

JAMES

INSTRUCTION BOOK

98 cc.

COMET
AND
COMMODORE

(1948—1952 MODELS)

Manufacturers :

JAMES MOTOR CYCLES LTD.

GREET,

BIRMINGHAM, 11, ENGLAND.

10th Edition 1/58 1M.

Price 1/6

SPARES STOCKISTS

For the convenience of owners, Spares Stockists are appointed for most districts. To save delay and the delivery surcharge, customers are strongly advised to obtain their requirements from their nearest Spares Stockists.

When corresponding regarding Service or Spares ALWAYS QUOTE the complete engine and frame numbers of your machine. If in any doubt regarding the part number of any component send old part as pattern.

James Motor Cycles Ltd.
Birmingham.

JAMES

INSTRUCTION BOOK

Fred G. Slade
98cc CYCLES
MAY PLACE, LONDON STREET
Phone BASINGSTOKE 1338
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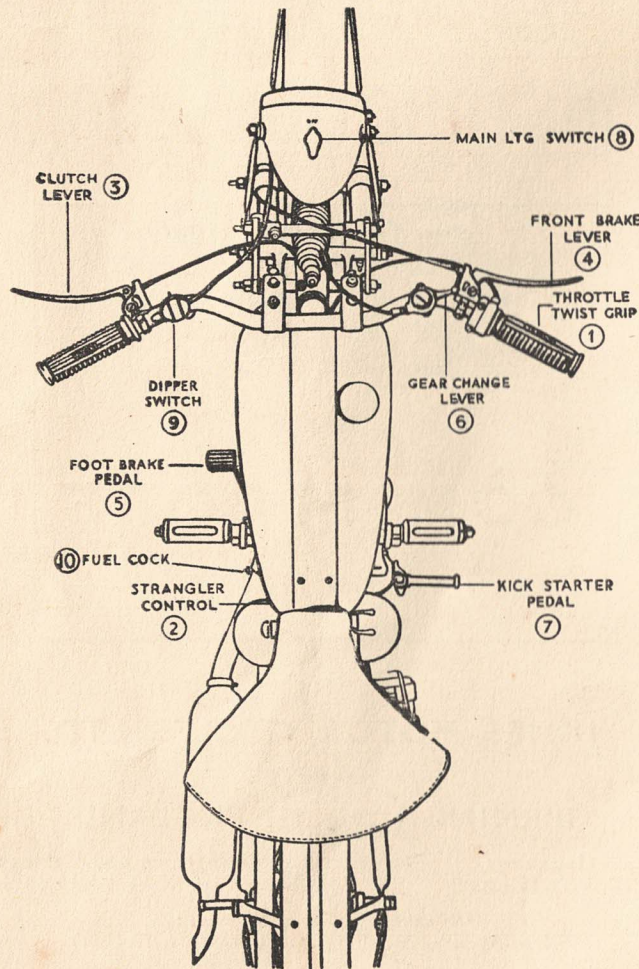
Telephone :
VIC. 2211 (5 lines)

Telegrams and Cables :
JAMES GREET BHM (Telex)

Nearest Railway Station :
Birmingham, Small Heath (Western Region)

THE JAMES
98cc. TWO-STROKE MOTOR CYCLE
 (1948—1952 MODEL)

CONTROLS



THE "JAMES"
98cc. TWO-STROKE MOTOR CYCLE

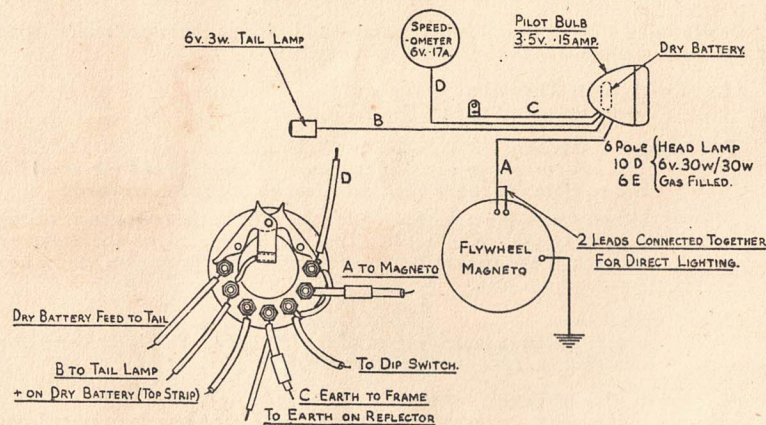
CONTROLS (See illustration).

Before using a machine which may be new and strange, become familiar with the operation and position of the following controls :—

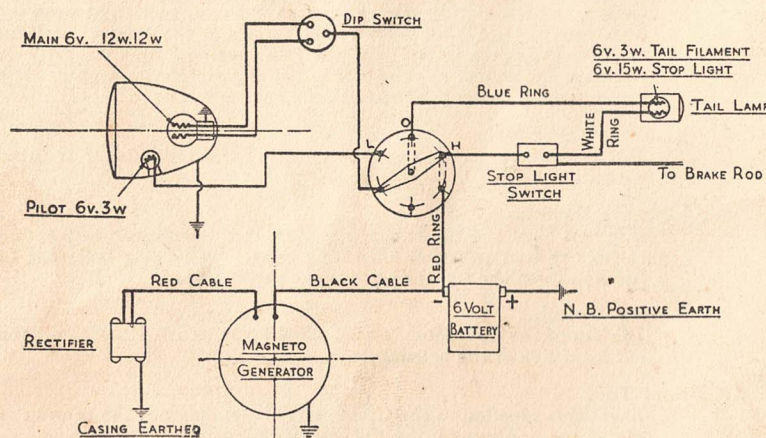
1. **Twist Grip Throttle.**
Twist inward to open.
2. **Choke Control.**
This is operated by rotating the slide by means of the tab provided and to close the choke the tab should be pressed downwards.
When the engine is started, rotate the slide in the opposite direction by pulling the tab upwards. The tab is situated on the inner or left side of the choker body, the choke should only be used when starting from cold.
3. **Clutch Lever.**
This is the large lever in front of the left hand. This lever should be operated to its full extent when changing gear.
4. **Front Brake Lever.**
This is the large lever in front of the right hand grip to operate front wheel brake.
5. **Rear Brake Pedal.**
Depress by left foot to operate rear wheel brake.
6. **Gear Change Lever.**
This is the small lever situated on the right hand side above the twist grip ; to engage low gear, push forward, pull right back for high gear. There is no notch for Neutral, but the Neutral position is marked with the letter "N." When starting from a standstill do not have the engine running fast when engaging bottom gear. The slower the engine runs the easier the gear will slide in.
7. **Kick Starter Pedal.**
This is situated on the right hand side of the machine, it is fitted with a hinged pedal.
8. **Lighting Switch.**
Controls head and tail lamps, by turning the indicator to position H (to the left) will give full riding light. By turning indicator to position L (to the right) operates the parking light.
9. **Dipper Switch.**
The dip of the head lamp is controlled by Switch 9, situated on the left hand side of the handlebars.
10. **Fuel Tap.**
The fuel is supplied to the Carburetter by pulling out the round end of the tap. Always make the practice of turning off the fuel supply when stopping the engine, by pushing in the fuel cock tap.
11. **On no account** should the machine be used without silencer as this will spoil the performance of the engine. The silencer is necessary to provide the greatest possible power.

