

THE CYC-AUTO WITH THE SCOTT ENGINE

These instructions have been compiled
to help you to obtain the best results
from your CYC-AUTO

PLEASE READ CAREFULLY

IMPORTANT

Always quote Engine No. when
corresponding or ordering
replacement parts.

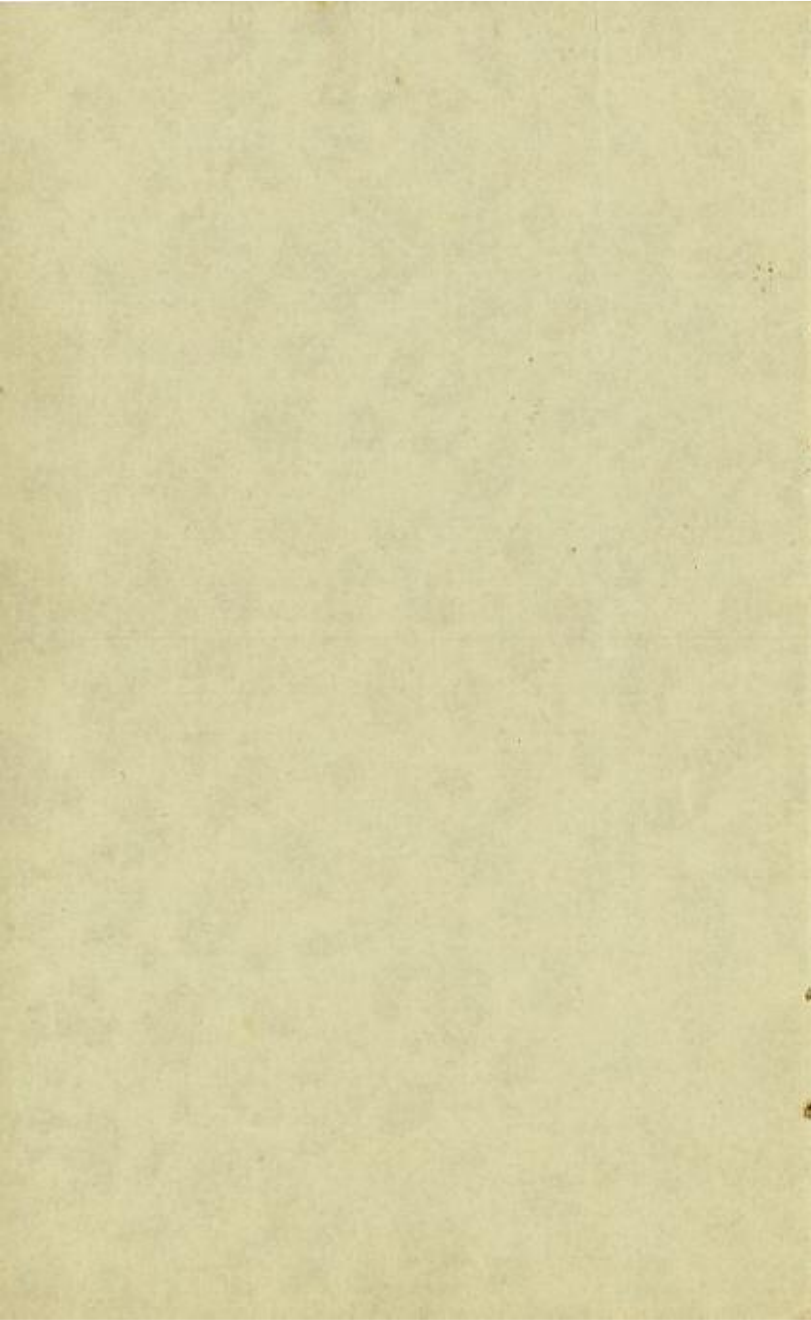
With Compliments from

The Cyc-Auto Works,

44 1/2 Brunel Road,

East Acton,

LONDON, W.3.



RUNNING INSTRUCTIONS

of Your

CYC-AUTO. Engine No.

FUEL. This is a mixture of petrol and oil known as PETROIL.

The tank filler is also an oil measure and four measures full of oil is the correct quantity for a gallon of petrol.

All new Cyc-Autos must be "run-in" for a distance of 300 or 400 miles. During this period the speed should be kept within 20 m.p.h. and it is most important that six measures of oil be mixed with each gallon of petrol.

