, if not over-stressed by the excessive tension of the belt (See the section of this book relative to correct belt tension) contains enough oil for several hundred hours.

However, after a few thousand miles, it is recommended to put a drop of vaseline oil on it; afterwards this operation may be carried out every 1000 miles or more, according to the particular use of the autocycle (dust, rough weather, clutch slip, etc....)

CAUTION - Never wash the self-lubricating bushing with a degreasing compound which will eliminate all the lubricant it contains.

### III.- SECONDARY DRIVE LUBRICATION

- 1) **Internal Parts** : Lubrication is carried out at the factory for many thousand miles. If necessary, use a very sticky heavy grease. For instance MOTUL 850 compound grease or MOTUL 5039 grease as stated above.
- 2) **Pedal crank spindle** : With a grease-gun engaged over the grease nipple provided for the purpose fill the grease

recess with an adhesive half fluid grease (MOTUL 850-S). This operation must be more or less frequently repeated according to the various riding conditions.

The average mileage values between two successive operations are : 600 miles in normal conditions and 300 miles or less under rain or snow and in cases where the autocyclus is very often used as a pedal cycle.

CAUTION - The lubrication of the pedal crank spindle must be very carefully watched. In fine weather a correct lubrication will last for many thousand miles : whereas if the cycloVAP is used by rain and mud, greasing must be done more frequently.

## MAINTENANCE AND ADJUSTMENTS

Keep your engine as clean as possible, this is a "must".

- 1. Locking the nuts :** In the case of a new or overhauled engine, check all the nuts of the cylinder and cylinder head for tightness; they must be locked but not excessively.
- 2. Descaling :** After a period which varies according to the riding conditions and to the quality of the oil and petrol used, the engine becomes "cocked"; the top of the piston, the cylinder head, the inlet and exhaust ports are covered with oxide scale. If this carbon layer becomes too heavy, jerky engine operation and consistent loss of power will result.  
The descaling must be carried out every 1000 miles, if possible by a specialized mechanic.  
The first descaling of a new or overhauled engine must be undertaken after the first 310 miles of the running-in period.
- 3. Fly-wheel magneto maintenance and timing**  
Every 900 to 1200 miles, remove the fly-wheel magneto cover, and inspect the internal parts for cleanness. All, and mainly the contact-breaker must be free of oil and dust. These parts must be cleaned with a petrol moistened rag, then dried thoroughly.  
Correct timing of the fly-wheel magneto is obtained when the contact-breaker starts just opening 3 to 3,2 mm before the Top dead center (T.D.C.)  
Maximum opening of the contacts must be of .25 to .30 mm (.010" to .012"). While adjusting this, also check the correct timing of the ignition advance as stated above.

### 4. Lighting.

The lighting coil in the fly-wheel magneto is provided for 6 volt, 1 amp. bulb at the front and 12 volt .5 amp. bulb at the rear.

WARNING - Never let the lighting switch "ON" with the rear bulb only, otherwise this will be "blown-out" in a few miles.

Carefully check the bulbs for tight fit. One loosen bulb will result in the defection of the other. For the same reason replace a defective bulb as soon as possible.

### 5. Spark plug.

The gap of the spark plug electrodes must be inspected every 900 to 1200 miles or more frequently if any trou-

ble is felt, also inspect for cleanness (correct gap value is .016"/.024"). Carbon deposits may be removed with a small metal wire brush.

CAUTION.- The VAP 55 engines are delivered with a "soft" (hot) plug in order to avoid fouling during the running-in period. The same plug may be maintained if the rider is not a "rough going fan". But in the case of one who locks after high speeds a "hard" (cold) plug of the same make becomes necessary.

### 6. Belt tension

At stop, the belt must not show any deflection. Under finger pressure, deflection must be of 7 mm. (9/32"). Tension adjustment is carried out by swivelling the engine around its upper fixing point.

To give 9/32" belt deflection for the "slackest" position between the two pulleys, a maximum effort of 3.6 kg (8 lbs) is only necessary. A greater effort may result in an overstressed belt.

We may specify that the "Société ABG" will, on request, supply a special belt tension checking straight edge.

