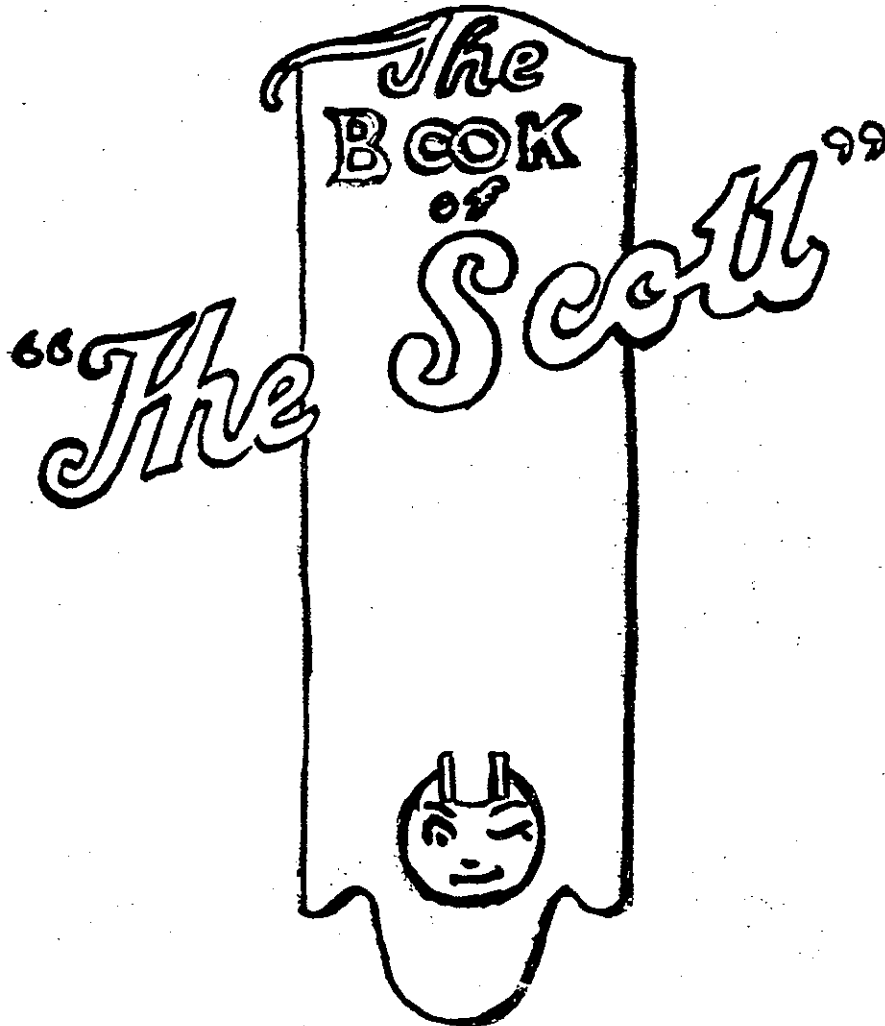


9.4 “Book of the Scott” - H.C.Wood’s Version



NOT ISSUED BY

(TRUTHFUL VERSION)

The
SCOTT
MOTOR
CYCLE
COMPT.

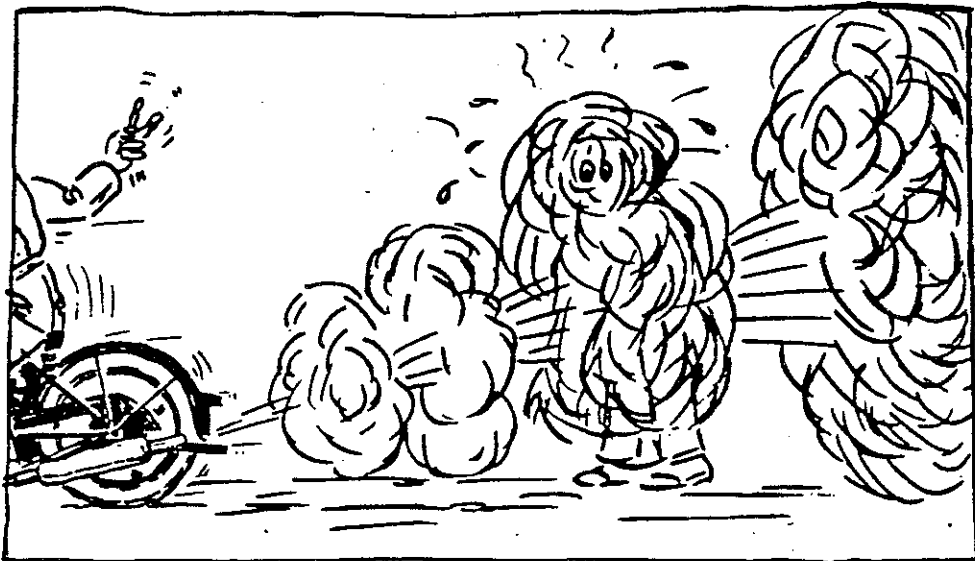
but by H. C. Wood, Bradford.

