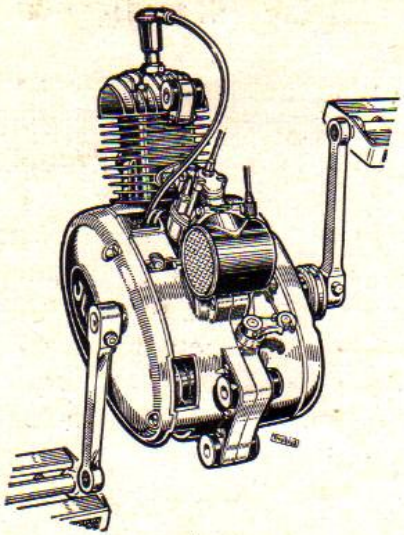
Manual

JLO

CYCLE MOTOR WITH TWO SPEED TRANSMISSION TYPE G 50



The JLO-motor of your cycle is a reliable and extremely solid engine with a high performance. It is made of best materials, with the greatest possible exactness and with the most modern manufacturing methods and therefore it requires only little maintenance and care.

However, you must offer your engine the necessary minimum maintenance if you want to be sure that it will never let you down. Besides there are some rather essential points for riding use and if you observe them, your "Moped" will always give you pleasure.

We understand quite well that as proud owner of a new cycle motor you want to have a try at once. But please take the trouble first to peruse this manual and to follow its instructions — in this way you will spare yourself troubles and after all, save money by avoiding unnecessary expenses!

A correct lubrication

During the combustion process of the fuel carbon dioxyde and water are created in every engine as long as it is still cold and these particles settle down on the cold internal surfaces of the engine, provoking thus a corrosion, i. e. the most dreaded decomposition of metals. This corrosion is one of the main reasons for a wear and tear of engine components which can considerably reduce the service life of an engine. For that reason it must be recommended not to let the engine turn warm while standing, but to ride it at once with its full power in order to reach the regular working temperature as soon as possible.

Your two-stroke JLO engine is ridden with a mixed lubrication system, i. e. the means for greasing is brought to the greasing points of the engine, mixed with the fuel. Therefore you do not have to lubricate your engine separately, as this is forcibly done by the lubricating system of this engine design.

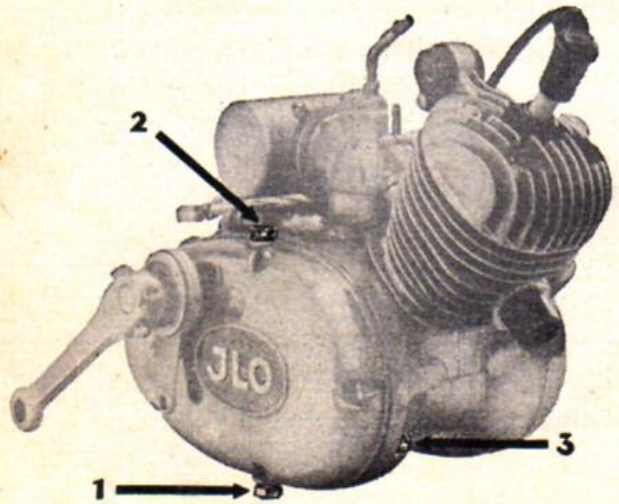
However, it is important to respect the exact quantities. A mixture too poor in oil can cause serious damages especially to bearings and to the piston. A mixture too rich in oil does not only cause trouble by obstructing the slots in cylinder and silencer but moreover soon will cause the piston rings to glue together and in this way the sparking plug becomes oily.

We must prescribe an oil-fuel mixture of 1:25, i. e. one part oil on 25 parts fuel. e. g. for one litre fuel 40 c. c. or for five litres fuel 200 c.c. oil. As fuel you can use any normal make for sale at filling stations, but for lubricating you should not employ normal engine oils, if possible, but only high-quality special oils for two-stroke engines, such as e. g. "Mobil Mix TT" the pre-mixed twostroke oil from

the original can. The few pennies which you would save on buying cheaper oil do not pay because on using them you will soon have to expect considerably greater expenses for premature repairs. Also on using automatically mixing oils for twostroke engines it is suggested to mix oil and fuel in as far as possible before filling the tank with them or at least to fill into the tank of your cycle motor first the fuel and then the oil.

Already after having covered the first kilometers you will notice how easily the clutch can be handled and how smoothly and comfortably it works. You will be as happy with the easy-to-handle gear-switching system. But the gear box lubrication which is done independently from the mixing lubrication of the engine plays an important part for the clutch as well as for the transmission.