### 7. Clutch

The clutch is definitely adjusted at the factory. Further repair, if any, must be done by our representatives.

## SOME ADDITIONAL INSTRUCTIONS

We may draw your attention on the main feature of the VAP 55 engine, that consists in its automatic progressive clutch.

This clutch can slip at moderate speeds under 9 m.p.h. such a flexibility is a valuable feature of the cycloVAP 55, mainly in town traffic. However we always recommend to give pedal assistance in such cases. Maintaining such reduced speeds for a long time results in engine overheating and increased fuel consumption. Never hesitate to give some pedal assistance to increase the speed of the cycloVAP as soon as possible. At speeds over 9 m.p.h., the clutch must not slip. If such is the case, the trouble is surely due to a loss of power of the engine itself and must be cured.

Two cases are possible :

#### 1° - Engine fading either warm or cold.

This may occur during the running-in period as the engine components are not freed enough. Therefore running-in must be maintained together with over-lubrication (See section "LUBRICATION"). If after this period the engine is still "fading", inspect :

- a) The spark plug.** Which may be either too soft (white electrodes) or too hard (fouled electrodes). Then the plug is to be replaced by one of the correct grade.
- b) The carburettor.** Clogged (obstructed) filter. Leakage to the needle valve.
- c) The fly-wheel magneto.** Defective timing. Defective contact breaker gap.

In addition, loss of power may result from :

- d) A defective or incomplete descaling: inspect the cylinder ports and the inside of the exhaust silencer.
- e) A defective belt tension, which must be inspected for the first time after 60 miles, then after 300 miles, and later every 600 miles.

2° - Engine fading when warm only, after a full throttle ride for a long time and on bad roads.

In this case the trouble is almost always resulting from pre-ignition, as the engine is over heated and the revolutions reduced.

If the trouble is unusual let the engine cool by reducing the throttle opening for some minutes and give pedal assistance.

If the trouble occurs frequently, proceed as follows :

- a) Inspect the piston and the cylinder head for oxide scale. Inspect the cylinder head nuts for defective tightening.
- b) Inspect the piston for stuck piston rings.
- c) Try a harder (cold) spark plug (take care of the quality).

#### NOTICE - Consumption

The fuel consumption of an autocyce varies according to the average speed, the road conditions, the weight carried, the frequency of the stops, etc....

To get the best from your bike, read carefully the instructions given under heading : "RIDING THE CYCLOVAP 55" of this book. Also inspect the carburettor for leakage and the gaskets for air leaks.

Excessive fuel consumption and power drop may also result from **four stroking**. This may be simply detected by the exhaust noise. If this trouble is frequent the carburettor jet must be replaced by a new one of smaller size, because the former jet gives a too rich mixture.

Now you are acquainted with your cycle VAP 55, you can go safely.

Hereafter you have a reliable friend, of easy handling, which will lead you anywhere.

So, happy miles to you !

## SPARE PARTS LIST for ABG/VAP 55 ENGINE WITH AUTOMATIC CLUTCH

(All dimensions given in millimetres,  
threads in metric pitch)

REFERENCE NUMBER	DESCRIPTION	QUANTITY per unit
2290	CRANKCASE COMPLETE	1
2292	Half-crankcase-fly-wheel magneto side..	1
2293	Half-crankcase-pulley side .....	1
109	Stud - Cylinder fastening .....	4
2294	Stud - 6 x 68 .....	2
2295	Screw - Hex. head : 6 x 56 .....	3
2296	Gasket - crankcase halves .....	1
2148	Washer - plain : 6,25 x 10,25 x .8 ....	2
773	Washer-"Blocfor" inner splines, 6mm dia	2
503	Hex. nut - 6 mm dia .....	7
2220	Lockwasher - spring : 6 mm dia .....	3
2301	CONNECTING ROD AND CRANKSHAFT assembly complete, including	1
2300	Connecting rod Assy. and crankshaft proper, including : .....	1
2012	Connecting rod .....	1
2302	Half crankshaft, pulley side .....	1
2017	Half crankshaft, fly-wheel magneto side	1
2013	Crank-pin .....	1
158	Needles-big-end : 2,5 x 9,8 .....	22
2014	Washer - big-end .....	2
2015	Washer - thrust .....	2
162	Ball bearing (15 x 35 x 11) .....	2
153	Piston pin .....	1
155	Needles - small-end : 4 x 9,8 .....	19
156	Washer - small-end .....	2
2297	"Paulstra" gasket - 15 x 30 x 4,5 ...	1
2331	PISTON COMPLETE, including .....	1
194	Piston with spigots .....	1
2223	Piston ring .....	2
206	Circlips - internal : 12 mm. dia .....	2
	CYLINDER - CAST IRON, complete including.	1
2311	Cylinder proper .....	1
240	Stud - 5 x 12 .....	6
252	Gasket - cylinder base .....	1
2316(1)	CYLINDER HEAD - SPECIAL with Decompressor	1
255	Nut - cylinder head .....	4
255 H	Cap nut - cylinder head .....	4
256	Washer-plain : 6,25 x 14 x 1 .....	4

