

172055

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By Appointment to the Late King George VI

MOTOR MOWER MANUFACTURERS

ATCO

INSTRUCTION BOOK

FOR

17 inch and 20 inch MODELS

Series 172055

**READ BEFORE USING AND
PLEASE KEEP HANDY
FOR REFERENCE**

CHARLES H. PUGH LIMITED

P.O. BOX 256

ATCO WORKS, BIRMINGHAM, 9, ENGLAND

Phone: VICTORIA 2524 (4 lines)

Telegrams: "Accuracy," B'ham

Price — 1/2

TO THE USER

In your own interest please read this book carefully before using your new ATCO, and make certain that the tear-off Registration Post Card—on the back cover of this booklet—is intact. **If this card has become detached please notify the makers at the address below.**

TOOL KIT

The Tools supplied with this machine consist of :

Double-ended Spanner	$\frac{1}{8}''$	\times	$\frac{3}{16}''$
" " "	$\frac{1}{4}''$	\times	$\frac{5}{16}''$
" " "	$\frac{3}{8}''$	\times	$\frac{7}{16}''$
Plug Spanner			
Magneto Spanner			
Oil-Can			

GUARANTEE

Please **sign** and **mail** the attached tear-off Guarantee Register P.C. which will be found on the back cover of this booklet. In return we will send the Guarantee covering your machine.

NOTE.—The machine is not covered by our Guarantee until registered.

CHARLES H. PUGH LIMITED
P.O. BOX 256
ATCO WORKS
BIRMINGHAM, 9
ENGLAND

THE

ATCO

17-in. and

20-in. **MODELS**

SERIES 172055

INSTRUCTIONS FOR WORKING AND MAINTENANCE

SIMPLICITY of control and maintenance has been reduced to a fine art, and if it is used and looked after in the manner described here, the Atco will give you reliable service for many years.

Please keep this manual handy. **Read it before you use the machine the first time, and refer to it as occasion demands.** It gives you, in concentrated form, the vast store of knowledge which we have accumulated, of how best to mow with the Atco and how to look after it.

Apart from the items mentioned here, the golden rule is, "do as little 'fiddling about' with the Atco as possible."

STARTING

1. See that the Tank (A. Fig. 1) has a supply of Petroil. Petroil mixture for new machines consists of $\frac{3}{4}$ pint of oil to two gallons of No. 1 Petrol.

WHEN THE ENGINE HAS BEEN RUN FOR FOUR HOURS THE PROPORTION OF OIL TO PETROL MAY BE SLIGHTLY REDUCED.

Warning : Never use unsuitable or inferior oil, and always use a high-grade motor vehicle petrol.

A petrol tin has room in it for the necessary oil, which should be poured in from a measure. The tin should always be thoroughly shaken before use.

Keep a petrol tin clearly labelled "Atco Motor Mower Petroil" for this purpose.

We are satisfied that the following are suitable oils in every respect. These cover all sizes of ATCO Motor Mowers (both two stroke and four stroke engines) and all ATCO Boatimpellers :

Energol S.A.E. 50	Mobiloil "D"
Energol S.A.E. 40	Castrol XXL
Duckham's NOL-40 or NOL-50	Essolube 40 or Essolube 50
Shell X100 40	

2. Open the petrol tap (29 Fig. 2) and thoroughly flood carburetter (23 Fig. 2). At the same time (but only when starting up from cold) close the air strangler or choke (22 Fig. 2).
3. Open throttle lever (9 Fig. 1) (about one half of its travel).
4. See that the clutch (20 Fig. 2) is in free position.
5. Holding the handles, engage kick starter (12 Fig. 1) gently and, having engaged it, depress sharply, and if necessary repeat until engine fires. Do not remove foot from starter but return starter gently to position of rest.

Note. In the event of the teeth (15 Fig. 1) of the Kick Starter not engaging freely with the teeth of the Kick Starter Free Wheel (13 Fig. 1) when the Starter Pedal is pressed, and this does occasionally happen in Starters of such simple design, release the Pedal. With the finger or foot move the Free Wheel very slightly in either direction and they will then engage easily and unnecessary wear of both sets of teeth will be avoided.

6. Allow the engine to warm up, and then gradually open the air-strangler until it is fully out, i.e., wide open, in which position it should be left for working; and for starting while the engine remains warm.

IMPORTANT. Do not close the air choke or flood carburetter to start engine when it is warm.