WIRING DIAGRAMS.

DIRECT LIGHTING



RECTIFIER—BATTERY LIGHTING SET.



IMPORTANT.—Before starting the engine, make sure that the Battery is connected in circuit, and is filled with electrolyte. Failing to do this will burn out the rectifier. If Battery is removed rectifier **MUST BE** disconnected.

TECHNICAL DATA

JAMES MODEL J10 COMET, 98 c.c. TWO-STROKE

Engine		
Type	...	Villiers Mark 1F single cylinder two-stroke
Bore	...	47 mm. 1.8504"/1.8499"
Stroke	...	57 mm. 2.244"
Capacity	...	98 c.c. 6 cu. ins.
Compression Ratio	...	8 to 1.
Ignition	...	Villiers 6 pole flywheel magneto.
Fuel System	...	Villiers Type 6/0 carburetter, fitted with air cleaner and choke.
Clutch		Four plates, cork inserts in one plate and in clutch sprocket, running in oil.
Gearbox		Two-speed gearbox in unit with engine. Operation by handlebar lever and cable.
Gear Ratios	...	1.54 to 1 and 1 to 1.
Engine to Clutch Ratio	...	2.47 to 1.
Transmission		
Primary Chain	...	$\frac{3}{8}$ " x $\frac{1}{4}$ " x .225".
Rear Chain	...	$\frac{1}{2}$ " x .335" x .192". Adjustment $\frac{3}{8}$ " to $\frac{1}{2}$ " slack at tightest point.
Engine Sprocket	...	17 teeth.
Clutch Sprocket	...	42 teeth.
Gearbox Sprocket	...	17 teeth.
Rear Wheel Sprocket	...	48 teeth.
Overall Gear Ratios		
Low Gear	...	13.1 to 1.
High Gear	...	8.5 to 1.
Brakes		Front and rear, internal expanding, 4" dia. drums, finger adjustment on rear brake, spanner adjustment on front. Braking area 10 $\frac{1}{2}$ sq. ins.
Suspension		Girder type, link fork. Weldless taper tubes all brazed.
Wheels		Front, WMO-19 rim, 36 spokes, 12 S.W.G. Rear, WMO-19 rim, 36 spokes, 10 S.W.G.
Tyres		2.25 x 19 front and rear.
Electrical Equipment		Flywheel generator supplies A.C. current for headlight and tail lamp. Dry-cell batteries supply parking lights.
Capacities		
Fuel Mixture	...	$\frac{1}{2}$ pint oil to 1 gallon of petrol or $\frac{1}{4}$ litre oil per 5 litres of petrol (see page 10).
Fuel Tank capacity	...	1 $\frac{1}{2}$ imp. gallons, 7 litres.
Gearbox and Gearcase	...	Approx. $\frac{1}{4}$ pint oil but fill to oil level plug only.

Ignition Details

Ignition Setting	Contact breaker points commence to open when piston is $\frac{1}{8}$ " before T.D.C.
Contract Breaker Points Gap...	.012"/.015".
Spark Plug Type	Lodge H14, 14 mm. short reach.
Spark Plug Gap020".

Fuel Consumption 140 m.p.g. (approx.).

Top Speed 42 m.p.h. (approx.)

Dimensions

Overall length	79".
Overall width	25 $\frac{1}{2}$ ".
Overall height	33 $\frac{1}{2}$ ".
Wheelbase	49".
Ground Clearance	5"

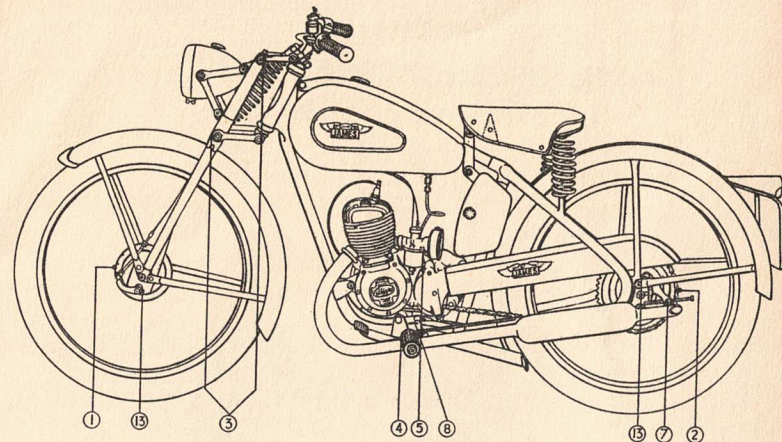
Weight 130 lbs. (approx.).