Harold Wood was then at the Scott Works and he compiled much of the firm's Handbook. After writing at length in serious vein on the theoretically correct methods of carrying out adjustments, Harold could not but think of the alarming and frustrating disasters which befall during a Scott novice's first attempts at such jobs. At length he could restrain himself no longer and the result was a typed one-off "Truthful Edition" with, it can well be understood, a very restricted circulation.

THE NEW MACHINE

I. TO START ENGINE

1. Set controls: Throttle almost closed, Air closed.
2. See that Gear Lever is in 'Neutral' position.
3. Flood Carburettor by banging "tickler" violently up and down.
4. Standing alongside machine, grip half-compression lever full and operate kick-starter several times.
5. Release half-compression lever and violently leap upon the kick-starter pedal, making gentle but sudden and progressive depressions delivered smartly without effort.
6. The Engine should then start: It does not.
7. Flood Carburettor so that petrol again pours out, and open throttle fully.
8. Continue to use kick-starter, at times flooding the Carburettor and opening or closing the throttle.
9. When left leg is tired, sit astride machine and operate starter with right foot.
10. When right leg is tired, sit astride machine, engage low gear and get someone to push.
11. After skidding rear wheel for a few yards, engage middle gear and repeat process.
12. Engine may then start.
13. Disengage clutch, stop machine, wipe forehead and thank pusher.



"Thank the pusher" . . . "blue smoke will serve as an indication to the novice that the engine has started."

II. IMMEDIATELY AFTER STARTING NEW MACHINE

1. Be careful to note that the exhaust is smoky. An impenetrable cloud of dense blue smoke completely obliterating the district indicates a sufficiency of oil film on the cylinder walls. It also serves as an indication to the novice that the engine has really started.
2. Set the oil pump by opening up the regulating screws until a sudden rush of oil and bubbles, heralded by a clot of congealed debris, indicates that the pump has commenced to work. A constant stream of oil will then pass through the pump, bearing with it large black lumps. These are flakes of enamel from the inside of the tank, and should not remain there anyway. The number of black lumps delivered through each regulator per minute should be the same. N.B. When setting the oil pump, the thumb nail will foul the magneto chain. This, however will not cause the engine to stop, provided the spring fastener of the chain is fitted correctly.
3. If the exhaust continues to remain excessively smoky after the machine has run a few miles, the regulators should be screwed in a notch at a time.
4. Sudden locking of the rear wheel when accelerating indicates that no further screwing in of the regulators is desirable.
5. In the unlikely event of the oil pump failing to maintain a uniform flow in both sight feeds (i.e., when it stopped up) it may be cleaned as follows:-
 - (a) Remove sight feed windows and flush out with petrol. This does no good but it is a simple and pleasing operation.
 - (b) Replace window. The fact that the two small screws continue to turn loosely in the pump body indicates that the thread has stripped. Put them in crooked, tapping lightly into position.
 - (c) Remove one regulator screw completely. If a close watch is kept, a small spring plunger will be seen to shoot out at an enormous velocity. It is useless attempting to find this. It has gone a long way.
 - (d) Remove the other regulator screw, taking great care to catch its spring plunger. It is, however, equally futile trying to find this, as it will have flown quite as far as the other, even though you WERE expecting it.
 - (e) Re-assemble pump, using small lengths of spoke wire in place of spring plungers. N.B. A spare spoke will probably be found hanging on the rear wheel rim.