The lubricating means located in the gear box must be exchanged at certain intervals. You will do this best after a more extended ride, because the oil will be more fluid due to its having become hot and can therefore be drained off in an easier way. The first oil change in the gear box is to be made on the new engine by all means after 200 kilometers (125 miles), the second oil change after 1000 kilometers (625 miles) and the ensuing changes at intervals of 3000 kilometers (1875 miles).



Arrow 1 points at the oil draining screw, arrow 2 at the oil filling screw which is simultaneously designed as ventilating screw; arrow 3 points at the oil control screw.

The oil is drained through the oil draining hole located at the lower part of the right cover (arrow 1), from which the hexagon screw is screwed off after a thorough cleansing of the outer surroundings (which is best done with fuel). The oil is drained off better if you turn off the oil filling screw located above at right, which is simultaneously designed as ventilating screw (arrow 2). On this screw it is very important to keep the ventilating bore always free and in a clean state, to the effect that a correct ventilation will be offered.

At the first oil change you should thoroughly rinse the transmission with petrol, a mixture of fuel and oil or with fuel, before refilling it.

But please take care that the rinsing means is completely drained off before refilling with new oil!

For filling by means of a funnel or better of an oil syringe the oil draining screw must at first be fitted again (do not forget the washer!) Thereupon please take off the oil control screw (arrow 3) and introduce the greasing means through the oil filling screw (arrow 2) until it is just about to overflow at the control screw opening. The filling should be done slowly, so that the greasing means will have time to enter also the transmission! Thereupon oil control screw and oil filling screw will be fitted again. (Also in this case take care not to forget washers!) The filling quantity is 200 c. c. transmission oil in the quality of Mobiloil C 80. At intervals of 1000 kilometers (= 625 miles) check the gear box oil level and if necessary complete it up to the above mentioned measure.

Effortless Starting

No matter whether you want to use your cycle motor during the warm or the cold season: The JLO engine will always stand up for its reputation of functioning immediately on starting. Even during hard wintertime the cold engine responds at once if you close the air valve which is remote-controlled from the handlebar and if necessary tickle the carburettor before starting until the fuel overflows.

You will soon have learned when to close the carburettor air valve for starting and how long to ride with it until the engine will function quite correctly. However, if you actuate the air-valve too generously it may happen that your vehicle becomes "drowned" by too much fuel. In this case the sparking plug becomes wet and does no longer function. If this occurs on your vehicle, open at once the air valve, open the throttle wide, turn the engine in first speed by means of the pedals during some yards and the small trouble will at once be remedied in this way.

The thorough design of your JLO engine with two speed transmission is offering you various ways of starting the vehicle. One of them is to start from standstill with engaged clutch on idling position of the gear box by slightly opening out the throttle on the twist grip, and depressing one of the pedals.

Another way of starting is a switched gear and a disengaged clutch, by using the pedals of the "Moped" and after a few yards' ride engaging slowly the clutch, by opening simultaneously — and also slowly — the twist grip, whereupon the engine starts at once.

By the reduction of 1 : 26 between tread arm transmission and engine a safe starting of the vehicle is guaranteed.

Your "Moped" can also be actuated easily with disengaged clutch and switched first or second speed by depressing the pedals, just like a normal bicycle.

The engine is turned off by short-cutting the ignition, on depressing the button located either on the handle bar or in the headlamp housing.

For safety's sake you had rather close the fuel cock during long intervals of riding. In this way you will prevent the danger of loosing fuel by an eventually untight fuel tap and by a seizing carburettor floater.

Simple Riding

The JLO G 50 engine with two speed transmission has a power reserve which is to serve for climbing hills as well as for accelerating and riding through a strong headwind.

With the aid of your wrist watch you can easily determine on passing a milestone how fast you are riding. With a top speed of 25 m.p.h. (40 km/h) you will need 2.4 minutes for one mile.

There are no breaking-in prescriptions for the JLO engine. But it is good for any engine to ride it in an easy manner, i. e. to change during long rides between a full and a half opening of the throttle at short intervals. A longer life of your engine will be the reward for that.

Too slow riding will hurt the engine! It should be ridden in a generous style. On too low r.p.m. numbers (especially in second speed) it will start to jerk if being charged — and

you will perhaps not notice it yourself. This has a deteriorating effect not only on the vehicle but on the power transmission as well as on the clutch, gear box and chain.

