

Price 1/-

Revised January, 1957

WORKING INSTRUCTIONS  
UPKEEP HINTS and SPARE  
PARTS LIST for

**THE ALLEN**

SELF-PROPELLED

MOTOR SCYTHE

**“MODEL T.S.”**

FITTED WITH SERVO CLUTCH MECHANISM

**JOHN ALLEN & SONS (OXFORD) LTD.**

**COWLEY, OXFORD, ENGLAND**

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OXFORD 78271 (6 lines)

# LUBRICATION OF ENGINE

## TWO-STROKE ENGINES Villiers Mk. 25C

### These engines are lubricated by the petrol-oil system

This is carried out by mixing thoroughly one part of oil to sixteen parts of petrol, equivalent to  $\frac{1}{2}$  pint of oil to 1 gallon of petrol.

An S.A.E. 30 oil must be used; recommended grades are Castrol XL, Shell X-100 Motor Oil 30, or Essolube 30.

Petrol and oil must be mixed together before filling the tank.

Do not, under any circumstances, put neat petrol into the tank, and do not add oil direct to the tank, or blockage of the petrol filter may occur.

## FOUR-STROKE ENGINES Villiers Mk. 15 & 25

### These engines are lubricated by the wet sump system

The petrol tank must be filled with a good quality petrol, and please note that oil is NOT mixed with the petrol for the above engines.

An S.A.E. 30 oil must be used; recommended grades are Castrol XL, Shell X-100 Motor Oil 30 or Essolube 30.

Before starting the engine, check the oil level in the sump.

This should be up to the shoulder of the filler plug dip-stick. If it is not, then top up with one of the recommended grades above.

The useful life and good service of your engine depends upon the above simple instructions being carried out.

The petrol tank holds  $\frac{3}{4}$  gall. of fuel.  
Always use a good grade of petrol.

## LUBRICATION OF THE MACHINE

This is carried out at one main point only. See Fig. 1 below.

The machine is dispatched from the Works filled with the correct amount and grade of oil.

To check the oil level in the machine, stand the machine on level ground and remove the oil level plug. If oil comes from this hole, no more oil is necessary and the oil level plug should be replaced, making sure that it is screwed back tightly.

If no oil flows from this hole, remove the filler plug and pour oil in slowly until it flows from the oil level hole, replace both plugs and tighten up.

It is not advisable to check the oil level immediately after the machine has been running as the oil will be frothed up.

Use the same quality oil as for the engine. On no account must grease or very thick oil be used.