RECOMMENDED LUBRICANTS

(U.K. and OVERSEAS)

	SHELL	WAKEFIELD	VACUUM	B.P.	ESSO
ENGINE ... (All Seasons)	Shell X 100 30	Castrol XL	Mobiloil A	Energol SAE 30	Essolube 30
GEARBOX and CHAIN CASE	Shell Dentax 140	Castrol D	Mobilube C 140	Energol SAE 140	Esso Gear Oil 140
EXPOSED CHAINS and GREASE GUN	Shell Retinax A or CD	Castrolase Graphited	Mobilgrease No. 2	Energrease C 3	Esso Chassis Grease
WHEEL HUBS	Shell Retinax A or RB	Castrolase Heavy	Mobil Hub Grease	Energrease C 3	Esso Bearing Grease
OIL CAN ...	Shell X 100	Castrol XL	Mobiloil A	Energol SAE 30	Essolube 30

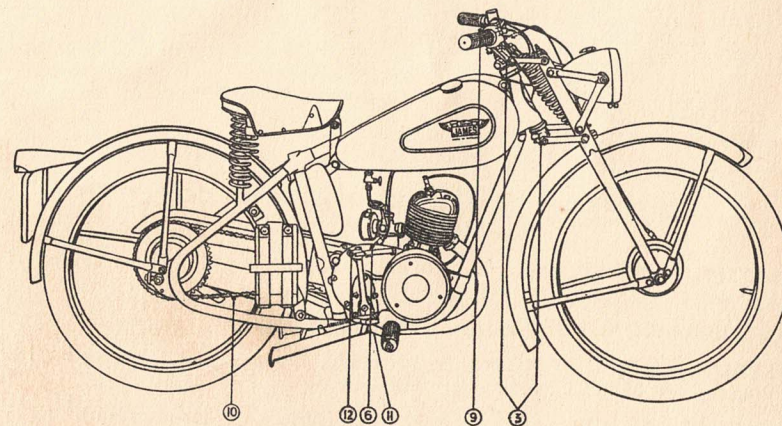
I.F.



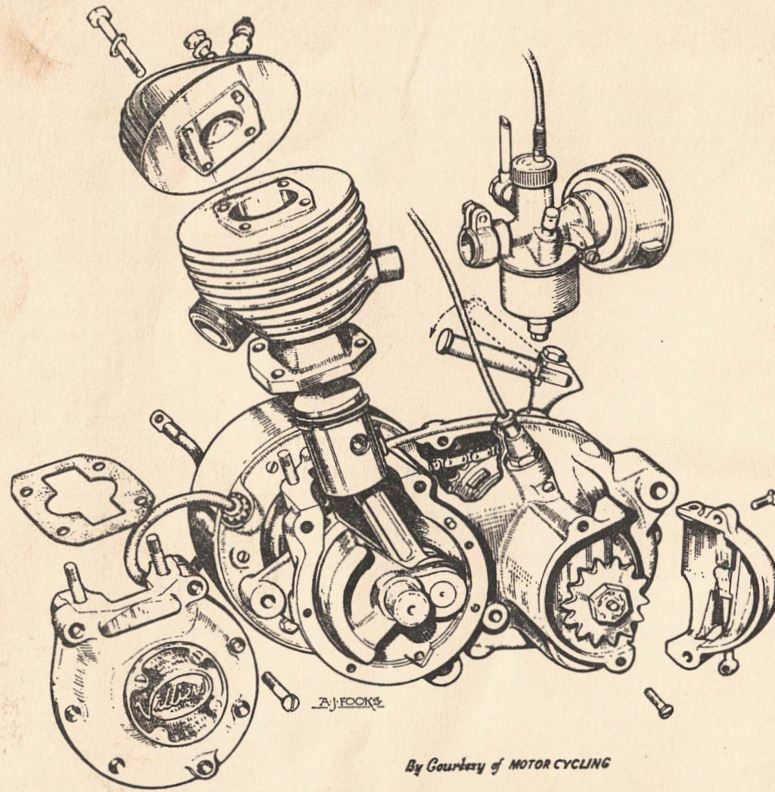
1	Front Hub	Light Grease
2	Rear Hub	Light Grease
3	Fork Nipples	Light Grease
4	Brake Pedal Shaft	Light Grease
5	Front Chaincase	S.A.E. 140 weight oil
6	Gear Box	

LUBRICATION CHART

7	Rear Brake Lever Roller	Oil
8	Brake Levers	Oil
9	Throttle Control	Oil
10	Rear Chain	Oil
11	Prop Stand	Oil
12	Kick Start Pedal	Oil
13	Brake Cams (Front and Rear)	Oil



THE VILLIERS
Mk. IF 98cc. POWER UNIT
 INCORPORATING 2-SPEED GEAR



By Courtesy of MOTOR CYCLING

PERFORMANCE DATA OF 98cc. JAMES COMET

By courtesy of The Motor Cycle

MAXIMUM SPEED.—Bottom 30 m.p.h. Top 42 m.p.h. Speed at end of quarter mile from rest : 42 m.p.h.

ACCELERATION.—From rest to 30 m.p.h. : 11 secs.

PETROIL CONSUMPTION.—At 20 m.p.h., 216 m.p.g. At 30 m.p.h., 168 m.p.g. At 35 m.p.h., 144 m.p.g.

BRAKING.—From 30 m.p.h. to rest, 32ft. 6in. (surface, dry tar-macadam).

THE VILLIERS
Mk. IF ENGINE—GEAR UNIT

The Mark IF Unit consists of a 98cc. Two-Stroke Engine and two-speed gearbox built as one assembly, the drive from engine crankshaft to clutch on gearbox mainshaft being by an endless roller chain running in an oil bath case.

A deeply finned cast iron cylinder with one exhaust and two transfer ports of unique design is used, the carburettor being mounted on a stub at the rear.

Secured to the cylinder by four bolts is an aluminium alloy head in which is fitted a 14 mm. sparking plug. The aluminium flat-topped piston carries a floating gudgeon pin located endways by circlips. The "big end" bearing consists of two rows of steel rollers running on a crankpin fitted in double crankwebs carried by a large ball journal bearing on each side.

Power is taken through a two plate cork insert clutch controlled by handlebar lever.

Final drive to rear wheel is by a roller chain. A Villiers Junior pattern carburettor is fitted at the rear of cylinder, control being by a single lever. A strangler fitted to the air filter assures easy starting.

