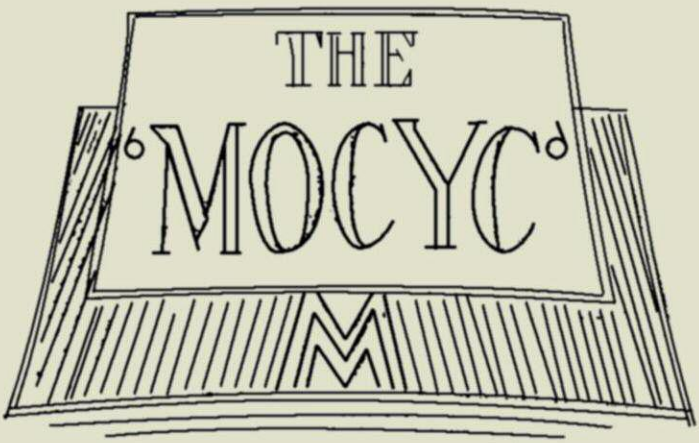

INSTRUCTION MANUAL

FITTING INSTRUCTIONS

To ensure trouble free motorised cycling, it is absolutely essential that the engine unit be fitted correctly and before attempting to fit the unit it is advisable to see that the cycle is in a roadworthy condition, attention being given to the head bearing, front wheel bearings, and brakes.

1. Cut front mudguard off leaving 2" in front of forks.
2. Remove hub nuts and fit extension nuts to front wheel spindle, replacing mudguard stays on the inside of these nuts.
3. Fit hub fixing lugs on extension nuts using original nuts to bolt in position.
4. Slide engine tubes on to hub fixing lugs. Fit handlebar brackets and clamp in position leaving ⅛" clearance between bottom of tube and shoulders of lugs. Tighten up nuts.
5. The tubes can then be cut off flush with the handlebar brackets and the two plugs supplied placed in the ends of the tubes.
6. Clamp control lever on handlebars, it is found most convenient on the right hand side.

RUNNING INSTRUCTIONS

The fuel is a petroil mixture which lubricates all internal parts of the engine whilst running, the correct mixture being, 16 parts petrol to 1 part oil, and we strongly emphasize that this mixture must be strictly adhered to; and should be well mixed before putting into tank. Always strain the fuel using a very fine filter, most engine troubles are caused through dirty petrol or over lubrication. It is strongly recommended that the load on the engine should be kept as light as possible during the running in. period, i.e., the rider should assist by pedalling when road condition cause the engine to slog unduly. Note. The engine will not be giving its best performance until it is fully run in, when all the components and moving parts have bedded down.

Starting. First ensure that the engine us in the driving position. To start motor turn the petrol on and close the choke. Push the handlebar control as far forward as it will go (this opens the decompressor). Now pedal the cycle until a reasonable speed has been obtained, then move the control lever towards you which closes the decompressor, and the same time opens the throttle. The engine will then start.

Under Way. As soon as the engine has started the choke should be opened, and then gradually opened further until the motor runs smoothly without any choke being applied. It is advisable to pedal early when ascending steep gradients, otherwise the engine revolutions and power output drops and the pulling power will be affected. After the first 100 miles it is essential to check all engine bolts for tightness, and clean engine and cycle parts.

CARE OF SPARKING PLUG.

The sparking plug should be regularly cleaned after every 250 miles. Remove plug and clean points by means of a wire brush, or fine emery paper. Lightly rub central electrode and point until bright. Ensure that plug is thoroughly clean and dry. It is advisable after every 1,000 miles to have the plug thoroughly cleaned and tested at your local garage.

1. If the plug appears to be extremely sooty and wet, then your motor is tuned on the rich side, or otherwise too much oil has been mixed with the petrol. If this is the case the motor has probably been 4 and 8 stroking for some considerable time due to excessive oiling. (Remedy: check on petrol proportions and carburettor).