(1) - The height of the N°2316 special head is 44,5 mm. This head embodies a central boss with fixing screw. The mating face bears the figure "4" punched on it. Some engines are equipped with special head embodying 2 fixing lugs, instead of the central boss.

2381	DECOMPRESSOR COMPLETE for N° 2316 SPECIAL CYLINDER HEAD, including .....	1
2382	Valve .....	1
2383	Spring - hair-pin .....	1
2384	Threaded body on cylinder head .....	1
2385	Clip - valve end .....	1
2386	Pin - split : 2 x 15 .....	1
1220	Spark plug AC .....	1
1210	Spark plug - Floquet 14 D 2 or .....	1
1211	Marchal CR 36 .....	1
364	Gasket - spark plug .....	1
2221	IGNITION WIRE complete, including .....	1
1215	Cable - 30 cm long .....	1
1414	Clip - cable end .....	1
365	Cover - fly-wheel magneto side .....	1
1412	Cover - plug side .....	1
2153	INTAKE PIPE .....	1
182	Gasket - intake pipe .....	1
506	Hex nut - 5 mm. dia (2 for intake and 4 for exhaust) .....	6
507	Washer - "Blocfor" inner splines 5 mm dia .....	6
190	Bushing - carburettor insulating .....	1
189	Gasket - exhaust .....	1
2335	Washer - felt .....	2
2336	Washer - hub thrust .....	2
2337	"Vee" belt - 13 x 8 .....	1
2264	Grease nipple for pedal axle .....	1
2260	Ferrule - Fastening .....	2
2341	Automatic Clutch complete, including .....	1
2351	Primary pulley complete, including .....	1
2356	Bushing - self-lubricating 12x18x16 .....	1
2357	Free-wheel race .....	1
2358	Roller - 54mm. dia x 6mm. long .....	3
2368	Washer-thrust .....	1
2369	Cap-oil screen .....	1
2401	Automatic clutch plate, complet including .....	1
2281	Driving plate complet, including .....	1
2288	Ring-locking .....	1
2361	Automatic clutch shoe complete .....	2
2370	Circlip - outer 6 mm. dia .....	2
2372	Spring - clutch shoe return .....	2
2388	Rubber insert .....	2
2368	Washer thrust .....	1
2369	Cap-oil screen .....	1
2360	Circlip - outer 6 mm dia (or hairpin clip) .....	2
2372	Spring - clutch shoe return .....	2
2373	Washer - felt .....	1
2374	Washer thrust .....	1
2214	Circlip outer : 12 mm dia .....	1
2391	SECONDARY DRIVE complete, including .....	1
2334	Bushing-needle roller 16 x 22 x 12 .....	2

