SCOOTER SERVICE SHEET

1003

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250 c.c. O.H.V. TWIN CYLINDER SCOOTER

REMOVAL OF THE ENGINE, GEARBOX AND FINAL DRIVE NUT

When the engine and transmission are removed for overhaul they must be taken out as a complete unit comprising the engine, gearbox and final drive.

Remove the side valances as described in Service Sheet No. 1001.

Drain off all the oil by removing the lowest Phillips head screw and the filler plug on the primary and the rear drive housings, the two $\frac{1}{4}$ in. bolts at the rear of the gearbox, and the drain plug in the base of the sump.

Raise the rear wheel clear of the ground. For this purpose a block or small wooden trestle as Fig. 2 is necessary and assistance will be required to lift the machine and place the block underneath the rear cross channel on the frame.

Remove the rear wheel by taking off the three hub nuts, which have a normal right-hand thread; these nuts are countersunk both sides and can be fitted either way. Now take off the air ducting around the cylinder head; it is secured by two small nuts on $\frac{1}{4}$ in. diameter studs which also secure the exhaust pipes. After these nuts are removed take out the one $\frac{1}{4}$ in. diameter bolt which secures the carburetter air pipe; this is on the top cross member between the two vertical pillars of the frame, and is immediately below the petrol tank. Disconnect the sparking plug leads. Now prise off the lug securing the air duct on the left-hand stud and lift the air ducting complete with the carburetter air pipe clear and place on one side.

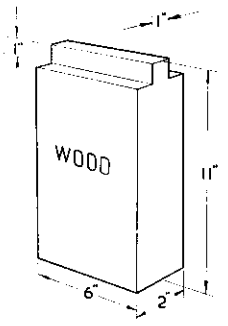

Fig. 2.

Next remove the exhaust pipes by taking off the remaining $\frac{1}{4}$ in. nuts from the studs nearest the rear wheel, and slacken off the clips securing the exhaust pipes to the silencer and the two bolts at the top of the silencer. This will enable the silencer to be swung away from the pipes and the exhaust pipes can then be taken off the studs securing them to the cylinder. The right-hand side exhaust pipe also carries the spring which tensions the kickstarter chain. The spring will therefore have to be unhooked from the exhaust pipe and the chain link before the right-hand pipe can be placed on one side.

Disconnect the speedometer drive from the rear hub by unscrewing the union nut (Fig. 3). The speedometer drive cable is the upper of the two cables which run to the rear wheel, the lower one being the brake cable. Also disconnect the rear brake cable by taking out the split pin and clevis pin which secure the cable end to the brake lever on the rear hub.

Remove the two black and yellow wires which run from the distributor to the left-hand and right-hand ignition coils by taking off the two nuts on top of the coils. Note that the longer of the two cables (black and yellow) goes to the right-hand coil.

With a suitable tool such as a screwdriver or a hammer shaft, press in the clutch lever on the engine, slip the nipple out of the lever, pull the outer casing out of the lug and place the spring on one side. Push the cable down under the frame out of the way.

Make sure that the petrol tap is turned off and uncouple the banjo union at the carburetter end of the petrol pipe. Be careful not to lose the two fibre washers or the small gauze filter which is fitted inside the banjo union.

The petrol tap rod is supported by a bracket which is secured to the nearside rocker cover stud; remove the $\frac{1}{4}$ in. nut on this stud lift the bracket off the stud and swing it to one side. Replace the nut loosely on the stud to retain the fibre and steel washers.

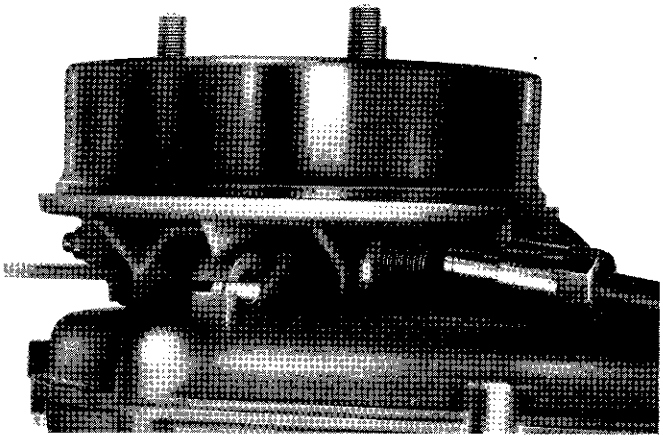

Fig. 3.
Speedometer cable connection

On the right-hand side of the machine will be seen the gearchange lever, fitted to the quadrant spindle; take off the nut securing the lever to the spindle end and prise the lever off the squared end of the spindle. Now depress the kickstarter lever and disconnect the chain from the lever by removing the spring link. The kickstarter sprocket and the chain can be removed after the unit has been taken out of the frame, but the sprocket can be removed at this stage if necessary, it is fitted on to a taper shaft which is keyed. Remove the nut securing the sprocket, and with an open-ended spanner behind the sprocket and against the adjacent Phillips head screw, tap the end of the spanner sharply so as to jerk the sprocket from the taper on the shaft.

It will now be necessary to turn to the left-hand side of the machine, and here will be seen the curved support arm on the rear drive unit. This support arm must be removed before the unit can be taken out of the frame, since it passes round the left-hand vertical column of the frame. Unscrew the three nuts at the rear of the curved arm which secure it to the rear drive and remove the hollow bolt at the front end of the curved support arm, (this is the bolt which also carries a grease nipple). Take off the large diameter steel washer which is pegged. Now disconnect the lower end of the rear suspension damper unit, and swing the damper unit up and out of the way. Raise the rear drive and gently prise off the curved support arm. Lifting the rear drive unit will allow sufficient clearance for the support arm to pass over the pillion passenger's footboard.

The three bolts which secure the rear end of the support arm should now be taken away since they are liable to foul the frame as the unit is being removed.

Remove the rear mudguard by taking out the four $\frac{1}{4}$ in. diameter nuts and bolts, two at the front on the cross member between the two vertical tubes of the frame and two at the rear which also carry the silencer and petrol tank support bracket.

Unscrew the two $\frac{3}{8}$ in. nuts on the bolts attaching the engine unit to the two vertical frame tubes at the rear of the frame. On the left-hand tube it will also be necessary to take out the two $\frac{1}{4}$ in. bolts securing the quarter portion of the clip. Drive the bolts partially through but still allow them to support the engine. Now remove the front engine plates by taking off the nuts on the two crankcase studs and remove the two 5/16 in. bolts and nuts which secure the "L" shaped engine plates to the chassis cross member. When the bolts securing the plates to the cross member have been removed slide the plates off to left and right from the studs. The engine will now be supported only by the two $\frac{3}{8}$ in. bolts through the rear brackets.

Disconnect the generator cables by breaking the connectors which will be found underneath the floor boards. This operation will be easier to carry out if each connector is broken individually.

The unit is now ready to be taken out of the frame, and it is quite easy to do so providing the correct procedure is adopted, which is to drive out the two bolts holding the engine to the vertical frame tubes, tilt the unit forward so that the lugs on the engine clear the lugs on the frame and then tilt it sideways towards the left-hand side, at the same time lifting it out. This will enable the rear drive to pass between the two vertical tubes.

Complete dismantling of the engine, gearbox and final drive unit is described on Service Sheet No. 1004.