Certainly the idea would never occur to you of pedalling on a bicycle while it is running in free motion and likewise you should avoid that your engine is turning in idle gear if this is not necessary. This will cost you fuel and in course of time an unavoidable wear. Besides it can happen to you in this case that the sparking plug does not become warm enough for reaching its temperature of self-cleaning. The consequence will be an oily sparking plug, which means that the engine will start "stalling" because the ignition does not function anymore. Then it will be necessary to start disassembling, i. e. take out the sparking plug and cleanse or replace it; and we are sure nobody will like that.

Perhaps you belong to the category of men to whose ears the noise of an engine accelerated while standing is almost equal to music. However, in this case the engine is uncharged and the same thing happens to it as to yourself while trying to pick a postage stamp from the floor with the effort of lifting a hundredweight.

The riding speed should be adjusted only by manipulating the twist grip on the right end of the handlebar, please never adjust the speed with the half-engaged clutch. In this way a grinding is caused which causes a premature wear of the clutch.

If you have to stop for a short while when riding in town disconnect completely before finally braking and switch your "Moped" into first as soon as the standstill is reached. On starting again slowly engage by opening up simultaneously.

Not only for starting but also for mountain climbing on slopes of over 7-10% (according to weight of rider and charge with bagages) the first, so-called "smaller" speed must be used. If you approach such a slope disconnect and switch from second "higher" speed into first low gear. For this purpose it is necessary to actuate the combined clutch switch lever on the left end of the handlebar. (Turn grip in riding direction towards the front until abutment can be felt.) Then engage once more by opening up simultaneously and here you go in first speed; but never force your engine to over 12.5 miles p.h. (30 km/h) in first speed. On this speed the engine turns about as high as at 25 m.p.h. in second speed, but with the difference that cooling of the engine by the riding wind is not sufficient as the speed is only half as high.

Always take care that the chain from engine to rear wheel is tensioned correctly, but not too much (lower on one side by approcimately 12 mm = 0.472" while one side is tensioned).

A chain running too loosely might seize at the housing, jump upwards from the engine sprocket and break in this way the engine housing!

It is not possible to push the "Moped" backwards with a switched-in gear because in this way the brake freewheel is automatically put into action. Therefore the gearbox should always be switched into idling speed before pushing the "Moped" back.

Never descend slopes in idling speed, i. e. with a disengaged gearbox because you will no longer be in a position of making use of the braking effect of the engine in case one of your brakes will fail, some

day. In such cases it is almost impossible to switch a gear of the transmission on the vehicle rolling downhill with idle running or switched off engine.

Maintenance and Care

In the envelope from which you have taken this manual you will find a carburettor jet in a small paper bag. This jet has been added because the engine is equipped with a larger one which is to be exchanged (for summer use) after the first 200 kilometers (125 miles) against the enclosed reserve jet. This is for the Pallas carburettor type G 12/118 the jet No. 52 and for the Bing carburettor type 1/12/41 the jet No. 56.

Riding in the hot season during the first 200 km with the larger jet will soon cause deposits of oil carbon in the silencer and in the exhaust opening. A natural consequence are a decrease in performance, overheating of the engine and a considerably higher fuel consumption.

It is worth while if you take your cyclemotor to the place where you bought it in order to have the necessary maintenance work carried out there or with one of the JLO service stations listed on the enclosed index; the following maintenance operations will be carried out there:

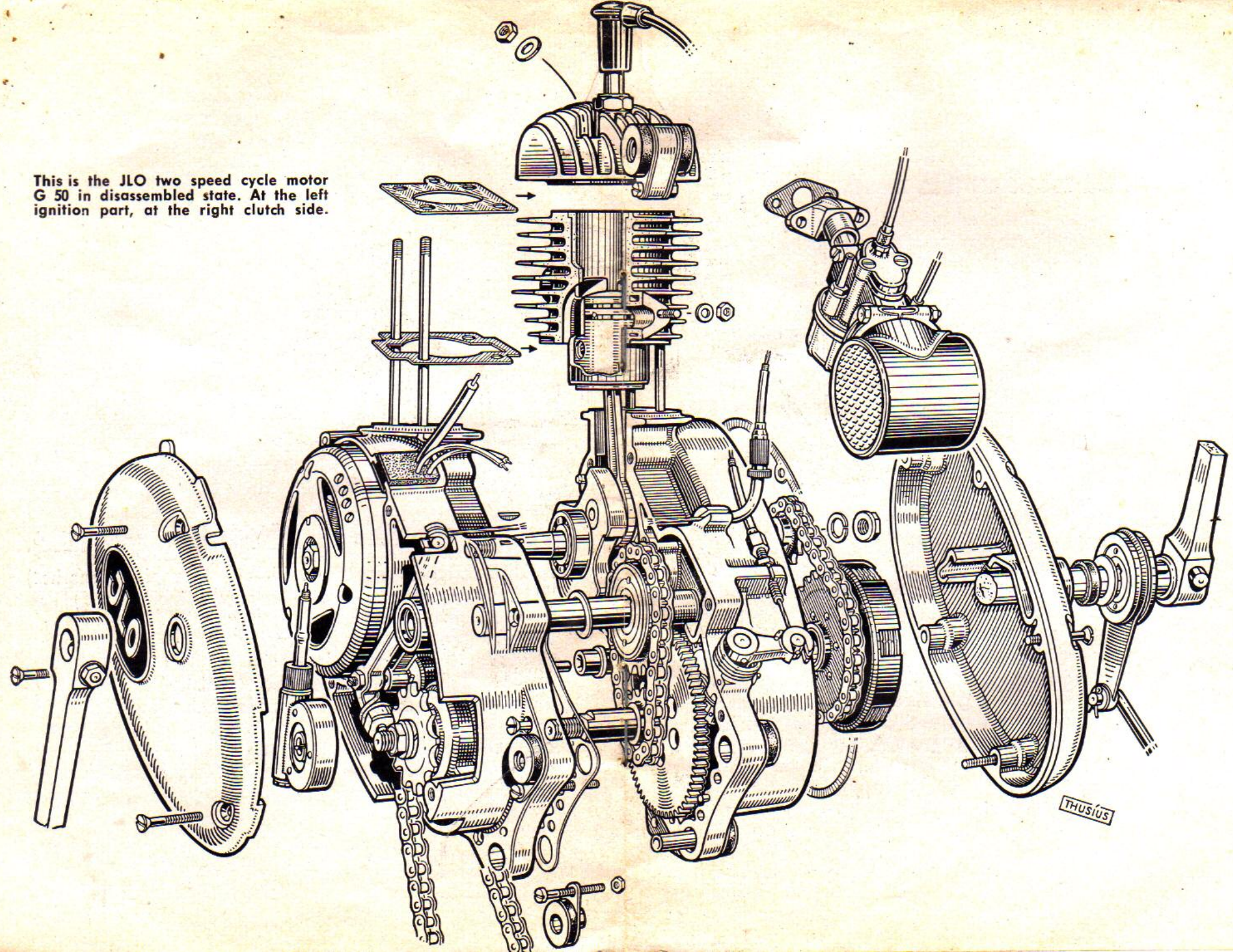
1. On taking delivery

let the motor run for a short while
adjust idling position of carburettor
examine clutch adjustment
examine gear switching system and idling position
control electrical system
examine screws and nuts for tight fit
make a short test ride with the cycle motor.

2. After 200 kilometers (125 miles).

make a test ride with the vehicle (until engine turns hot)
oil change in gear box (see "the correct lubrication")
control clutch and eventually readjust it,
examine gear switching system,
cleanse carburettor and reexamine it,
cleanse air filter in gasoline and remoisten it with oil,
eventually exchange jet (Pallas No. 55 or Bing No. 58) against the enclosed jet (Pallas No. 52, Bing No. 56),
check contact breaker gap and electrical system,
retighten screws and nuts especially those of cylinder head (on cold engine) and those of the engine fittings on frame.

This is the JLO two speed cycle motor G 50 in disassembled state. At the left ignition part, at the right clutch side.



3. After 1000 kilometers (625 miles).

make a test ride with the vehicle (until engine turns hot),
make oil change in gear box (see "the correct lubrication"),
check clutch and adjust it,
examine gear switching system,
cleanse carburettor and readjust it,
cleanse air filter in washing gasoline and remoisten it with oil,
examine contact breaker gap, ignition timing and electrical system,
retighten screws and nuts,

4. After 2000 kilometers (1250 miles).

make a test ride with cycle motor
remove carbon deposits form the cylinder slots, the cylinder head, piston and exhaust system if engine performance has decreased considerably,
check clutch and eventually readjust it
examine gear switching system,
cleanse carburettor and readjust it,
cleanse air filter in washing gasoline and remoisten with oil,
screw off fuel tap from tank and cleanse fuel tap filter,
rinse tank with some petrol or gasoline
check electrical system
retighten screws and nuts
make a test ride with cycle motor.

While cleansing your cycle motor you may certainly place it upon one side, but you had better not reverse it as this is frequently done for the same purpose with a bicycle. Apart from the fact that the fuel would then probably leak out, transmission oil may also flow out from the ventilating slot located under the carburettor.

If you expect your cycle motor to reach at all times its full performance, it is necessary to decarbonize the cylinder head, the slots in the cylinder and the exhaust system at intervals of 2500 kilometers (1550 miles).