The two speed gear is of the sliding dog type, there being a neutral or free engine position between high and low gear, gear control being by handlebar lever.

The slot in which the hand gear lever moves is longer than the travel actually required to give either top or bottom gear positions, provided the control cable is correctly adjusted. If, however, as the result of cable stretch, the lever has to be taken to the extreme end of the of the slot, there will then be a danger that bottom gear is not fully engaged. This may allow the gears to disengage while travelling, and cause wear of the driving dogs.

The adjustment of the control cable is quite simple and should be done when top gear is engaged. The screw adjuster fitted in the control lever body should be screwed outwards until about $\frac{1}{16}$ in. of free movement of the cable casing can be felt. If there is too little movement it will not be possible to obtain top gear properly, and if there is too much, bottom gear cannot be fully engaged.

A kickstarter is provided as an integral part of the gearbox, the kickstart lever being fitted with a pedal which folds back out of the way when not in use.

The flywheel magneto provides the high tension current for ignition, and has lighting coils built in.

ENGINE AND GEAR BOX LUBRICATION.

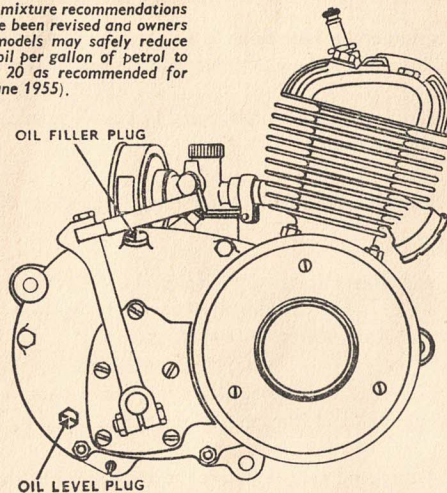
BEFORE USE.

It is most essential that these instructions be followed to ensure efficient and satisfactory performance of the engine and gear unit.

Lubrication of the engine only is effected by the Petroil System. A measure for the Oil is attached to the tank filler cap, and, if the simple instructions are followed, lubrication of all parts of the engine is automatic and efficient. The lubricating oil should be mixed with the petrol, in the proportion of One part of Oil to 16 parts of Petrol, or four measures of Oil to One gallon of Petrol ($\frac{1}{2}$ -pint Oil per gallon of Petrol).

Remove the gearbox oil filler and oil level plugs, and with the cycle off the stand, pour in recommended oil until it runs out at the level plug hole. Refit plugs securely. Examine every 500 miles and top up if necessary.

NOTE.—The petroil mixture recommendations given above have been revised and owners of 1948-1952 models may safely reduce the quantity of oil per gallon of petrol to a ratio of 1 to 20 as recommended for later models (June 1955).



STARTING THE ENGINE.

Before starting the engine, make sure that the battery is connected, or Rectifier disconnected if Battery is not in use.

- (a) See that there is sufficient fuel in the tank.
- (b) If machine has been standing for any length of time, shake well to mix the petrol and oil.
- (c) See that the gear lever is in the Neutral position.
- (d) Pull the fuel cock in the "on" position.
- (e) Close the choker by pushing the slide tab downwards, this is necessary only when the engine is cold. Be sure that the choker is returned to the OPEN position, by pulling the tab upwards as soon as the engine has run for approximately 30 seconds. Remember that, excessive use will cause difficult starting.
- (f) Open the throttle approximately a quarter movement of the twist grip.
- (g) Depress the kick start pedal once or twice, then give it a sharp kick downwards.
- (h) When the engine has been running for a short time, open the choker control by pushing upwards the tab of the slide to the full extent.
- (i) **DO NOT START THE MOTOR WHILST THE MOTOR CYCLE IS ON THE STAND.**

STOPPING THE ENGINE.

When the machine is to be left standing for any lengthy period, i.e., overnight or similar periods during the day, it is advisable to turn off the fuel supply, and allow the engine to use up the supply of petrol in the carburetter, while coming to rest. By this means it avoids the possibility of fuel draining into the engine, with subsequent starting difficulties. Under other circumstances to stop the engine, close the throttle.

ON THE ROAD.

Having started and warmed up the engine, sit astride it, free the clutch by pulling up the lever on the left hand bar, and engage the lowest gear, by pushing the small gear lever to forward position.

Slowly release the clutch lever and the machine will commence to move forward. As it does this, the engine speed will tend to drop as it picks up the load, so it will be necessary to slightly increase the throttle opening, to keep the engine speed rising. As the speed of the machine is increased, and when well under way, disengage the clutch, close the throttle, and ease back the gear lever into high gear, slowly release the clutch lever, then open the throttle, to increase the speed of the machine.

Always endeavour to make the movements on the clutch lever and on the gear operating lever as simultaneous as possible. Do not race the engine unnecessarily, or let in the clutch suddenly, to cause the rear wheel to spin, or cause jerky starting. Take a pride in making a smooth getaway.

When changing up to a higher gear, as the clutch is freed, the throttle should be slightly closed so that the engine speed may be reduced to keep in step with the higher gear ratio, and, conversely when changing down to a lower gear, the throttle is to be regulated so that the engine speed is increased to keep in step with the lower gear ratio.

DO NOT slip the clutch to control the road speed.

STOPPING THE MACHINE.

To stop the machine, close the throttle, declutch by lifting the large lever on the left handlebar, and gently apply both brakes, increasing the pressure on them as the speed of the machine decreases. Place gear lever in Neutral position.

Before leaving the machine turn off the fuel supply by pushing in the round fuel cock knob.

When using the machine on wet or greasy roads, it is better to apply **BOTH** brakes together, because sudden or harsh application of either brake only, under such conditions, may result in a skid.

RUNNING IN.

For at least the first 500 miles **AVOID** over-driving. Under **NO** circumstances, must the engine be driven at full throttle during the running-in period. The engine must not be allowed to attain a high rate of revolutions while on the road, or when running idle.

The following speeds should not be exceeded in these gears: first, 10 m.p.h. Top, 25 m.p.h.

CHAIN LUBRICATION.

The primary chain runs in an oil bath case. See page 6 ref. gearbox. The rear chain is not automatically lubricated, and should be removed occasionally for lubrication; a graphited oil is recommended.

