

DIRECTIONS

FOR STARTING AND WORKING

RANSOMES'

12-in., 14-in. & 18-in. MINOR

MOTOR LAWN MOWERS

RANSOMES SIMS & JEFFERIES
LIMITED
————— IPSWICH —————

INSTRUCTIONS

FOR WORKING THE

12-in., 14-in. & 18-in. MINOR MOTOR LAWN MOWERS

PARA. 1.

ENGINE.

The engine is a 98 c.c. Villiers 2-Stroke Petrol Motor, fitted with flywheel magneto. It is supplied fitted up on the petrol system with automatic carburettor, thus making it very simple and easy to drive.

Maintenance of Engine. If trouble is experienced when starting the engine through the sparking plug becoming wet and oily, the crank case should be drained by taking out the small plug which will be found at the base on the left-hand side of the crank case. This trouble occurs through overflowing of carburettor or by leaving the petrol turned on when the machine is not in use, allowing the oil to settle in the carburettor.

The engine should be decarbonised at the end of each season. All carbon should be thoroughly cleaned off piston, cylinder head and exhaust port. When replacing, care should be taken to replace the piston correctly, *i.e.*, the sloping side of top towards the exhaust port or front of engine. The silencer and exhaust system should also be cleaned out.

PARA. 2.

LUBRICATION OF ENGINE.

For lubrication of the engine lubricating oil is mixed with petrol, and this is taken in through the carburettor to the crank case, from which the main bearings, piston and cylinder walls are all automatically lubricated.

The mixture we advise as most suitable is 16 parts of petrol to 1 part of best lubricating oil. This proportion may be varied according to atmospheric conditions. On a very hot day, 12 parts to 1 would keep the engine cooler and more efficient. A good indication as to whether the engine is receiving the correct amount of oil, is a little blue smoke from the silencer. If, however, an excessive amount of smoke is emitted, too much oil is being used and the amount should be reduced. This must be done very gradually. When a new machine is being used it is always advisable to see the smoke appear from the silencer before putting to work.

Engine oils we recommend for use in this engine

SHELL	-	-	-	Tractor Oil 50 or Golden Shell
VACUUM	-	-	-	Mobiloil D
WAKEFIELD	-	-	-	Castrol XXL
PRICE'S	-	-	-	Motorine B de Luxe
ANGLO	-	-	-	Essolube 50

PARA. 3.

CARBURETTORS.

The carburettor is of the concentric float chamber type, allowing the machine to be worked on undulating grounds without affecting the running of the engine.

To make starting easy when the engine is cold, a strangler is fitted to the carburettor, and is operated by the shutter (A). (See illustration page 9). When starting the engine from cold, the shutter should be lifted to the top position, and as soon as the engine is running the shutter should be lowered, thereby opening the air inlet to the carburettor. The carburettor should be dismantled occasionally and thoroughly cleaned. To do this, unscrew the hexagon nut at the base so that the float chamber can be lowered, care being taken not to lose the needle valve as this will drop out of position when the float is lowered. A gauze filter is fitted in the petrol intake. This will be found by removing petrol pipe.

PARA. 4.

IGNITION.

Magneto Timing.

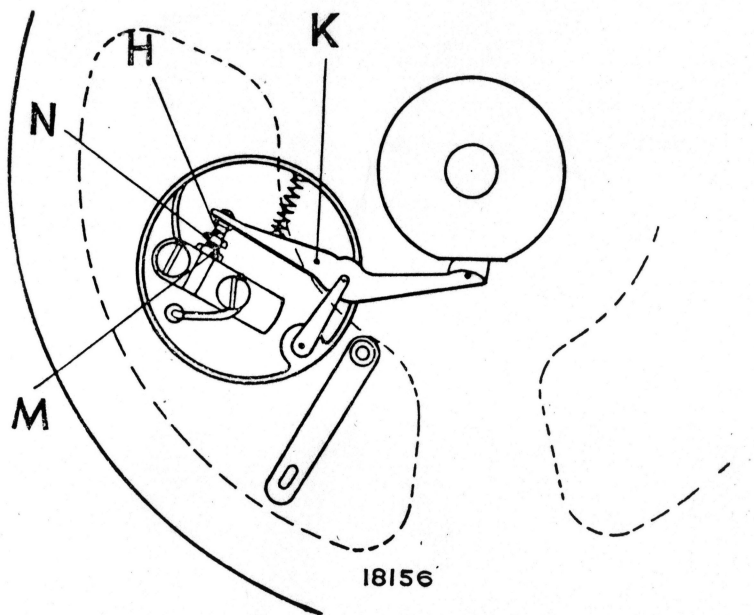
If at any time the flywheel magneto is removed from the end of the crank-shaft, care must be taken when replacing to check the relative position of the flywheel to the piston position.