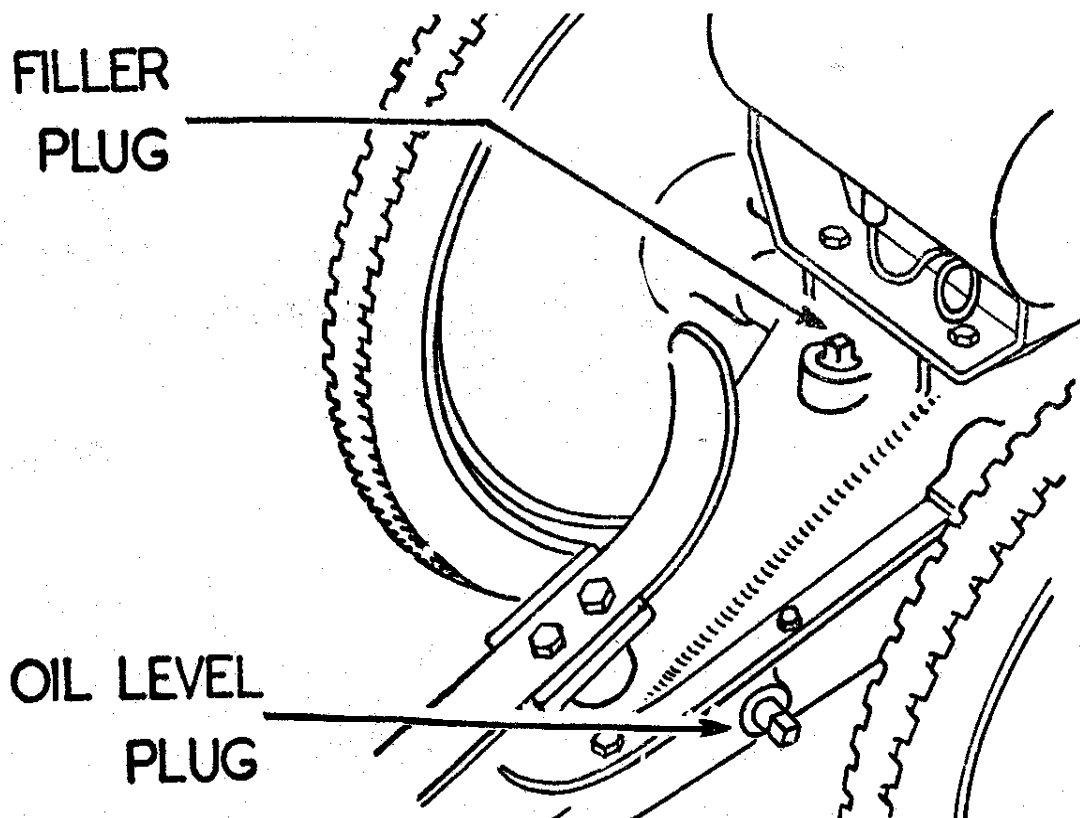


Fig. 1

Keep the cutting mechanism oiled when not in use with the oil-can provided in the tool kit. Particular care should be paid to cleaning down and oiling the cutting blade after use, to prevent rusting. The Control Joints on the machine should receive a little oil occasionally. Use same quality oil as for engine.

**Do not oil** cutting mechanism while actually working as oil only collects grit and causes undue wear.

## TO START THE ENGINE

See that the petrol tank is full. See page 2.

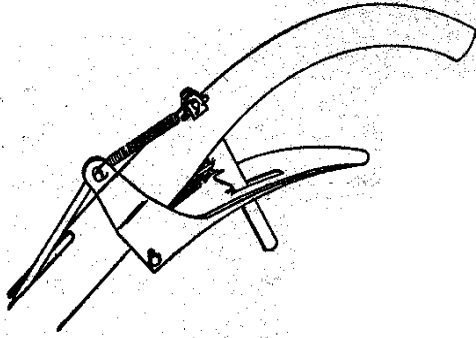


Fig. 2

See that the drive clutch is out of gear. The clutch hand lever should be clear of the notch on the trigger, and the machine free to move forwards or backwards. See Fig. 2.

Turn on the petrol tap.

Open throttle wide by pressing the control on the left-hand handlebar fully downwards.

Close strangler on the air cleaner.

Flood carburettor by pressing the tickler button on the carburettor until the petrol flows out.

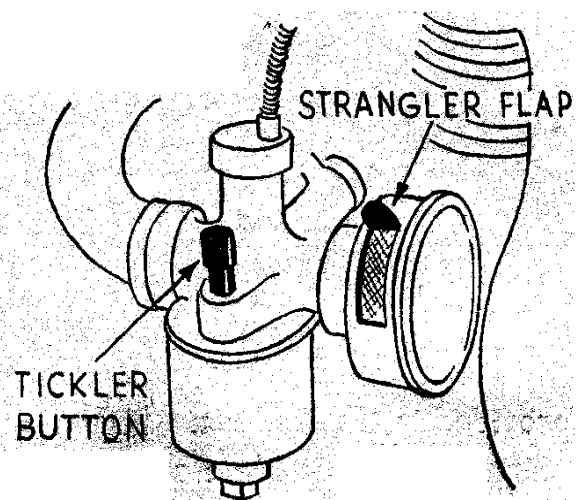


Fig. 3

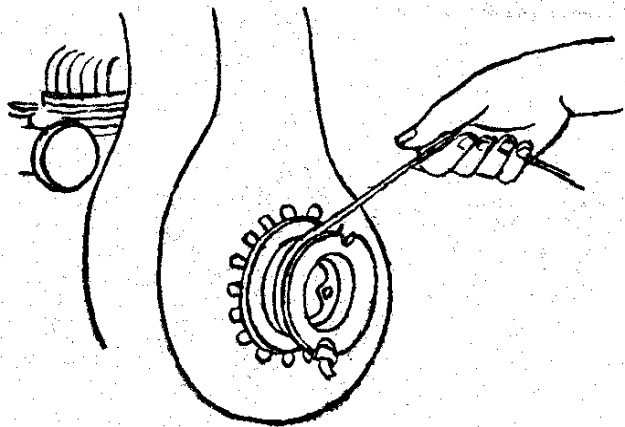


Fig. 4

**Wrap the starting cord round the engine pulley in a clockwise direction. See Fig. 4.**

**Stand on the right-hand side of the machine, facing forward.**

**Spin the engine as fast as possible, using both hands on the starting cord and giving a firm pull and accelerating sharply towards the end, pulling the cord across the body at about waist height.**