Before putting machine away after using close the petrol tap and allow engine to run until it stops, you will then ensure easy starting of engine when the machine is next used.

You are now on the lawn, with the engine running and ready to mow. The rest is easy. You will quickly find the most effective method of mowing your particular lawn, and the clutch control and the single lever throttle give complete control over the machine.

LUBRICATION

ENGINE

Petrol does this entirely automatically provided the proper petrol and oil are mixed in the right proportion and well shaken in the labelled petrol tin before pouring into the tank.

At least twice a season, it is advisable to drain the crankcase by taking out the drain plug (25 Fig. 2), and allowing the petrol to drain off. (Do this off the lawn for preference, because if it falls on the lawn it will temporarily disfigure a small patch).

Then replace the drain plug.

Do not attempt to flush the crankcase with paraffin or petrol. This is unnecessary and extremely undesirable.

The Atco-Villiers carburetter (24 Fig. 2), though of extremely simple and efficient design, should not, if possible, be tampered with. It is designed to render jet stoppage almost impossible. Occasionally, however, it is advisable to undo the union nut (11 Fig. 1) at the carburetter end of the petrol pipe, and take out the small gauze filter cap. This can be easily lifted out with a pin or piece of wire, but care should be taken not to damage it. It should then be cleaned and replaced.

SHOULD STARTING DIFFICULTY BE EXPERIENCED IT IS MOST LIKELY DUE TO ONE CAUSE, FOR WHICH THE REMEDY BY THE OPERATOR IS SWIFT AND SURE.

THE ENGINE MAY HAVE BEEN TURNED OVER SEVERAL TIMES WITHOUT STARTING, OR IN SOME OTHER WAY SUCH AS EXCESSIVE FLOODING, PETROIL MAY HAVE ACCUMULATED IN THE CRANKCASE. THIS MAY HAVE "DRENCHED" OR "SOOTED UP" THE SPARKING PLUG (30 Fig. 2) OR MADE THE MIXTURE TOO RICH.

IF THIS HAS HAPPENED IT CAN SOMETIMES BE CLEARED BY SETTING THE THROTTLE LEVER ON THE HANDLES WIDE OPEN AND THEN TURNING THE ENGINE OVER SHARPLY SEVERAL TIMES WITH THE STARTER.

IF THIS FAILS APPLY THE FOLLOWING :

REMEDY

Drain crankcase by removing the crankcase drain plug (25 Fig. 2) and allowing petroil to run out. Also remove sparking plug, and after petroil has drained from crankcase, turn the engine over sharply several times. This will blow out all excess petroil.

Replace crankcase drain plug.

Then thoroughly clean sparking plug, which is a specially selected type most suited to the work of motor mowing, as follows :

Using two spanners, unscrew the electrode, or inner portion, from the outer portion, taking care not to lose the small washer which ensures the plug being gas tight when assembled. Clean the electrode thoroughly and scrape clean the interior of the plug body. Assemble the two portions of the sparking plug firmly, and replace in the cylinder, when the engine should start.

From time to time check that the gap between the plug points over which the spark jumps is $\cdot 02''$, which is approximately the thickness of a visiting card.

LUBRICATION OF THE MACHINE (other than engine).

The same oil as used to make the petroil mixture may be used. The only points requiring the regular use of the oil can are the chains (H. Fig. 2), the clutch (E. and F. Fig. 2), the bearings (D. Fig. 1 and G. Fig. 2), the kick starter (B. and C. Fig. 1), and the front rollers (J. Fig. 2), as follows:

1. **ALL CHAINS** (H. Fig. 2). A few drops of oil fortnightly on each chain.
2. **FRONT ROLLER SHAFT.** The front rollers work under adverse conditions. They are close to the ground and revolve at high speed, often in conditions of wet and grit.

It is, therefore, in the user's interest to provide for their working under as favourable conditions as regards lubrication and cleanliness as possible.

To ensure this, they should be dismantled (by undoing the end nuts (18 Fig. 1 and 18 Fig. 2), when they will slip out of the slots in their brackets). Take the rollers off, thoroughly clean the bearings inside each roller and the shaft itself. Smear thoroughly with oil and reassemble, taking care to replace the distance washers between rollers and to smear these washers thoroughly with oil.

This is specially designed to be a quick maintenance operation and should be done regularly.

If the above instructions are regularly carried out, the maximum wear will be obtained and all undesirable noise from the front rollers avoided.