For this purpose remove carburettor and exhaust system after having losened the clamps. Then remove the fixing screws of the cylinder head on the frame and then turn downwards the nuts of the cylinder head, whereupon it can be taken off quite easily. For decarbonizing the slots the piston must be put into its lowest position by means of the pedals, before the cylinder will be taken off. Decarbonizing of the three slots may only be done on the cylinder having been taken off, as otherwise there is a danger of oil carbon particles penetrating into the combustion chamber through the induction channels.

Decarbonizing should not be done by scratching but only with a scraper of brass or light metal, and by no means with a steel tool.

Please remove oil carbon deposits on the piston only with a wire brush and if possible at all with one of brass wire.

On refitting the cylinder head a new light alloy gasket must be used. Tightening of the fixing nuts is done transversely, retightening should be carried out carefully and equally, after having run the engine hot and let it grow cold again.

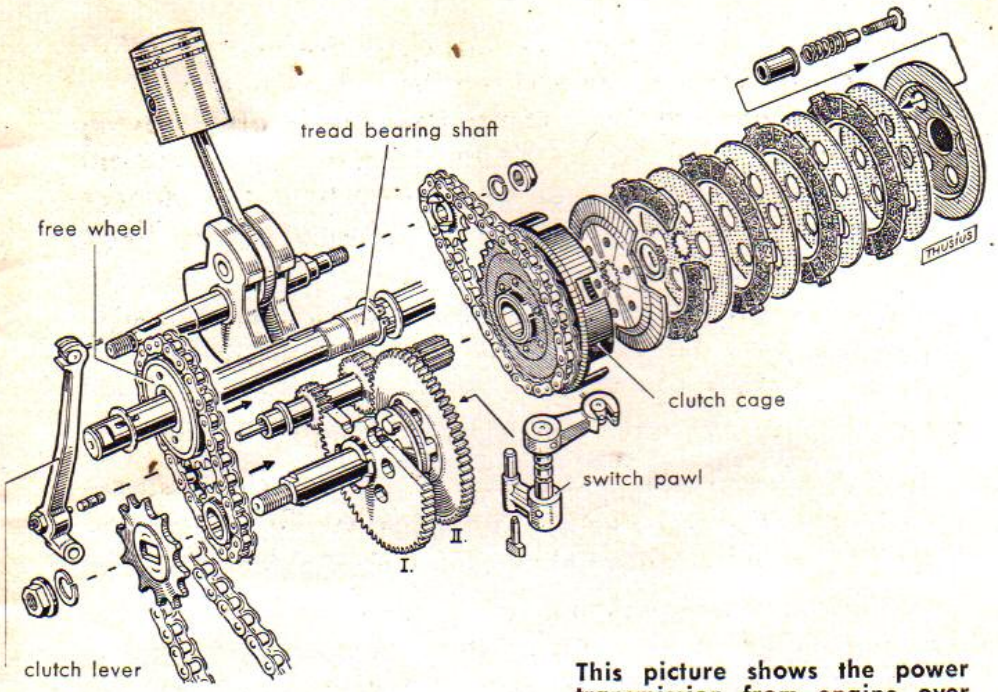
Cleansing of the exhaust system is rather simple. The flat design of the silencer underneath the engine has a nut on its rear end and can be disassembled easily after having lösened this nut. On the long exhaust system (round design) the fluteshaped tube is to be withdrawn from the silencer and cleansed after having lifted the clamp spring fixed on the outlet.

It is by no means sufficient to decarbonize only the easily accessible holes of the exhaust insert. This will not be sufficient if the deposits in the interior and especially in the bend pipe are not removed by burning them out.

The oil filter of the carburettor should be cleansed regularly with washing gasoline after 500 km (310 miles) and thereafter slightly remoistened with engine oil.

Furthermore we recommend to examine from time to time the tight fit of the nuts on the carburettor flange, the clamp screw on the carburettor connection, the cylinder head nuts and the engine connection in the frame and retighten these screws and nuts if necessary.

But all these operations should be done by your Moped-dealer or at an JLO service station. Then you will be sure that everything is done correctly and no part will be damaged or destroyed. All these workshops only use original JLO spare parts.



This picture shows the power transmission from engine over clutch to gear box and from there to the reduction gear. The four clutch steel lamels and the four clutch Jurid lamels can clearly be seen. At the outer left you see the clutch pressure lever protruding from housing in assembled state.

Locating troubles

As long as you are using the engine according to our instructions with an oil-fuel mixture, i. e. not with pure fuel, a serious trouble will hardly ever arise. If for once the cycle motor does not function immediately or stops functioning the trouble will almost in every case be a lack of fuel or a failure in the ignition system.