PERIODICAL ATTENTIONS.

WEEKLY.

TYRES. Check pressures frequently, and keep inflated to correct pressure.

SPARK PLUG. Clean once a week.

BATTERY. (Comet-de-Luxe only). Check Electrolyte. Top up with distilled water only.

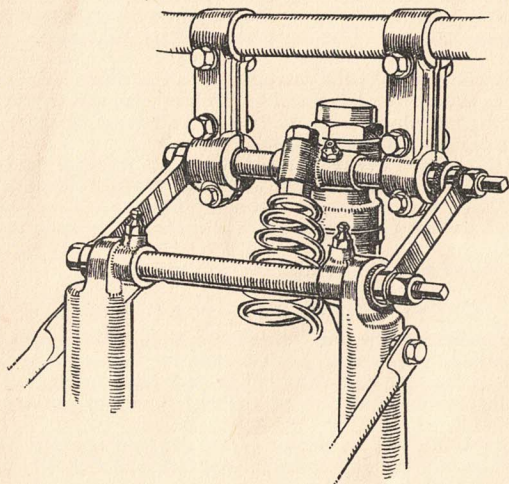
MONTHLY.

Clean carburetter pipe and filter.
Check rear chain for adjustment. See page 5 for data.
Check oil level in gearbox. See page 10.

EVERY 1,000 MILES.

BRAKE CAMS. Lubricate with oil can. An excessive quantity of oil should not be used, otherwise this may get through to the brake linings.

FORKS. Check adjustment of fork links and spindles. To adjust the fork shafts, release the nuts at each end, and turn shaft by the square end anti-clockwise to take out play caused by wear; afterwards tighten locknuts securely. A knurled washer is placed on each fork shaft, and it should just be possible to revolve this when the adjustment is correct.



TYRE PRESSURES	SIZE	FRONT	REAR
Commodore ...	2.25 x 21	20 lbs.	30 lbs.
Comet Standard ...	2.25 x 21	20 lbs.	29 lbs.
Comet de Luxe ...	2.50 x 19	16 lbs.	24 lbs.

AIR CLEANER. The air cleaner which is held on to choker body by a clip, should be removed approximately every 2,000 miles and cleaned by dousing in petrol; when dry, dip in oil and allow to drain before re-fitting.

Care should be taken when removing the air cleaner not to press the gauze, tightly as this will force it away from the end cap and prevent it functioning properly.

EVERY 5,000 MILES (or more frequently under extremely wet or muddy conditions).

HUBS. The hubs are packed with grease during assembly, to lubricate the bearings and prevent the entry of mud and water. A grease nipple on the hub is provided for the periodical injection of fresh grease. The quantity injected must not be excessive—one or two shots of the grease gun will be sufficient—or there will be a tendency for the surplus to work into the brake drum and so cause inefficiency.

GENERAL ATTENTION TO MAINTAIN ENGINE EFFICIENCY.

INSPECT GAS AND OIL JOINTS AND TIGHTEN IF NECESSARY.

1. Cylinder and Head.
2. Cylinder Base Joint. Examine for oil and gas leakage. There are four nuts to check. If after the nuts have been evenly tightened the joint still leaks, the cylinder base gasket may need renewal.
3. Carburetter clip, choker body clip and air cleaner.
4. Exhaust Pipe and Fittings.
5. Crankcase Joint. Examine for leakage.

INSPECT ENGINE MOUNTING, AND TIGHTEN IF NECESSARY.

1. Engine frame bolts (3).
2. Crank case bolts.

START ENGINE.

1. Listen for unusual knocks or rattles.
2. Uneven Firing may be caused by:
 - (a) defective spark plug.
 - (b) incorrect gap (.025" correct).
 - (c) defective H.T. cable.
 - (d) dirty or incorrectly adjusted contact breaker points (.015" correct).
 - (e) obstruction in petrol supply.
 - (f) water or dirt in float chamber.
 - (g) oil content in petrol too great.
 - (h) carburetter flooding.
 - (i) make sure choker control is fully open.
3. Examine exhaust smoke for correct mixture. With the two-stroke engine using "petrol" mixture a faint blue exhaust smoke will be seen coming from the tail pipe.

ENGINE LUBRICATION AND FUEL SYSTEM.

"PETROL" LUBRICATING AND FUEL SYSTEM.

1. Check quantity of fuel in tank. Do not forget that the fuel also serves the purpose of lubricating all internal parts of the engine, and always remember to replenish the fuel tank with the correct mixture of oil and petrol, which should be mixed before putting it into the tank if possible. See page 5.
2. Security of tank fixing bolts (2).
3. Leaks at taps and unions. Do not over-tighten where fibre washers are fitted. Tighten petrol tap. If petrol tap is loose, slacken petrol pipe before tightening. Check banjo union at carburetter end of pipe. Check nut on base of float chamber.
4. Carburetter flooding (dirt in float chamber, tickler or fuel needle sticking).
5. Throttle cable frayed or sharp bends in cable run. Alter position of clips if necessary.

IGNITION SYSTEM, SPARK PLUG.

MAGNETO. (Incorporated in Flywheel).

1. remove flywheel plate (3 screws). Inspect contact breaker for correct operation. Inspect operation while slowly turning the engine. Examine for burnt or pitted contact points. Check gap between points when fully open with gauge on wrench. Clearance should be 15 thousandths.
2. Check tightness of flywheel nut (right-hand thread).

3. Inspect insulated wires for :—
 - (a) shorts, cracks, frayed or rubbed portions.
 - (b) or, contact with cylinder or exhaust pipe.