III. TO INSPECT OIL LEVEL IN CRANKCASES

This is very simple, remove doors as follows:-

- (a) Slacken off door strap nuts.
- (b) Swing each strap away from door.
- (c) Rotate engine by several smart depressions of the kick-starter.
- (d) Doors should then fall away, being easily dislodged by crankcase compression.
- (e) Continue to rotate engine.
- (f) Prise open door with knife.
- (g) Lay doors face downwards on ground, then pick up, wipe off grit and place on saddle.
- (h) The oil level can then be inspected.

On feeling in the crankcase well with the little finger, (the engine then not being rotated) a considerable quantity of rubber chips will be found. These are the crankcase compression.

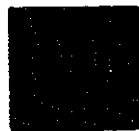
IV. STARTING DIFFICULTIES

In the unlikely event of the engine failing to start, the following are possible causes:-

1. **TOO WEAK A MIXTURE.** This is sometimes caused by an absence of petrol in the tank; or by the throttle lever operating the air cable, and vice versa.
See also Chapter on "COMPRESSION" in the Seccotine Handbook.
2. **TOO RICH A MIXTURE.** If the machine is left leaning against a kerb, petrol may begin to trickle out of the silencer. This indicates that the mixture will be too rich for immediate re-starting.
3. **CHOKED JET.** The cause of this is the jet becoming stopped up.
To remove jet (Flying Squirrel models)
 - a. Unscrew bottom of carburettor and attempt to squeeze jet-key between carburettor and flywheel
 - b. Drop jet-key under flywheel.
 - c. Remove petrol pipe, magneto chain guard and float chamber.
 - d. Remove the three fixing nuts, dropping each in turn, under the flywheel.
 - e. After disconnecting cables and slides, the carburettor is then instantly detachable.
 - f. Collect jet-key and nuts from below flywheel.
This is easily done by turning machine upside down and shaking vigorously, whilst tapping the underside of the crank-case with the other hand.
 - g. Remove jet from carburettor.

TO CLEAN CHOKED JET

- a. Attempt to blow through jet.
- b. Place jet to eye and try to look through it.



Jet blocked



Jet clear

- c. Again attempt to blow through it and repeat these operations alternatively for some time.
- d. Fit new jet.

(To be continued)

Supplement to the Scott Handbook (Truthful Version) Part 2.

DRIVING INSTRUCTIONS

GEAR OPERATION (Two speed)

1. Start Engine.
2. Set throttle so that engine runs slowly.
3. Place heel of foot (right) on rear arm of pedal and press lightly.
4. Continue to do so, tapping pedal more vigorously.
5. Tap pedal still more vigorously. The machine will then move forward a yard or so.
6. Restart engine.
7. Again tap in pedal, and move another yard.
8. Restart engine.
9. Open throttle to race engine, firmly clutch handlebars and stamp on pedal.
10. The machine is now 'under way'.

GEAR OPERATION (Three Speed)

1. Start engine.
2. Lift clutch lever and move gear into low gear.
3. A nasty crash followed by stopping of the engine indicates that inserts when oily cling to steel.
4. Restart engine, lift clutch and move lever into gear.
5. Race engine and release clutch.
6. Machine will shoot off backwards. This is proof that the engine works on the two-stroke cycle.

THE SCOTT ENGINE

The Scott Twin Cylinder Engine often works on the two-stroke cycle, which differs from the more usual Otto (or four stroke) cycle by delivering one impulse for every two strokes of the piston, instead of one for every four. It thus uses twice the amount of petrol to produce half the power.