It is imperative to mix the oil and petrol before filling into the petrol tank.

The capacity of the tank is a gallon and a half of petrol with ample capacity for the oil.

The Petrol Tap is the pull on push off type, and gives a reserve for about 25 miles.

For the main position pull out the knurled knob and for the reserve pull out the hexagon knob.

STARTING. Pull out the knurled knob on the petrol tap. Close the air strangler on carburettor. (Pull rod up). Open throttle lever (right side of handle bar) about 1/5. Press down decompressor lever (left side of handle bar). Push machine forward smartly and release decompressor lever. When engine starts lift the clutch lever (left underside of handle bar). The transmission brake automatically stops the machine. Keep the engine running slowly for a minute or two to warm up. Open throttle slightly and as you release the clutch, assist the Cyc-Auto with the pedals to prevent "stalling" the engine. Open the strangler when the machine has warmed up. Use strangler only when engine is cold. The engine will stop if strangler is kept shut too long.

Another Method of Starting. Push the Cyc-Auto forward quickly and when the engine starts mount from the pedal, opening the throttle to give the engine more power. Do not race the engine. Excessive acceleration or deceleration is detrimental and throws abnormal strain on the engine.

Note: The machine will not start so long as the decompressor lever is held down.

DRIVING CONTROL. The Cyc-Auto speed is controlled by the throttle lever which operates the throttle slide and allows more or less petrol mixture to be sucked into the

engine. When it is necessary to stop the machine at traffic lights, etc., lift the clutch lever, and at the same time partially shut the throttle lever. As the transmission brake is operated by the clutch lever, driving is greatly simplified. Emergency stops are made by applying the rear wheel brake. Simultaneously shut the throttle to prevent the engine from "racing." When re-starting, open the throttle slightly and gradually release the clutch lever, assisting the machine with the pedals, till you feel the engine is taking the load comfortably.

The Manufacturers would here like to stress the fact that considerable accumulative damage may be done if the clutch is allowed to engage while the engine is running on too full a throttle opening.

When descending hills, shut the throttle, do not slip clutch.

An internal combustion engine develops little power at very slow speeds and if the Cyc-Auto speed has been slowed down to such a point that the engine "chuggs" assist immediately with the pedals.

STOPPING THE ENGINE. Fully shut the throttle. lift clutch lever, press down the compressor lever and shut off the petrol. Both knobs on the petrol tap.

When the machine is left standing, the heat from the engine will evaporate the petrol left in the carburettor, leaving oil behind, and to a certain extent this will prevent quick and easy starting. It is, therefore, better to shut off the petrol two or three hundred yards before stopping, that is, if you intend leaving the Cyc-Auto for half an hour or more. The petrol in the carburettor will be consumed but replenished by fresh petrol from the tank when re-starting.

PEDALLING GEAR. The pedalling gear is a complete unit, and can be used at any time in conjunction with the engine. When it is desired to use the machine as a pedal cycle, it is necessary to disengage the power chain sprocket from the transmission in the bottom bracket. This can only be done when the engine is stationary. While sitting on the saddle, give the right hand end of the pedal crank axle a sharp tap with your heel. The crank axle moves $\frac{1}{2}$ in. to the left, and the power chain sprocket is pushed out of mesh.

To re-engage: Standing on the left side of the machine, push the left pedal to the bottom, hold the machine by handlebar and saddle, allowing it to slope well to the right, press firmly with the ball of the foot on the crank axle, moving the machine backwards and forwards to

rotate the power chain sprocket into such a position that the dogs will mesh, allowing the crank axle to move over to the right side again.

This engagement or disengagement must only be made when the engine is stationary.

It is not necessary to put the engine out of gear unless it is to be used as a pedal cycle. It can always be wheeled easily if the decompressor is used.

Remember, when the machine is used as a pedal cycle the clutch or transmission brake is inoperative. The front brake and back brakes should be used for stopping.

LIGHTS. The current is supplied by the genimag (dynamo). The head lamp switch is marked D to light head and tail lamp. O off. B battery.

The replacement battery number is "Everready" 1289. The battery is only necessary when the engine is stationary.