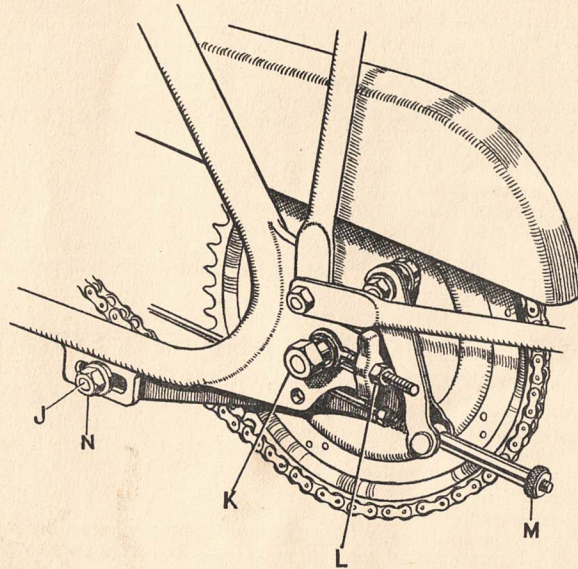
SPARK PLUG.

1. Remove with special wrench and check gap (.025"). When adjusting plug gap set side points, not central electrode.
2. Inspect for cleanliness and cracked insulator.
3. Replace and check for leaks. Tighten gland if necessary.

STEERING, BRAKES, WHEELS AND TYRES.

EXAMINE CONTROLS.

1. Examine handlebar control levers for tightness on handlebar, freedom of operation of clutch, brake, correct friction on twist grip.
2. Put a spot of oil on the end of each control wire and on the pivot pins for clutch and brake.
3. See that there is a small amount of slack in the clutch control, when in the off position. Adjust if necessary. Do not take adjuster screw out of casting



4. Brake pedal adjustment. Brake taken up by screwing knurled nut M further on the brake rod.

TO ADJUST CHAIN.

Release nut J, slack off spindle nuts K. To tighten chain, draw wheel back by means of nut L, an equal turn on each to keep the wheel central. After the adjustment has been carried out tighten nuts K, check position of the rim. This should be central in the chain stays. Do not forget to tighten nut J.

SECURITY.

1. Examine each control cable inner wire for fraying.
2. Examine each control outer cable and see that there are no sharp bends and cables are not kinked or chafed.
3. Wheel mounting nuts (2 on front axle 2 on rear axle).

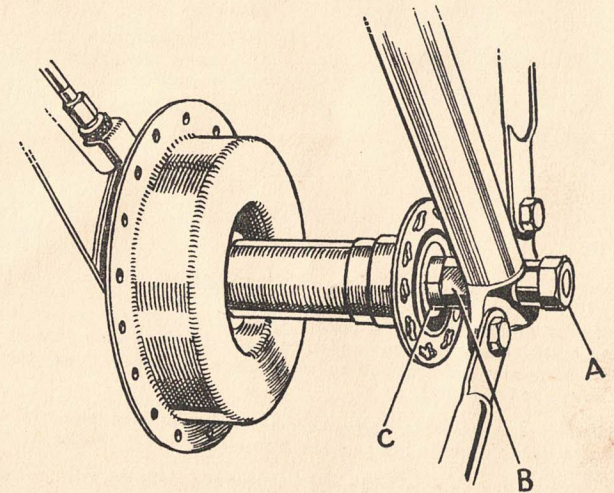
LUBRICATION.

Before applying gun, carefully clean exterior of nipples. Wipe off all excess lubricant when finished.

1. Wheel hubs (1 nipple on each hub). Periodical attention only. See page 6 and 7.
2. Grease fork shafts (6 nipples).
3. Brake pedal. Grease brake pedal cross shaft (1 nipple on pedal).
4. Moving parts—Oilcan—
 - (a) Brake lever rollers rear.
 - (b) Rear brake rod joint.
 - (c) Prop stand.
 - (d) Kick start pedal ball joint.
 - (e) Brake cams. Periodical attention only. See page 6 and 7.

WEAR AND ADJUSTMENT.

1. Test for up and down play in steering head.
 - (a) Place machine on stand. If not high enough place stout box under engine to raise front wheel clear of the ground.
 - (b) Grip the handlebar head clip lug where it meets the main frame head lug with the fingers of the left hand, and at the same time hold the forward end of the front mudguard with the right hand and lift. Movement of the head clip lug felt with the left hand indicates slackness.
 - (c) Adjust if necessary by releasing head clip nut, and screwing down the large head locknut. Do not use excessive force. Finally, tighten head clip pin locknut.



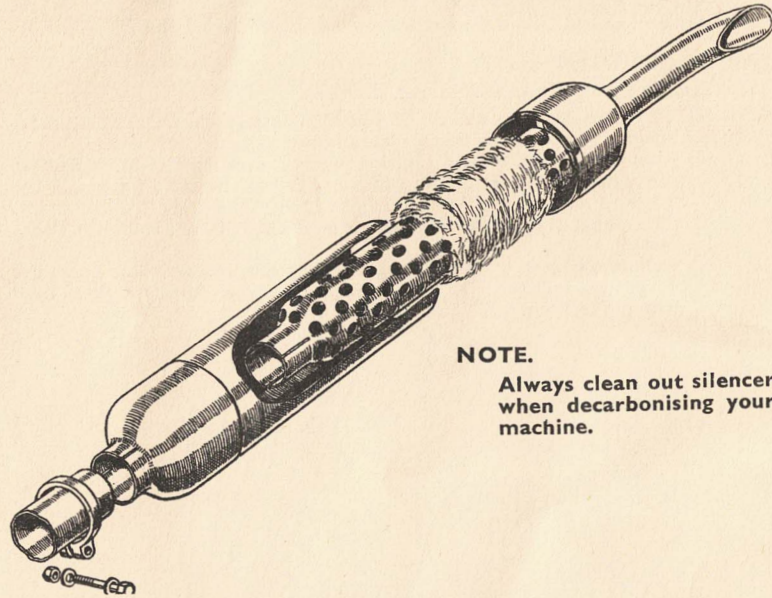
TO ADJUST FRONT WHEEL.

First slacken nuts A, then nut B and the adjustment is quite easily made by the adjusting cone C. When the correct adjustment is obtained no side play should be felt, but the wheel should revolve quite freely.

Hand brake adjustment. Tighten by screwing knurled nut on brake adjuster further.

SILENCER.