**Open the Strangler flap as soon as the engine starts up.**

**When restarting a warm engine open throttle wide, but do not flood the carburetter or close the strangler.**

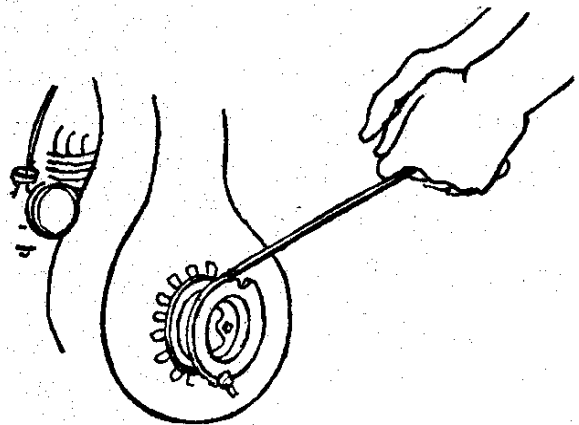


Fig. 5

## ENGINE GOVERNOR

The Mk. 25c two-stroke engine is fitted with a governor, which cuts out the ignition at an engine speed of approximately 2,400 revolutions per minute, causing the engine to fire intermittently, thus keeping the speed within safe limits. If this happens it is an indication that the throttle is open too much and closing the throttle a little will allow the engine to run steadily when under load.

In order to obtain the best efficiency and to economize in petrol, the throttle should only be opened enough to allow the engine to develop sufficient power for the work being carried out.

## WORKING HINTS

**Start the engine** as instructed.

**Ease the machine forward** at the same time lifting the clutch hand lever up into the notch in the trigger. See Fig. 6.

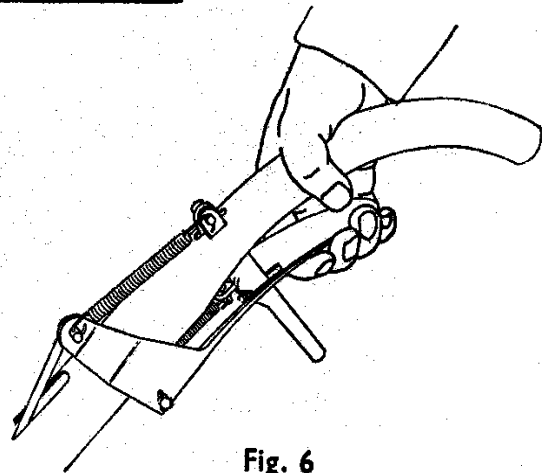


Fig. 6

**Open the throttle** according to the work being undertaken.

**Keep the cutter bar** in light contact with the surface of the ground, the roughest of growths can be tackled with ease this way.

**Saplings up to  $\frac{3}{4}$ "** are cut easily, larger ones up to  $1\frac{1}{2}$ " may be cut by easing the machine forward with the clutch disengaged.

**An automatic safety slip clutch** is fitted in the machine to prevent damage in the case of obstructions which cannot be cut.

**Walk comfortably, upright,** in between the handlebars.

**Do not push** the machine, it has ample power.

**Do not overlap your previous cut.** The cut material, no matter how tall, will pass easily beneath the machine, as the special tread tyres take it back from the cutters.

**Cutting blades should be sharpened every four or five working hours.** A keen blade means good work, free from choking and tearing.

**Keep the tyres pumped up really hard.**

**To stop the machine** pull trigger right back, hold for a moment and release, thus allowing clutch hand lever to fall into neutral,

**To stop the engine** just close the throttle.

**Do not touch** any part of the cutting mechanism when the engine is running.

**Attention to cleanliness, lubrication, sharpness and correct setting of knives** is essential if the best results are to be maintained.

**Bad cutting** is usually due to the following causes :—

Blunt Knife Sections.

Worn and rounded edges of the Finger Inserts.

The Knife Bar Pads not pressing sufficiently on the Knife Sections to ensure even contact between them and the steel inserts in the Fingers.