A few drops may with advantage occasionally be put between each roller, but this does not obviate the necessity to clean and lubricate as above; in fact, if the above instructions are regularly and thoroughly carried out, oiling between each roller is unnecessary.

3. **DRIVING SIDE OF MACHINE.** Remove chain cover. Locate the three oil tubes (G. Fig. 2) running to rear roller shaft bearing, clutch shaft bearing, and cutter shaft bearing. A few drops of oil in each of these every fortnight. A few drops of oil should also be given to each side of intermediate chain wheel (I. Fig. 2), fortnightly. Replace chain cover.
4. **OTHER SIDE OF MACHINE.** Locate two oil hole covers (D. Fig. 1) and swivel these to one side, exposing oil holes. A few drops of oil in each hole fortnightly.
5. **THE CLUTCH.** The only points requiring lubrication on the Cork insert clutch are as follows : (i) A few drops of oil weekly on the clutch operating forks (E. Fig. 2), between the hardened pads of the operating forks and the withdrawal collar. This ensures the machine drawing backwards freely; (ii) A few drops weekly on the clutch spring (F. Fig. 2).
6. **KICK STARTER.** A few drops of oil monthly in oil hole in centre bush (B. Fig. 1). Also a few drops monthly on each side of the kick starter freewheel (C. Fig. 1).

ADJUSTMENTS

1. CUTTERS. Bottom Blade to Cutting Cylinder.

NOTE.—IT IS UNNECESSARY AND ALSO UNDESIRABLE TO SLACK OFF THE MAIN NUTS (16 Fig. 1) WHICH FORM THE PIVOT OF THE BOTTOM BLADE BEARER.

As wear takes place, the bottom blade has to be brought up to the cutters.

Two arms (5 Fig. 1 and Fig. 2) from the bottom blade bearer terminate in screw adjusting brackets (7 Fig. 1 and Fig. 2) fixed on the inside of each side frame at the back of the grass delivery plate (8 Fig. 1). To bring bottom blade into closer contact with the cutter, which is necessary as wear takes place, very slightly slacken the two back screws and tighten up two front screws (6 Fig. 1 and Fig. 2).

This should be done carefully and a little at a time, until each blade of the cutter when revolved by hand just brushes the bottom blade over its whole length.

Do not adjust cutters too hard against the bottom blade, or undue wear will be caused, and remember to tighten, firmly but gently, the adjusting screws back and front against the arms of the bottom blade bearer when adjustment is complete.

2. FRONT ROLLERS. For height of cut.

Slack off nuts (17 Fig. 1 and Fig. 2) on either side, and bring rollers forward slightly for a shorter cut, backwards slightly for a longer cut. Lock up nuts. Front roller brackets have graduated marks to ensure uniform adjustment either side.

3. CLUTCH

The sole adjustment (whilst very rarely necessary) is very simple to make and is done by adjusting the pivot pin at the lower end of the clutch lever (20 Fig. 2). This is adjusted by means of the two nuts (4 Fig. 1 and Fig. 2), one on either side of the frame plate to which it is fixed. When in proper adjustment the operating lever (20 Fig. 2) should have approximately $\frac{1}{2}$ -in. of free movement in the gate (19 Fig. 2) at the top, before the pads are in close contact with the withdrawal collar on the clutch.

Should the clutch slip after prolonged use, the notched collar (25a Fig. 2) behind the clutch spring should be turned to the next notch in order to increase the spring pressure.

(Continued on page 11)

Key to Figure 1.

1. Magneto points.
2. Magneto points adjusting screw.
3. Silencer outlet plate.
4. Clutch adjustment locking nut.
5. Bottom blade bearer arm.
6. Bottom blade bearer adjusting screw (front).
7. Bottom blade bearer screw adjusting brackets.
8. Conveyor plate (or grass delivery plate).
9. Throttle lever.
10. High Tension lead.
11. Union nut on petrol pipe.
12. Kickstarter.
13. Kickstarter freewheel.
14. Magneto cover.
15. Kickstarter teeth.
16. Bottom blade bearer pivot nut.
17. Height of cut adjusting and locking nuts.
18. Nut securing front roller shaft in (quick removal) open slot.

Lubrication

- A. Petrol tank. Petroil mixture.
- B. Kickstarter oilhole. A few drops of oil monthly.
- C. Kickstarter freewheel ratchet and shaft. A few drops of oil monthly.
- D. Oilholes to cutting cylinder and rear roller bearings. Oil regularly.