The back or armature plate is held by two screws and the drain hole should be at the bottom. Greater care must be taken in positioning the flywheel itself. The arrow which will be seen on the boss of the flywheel must be in line with the notch which will be found in the end of the crank-shaft. This setting should give a spark 3/16-in. before T.D.C.

Magneto Adjustments.

(See illustration on this page).

The magneto is built into the flywheel. To adjust the contact breaker points (h), the cover must be removed. Having removed the cover from the contact breaker, rotate the flywheel to see if the points open and close correctly.



CONTACT BREAKER. TWO STROKE MODEL.

- | | |
|----------------------------|-------------------|
| h. Contact Breaker Points. | k. Rocker Arm. |
| m. Contact Screw Locknut. | n. Contact Screw. |

If the rocker arm (k) appears to be tight, remove it from its bearing and thoroughly clean the pin. A little oil should be smeared on the bearing when re-assembling. Providing the contact breaker points are kept clean, and above all free from oil, they will probably need adjustment only at long intervals. When the points are fully open, the gap should be .015-in. If adjustment is necessary, slacken locknut (m) and turn the contact screw (n) until the gap is set to the thickness of the gauge attached to the magneto spanner; then screw up the locknut again until it is firmly locked.

Sparking Plug. The plug electrodes are bound to burn away slightly, and thus, in time, the gap increases. It is a good plan to examine them at intervals, clean and adjust when necessary; the gap should be .020-in. or slightly more than the gauge on the magneto spanner. Occasionally take the plug to pieces for examination and after re-assembling it may be necessary to re-adjust electrode to centralise it with the 3 points.

PARA. 5. **CUTTING ADJUSTMENTS.**

Adjusting the Knives. Each machine is sent away with the cutting cylinders properly set to the bottom blade, but it is possible they may be upset during transit to the user. When the machine does not cut perfectly, set the cutting cylinder carefully to the bottom blade, so that the revolving cutters just touch the bottom blade throughout the whole length and without causing any frictional pressure.

For setting the knives a simple method is used, viz. :— adjusting screws (B) (see illustration on page 9), on either side of machine.

To set cutting cylinder closer to bottom blade, slacken locknut (C) and turn screw in clockwise direction. It is advisable when adjusting to make a small adjustment to each screw alternately.

When correctly set, the knives should revolve freely and at the same time be able to cut a leaf or piece of

writing paper held at the edge of the bottom blade. This test should be made over the entire width of blade.

If the cutting cylinder is set hard on to the bottom blade no cleaner cut is obtained, but extra work and undue wear is put on to the machine.

PARA. 6. To alter the height of cut. Slacken the bolts (D) and move the brackets up or down as required, care being taken to adjust both sides equally.

CAUTION. The machine should never be used with the bottom blade pressing on the lawn. If it does, the spiral cutters are liable to be damaged by the bottom blade being forced upwards, the machine will work heavily and the turf will be badly marked. It is a fallacy to think that grass can be cut shorter by having the blade hard on or touching the ground. If it is just clear of the ground it does not press the grass down and a cleaner cut is made.