Operator using the machine correctly  
Note the comfortable walking position.

Finger bar in light contact with the ground, leaving a short even stubble.

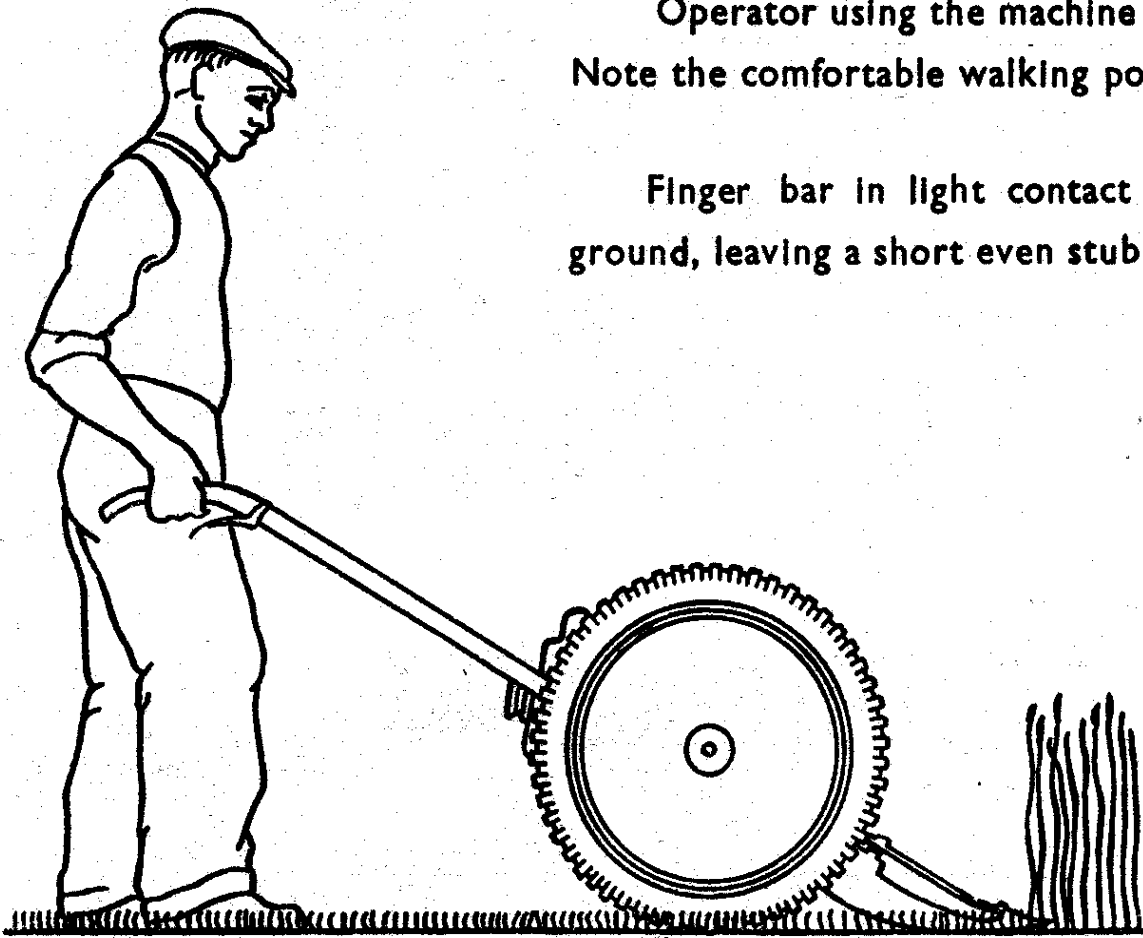


Fig. 7. Correct

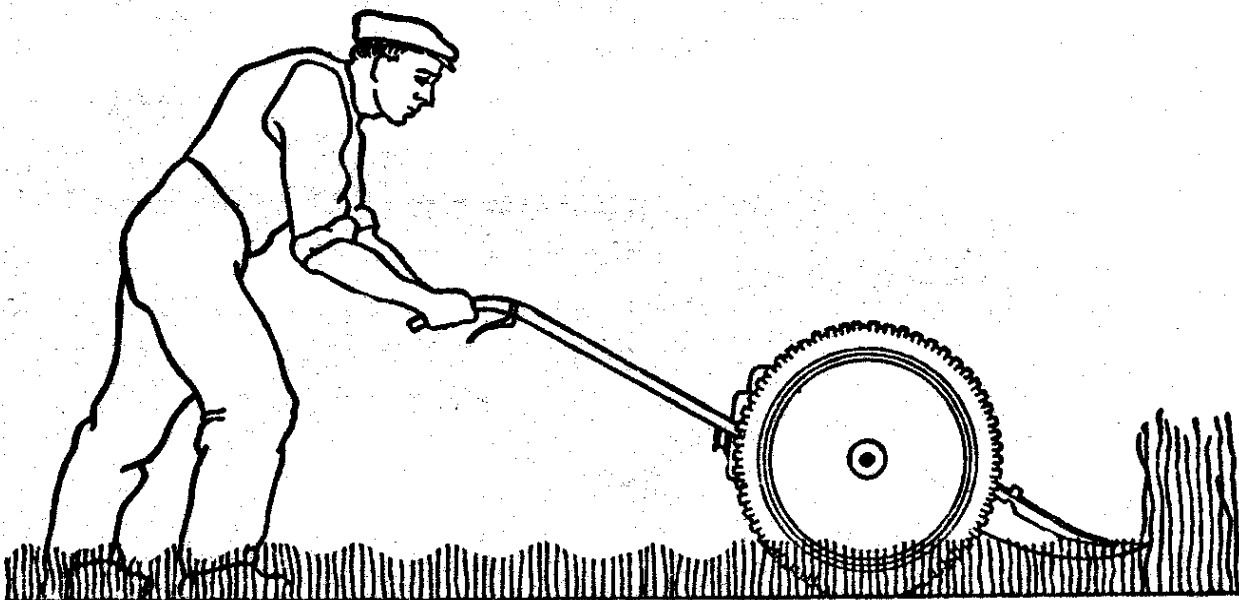


Fig. 8. Incorrect.

Operator attempting to push the machine, making hard work. Handlebars pressed down, thereby raising the finger bar from the ground and leaving a long uneven stubble.

## THE EASY TURN RATCHET DRIVE

The Easy Turn Ratchet Drive is fitted to enable the ALLEN MOTOR SCYTHER to be turned round sharp corners and manoeuvred with ease. To obtain this advantage one Ratchet on each wheel is held out of gear by means of the small catch.

To prevent the machine over-running on slopes it is necessary to release these small catches so that the two pawls on each wheel engage with the ratchet centres. This setting can also help in keeping the machine on a straight course when cutting over rough surfaces.