ITS ACTION is briefly as follows:—

- a. Assuming that the engine is being rotated by the starter (which is quite usual) the piston ascends the cylinder causing air to be drawn in through leaks in the crank case doors.
- b. When the piston almost reaches the top, a series of inlet ports are uncovered, and a quantity of gas which has been waiting nearby, passes in and mixes with the air in the crankcase.
- c. Upon reaching the top of its stroke, the piston should commence upon its downward journey.
- d. The gas in the crankcase is thus compressed, and tends to force itself out of the crankcase door and transfer port joints.
- e. When practically the bottom of the stroke is reached (and the crankcase compression is without exaggeration, at its maximum) the top of the piston uncovers a transfer port cunningly placed there. Gas from the crankcase, seeing an opening and seeking relief from its compression, thereupon rushes in from this port straight across and out of an exhaust port conveniently situated on the opposite side of the cylinder.

f. Some of this gas, however, is trapped by the now descending piston and, mixed with some burnt gas from the previous explosion, is compressed into the top of the cylinder. This causes some of the bubbles which appear round the porcelain of the detachable type plugs.

g. The spark is timed to occur approximately at the top of the stroke, and if it does, fires the compressed gas. The piston then descends by the force of the explosion.

h. Before the piston has fully descended, it uncovers the exhaust port allowing the main force of the explosion to pass into the silencer and produce the well-known noise of a motor-cycle.

i. The remainder of the explosion passes through the transfer port into the crankcase, where it fires the next charge of gas waiting below. No damage will result from this, as the force of the explosion caused will escape through the carburettor, producing the well-known noise of the Scott Lightweight.

TRANSFER PORT COVERS. These consist of pieces of curved space surrounded by aluminium, and their object is to hold two transfer gauzes in position by means of a single bolt.

Care should be taken when tightening these covers into position, Undue force used on the bolt will distort the aluminium and cause bending of the inlet gases.

ENGINE DEFECTS

DEFECTIVE CYLINDER COMPRESSION may be caused by faulty rings, or absence of pistons after reassembling engine. Seccotine is invaluable, applied everywhere.

CRANKCASE COMPRESSION can be tested by removing plugs and turning the engine round. There should be distinctive "pops" suggestive of a cork being drawn from a bottle. This is one of the many charms of the Scott. Weakness of the pops can be cured by shaking the bottle.

AIR LEAKS. It is one of the Scott's greatest features that air leaks can be instantly cured by lifting the cylinders, and fitting new packings (costing only a few pence). See also the Supplement on Seccotine Post free 1/6d. Serious air leaks can readily be detected by remembering that if the engine would only start it would immediately stop again due to too weak a mixture.

FIRING ON ONE CYLINDER can be quickly detected by detaching one plug lead. If a violent shock is received and the engine stops, that particular cylinder was firing. If a violent shock is received and the engine goes on running even after dropping the lead, onto your foot, then it is the other cylinder which is firing.

THE KICK-STARTER (TWO SPEED)

On operating the kick-starter lever vigorously sooner or later there will be a sharp crack followed by a strange whirring sound. This is the Scott kick-starter Device, which is very ingenious.

The lever will then feel much more free but will not rotate the engine. A small chain which had never previously been noticed will be observed trailing from a rod. This indicates that an adjustment of the kick-starter is necessary.

ADJUSTMENT OF KICK-STARTER

After fitting a new device, adjustment is effected as follows:—

Loop a length of cord through the chain anchor and wind it $1\frac{1}{2}$ times bringing the end to the rear of the machine. Engage low gear, rotate engine by rear wheel and pull cord. When the cord breaks there will again be a whirring sound; but this time there will be no need to fit a new device.

Again loop the cord and proceed as before. Do this once or twice, pulling harder each time, until something appears to give slightly; then bind the cord round the rear stand and securely wedge the device by a screwdriver.

On releasing the cord, the familiar whirring noise will again take place and the screwdriver will be found some distance away.

After carefully looking at the machine for five or six minutes, continue to repeat the above operations until at last the screwdriver remains in position.

The starter chain can now be attached to the device. While tightening there will be a bang and a whirring noise and the starter chain will be found wedged between the magneto chain and its sprocket. It should be remembered that Iodine is one of the finest disinfectants for cuts and wounds.

On finally completing the assembly the starter chain will be noticed to sag somewhat, whilst the ratchet will be in constant engagement.

The machine should then be wheeled to the nearest Scott Agent (or blacksmith) for final adjustment.

THE THREE SPEED GEARBOX

The Scott Gearbox (three speed) is so reliable that little need be said about it.

TO DISMANTLE THREE SPEED GEARBOX

The Gearbox can be completely dismantled every time without removal from the frame.