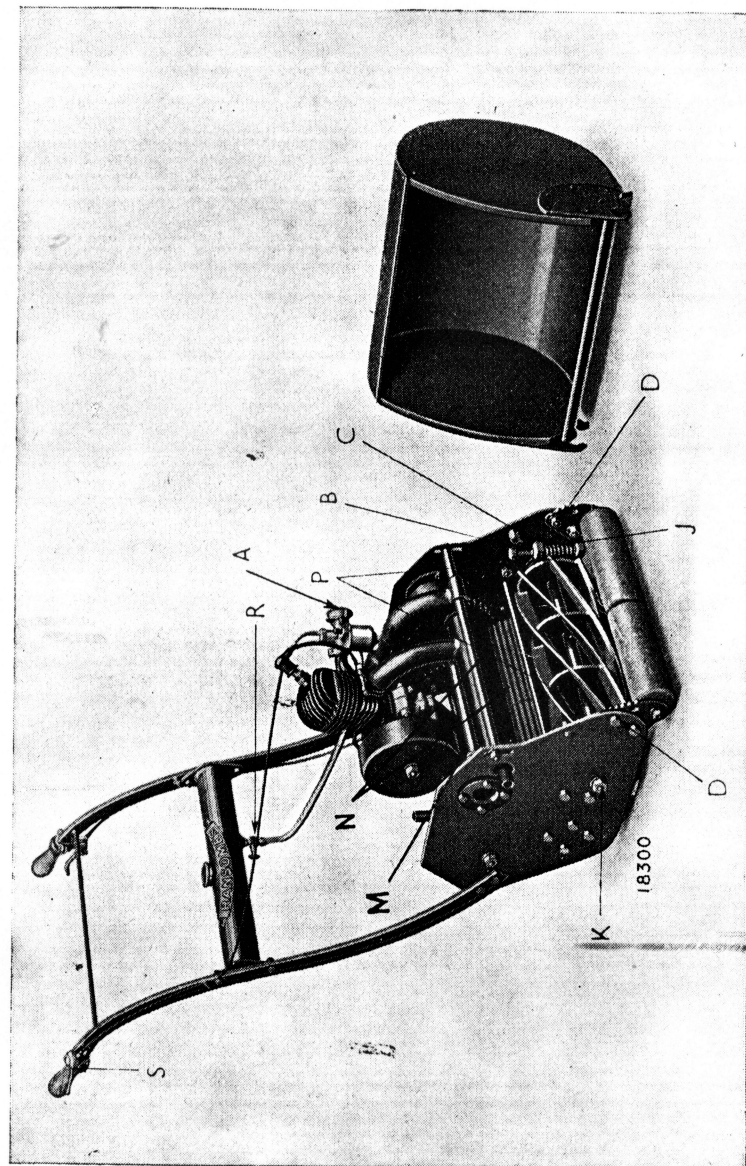
To see if the machine is set correctly, tilt it until it rests on its handles, place a straight-edge across the land and front rolls, the bottom blade should then be clear of the straight edge. In dry weather, $\frac{3}{16}$ -in. to $\frac{1}{4}$ -in. and in wet weather $\frac{1}{4}$ -in. to $\frac{3}{4}$ -in. clearance should be allowed for the machine sinking into the turf.

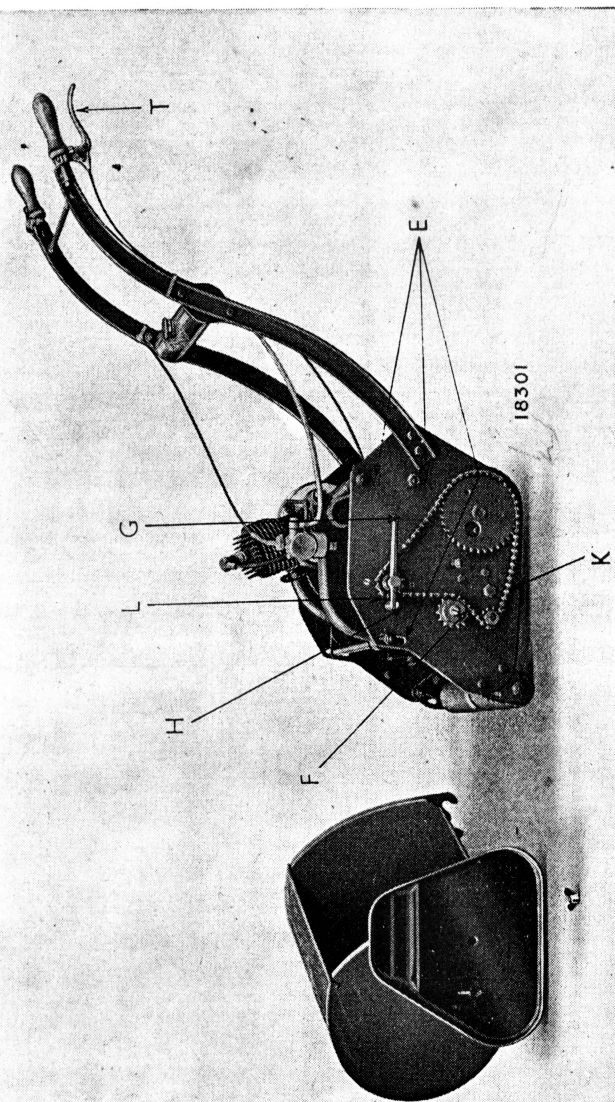
PARA. 7. CHAIN DRIVES.

Adjustment of Primary Chain. Slacken the three nuts (E) (see illustration on page 10), and pull top of engine back. When correctly adjusted the chain should have a $\frac{1}{4}$ -in. up and down movement on each side of the centre line.