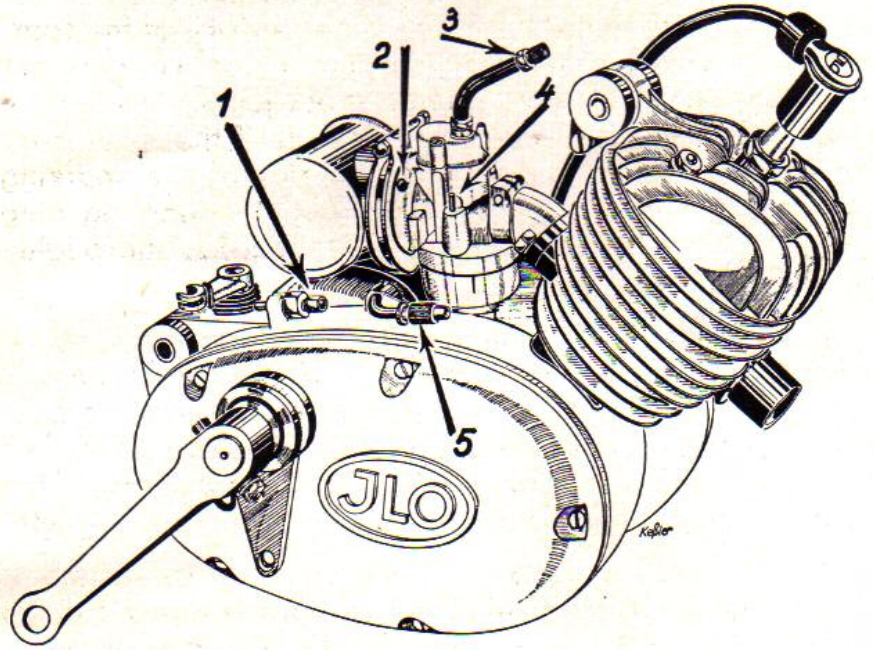
A lack of fuel has its cause — provided that the tank is not empty — in a dirty carburettor or fuel cock which must then be cleansed. From the enclosed description of the carburettor you will learn how to cleanse it.

The most frequent cause for a failing ignition is the sparking plug. It should be dry and should have a fawn colour, with an electrode gap of 0.4-0.5 mm. If you place the screwed-off sparking plug with connected cable to the engine in a way that the metallic outer surface of the sparking plug is well connected with the vehicle you will see on turning the engine an ignition spark jump between the electrodes at regular and short intervals. If the spark does not come at all or jumps in the interior of the sparking plug and not between the electrodes, the sparking plug is dirty or defectuous and must be cleansed thoroughly or replaced completely.

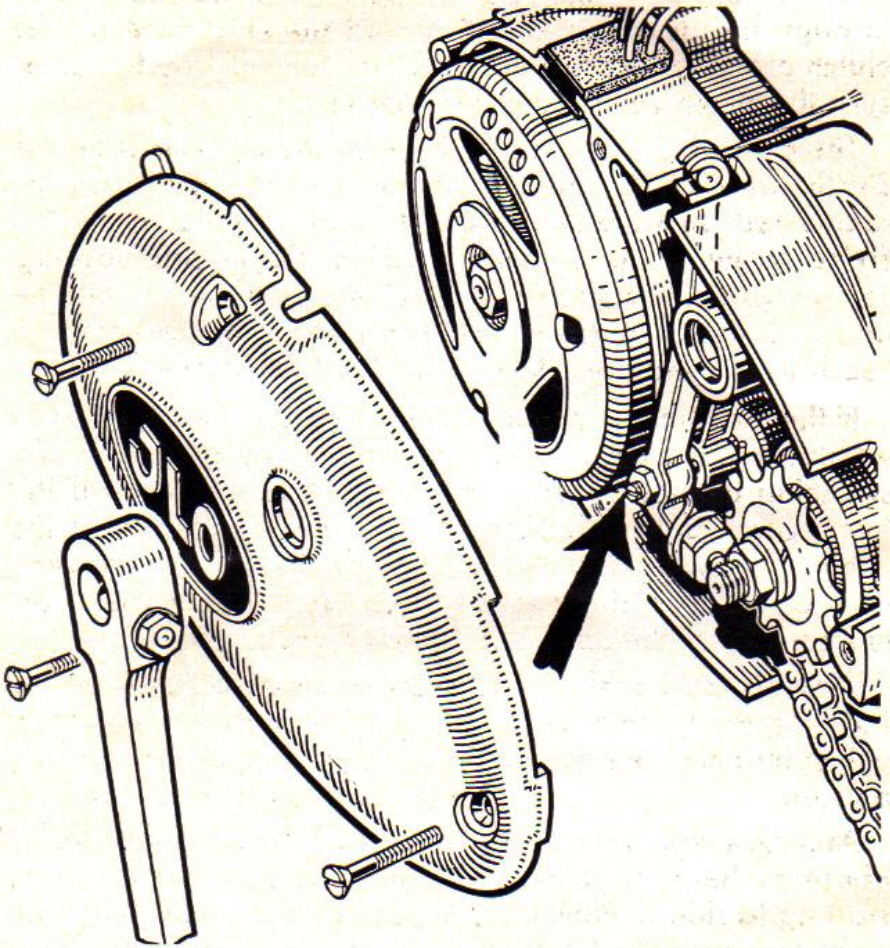
In rare cases the troubles must be searched for in the contact breaker on which the gap between the contacts must be 0.3 to 0.4 mm. In order to check this gap the housing cover must be removed after having taken off the left tread crank. For further particulars please consult the enclosed description of the Noris flywheel type magneto.