TRANSMISSION. The bottom bracket houses a Phosphor bronze worm wheel and a hardened steel worm shaft, worm wheel centre bearings and thrust bearing, pedal crank axle and bush; these are automatically lubricated. The required quantity of oil is shown by the notch on the dipstick. Approximately a teaspoonful of oil every 100 miles.

CARBURETTOR. The function of the carburettor is to combine the correct proportions of air and petrol, forming a gas which when compressed in the cylinder is exploded by an electric spark.

The flow of the petrol into the carburettor is regulated by a float and needle.

The mixture (air and petrol) can be varied. It is controlled by the jet needle, on which are five grooves. Its position relative to the throttle slide is regulated by the adjustable washer. To weaken the mixture, raise the adjustable washer. Lower washer to enrichen.

To make this adjustment, pull forward the throttle outer cable at throttle lever stop and disconnect inner wire from lever. Unscrew throttle chamber cover and pull out slide. Compress throttle spring to free jet needle. Press off adjusting washer.

The throttle slide must be carefully re-entered so that the guide screw fits into the blind groove. The cable slot faces the air gauge.

GENIMAG. This is a combination of a high tension magnet and an electric generator or dynamo. It requires little or no attention and should not be tampered with except by skilled mechanics.

The high tension current, 14,000 volts, ignites the compressed explosive mixture in the cylinder by making a

spark at the plug points. The spark occurs only when the cam in the genimag has turned into its position where the breaker points begin to open. The amount the points open is 0.015ins. This is important.

To Adjust the Points. Remove the circular cover in the front of the genimag.

Turn the engine over until breaker points are fully open and measure the opening with a feeler guage. If the points need adjusting loosen the screw which locks the Breaker plate and move the plate to give the proper point setting. Then lock the plate securely again by tightening the Breaker plate screw. The Breaker plate moves about the axis of the Breaker arm stud and, therefore, assures proper alignment of contact surfaces.

LUBRICATION. The engine is lubricated by the oil in the petrol and requires no added lubrication. Give a few drops of oil every 500 miles at oil hole in the square bearing block of the clutch yoke spindle.

Bottom bracket, replenish as necessary with gear oil. Do not fill above notch on dipstick.

In order to obtain the highest performance and maximum efficiency from your Cyc-Auto it is essential that only the highest quality lubricating oils be used. The following grades are used and officially recommended by us for Cyc-Autos:—

ENGINE AND TRANSMISSION

SHELL	...	...	TRIPLE SHELL
VACUUM	...	...	MOBILOIL "D"
WAKEFIELD	...	...	CASTROL XL
ANGLO	...	...	ESSOLUBE 40
PRICE'S	...	...	MOTORINE "C"

Money spent on the purchase of lubricating oils of high quality will be amply repaid by the resultant freedom from trouble and the longer life of your machine.

Reasons for your CYC-AUTO failing to start:—

- 1.—No Petrol in tank.
- 2.—Petrol tap not in open position (pull out to open).
- 3.—Decompressor held open too long.
- 4.—Throttle open too far.
- 5.—Pushing **Cyc-Auto** too slowly.
- 6.—Oily Spark Plug: take out and clean.

Keep the Cyc-Auto clean and occasionally go over all the bolts and nuts, making sure they are tight. Chromed parts will remain bright if rubbed over with a little oil on a clean cloth.

INSTRUCTIONS ON MAINTENANCE OF THE CYC-AUTO

TO REMOVE THE ENGINE. The removal of the engine is a very simple matter. We suggest the following procedure should be carefully carried out, and that an empty box should be kept handy and the pieces carefully put into the box when taken from the machine to prevent loss. Each part should be carefully cleaned before re-assembling takes place.

(1)—Press down the top of the decompressor and remove the cable from the peg.

(2)—Unscrew the petrol pipe at the carburettor end, having first of all made sure that the petrol is turned off. If float chamber cover tends to turn with the petrol pipe union nut, it must be held with a second spanner, otherwise the petrol pipe will be twisted and damaged.

(4)—The pedalling chain should next be removed and care should be exercised not to strain the connecting link spring. When replacing it the blind end of the link must face the direction of the chain travelling when pedalling.

(5)—Loosen the pinch bolt at the front end of the bottom bracket.

(6)—The clutch cable wire should be disconnected at the clutch operating lever under the engine, the lock nut on the adjuster slackened and the adjuster unscrewed to disconnect the cable from the engine.