COMPONENT PARTS AND LUBR MOTOR

All parts requiring to be lubricated

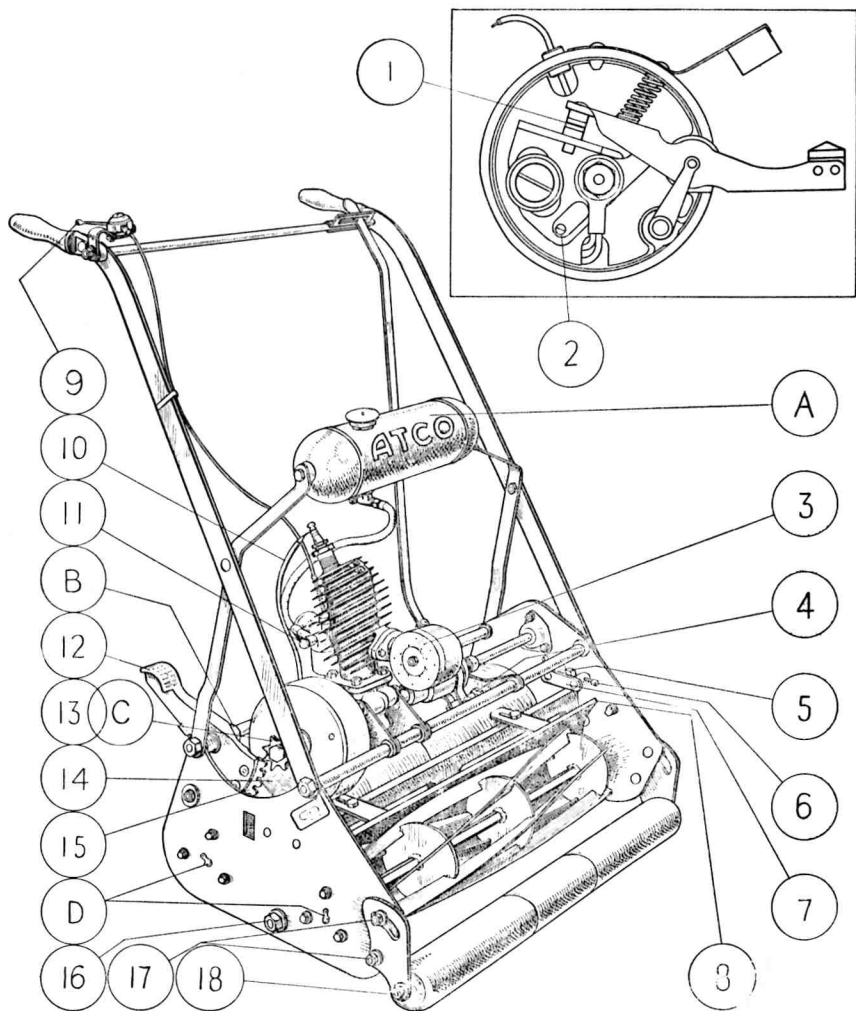


FIGURE 1

IDENTIFICATION POINTS ON THE ATCO MOWER

are identified by the letters A to J

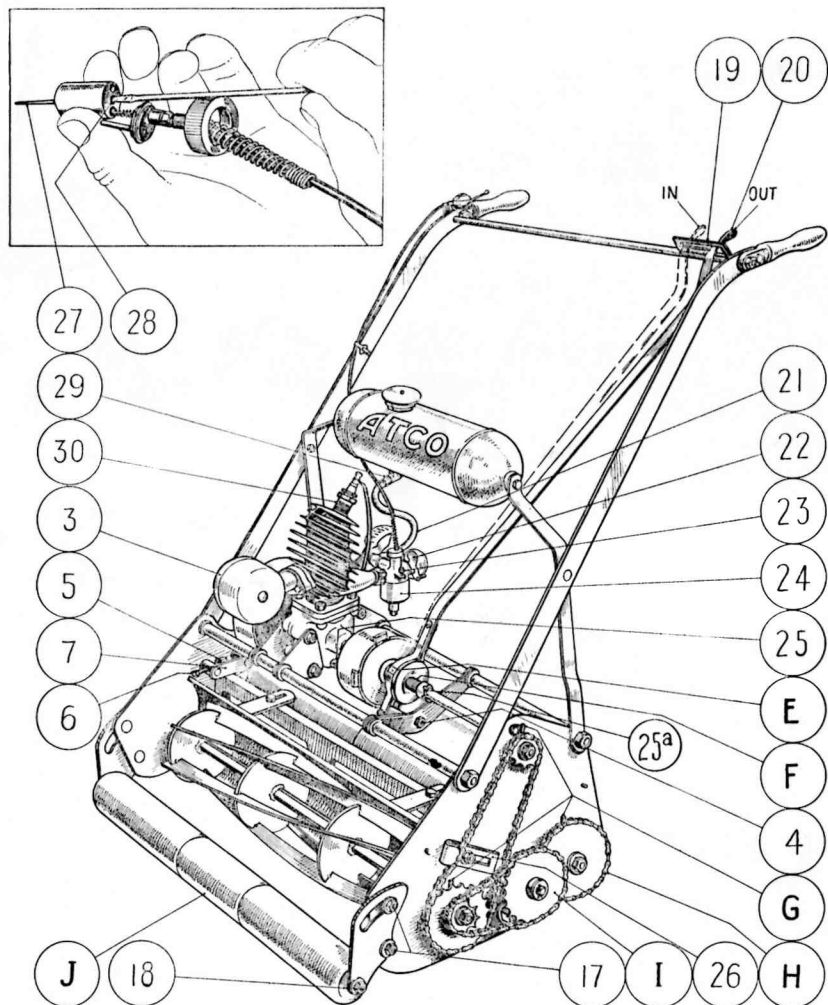


FIGURE 2

Key to Figure 2

3. Silencer outlet plate.
4. Clutch adjustment locking nut.
5. Bottom blade bearer arm.
6. Bottom blade bearer adjusting screw (front).
7. Bottom blade bearer screw adjusting brackets.
17. Height of cut adjusting and locking nuts.
18. Nut securing front roller shaft in (quick removal) open slot.
19. Clutch gate.
20. Clutch operating lever.
21. Petrol feed pipe.
22. Choke (or air strangler).
23. Tickler (for flooding carburetter).
24. Carburetter.
25. Crankcase drain plug.
- 25a. Notched collar (for adjusting clutch spring).
26. Chain tensioner.
27. Carburetter taper needle.
28. Carburetter taper needle adjuster screw (spring loaded).
29. Petrol tap, push-pull.
30. Sparking plug (Champion model, 8 Com.).

Lubrication

- E. Clutch forks. A few drops of oil between forks and withdrawal collar weekly.
- F. Clutch spring. A few drops of oil weekly.
- G. Oil tubes to rear roller shaft bearing, clutch shaft bearing and cutter shaft bearing. A few drops of oil in each once a fortnight.
- H. Chains. Oil each chain lightly every fortnight.
- I. Intermediate sprocket shaft. A few drops of oil fortnightly.
- J. Front rollers. (See front roller lubrication, page 4).

4. **CONVEYOR PLATE** (8 Fig. 1). **For controlling the "throw of grass."**