The silencer fitted on this machine provides for a clear passage of the exhaust gases and is designed to give the utmost power output from the engine; it should not be interfered with in any way with the exception of an occasional clean, say every 5000 miles. To do this first undo the screw which holds the collar, then detach the complete silencer from the frame of the machine. Afterwards undo the three small screws at the tail pipe end of the silencer, pull apart and take off the old glass wool and replace with either glass wool or if this is not available, wire wool, which should be wrapped round the interior of the silencer so that no holes are exposed. Replace this by pushing it back into the body making sure that the screw holes in the end cap correspond with the small holes in the body of the silencer. Re-insert the three small screws and assemble on to the machine.



NOTE.

Always clean out silencer when decarbonising your machine.

SPARES AND REPAIRS.

For the convenience of owners, James Spares Stockists are appointed for most districts, and customers are recommended to always apply to their nearest stockist. A list of stockists can be obtained on application (please enclose stamped and addressed envelope for reply).

When ordering spare parts, owners are advised to produce the original part as pattern, and to quote their full engine and frame numbers to enable identification.

Instructions regarding repairs should be clear and definite, otherwise the cost may be greater than expected. We shall be pleased to give estimates for repairs if parts are sent to us for that purpose. If the estimate is accepted, no charge will be made for the preliminary examination, but should the owner decide not to have the work carried out, a nominal charge may be made to cover the cost of whatever work may have been done to prepare the estimate. Parts sent to us as patterns or for repairs, should have attached to them a label with the sender's full name and address. Instructions regarding such parts should be sent separately.

Customers wishing to retain old parts which are replaced during overhaul or repair should state so before work commences, as normally such parts are scrapped upon removal.

If it is necessary to bring a machine, or parts, to the works for an urgent repair, it is essential that an appointment be made beforehand. This can be done by letter or telephone, and will avoid disappointment.

Orders should always be sent in list form and not as part of a letter.

SPARES LIST.

A priced list of replacement parts may be supplied at a cost of one shilling and sixpence, postage included.

USEFUL INFORMATION

Table of Gradients

Gradient	Per cent.	No. of feet rise or fall in one mile
in 2	50	2640
„ 2½	40	2112
„ 3	34	1760
„ 3½	28	1508
„ 4	25	1320
„ 5	20	1056
„ 6	17	880
„ 7	14	754
„ 8	12½	660
„ 9	11	587
„ 10	10	528
„ 11	9	480
„ 12	8	440
„ 13	7¾	406
„ 14	7	377
„ 15	6½	352
„ 16	6¼	330
„ 17	6	311
„ 18	5½	293
„ 19	5	278
„ 20	5	264
„ 25	4	211
„ 30	3.3	176
„ 35	2.8	154

EQUIVALENT SPEEDS

Speeds in m.p.h.	Time taken to cover one mile
10	6 minutes
15	4 „
20	3 „
25	2 „ 24 seconds
30	2 „
35	1 „ 42.6/7 seconds
40	1 „ 30 seconds

TRACING ENGINE TROUBLES

The locating and rectification of troubles with the Villiers Engine can be made very simple by systematic and intelligent investigation. It is true that the symptoms of engine stoppage will usually give a clue to its cause, and that considerable experience may be needed to realise which of the number of possible eventualities has occurred, but by following a definite method of approach it is fairly easy to diagnose the cause of the trouble.

It is best to carry out tests bearing in mind that an engine will only start and run satisfactorily—

(1) If there is a supply of fuel at the carburetter, and that it is introduced into the engine with a suitable quantity of air to make a combustible mixture.

(2) If a good spark occurs at the spark plug in the cylinder at the correct time, that is, in this particular engine, when the piston is 1/8" before the top of its stroke.

(3) If the engine is in mechanically good condition, that is, freedom from air leaks, has good compression both in cylinder and crankcase.

In the case of trouble, the cause of which is not evident, proceed as follows:—

Work carburetter control to and fro to test that cable is not damaged, and that throttle slide is working freely. Make sure that there is fuel in the tank and that the tap is turned on, depress tickler on carburetter to check that petrol has reached there and is not obstructed by a stoppage in the fuel pipe or filter in banjo union.

After assuring yourself that petrol is reaching carburetter, test for a good spark by holding sparking plug body on to cylinder head, and depressing kick starter sharply. If the spark is satisfactory it is quite possible that the petrol-air mixture is incorrect, or that the engine is not mechanically sound. If the above quick checks fail to find the cause of the trouble, reference should be made to the charts specially prepared for the diagnosis of all kinds of troubles that can occur. If you are not able to locate the trouble the dealer who supplied this motor cycle to you should be consulted for any advice or assistance necessary to ensure your satisfaction with the machine.

ENGINE WILL NOT START.

Possible Trouble.

Sequence of Testing.
Depress tickler on carburetter to check whether fuel is reaching carburetter.

If no fuel even when tap is on and fuel is in tank:
Test for spark by holding sparking plug body on cylinder head.

If still no spark: Test for spark at end of spark plug wire held 1/8" from cylinder head.

No fuel reaching carburetter.

Choked fuel pipe, filter or carburetter fuel needle sticking.

Leak along insulation of plug or spark plug wire or high tension lead.

Trouble may be faulty plug, oily or sooted points, slight short on insulation inside plug. If no spark at end of spark plug wire contact breaker points may not be opening sufficiently, or points dirty or pitted.

Moisture on insulation of condenser box.

Contact Breaker grounded or short-circuited by the points being bridged by metal particles.

High tension pickup not making good contact on coil due to corrosion or misplacement.

Cracked insulation of adjustable contact breaker point.

Insulating sleeve on wires connecting contact breaker to coil or condenser damaged.

Faulty connection to low tension wire of coil.

Faulty coil.

Mixture may be too rich due to use of strangler when engine is warm or incorrect needle setting or water in fuel.

Remedy.

Turn on fuel tap, refill tank.

Remove and clean out.

Try another plug of the recommended type, and/or new spark plug wire.

Try another plug.

Adjust to .015"

Clean.

Clean and dry out.

Remove.

Clean or correct.

Renew.

Replace.

Correct.

Replace.

Open strangler and depress kick starter several times with throttle wide open to clear engine. Adjust needle, drain and remove fuel.

Air leaks at carburetter stub joints, causing weak mixture. Incorrect fuel, i.e., kerosene or alcohol. Flywheel slipped giving incorrect ignition timing.

ENGINE FOUR-STROKES.