Having disconnected everything possible in the neighbourhood of the box, proceed as follows:—

Break cover joint by smart blows on the driving sprocket end of the mainshaft. The sudden appearance of the mainshaft through the cover is

an indication of over-smartness of the blows, or possible failure first to remove the cover fixing nuts.



You have tapped too hard!

As soon as the joint is broken, place a receptacle to catch the oil, which will have already escaped.

When the lid has eventually been removed, and the lay shaft and middle gear assembly can somehow be worked out. Now is a good time to have any broken kickstarter ratchet bolts removed from the lay shaft.

Continue with the dismantling of the box, withdraw the main shaft. If the far end is artistically covered in shades of blue, red and bronze, it indicates that you have a good box which leaks only at the High Gear Wheel bearing bush, and not at both bearings.

On withdrawing the main shaft, the sliding dog will roll forward slowly and fall on the floor. The chips on the dogs, however, have not been caused by this.

The operating fork, shoes and other small bits should then be wiped out of the gearbox case.

When carrying out the above operations do not be alarmed at the discovery of several small rollers half buried in the soil at the bottom of the gearbox tray. These will have come from behind the race-plate.

THREE SPEED GEAR BOX. This should be lubricated with ordinary engine oil. The rider will soon find by experience the correct level to give a minimum of scizures. The outside of the box needs no outside lubrication to that supplied by the oil pump above.

V7/6 July 1971

THE SCOTT HANDBOOK (Truthful Version) Final Part

By C. H. Wood, Bradford. (Not issued by the Scott Motor Cycle Co.)

(To enjoy the handbook to the full, may we suggest that you take the supplements from the two previous issues, together with this part, and bind them into a separate booklet. You will then find that you can really appreciate the supplements).

GENERAL LUBRICATION

TWO SPEED GEAR. Oil is fed to the gear direct from the tank, and the plunger pump should be operated every 20 miles unless there is excessive slipping of the drums. In spite of this however, it should be operated at least every 2,000 miles.

THE KICK STARTER (2 SPEED). This should be flushed out with paraffin occasionally to wash out all surrounding grit in between the leaves of the scroll spring.

THREE SPEED GEAR BOX. This should be lubricated with ordinary engine oil. The rider will soon find by experience the correct level to give a minimum of seizures. The outside of the box needs no outside lubrication to that supplied by the oil pump above.

CHAINS. Every 500 miles oil should be applied to the chain by means of a brush. The best method of releasing this brush is to engage a gear and turn the engine backwards until all the bristles come round again. Chain oilers on T.T. Replica models are not intended to be used continuously, but can be left turned on overnight without damage. Thorough lubrication of at least one roller is indicated by oil emerging from the garage door.

SUPER SQUIRREL FORKS. The upper sliding tube may be lubricated by prising open the top spring cap. This is done by inserting a screw driver under the cap trying all positions in turn, then using two screw drivers and finally succeeding with three screwdrivers in inserting the petrol squirt nozzle. The tube, being already packed with grease, there is no room for further oil, so all instruments may then be withdrawn and the petrol squirt nozzle restored to its original shape.



The lower sliding members should be lubricated by filling the fork crown with oil until black spots appear on the rider's face after passing over a pothole.

GIRDER FORKS. Oil should be fed continuously to the sliding crown by means of the oiler on the top cap. In the case of new machines this should first be flushed out with paraffin to remove the sawdust.

PLUGS

It is essential to use the type of plug most suitable for your purpose. From our experience we recommend the following:—

First Lodge H.1, then K.L.G. HS3, AC 114 Q, Splitdorf and Champion 12. After using these for a short time, try K.L.G. 268, AC 115 Q, Champion 14, Woolworth 6d, K.L.G. 231, and finally Champion 13.

Care should be taken when fitting a new plug to see that its reach does not exceed $\frac{1}{4}$ inch. Otherwise the spark may foul the compression and produce gas in the armature of the thermo-syphon.

C. H. WOOD'S "HANDBOOK"

In recent issues of "Yowl" there have appeared humorous extracts from the 1930 "Scott Handbook (Truthful Edition)", and in publishing these we overlooked making it clear that this document was in no way an official production of the old Scott Company, but was the work of veteran Scott enthusiast C. H. Wood.