(7)—Loosen off the top ends of the tubular silencer supports. This leaves only one item, the engine supporting bolt which passes through the lug on the down tube.

The engine is now ready for removal from the frame and should be prised forward a matter of an inch to extract the clutch housing from the front end of the bottom bracket.

RE-ASSEMBLING. These operations should be reversed and when entering the engine to the frame, the back wheel should be rocked in order that the clutch driving shaft will mesh with the slot on the front end of the worm shaft. Do not use force and avoid using the hammer.

DECARBONISING. Having removed the engine from the frame, the twin exhaust pipes should be taken from the engine without removing the two tubular silencers. It is often found that a certain amount of condensation leaves a small quantity of water in the body of the tubular

silencers. This is quite normal but it is better to leave the silencer standing vertically, resting on the small outlet pipes. The cylinder head can now be removed and the cylinder itself drawn off from the piston. Great care must be exercised to prevent any damage to the skirt of the piston fouling the connecting rod or the top of the crank case, and as soon as the cylinder has been removed a piece of cloth should be wrapped round the connecting rod to prevent the possibility of any foreign matter falling into the crank case.

All traces of carbon should be scraped from the cylinder head and the ports and also from the top of the piston.

It is essential that the head and crankcase gaskets should be in good condition. Replace these if at all damaged.

PISTON. When it is required to take the piston from the connecting rod, it will be found most advantageous to use a small pair of round nosed pliers which can be inserted into the circlips. The gudgeon pin can then be pushed through the piston far enough to allow it to clear the connecting rod. By leaving partly in the piston there will be no mistake made when re-assembling, as it is always better to put the gudgeon pin back in its original position.

Some pistons are marked F. (front). If yours is not marked, put some mark to recognise which way the piston is fitted. This is most important.

Any traces of carbon should be removed from the lubricating holes in the gudgeon pin bosses. Three pieces about 3/8 in. wide, slipped between the piston rings, prevents breakage when these are being extracted. Carbon should carefully be scraped from the piston ring lands with a blunt instrument so as not to increase the size of the lands by scraping away any of the aluminium which is comparatively soft.

CLUTCH. This is the dry plate type and can be simply dismantled when the clutch housing has been taken from the back of the engine. Two nuts must be put back on two opposite studs to prevent the crankcase joint being damaged. The clutch sleeve is prevented from unscrewing by a tongue being pressed into the clutch driven member. Here it must be borne in mind that the member itself has a left handed thread and therefore should be unscrewed clockwise.

The plates are now free for inspection or cleaning and these must be re-assembled in their original sequence.

If it is necessary to remove the clutch spring, the grub screw in the hexagon driving nut must first of all be unscrewed and the nut itself slackened about $\frac{1}{4}$ in. The sleeve should then be levered off by means of two levers or by a special wheel puller.

When the movement of the driving plate is stopped by the hexagon drive nut, the nut can then be unscrewed a little bit further. The reason the nut should not be taken off completely is because the spring has a tendency to throw the clutch driving flange upwards with considerable force as it becomes freed from its key in the end of the crankshaft.

It is scarcely necessary to point out that the clutch withdrawal yoke is simply lifted out complete with its bearings. It will be noticed, however, that the fulcrum pin holes and the clutch bronze ring are not drilled exactly in the centre and the thickest portion of the ring must take the thrust on the sleeve when being re-assembled.

GENIMAG. The only adjustment which is necessary to the magneto is the adjustment of the points, and owing to individualistic design it is seldom the points need adjustment.

The removal of the genimag is a simple matter. Take out the cam lock screw and prise off the cam. Remove 3 bolts round casing and gently ease off. The permanent magnets will give a catching up feeling.

The flywheel is withdrawn by a special puller.

TIMING. To advance the timing turn the genimag anti-clockwise when facing towards the back of the Cyc-Auto.

CARBURETTOR Type: 258,0018. Main Jet: 55.

AMAL. Needle: 1075. Throttle: No. 3.

The proportion of petrol and air can be varied by altering the position of the tapered needle, that is, to richen the mixture, the adjusting washer should be moved to a lower position on the needle, and vice versa to weaken.

Several points should be carefully watched when cleaning the carburettor, which should be done periodically, and to do so it is most convenient to remove it completely from the engine.