Be sure to reset the pawl on both wheels when the machine is required for ordinary use.

Lubricate the wheels by means of the oil-can through the oil holes on the hub of each wheel.

## TO CHANGE A KNIFE BLADE

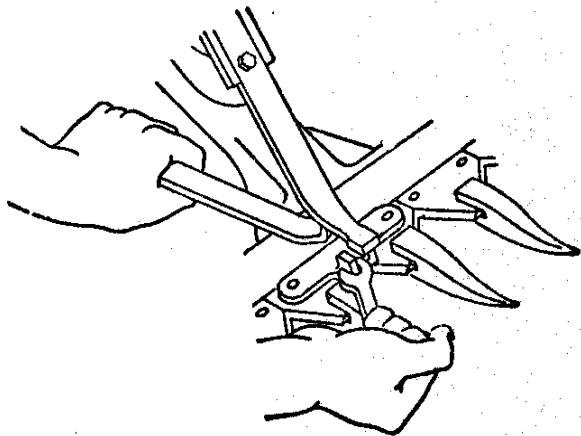


Fig. 9

Remove the two Knife Bar Pads in one side only of the Cutter Bar. Prise the Rocker Spring out of the Knife Bar Lug with the Spring Lifter provided in the Tool Kit and slide the Knife Bar out on the side from which the pads have been removed. To avoid injury to the operator it is advisable to use a spanner to slide the Knife Bar out, as shown in Fig. 9.

When replacing the Knife Blade, lift the Rocker Spring as above and slide the Blade into position, letting the Rocker Spring drop into the Knife Bar Lug. Refit the Knife Bar Pads in their correct position and tighten up the nuts.

On machines fitted with Offset Cutting Units there is no need to remove any of the Knife Bar Pads.