Too rich mixture.

N.B. Engine may four-stroke for a little while after standing due to accumulation of oil in crankcase.

Flooding of carburetter.

Make sure strangler is open and air cleaner not choked.
Check to see if there is excessive smoking at the exhaust.

Correct.

Fill up with correct fuel.

Check. Timing marks on flywheel and armature plate should coincide when piston is at top of stroke.

Try lowering jet needle, by screwing down screw in centre of throttle slide. Usually ceases when engine has been running for a few minutes.

If persistent, flooding may be due to dirt under fuel needle seating, or sticking fuel needle, or damaged seating, or punctured float in carburetter.

ENGINE LACKS POWER.

Engine out of tune, due to wear, etc.

Unsuitable plug.

Loss of compression.

Incorrect mixture of oil and fuel.

Excessive carbon deposit on piston and cylinder head.

Exhaust system choked.

Incorrect carburetter setting.

Air cleaner choked.

Brakes binding on motor cycle.

Obstruction in fuel supply.

Incorrect ignition timing.

ENGINE WILL NOT RUN SLOWLY.

Weak mixture due to air leaks at carburetter stub, crankcase, and/or cylinder base joints or name plate on left hand crankcase, drain screw missing.

Faulty crankshaft gland.

Ignition timing too far advanced.

ENGINE SUDDENLY STOPS.

Spark plug wire disconnected.

Spark plug points bridged by oil or foreign matter.

Water causing short circuit of spark plug wire.

ENGINE MISFIRES.

Defective spark plug.

Loose connection in ignition circuit.

Intermittent grounding of spark plug wire.

Contact breaker gap insufficient.

Fuel mixture too weak, indicated by back firing in carburetter.

Try new plug.

Check over all joints in wiring.

Replace spark plug wire if damaged.

Adjust point gap to .015"

Raise throttle needle by undoing screw in top of slide.

THE JAMES GUARANTEE AND CONDITIONS OF SALE.

We give the following guarantee with our motor cycles, motor cycle combinations, and sidecars, including all accessories and component parts other than tyres, saddles, chains, and lighting and electrical equipment, and other than accessories and component parts supplied to the order of the Purchaser and differing from those comprised in the standard specifications supplied with our motor cycles, motor cycle combinations and sidecars, but including accessories and parts supplied by way of exchange as hereinafter provided. This guarantee is given in place of any implied conditions or warranties or any liabilities whatsoever statutory or otherwise; no guarantee except that hereinafter contained and no conditions or warranty whatsoever statutory or otherwise is given or is to be implied, nor are we to be under any liability whatsoever except under the guarantee hereinafter contained. Any statement, description, condition, or representation contained in any catalogue advertisement, leaflet or other publication shall not be construed as enlarging, varying or overriding anything herein contained. In the case of machines (a) which have been used for "hiring out" purposes or (b) any motor cycle and/or sidecar used for any dirt track, cinder track or grass track racing or competitions (or any competition of any kind within an enclosure for which a charge is made for admission to take part in or view the competition) or (c) machines from which the trade mark, name or manufacturing number has been altered or removed or (d) any machines in which parts have been used not supplied by or approved by the motor cycle manufacturer, or (e) any machine from which the silencing system as fitted by the manufacturer has been partially or wholly removed or interfered with, no guarantee, condition or warranty of any kind statutory or otherwise is given or is to be implied nor are we to be under any liability whatsoever in respect of any such machine.

We guarantee, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, but this guarantee is to extend and be in force for six months only from date of purchase, or date of exchange in case of any accessory or part supplied by way of exchange as hereinafter provided, and damages for which we make ourselves responsible under this guarantee are limited to the free repair of or supply of a new part or accessory in exchange for the part of the motor cycle, motor cycle combination or sidecar or accessory which may have proved defective. We undertake, subject to the conditions mentioned below, to make good in manner aforesaid any part or accessory covered by this guarantee which has proved defective within the said period of six months. We do not undertake to replace or refix, or bear the cost of replacing or refixing any such new part or accessory in the motor cycle, motor cycle combination or sidecar. As motor cycles, motor cycle combinations and sidecars are easily liable to derangement by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse or neglect.

The term "misuse" shall include, amongst others, the following acts:—

1. The attaching of a sidecar to a motor cycle in such a manner as to cause damage or calculated to render the latter unsafe when ridden.
2. The use of a motor cycle or of a motor cycle and sidecar combined, when carrying more persons or a greater weight than that for which the machine was designed by the manufacturers.
3. The attaching of a sidecar to a motor cycle by any form of attachment not provided, supplied, or approved by the manufacturers, or to a motor cycle which is not designed for such use.

We do not guarantee tyres, saddles, chains or lighting and electrical equipment or any accessories or component parts supplied to the order of the Purchaser differing from those comprised in the standard specifications supplied with our motor cycles, motor cycle combinations or sidecars. As regards all such tyres, saddles, chains, lighting and electrical equipment, accessories and component parts, no guarantee, condition or warranty of any kind statutory or otherwise is given or is to be implied, and we are to be under no liability whatsoever in respect thereof.

CONDITIONS OF GUARANTEE

If a defective part or accessory should be found in our motor cycle, motor cycle combinations or sidecars, or in any part or accessory supplied by way of exchange as before provided, it must be sent to us CARRIAGE PAID, and accompanied by an intimation from the owner that he desires to have it repaired or exchanged free of charge under our guarantee and he must also furnish us at the same time with the number of the machine, the date of the purchase or the date when the alleged defective part or accessory was exchanged as the case may be.

Failing compliance with the above, such articles will lie here at THE RISK OF THE OWNER, and this guarantee and any implied guarantee, warranty or condition shall not be enforceable.

REPAIRS

Any motor cycle, motor cycle combination or sidecar sent to us to be plated, enamelled or repaired will be repaired upon the following conditions, i.e., we guarantee that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, such guarantee to extend and be in force for three months only from the time such work shall have been executed, and this guarantee is in lieu and in exclusion of all conditions and warranties statutory or otherwise and all liabilities whatsoever and the damages recoverable are limited to the cost of any further work which may be necessary to amend and make good the work found to be defective.

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