2392	Pulley .....	1
2393	Sliding pawl complete .....	2
2394	Chain sprocket complete .....	1
2395	Spring .....	4
2396	Sheet plate-protective .....	1
2397	Screw-cheese head : 4 x 8 .....	4
2398	Washer "Blocfor", outer splines 4mm dia .....	4
2399	Washer-friction thrust .....	1
2400	Plate - ratchet coupling .....	1
2402	Washer - rubber seal .....	1
2403	Sheet plate-fixing .....	1
2404	Cup - protective .....	1
2330	Washer - shim:3x35, thickness 0,2 .....	variab.
2332	Washer - shim:3x35, " 0,5 .....	"
2339	Washer - shim:3x35, " 0,3 .....	"
2333	Washer - shim:28x35 " 0,2 .....	"
2271	SILENCER AND EXHAUST PIPE ASSEMBLY complete, including .....	1
2274	Silencer proper, without exhaust pipe .....	1
2275	Silencer and cover .....	1
516	Washer-plain : 6,25 x 14 x 1,5 .....	1
2276	Hex. cap nut : 6 mm dia .....	1
2277	Exhaust pipe complete with flange .....	1
2278	Exhaust flange .....	1
2279	Silencer body .....	1
2232	Screw-hex. head : 8 x 94 .....	1
2233	Screw-hex. head : 8 x 65 .....	1
1172	Hex. nut 8 mm dia .....	2
761	Hex. lock nut - 8 mm dia .....	2
2273	Washer-plain : 8 mm dia .....	2
2234	Washer-split lock : 8 mm dia .....	2
2235	Cup ball race - pedal crank spindle, fixed .....	1
2236	Cup ball race - pedal crank spindle, adjustable .....	1
2237	Lock nut .....	1
2161	CARBURETTOR ABG MODEL 14 V 54 complete, including .....	1
2162	Cover - air filter .....	1
2163	Air filter .....	1
2164	Screw - air filter cover .....	1
2165	Lockwasher - toothed .....	1
2166	Cover-float chamber .....	1
2167	Spring-air flap pressing .....	1
2168	Gasket - jet .....	1
2169	Jet .....	1
2172	Gasket - float chamber .....	1
2173	Spigot - gasket positioning .....	4
2174	Spring - needle valve assembly retaining .....	1
2175	Stop - needle valve assy. retaining spring .....	1
190	Sleeve - insulating .....	1
2199	Starter (air flap or air choke) with operating rod .....	1
2180	Throttle cable complete .....	1
2181	Petrol supply (petrol pipe and needle valve) .....	1

ALWAYS ASK FOR GENUINE SPARES !