## TO SHARPEN THE KNIFE SECTIONS

Remove the Knife Blade as Fig. 9. Hold it in a vice by the Knife Bar so that the Knife Sections are laying flat and pointing away from the operator. The Knife Sections can then be filed sharp by means of the special file provided in the Tool Kit. A square carborundum stone may be used if preferred.

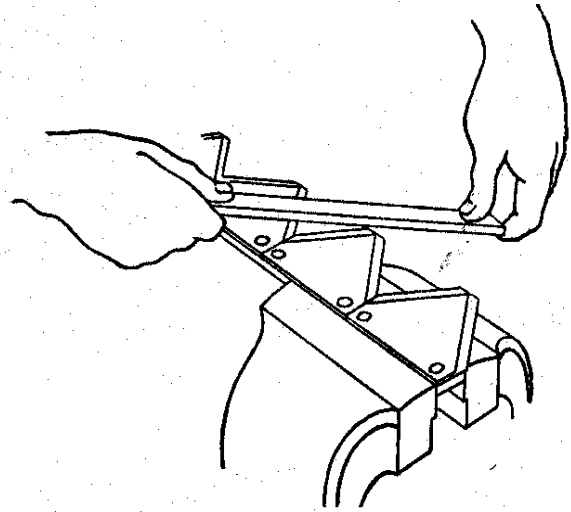


Fig. 10

Make sure that the original angle of the cutting edge is maintained.

When the flat tip of the Knife Section has worn to a point it is an indication that this particular section is worn out and it should be replaced by a new section at once.

Hard spots are sometimes found on Knife Sections; this is only surface scale and can be removed with a rubbing stone. It is false economy to use badly worn blades or fingers. Renew in good time and maintain cutting efficiency.

## KNIFE BAR PADS

These are the four Pads which keep the Knife Sections in contact with the hardened steel inserts of the Fingers.

The correct adjustment of these pads is one of the most important points requiring regular attention.

To maintain effective cutting it is absolutely essential that they make **light but firm contact with the backs of the Knife Sections**, thus keeping the knives in close contact with the hardened steel inserts of the Fingers, in order to obtain a clean shearing action.

Adjustment of the pads is readily carried out by easing off the holding down nut and then screwing in the slotted screw with a screwdriver until the front of the pad presses lightly without pinching on to the backs of the knife sections when the holding down nut is tightened.

Neglect of this simple setting will result in unnecessary wear to the whole cutting assembly.

## ALTERNATIVE POSITIONS OF CUTTING UNIT

When left- or right-hand is mentioned, this is always determined by looking from the back of the machine (operator's position between the handle-bars) towards the front of the machine.

The ALLEN MOTOR SCYTHER is so designed that the user has a choice of three cutting positions, either Central shown in Fig. 12, or left-hand Offset as shown in Fig. 13, or right-hand Offset.

The Finger Bar is drilled so that it can be used in any of the three positions and the only extra part required to change from one position to another is a spare Knife Blade complete, either parts number 422, 449 R.H. or 449 L.H. according to the position desired.

### TO CHANGE FROM CENTRAL CUT TO LEFT-HAND OFFSET

Remove the two right-hand Pads and take out the Knife Blade as described on page 8.

Tap the right-hand outside Pad Bolt out of its hole and fit it in the vacant square hole in the centre of the Finger Bar, see Fig. 12. Replace both Pads, the inside right-hand one in its original position and the outside one in its new position in the centre of the Finger Bar.

Undo the three nuts that hold the Finger Bar to the Gear Case foot, remove the Finger Bar and replace it in a left-hand Offset position so that the three holes in the right-hand end of the Finger Bar mate up with the three holes in the Gear Case foot, replace nuts and tighten up. Lock washers are necessary to keep the nuts tight, if broken they should be replaced by new ones. Slide a left-hand Blade, Part No. 449 L.H., into position, letting the Rocker Spring into the driving Lug.