2. If the plug appears to be too white or the carbon deposit is very hard, then the mixture from the carburettor has been too weak, and the motor has possibly been running on the hot side, probably caused. a dirty jet or dirty carburettor. (Remedy: clean carburettor and check for air leaks).
3. If the plug appears mid-way between these two conditions then your machine .is running correctly.

CARE OF CARBURETTOR.

It is essential that the carburettor should be maintained and kept in good working order. carburettor is a very simple instrument and hardly needs attention, other than an occasional dismantling and cleaning.

DISMANTLING.

Slacken off clamp screws and remove carburettor from manifold. Remove mixing chamber top cover with the throttle valve and the taper needle. Next, remove the two screws on the float chamber body, remove end cover and float. Undo the two nuts securing the float chamber and carburettor body making sure not to damage the joint between these two components, and carefully remove

filter. Finally, remove hexagonal nut at the base of the mixing chamber and remove jet complete.

CLEANING.

Thoroughly rinse in petrol, then brush the parts with a soft pencil brush, and lay items on a clean bench for inspection.

INSPECTION, SYMPTOMS AND INDICATION OF WORN PARTS. As the carburettor is a very sensitive instrument any excessive wear of the components will definitely affect the general performance and petrol consumption of your motor, and you should therefore periodically inspect the following components:-

1. Throttle Valve. Symptoms - engine runs very weak at low throttle opening starting may become more difficult, also the engine will appear rather rough at a low throttle opening. Indication - loose fitting throttle valve and extensive discolouration around the bottom valve, indicating that the mixture is seeping past the sides of the valve. (Remedy: replace)
2. Taper needle and needle housing. Symptoms - engine running rich, and engine will not 2 stroke properly under load. Indication - needle appears wasted and scored' Remedy: disconnect throttle valve from housing and lower taper-needle down one notch

reassemble. If this does not affect a cure buy anew needle and housing complete, never buy needle by itself, as the most likely part to wear is the housing.

3. Float needle and housing. Symptoms - engine running rich at all engine speeds, difficult to start. Indication- wasted needle or punctured float. Remedy: lightly re-grind taper needle and seating with metal polish and thoroughly clean afterwards. If still no use, replace. The tip of the needle, which is machined to a very sharp point, occasionally gets bent over in handling, and this sharp point should be stoned off. Otherwise needle may catch up in float. chamber top, causing flooding.
4. Main Jet. Symptoms - Engine running too rich or too weak with full power, heavy petrol consumption or over-heating. Remedy: replace jet with one size larger or smaller according to the condition of running.
   Note: The standard main jet is 27, the standard needle setting is the middle notch. After the engine is run in, it may be found that the jet can be changed for a No. 25 with improved running.

Adjustment: Contact breaker points.

To adjust the points, remove the magneto cover and spring clip. Turn the engine over by hand until the contacts are visible through the hole in the flywheel, marked "set points here", and turn till the points are open. Loosen the screws which lock the breaker plate and, moving the latter, set the points to .018 in. Finally, lock the plate securely again by tightening the breaker plate screw.

Cleaning the contact points.

It is essential that the faces of the contact points should be kept flat, and to do this we recommend you to clean the points by inserting between them a piece of "0 gauge" emery cloth, and running over lightly two or three times under the pressure of the spring, and finally, repeating this procedure with a dry rag. Readjust the points. After extensive service it may be necessary to remove contact and "stone" to give 100% alignment.

Ignition timing. The ignition timing is fixed at 25 degrees before top dead centre. It is possible to adjust the ignition timing 5 degrees by loosening the two cheese-headed screws which hold the magneto back plate on to the roller housing and moving back plate left to rights. Turning it clockwise will retard the ignition.

Removal of Flywheel. To remove, unscrew the two locking nuts securing flywheel turn in clockwise direction left to right. The flywheel then requires a sharp tap opposite the keyway when it will slide off the crankshaft.