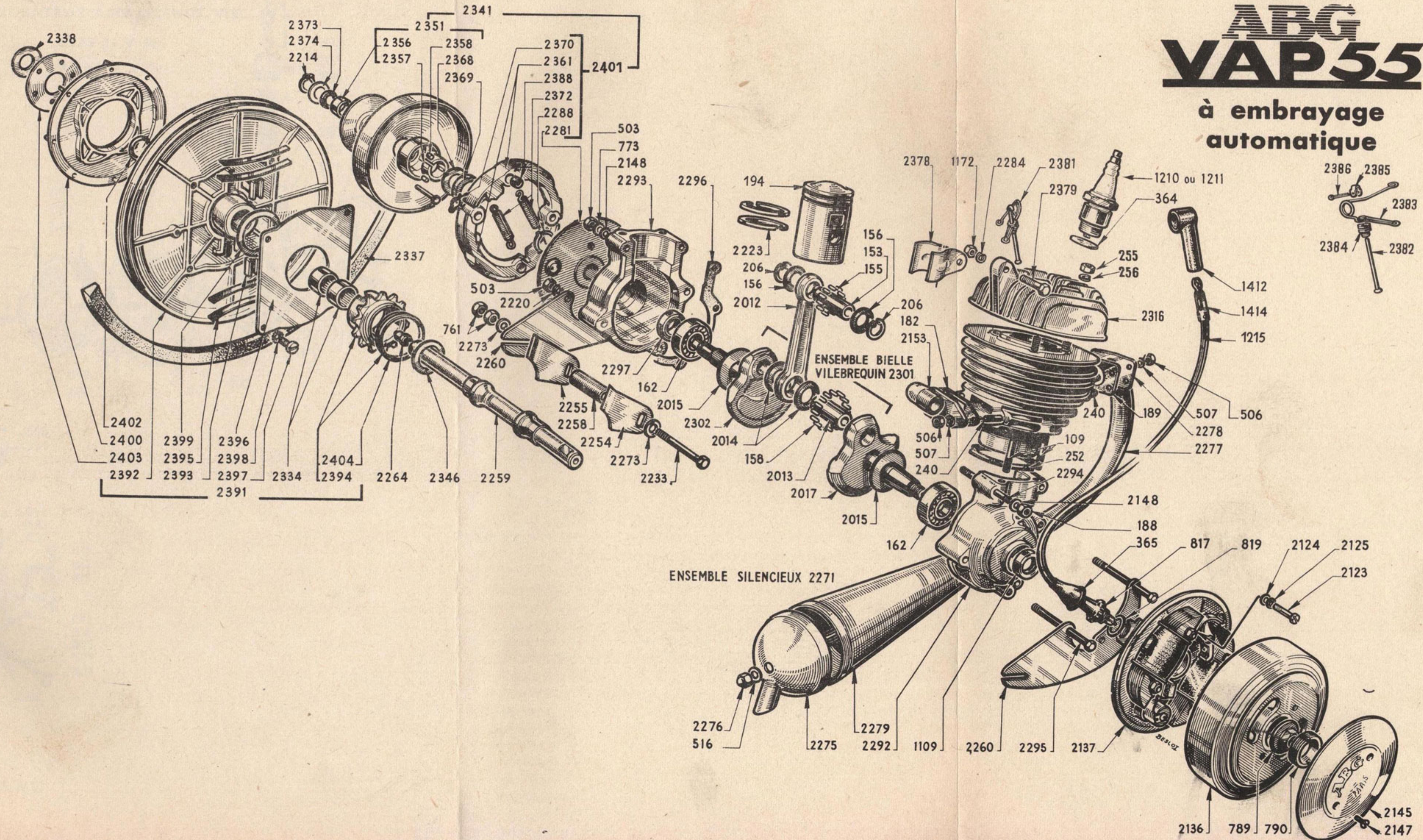
ALWAYS ASK FOR GENUINE SPARES !

2183	Float complete .....	1
2185	Starter spring .....	1
2191	Screw and lock nut - throttle cable casing adjustment .....	1
2194	Upper cap .....	1
2195	Spring - air flap .....	1
2196	Screw - air flap control .....	1
2197	Throttle slide .....	1
2188	Clamping nut .....	1
2189	Clamping collar .....	1
2198	Clamping screw .....	1
FLY-WHEEL MAGNETO MODEL 4 VDS 152(Also named right hand rotation fly-wheel with lighting set), including .....		
2131	Fly-wheel magneto complete with securing nut .....	1
2136	Rotor .....	1
790	Threaded bushing-extractor .....	1
789	Nut - rotor .....	1
2145	Cover - rotor .....	1
2147	Screw - rotor cover fastening .....	2
STATOR complete, including .....		
2132	Stator proper .....	1
2137	Spindle - contact breaker .....	1
832	Felt - greasing .....	1
388	Bracket - contact breaker .....	1
1604	Lever - contact breaker .....	1
1607	Condenser .....	1
2130	Connecting coil, complete .....	1
1606	Ignition coil, complete .....	1
2133	Lighting coil, complete .....	1
817	High tension ignition terminal, 14 mm dia .....	1
819	Gasket - high tension terminal .....	1
1617	Lighting terminal, complete .....	1
2218	Screw-ignition and lighting coil fastening .....	4
2124	Washer - plain, 5,05 mm dia .....	4
507	Lockwasher, 5 mm dia .....	4
2024	Paper gasket for stator .....	1
1109	Bushing - oil seal .....	1
2123	Screw - stator fastening .....	2
2124	Washer - plain .....	2
2125	Lockwasher .....	2
831	Contact breaker assembly .....	1

**IMPORTANT**

When ordering spares or asking for information, kindly mention the serial number and model of the engine punched on the crankcase. Exemple : 37.244 - VAP-55

As regards the spares for the fly-wheel magneto and the carburettor, specify the serial number and the model separately punched on these accessories.



**Moteur**  
**ABG**  
**VAP 55**  
**à embrayage**  
**automatique**