Clutch and switching system are actuated by means of cables which may alter their length. This is noticed if the clutch slips or the engine starts badly or not at all, or in case the clutch does not disengage and in this way switching is made impossible.

Then it will be possible to readjust the clutch. The clutch lever on the handlebar should have a dead run of about 2 mm (= 0.0787"), the clutch pressure lever protruding from the engine housing m u s t have a clearance of about 5 mm (= 0.1968").



Arrow No. 1 shows the adjusting sleeve with nut for the gear switch on arrow 2 the bowden cable for the remote controlled air valve leads into the carburettor. Adjusting sleeve and counter nut for twist grip bowden cable are indicated by arrow number 3 and arrow number 4 shows the carburettor tickler. Arrow 5 shows where the clutch bowden cable can be readjusted.



For adjusting the clutch lever in housing (coarse adjustment) the left housing cover must be removed as shown on the above picture. The lower arrow shows the slotted screw for readjustment with counter nut. The clutch pressure lever must have a clearance of 5 mm on its upper part (5 mm = 0.1968") (see upper arrow), where it protrudes from the housing.

On actuating the clutch lever on the handlebar a sensibly stronger pressure can be noticed after having turned through the dead run of 2 mm and the clearance on the clutch pressure lever of about 5 mm, and only by this pressure the clutch will be put into action.

The clutch bowden cable by which the clearance on the clutch lever of the handlebar can be regulated may be readjusted on its bowden cable clamp nipple or on the fixing screw of the angular piece on the engine housing. The coarse adjustment of the clutch is done on the regulating screw of the clutch pressure lever. In order to reach it you will have to remove the left housing cover.

If the switching is not adjusted correctly a rattling noise will be heard in the idling position of the gear box and switching cannot be done smoothly. Also in this case the trouble can be remedied by regulating the fixing screw on the engine housing. The switch lever on the engine housing must be located about in a right angle towards the longitudinal axle of the engine, if fitted correctly.

Torn bowden cables will hardly occur if you provide for their regular lubrication, because a dryly moving wire rope will soon become rusty, break on certain spots and finally be torn.

And now we have told you everything you must know about the heart of your cycle motor, the Jlo engine, before starting to ride it. Please observe our instructions and then your Moped with its Jlo engine will only cause you joy. Let us finally wish you the best of luck and very happy rides on your new vehicle!

SÜDDEUTSCHES JLO WERK GMBH.
München 13
West-Germany

Technical Data

single cylinder two stroke Otto engine
with reverse scavenging
bore and stroke . . . . . 38/43 mm
compression ratio . . . . . 6.5 : 1
capacity . . . . . 49 c. c.
performance . . . . . 1.7 HP at 5250 r. p. m.
Noris flywheel type magneto 6 V/17 W type ELZJ 17/11 R
Bing carburettor, type 1/12/41 or
Pallas carburettor type G 12/118
multiple disk clutch running in oil bath with
4 steel lamels and 4 Jurid lamels
incorporated two speed dog gear box
reduction engine to gear box . . . . . 1 : 24
reduction to reduction gear . . . in 1st speed = 13.8
in 2nd speed = 7.0
reduction from reduction gear to rear wheel
with 23" wheels . . . . . 13 : 28 teeth = 2.16
in this case total reduction . . in 1st speed = 29.7
in 2nd speed = 15.1
with 26" wheels . . . . . 12 : 28 theet = 2.33
in this case total reduction . . in 1st speed = 32.1
in 2nd speed = 16.3
ratio from tread crank to engine crankshaft . . = 1 : 26
to rear wheel . . . . . in 1st speed = 1 : 0.90
in 2nd speed = 1 : 1.75