Undo nuts and adjust delivery plate forward or backward in accordance with the state of the grass, or the wear of the cutting cylinder.

5. **HANDLES**

The handle grips are readily adjustable to suit the height of the operator. The two nuts of one handle are loosened, and the handle set to the preferred position. Then the same nuts are tightened up. The other handle is then dealt with likewise. By thus attending to each handle in turn there is no chance of the position of the clutch lever gate (19 Fig. 2) being altered during this operation.

6. **CARBURETTER**

The taper needle (27 Fig. 2) setting is normal when the needle protrudes $\frac{1}{16}$ -in., but half a turn on the spring loaded adjuster screw (28 Fig. 2) will weaken or enrichen it sufficiently to accommodate all normal climatic changes and generally it is best left where it is.

The preceding remarks relate to conditions in Great Britain. In Overseas Territories considerably more adjustment may be necessary to ensure that the best performance is obtained, especially in very hot climates or for work at appreciable altitudes.

7. **MAGNETO**

The flywheel magneto cover (14 Fig. 1) is detachable for inspection, or to clean or adjust the magneto points (1 Fig. 1). It is rarely necessary to adjust, but the timing is correct when the points break $\frac{5}{32}$ -in. before the piston is at the top of its stroke.

The points should be open to the maximum extent of .015-in., which can be judged by the feeler gauge attached to the magneto spanner.