Replacing Flywheel. IMPORTANT the flywheel should fit the shaft. The woodruff key being merely a locating point for timing, and we do recommend that the flywheel should be ground on the tapered shaft with the same precision that you would grind in a valve. Make positively sure that the woodruff key is right home and tight in its groove. Slide on the flywheel, then tighten on shaft by means of LEFT HAND LOCKING NUTS making sure that these are tight, otherwise when the engine fires the woodruff key will be sheered off.

Adjustment of controls. The adjustments for the engine controls are to be found on the handlebar lever assembly, and all that is necessary is to slacken the lock nuts, unscrew the adjusters until there is no sign of backlash.

Decarbonising. After a considerable mileage the engine may lose power, and may start 4 stroking at slower speeds. This is caused by carbon deposits restricting the exhaust system and also excessive carbon in the combustion chamber which, in turn,

increases the compression and upsets the carburettor and ignition settings.

For decarbonising engine proceed as follows. Remove silencer. The engine should now be revolved until the piston is at the bottom of its stroke, when the carbon can be scraped from the edge of the exhaust port with a blunt knife or, preferably, a piece of hard wood fashioned into a scraping tool. Remove tail pipe from the silencer by slackening off securing bolt. Thoroughly clean silencer and tail pipe, removing all surplus carbon where possible.

Remove the 4 cylinder head holding down nuts, remove head, turn the engine until the piston is at the top of its stroke and remove the carbon by using the scraping tools recommended.

After decarbonising, thoroughly clean all parts, especially the cylinder barrel, removing every trace of loose carbon. Assemble head, silencer and tail pipe, using a thin layer of jointing compound to seal the head joint and silencer gasket.

INSTRUCTION FOR REMOVING ENGINE

1. Remove bolts through handlebar clips. Remove throttle control from handlebar. Lift unit upwards when the Unit can be removed from the cycle.
2. Remove carburettor complete from engine manifold, Disconnect decompressor cable.

from engine.

3. Remove shocker pin and release spring under engine body.

Note: It is a help in assembling if the tubes are marked to enable the engine mounting bracket to be replaced in the same position on the tubes.

INSTRUCTIONS OF STRIPPING ENGINE

1. Remove flywheel (lefthand thread) also woodruff key.
2. Slide cam off end of shaft.
3. Remove magneto back plate by unscrewing the two cheese headed screws.
4. To remove engine from saddle, remove split pin through pivot bar, drive bar out from magneto end with suitable tool, care being taken not to disturb the bushes.
5. Remove cylinder head.
6. The decompressor valve is removed by withdrawing the split pin through the lower hole in decompressor body.
7. Unscrew the four bolts holding the roller housing to the crank case end plate. Grip magneto end of shaft in soft jaws of vice and unscrew the nut holding the carborundum roller (left hand thread). Screw this along the shaft and it will withdraw the roller housing.
8. Remove outer end cap.
9. Unscrew the five cheese-headed screws from main end cap when crank case and cylinder can be separated.

INSTRUCTION OF ASSEMBLING ENGINE.

1. Taking main and plate and crank shaft, replace carborundum wheel and bolt up with paper washers between the driving discs. When tightening nut hold crank shaft in vice by web.
2. Replace piston and connecting rod in cylinder, making sure that the deflector on the piston crown is on the transfer port side of the cylinder. A thin tin clamp bent to fit round the piston will simplify entering the rings in the liner. The rings are pegged to prevent them from turning.
3. Assemble crank case on main end plate and screw up tightly.
4. Replace roller housing. IMPORTANT:- it is essential to support the crank shaft during this operation, which can be done as follows: Place centre punch in vice and rest crank shaft centre on this while tapping roller housing ballrace into position with length of tube resting on inner ring of race. Bolt up flange, with shock absorber anchor plate on bottom bolts.
5. Fit outside end cap.
6. Assemble decompressor valve in cylinder head.
7. Fit cylinder head, tightening up the bolts diagonally a few turns at a time.