Adjusting Data

sparking plug . . . . . Beru 240/14u2S
electrode gap . . 0.4 to 0.5 mm (= 0.01574" —0.01968")
contact breaker gap 0.3 to 0.4 mm (= 0.01181" —0.01574")
ignition timing . . 2.5 mm (0.09842") before upper d. c.

carburettor adjustment:

Bing carburettor type 1/12/41
main jet 56 (main jet for breaking-in period and winter use 58)
needle 215
needle position 2
Pallas carburettor type G 12/118
main jet 52 (main jet for breaking-in period and winter use 55)
(only with intake silencer GD 804/1 or GD 808/1)

adjustment of clutch:

on clutch lever located on handlebar about 2 mm (= 0.0787")
on clutch pressure lever located on housing about 5 mm (= 0.1968")

fuel mixture:

1 : 25 (advantageous to use self-mixing special oils for two-stroke engines with anti-corrosion additives, such as "Mobil Mix TT")

oil in gear box:

200 c. c. (= 12.205 cu. ins) in the quality of Mobiloil C 80

oil change in gear box:

for the first time after 200 km (= 125 miles)
for the second time after 1000 km (= 625 miles)
third and all other changes at intervals
of 3000 km (= 1875 miles)

Decarbonizing of engine and exhaust system:

at intervals of 2500 km (= 1560 miles) or in case the performance decreases considerably

The following items are delivered with the cycle motor:

engine with carburettor, incorporated gear box, flywheel type magneto and tread crank axle with cranks,
rubber bearing in the engine suspensions,
silencer,
reduction chain $^1/_2$ x $^3/_{16}$" with 12 or 13 teeth

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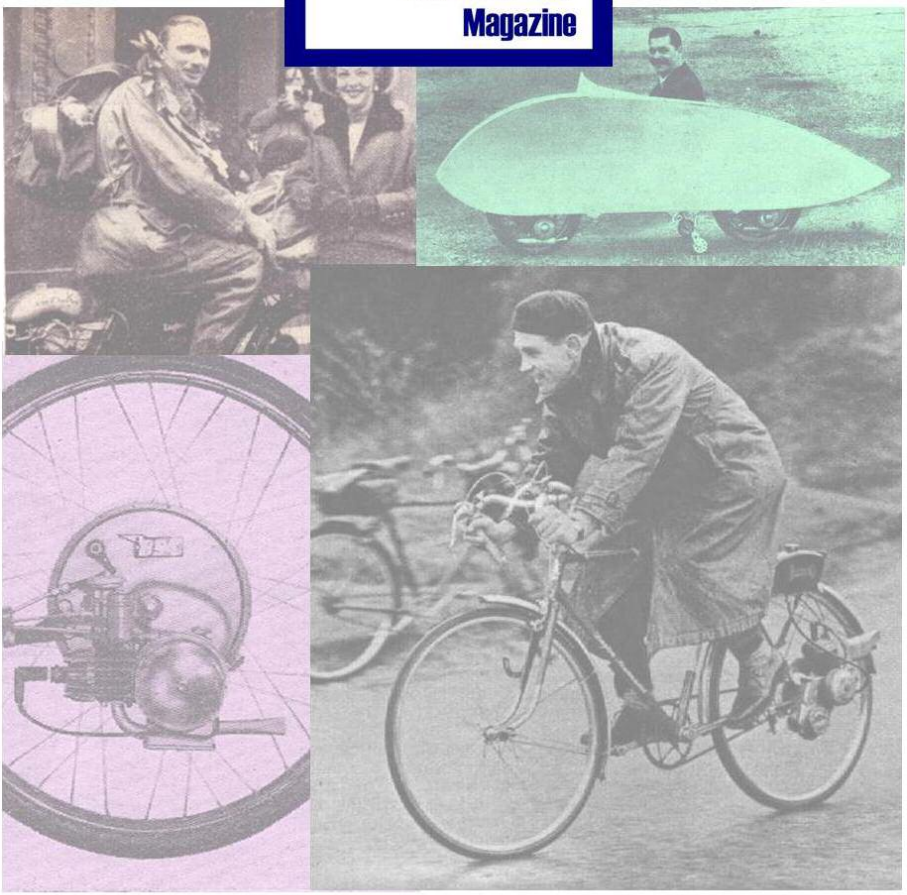

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