THE ATCO 'SPECIAL' FOR GOLF GREENS
MODELS 17 inch and 20 inch

The Instructions contained in this Booklet apply equally to these models, and the only additions are as follows:

CUTTER RELEASE. Located on the end of the cutting cylinder shaft. To disconnect the drive to the cutting cylinder, the clutch dog is withdrawn and turned anti-clockwise to engage the lug on the chain cover. To connect drive, reverse this operation. This cutter release allows the machine to be transported from one mowing Site to another under its own power, with the cutters stationary.

THE TRANSPORT WHEELS. These wheels, when the machine is mowing, are carried on the stub axles on either side of the petrol tank supporting stays. When it is required to drive the machine from one Site to another, these wheels are transferred to the rear roller axle extensions, and in this position they are driven from the rear roller shaft.

The spring catch on each wheel hub should be pointing outwards from the machine when in position on the carrying axles, or on the rear roller axle.

Make sure that the hexagon on the wheel boss is engaged on the hexagonal rear roller shaft on the right-hand side of the machine.

To remove the wheels from the axles, depress the spring catch, and withdraw.

To fit the wheels to the axles it is not necessary to depress the spring catch.

ENGINE TUNE

Although it is difficult to lay down any hard and fast rules for obtaining the maximum efficiency of tune from any individual engine, the following tuning data relative to the 79 cc. and 98 cc. ATCO/VILLIERS Engines will enable the user to enjoy the utmost efficiency and economy from these power units.

1. Use only a grade of engine oil in accordance with our recommendations, and ensure that this is carefully mixed with the petrol **IN THE CORRECT PROPORTION.**
2. Maintain the following units of the fuel supply line free from any foreign matter likely to impede the flow from tank to carburetter.
 - (a) Petrol Tap (29 Fig. 2)
 - (b) Petrol Pipe (21 Fig. 2)
 - (c) Gauze Petrol Filter

3. Do not allow the inlet, transfer and exhaust ports in the cylinder to become choked with carbon, or the piston rings to be other than free in their grooves. This can be overcome by periodic decarbonizing of the engine, in relation to the volume of work your ATCO is called upon to perform. Ensure also that the holes in the Silencer Outlet Plate (3 Fig. 1 and Fig. 2) are maintained free from carbon deposit by fairly frequent removal and cleaning of the plate.
4. Keep the sparking plug (we recommend the Champion, Model 8COM.) clean and free from carbon, not only at the points, but in the body of the plug as well.
5. Maintain the magneto timing at the correct setting, namely the magneto points (1 Fig. 1) breaking $\frac{3}{32}$ -in. before the engine piston reaches the top of its stroke.
6. The magneto points should open (or separate) to a maximum gap of .015-in. which adjustment can be set by the combined magneto spanner and screwdriver provided, and checked by the feeler gauge attached to this tool.
7. Maintain the gap at the sparking plug points at .02-in. which is approximately the thickness of a visiting card.
8. Carburetter. The taper needle (27 Fig. 2) setting for the 79 cc. and 98 cc. ATCO/VILLIERS Engines is normal when the needle protrudes $\frac{1}{8}$ -in. from the throttle slide.

If the foregoing points have been carefully observed, the only likely variations which will finally achieve maximum Engine tune will be on the carburetter needle. If the carburetter mixture is rich then the needle must be lengthened slightly, and if weak, it must be shortened. This adjustment is effected by a slight rotation, in either direction, of the spring loaded adjuster screw in the top of the throttle slide.

GENERAL

The following points about mowing will help in making and keeping beautiful turf, and ensuring satisfaction with your machine in the form of low cost and a high standard of work.

1. Occasionally mow in an entirely different direction from your normal way.

2. Avoid making your end turns on the same spot. This is easily achieved by varying the depth of the "headland" or cross-strip which you cut at the end of the lawn to give you turning space.
3. Before the first cut of the season the lawn has a thick growth, which often conceals stones, etc., which have been thrown on to it in various ways. A search for these before mowing the first time will eliminate possible damage to the cutters. After the first cut, stones and other hard substances can usually be seen. It is nevertheless always advisable to walk over and inspect the lawn, particularly near paths or flower-beds, before commencing mowing. Atco Cutters are specially processed to withstand shocks, but damage may result if they encounter hard foreign substances awkwardly at high speed.
4. Although shakeproof washers are fitted wherever nuts are likely to work loose, it is prudent to go over nuts with a spanner before each mowing to see that they are secure. Nuts allowed to work off may fall either direct into the cutters or on to the grass and may get caught by the cutters later. In either event damage, for which the makers cannot assume any liability, is likely.
5. Do not rush the mowing—the best results will be obtained at a comfortable walking pace.
6. Study the direction in which you carry out your regular cut so that the "mowing lines" give the most pleasing effect to the eye from various points of vantage in the house and garden.
7. To the beginner, we would say, "don't fight or wrestle with the machine." It is designed for you to guide only, and if you start with that principle in mind, you will feel confidence in this docile labour-saving machine, from the moment you find yourself at the handles.
8. When you have finished mowing, clean machine with a clean rag, and wipe blades and bright parts with an oily rag.