8. **Fit engine pivot: bar, reverse operation to No. 4**
9. **Assemble magneto.**

"MOCYC" ENGINE UNIT. FAULT FINDING CHART.

Sequence of Testing.	Possible Trouble.	Remedy.
ENGINE WILL NOT START.		
1. Check whether fuel is reaching carburettor.	No fuel reaching carburettor, Air lock in pipe.	Turn tap to ON position, top up tank, clear air vent in filler cap.
2. If no fuel when tap is ON and plenty of fuel in tank	Blocked petrol hose, filter on petrol tap.	Remove and clean
3. Electrical: Test for spark by holding sparking head.	Leak along insulation of plug or high tension lead.	Try new plug on high tension lead.

FAULT FINDING CHART cont.

Sequence of Testing.	Possible Trouble.	Remedy.
4. Still no spark	Plug points may be oiled or sooted up.	Clean plug or fit new one.
5. Test for spark at end of H.T. lead held ⅛" from cylinder head stud.	If no spark at high-tension lead, contact breaker points gap may be too narrow or points oily and pitted.	Adjust point gap to .018 thou. and clean.
	Moisture on condenser. leads.	Clean and dry.
	Loose or broken wiring.	Correct or replace.
	Cracked insulator or adjustable contact breaker points.	Renew.
	Faulty high tension leads.	Replace.
	Faulty condenser.	Replace.
	Faulty ignition coil.	Replace.

FAULT FINDING CHART cont.

Sequence of Testing.	Possible Trouble.	Remedy.
6. If the above tests are successful but engine still does not start.	Mixture may be too rich due to excessive use of choke or engine flooding.	Open throttle wide and turn engine over several times. If excessively flooded remove crank case, drain and clean plug.
	Air leak at carburettor, or manifold joint.	Tighten clamps and correct.
	Incorrect ignition timing due to flywheel keyway sheering on taper shaft.	Check and replace key. See page 9 - Care of the magneto.

FAULT FINDING CHART cont.

Sequence of Testing.	Possible Trouble.	Remedy.
7. ENGINE FOUR OR EIGHT STROKES		
Choke may not be fully open or taper needle may be set too high.	Mixture too rich.	Lower taper needle one notch at a time to weaken mixture. If not enough fit smaller jet.
Air filter may be dirty.	Over lubrication by mixing the wrong oil.	Clean float chamber and see page 4 - Care of the carburettor
ENGINE LACKS POWER.	Engine out of tune, bearing worn.	Overhaul.
	Unsuitable spark plug.	Replace with correct type.

FAULT FINDING CHART cont.

Sequence of Testing.	Possible Trouble.	Remedy.
8 cont	Loss of compression.	Tighten cylinder. head nuts.
		Worn rings or piston, replace.
	Incorrect petroil mixture.	Use recommended proportions
	Excessive carbon.	Decarbonise.
	Exhaust system choked with carbon.	Clean out silencer and exhaust pipe.
	Incorrect carburettor.	See page 4 - Care of carburettor.
	Air filter choked.	Wash in petrol, clean and dip in fresh oil.
	Obstruction in fuel supply.	Clean petrol tank tap assembly, fuel line, filters, and jet.

FAULT FINDING CHART cont.

Sequence of Testing.	Possible Trouble.	Remedy.
8 cont.	Incorrect timing.	Adjust.
	Driving Roller slipping.	Clean roller with water and check alignment of motor to wheel. See page 3 - Fitting instructions.
9. ENGINE SUDDENLY STOPS	Sparking plug lead detached.	Replace and tighten
	Plug points bridged by oil or carbon.	Clean or replace.
	Magneto points closed.	Adjust and clean.
	Short circuit of high tension lead due to water.	
	Blocked main jet.	Remove and clean.
	NO PETROL IN TANK.	Fill it up.

Any further information and advice willingly supplied by:-

THE CAIRNS CYCLE & ACCESSORY MANUFACTURING CO. LTD.

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