The split pin which holds the end of the strangler rod, on account of its smallness, is awkward to remove, and it is therefore simpler to unscrew the wire gauge and shutter pin. The carburettor can then be held quite satisfactorily

in a vice by the hexagon plug nut on the bottom of the jet chamber.

The float chamber cover should be removed and the float chamber carefully cleaned out with rag, which is entirely free from fluff. The float guide hole should also be carefully cleaned by means of a small piece of wire or a flattened match stick. It is not necessary to remove the jets for cleaning, but the jet chamber plug should be cleaned. When refitting to the engine, make sure the cork joining washer is fitted.

The final point is to make sure that the clamp screws are tight and the carburettor vertical.

ADJUSTING WASHER. This can, at any time, be moved into new position on the needle without any special tools. The top end of the throttle cable next to the throttle lever on the handlebar should be pulled forward to relieve the nipple and allow extra length on the inner cable. The knurled cap on the jet chamber should then be unscrewed and if the throttle slide spring is compressed, the tapered needle can be easily extracted.

It will be noticed there are two slots on the throttle slide, one to accommodate the cable inner wire, and when assembling this should face the front of the carburettor, the plain slot being entered carefully on to the guide screw. The small plug screw: It is not at any time necessary to remove this plug as it was used solely during the manufacture of the carburettor for drilling purposes.

The cork plunger in the petrol tap can be adjusted for wear; screw outwards the centre screw, re-lock nut.

BOTTOM BRACKET. The function of the bottom bracket is primarily to change the direction of the drive from the engine which is parallel to the frame through a right-angle to the power chain sprocket, and also to reduce the ratio between the engine and the final drive at rear wheel. This is done through a hardened steel worm shaft and phosphor bronze worm wheel. The worm shaft is mounted in two replaceable phosphor bronze bushes, the front bush being pressed into the bottom bracket casting and the rear bush which is pressed into the thrust race housing. A ball thrust bearing is fitted to the back end of the worm shaft to eliminate wear and friction caused through the thrust on the shaft itself.

The worm wheel is pressed on to the centre on which are carried the two worm wheel centre cups. These cups are fitted with shims 5 thou. in. thick, which can be removed when wear takes place. When such adjustment

is necessary the lock plate should be removed, the cup screwed outwards, not more than 1/16 in. and a shim extracted, the cup again screwed up dead tight and re-locked. If, however, the removal of the shims is not sufficient, the cones should be removed from the worm wheel centre, a packing washer, P.N2310a fitted behind them, bringing the cones outwards.

Lubrication to all points of the bottom bracket is automatic and it is only necessary to maintain the oil level up to the notch shown on dipstick. Over lubrication will cause oil to pass the bearings and give the impression that the bottom bracket is leaking; the bottom bracket should be washed out with thin spindle oil every 1,500 or 2,000 miles. About an egg-cup full of spindle oil should be added to the bottom bracket through the dipstick hole, and with the Cyc-Auto on the stand, run the engine for a couple of minutes. The lowest bolt which secures the bottom bracket cover should be removed and the Cyc-Auto laid well over to the left side to drain out the flushing oil. The bottom bracket can then be replenished with the correct lubricant.

The worm shaft can at any time be removed by taking out the two screws on the thrust race housing cap. The worm wheel and centre cam can easily be taken from the bottom bracket by removal of the cover. In this case the power chain and left-hand crank should first of all be dismantled and after the three cover bolts have been taken out, the Cyc-Auto should be laid down on the left-hand side and the cover dislodged by means of a screw driver. If a piece of paper is laid under the bottom bracket, the balls will drop clear and prevent any possibility of lodging between the worm shaft and the bottom bracket castings. There are 20 balls to each bearing, so that 40 should fall on to the paper.

SPEEDOMETER. Although an accessory, a word about lubrication. Oil through the gear box nipple, but do not oil the fibre gear wheel or the drive wheel.

FINALLY. Keep your Cyc-Auto clean, make sure all bolts and nuts are tight. In wet weather, bright parts will be protected against rust by smearing with oil, which will also prevent mud from sticking and is easier removed when cleaning. Furniture and Car polish greatly prolongs the new lustre of enamelled parts. Control Cables work freely and rust will not form inside if the exposed ends of the inner cables are kept free from grit, and oiled.



IceniCAM Information Service



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