WINTER STORAGE

In order to ensure the maximum efficiency from your ATCO Motor Mower it is very necessary that the following procedure be carried out when putting the machine away for storage during the winter months.

1. Thoroughly clean the machine and remove all dirt and dust.
2. Allow the engine to run with the petrol tap turned off until the engine dies. This will ensure that the carburetter is left empty of petrol mixture.
3. Drain the crankcase of surplus petrol and drain the petrol tank.
4. Lubricate all moving parts of the machine and smear oil over all bright parts especially the cutting faces of the knives and bottom blade.
5. Wrap a sheet of brown paper around the flywheel magneto and the high tension lead (10 Fig. 1).
6. Cover the machine up and make sure to store in a DRY place.

CONCLUSION

A minimum of service will be required with your Atco. In the unlikely event of difficulties arising which are not capable of simple remedy by referring to this manual, get in touch with your dealer, or, in case of difficulty, with the Atco Service Branch, of which addresses are given overleaf, or if abroad, with your supplier.

By following this course, you will find prompt, courteous and efficient service available always at reasonable charges.

Finally, we wish to assure you that your satisfaction with your Atco is our permanent interest, forming part, as it does, of a world-wide Atco goodwill.

Have you ensured the operation of the ATCO Guarantee by posting the detachable Postcard on back Cover ?

CHARLES H. PUGH LIMITED

Sole Manufacturers

P.O. Box 256

Atco Works, Birmingham, 9

England

Phone: VICToria 2524 Telegrams: "Accuracy," B'ham

SALES-SERVICE BRANCHES

- LONDON ... Atco Branch, Progress Way, Purley Way, Croydon.
Tel. : Croydon 3471.
- CAMBRIDGE ... Atco Branch, Hills Road, Cambridge.
Tel. : Cambridge 87462.
- BIRMINGHAM ... Atco Branch, 1210, Stratford Road, Hall Green,
Birmingham, 28. Tel. : Springfield 2132.
- NEWPORT ... Atco Branch, 410, Chepstow Road, Newport, Mon.
Tel. : Newport 71417.
- ORMSKIRK ... Atco Branch, County Road, Ormskirk, Lancs.
Tel. : Ormskirk 2439.
- ECKINGTON ... Atco Branch, Rotherham Road, Eckington, Sheffield.
Tel. : Eckington 73.
- DARLINGTON ... Atco Branch, 396, North Road, Darlington.
Tel. : Darlington 2671 and 66939.
- EXETER ... Atco Branch, Alphington, Exeter.
Tel. : Exeter 3882.
- READING ... Atco Branch, 106, Bath Road, Calcot, Reading.
Tel. : Reading 3443.
- SCOTLAND ... Atco Branch, Larkhall Industrial Estate, Lanarks.
Tel. : Larkhall 370.
- DUBLIN ... Irish Atco Ltd., 16-18, Orwell Road, Rathgar, Dublin.
Tel. : Dublin 907' 22.
- BELFAST ... Stanley Harvey & Co. Ltd., 4, Clarence Street West,
Belfast. Tel. : Belfast 22654.

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Two illustrations, showing the lubrication points and component parts of the Atco Motor Mower relative to these instructions, are included on pages 8 and 9. The key for each illustration appears on pages 7 and 10, respectively.

IMPORTANT

TO THE OWNER

It should be particularly noted that items such as the cleaning of sparking plugs and jets, the adjusting of cutters, etc., do not come under guarantee. While the services of our representatives are available for the carrying out of minor adjustments, a charge would require to be made to defray time and journey expenses.

Full particulars of all such adjustments and the necessary information in regard to plug cleaning, etc., are clearly set out in the Instruction Book, and are capable of being attended to from the information given without special mechanical knowledge.