Adjustment of Cylinder and Land Roll Chain. There is a chain tightener pinion on Stud F, and this slides horizontally in its slot. To adjust chain, slacken nut, and slide the stud to right or left as required.

If at any time a chain is removed, care must be taken when replacing to see that the gap in the spring clip points opposite to the direction of running.





PARA. 8. ADJUSTMENT OF CLUTCH LEVER.

When the clutch operating lever is up, the engine should be quite free to revolve. If this is not the case adjust the Bowden wire at (G). A further adjustment to the clutch lever can be made at (H), so as to keep lever fairly square to the machine.

PARA. 9. TO TAKE CUTTING CYLINDER OUT OF MACHINE.

First remove the outside chain cover, then take off the chain. The cutting cylinder should then be secured by means of a piece of wood held between the cutters while the pinion is unscrewed. This is done by turning it in a clockwise direction.

Take out concave, cylinder adjusting screws (B), springs (J) and bolts (K). The R.H. cylinder housing should now be levered further on to the spindle, *i.e.*, away from the side frame, until it can be lifted out of the machine.

PARA. 10. LUBRICATION OF MACHINE.

- Parts to be oiled every time the machine is used:—
- (a) Clutch Shaft Bearings at points (L) and (M).
 - (b) Land Rolls. A lubricator will be found in each roll below the surface through holes (N).
 - (c) Land Roll Spindle Bearings. Lubricators will be found on the rear of the housings inside the side frames.
 - (d) Chain Tightener (F). This runs on an "Oilite" Bush but a little oil can be added occasionally.
 - (e) Cutting Cylinder Bearings through lubricators (P) on each side of machine.
 - (f) Wood Rolls Spindle. This can be oiled in between the rolls at each end.

PARA. 11. **TO START ENGINE.**

- (a) Petrol mixture required :—
 Mix thoroughly :—1 quart of petrol with $\frac{1}{2}$ -pint *i.e.* two measures) of engine oil.
 It is best to mix the petrol just before using, and not more than is required for immediate use. An old petrol tin will be found very useful for mixing purposes. On no account should the mixture be made up in the tank.
- (b) See that the clutch is not engaged and that the engine is free.
- (c) Turn on petrol by the small cock (R) at underside of tank and flood the carburettor by depressing the needle valve.
- (d) The position of control lever (S) on right handle of machine for starting should be slightly open.
- (e) Strangle carburettor by lifting shutter A.
- (f) Turn starting handle sharply, when the engine should start in two or three turns.
- (g) Open strangler shutter—under no circumstances must the engine be run with the shutter closed or even partially closed.
- (h) After engine is running the position of control lever can be adjusted to give required speed of engine.

PARA. 12. **TO OPERATE MACHINE.**

Adjust control so that engine is running at fair speed. Grip the clutch lever (T) on left handle and gradually drop until the clutch engages. To do this the trigger lever must be kept tight up against the clutch lever.

An easy way to operate the clutch is to work the trigger lever with the left forefinger and the clutch lever with the remaining three fingers.

The machine will then be in motion and can be stopped or started by raising or dropping the clutch lever.

Drop the clutch in gently so as to avoid putting unnecessary shock on the machine.

When starting the machine, especially in the middle of a thick crop, it is advisable to put slight pressure on the handles. This relieves the machine from the sudden shock caused by the cutting cylinders coming in contact with the thick grass from a stationary position. Better still, pull the machine backward, say 2-ft., before starting.

The speed of the machine when cutting can be adjusted by the carburettor control to suit the operator. To increase or decrease the speed, move the lever to the left or right as required.

If it is desired to make a sharp turn at the end of the cut, lift the clutch lever slightly when turning.

To stop the machine to clear grass, etc., lift the clutch lever and make sure the trigger lever is free to drop into the safety notch which holds the trigger lever up and prevents the clutch engaging.

**SLIPPING CLUTCH FITTED TO LAND ROLL SPINDLE
 18-in. MODEL ONLY.**

This clutch is fitted to enable the machine to be manoeuvred slowly around flower beds, etc., without reducing the speed of the cutting cylinder. It is also an advantage to be able to maintain a high cylinder speed to a comparatively slow land roll speed when cutting very long grass.

The hand-wheel should be adjusted so that there is just sufficient friction to propel the machine along, then when the machine is held back by the operator the clutch slips, allowing the cutting cylinder and engine to run at normal speed.

To increase the friction thereby making the drive more positive, turn the hand-wheel in a clockwise direction. To allow more slip, turn in opposite direction.