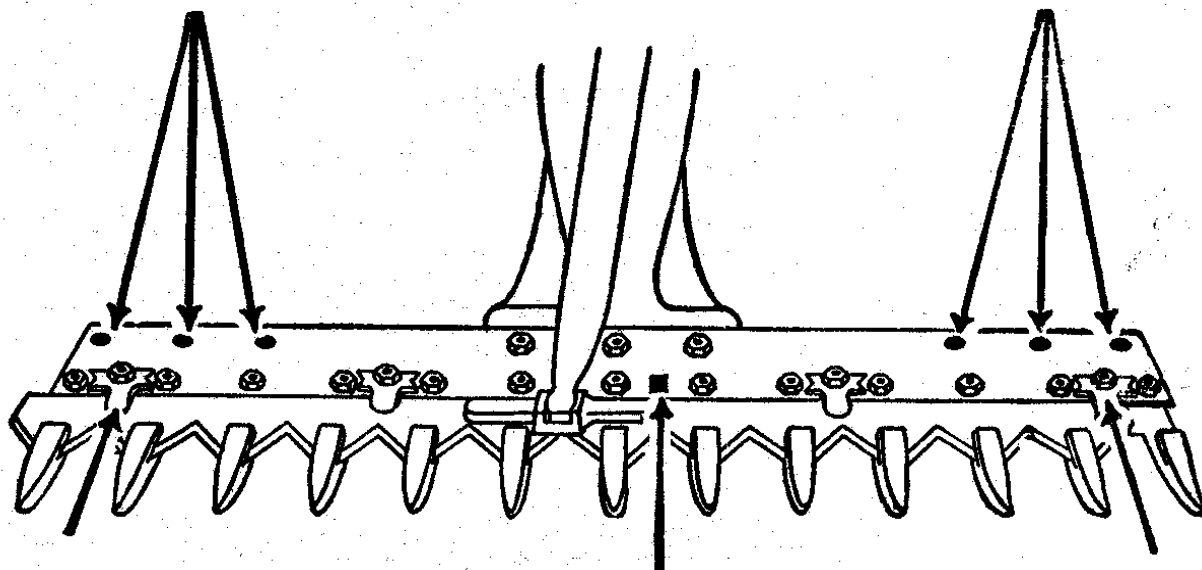
To change to right-hand Offset follow the above instructions, reading right-hand for left-hand and vice versa and use Knife Blade, Part No. 449 R.H.

### SWATH BOARD

Swath Boards are supplied either right- or left-hand, Part Nos. 698 R.H. or 698 L.H., and are not interchangeable for either hand.

FIXING HOLES  
FOR CONVERTING  
TO L.H. OFFSET

FIXING HOLES  
FOR CONVERTING  
TO R.H. OFFSET



FOR L.H. OFFSET  
FIT THIS PAD IN  
CENTRE SQUARE HOLE

SQUARE HOLE

FOR R.H. OFFSET  
FIT THIS PAD IN  
CENTRE SQUARE HOLE

Fig. 12. Central Cut.

A separate leaflet describes the Swath Board and its fitting.

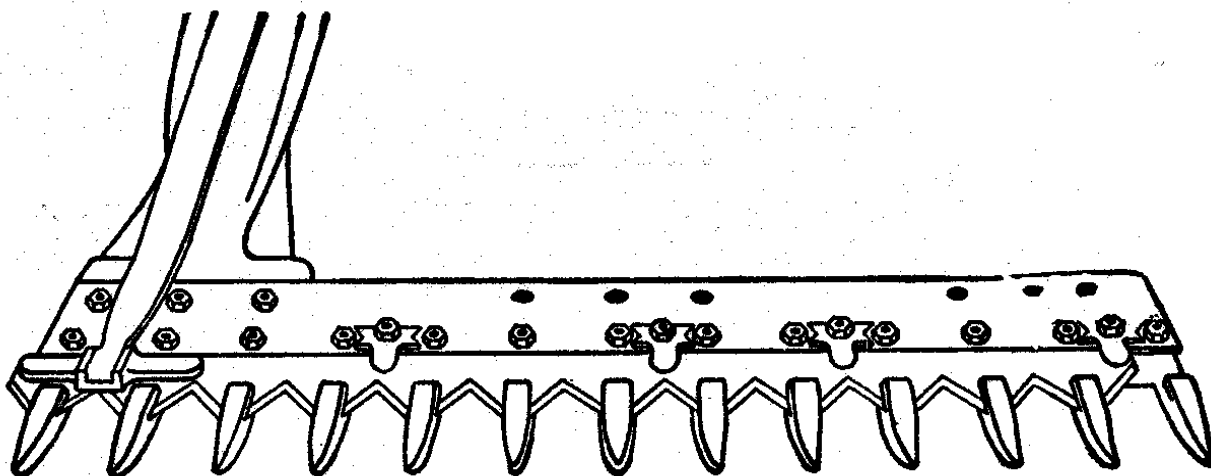


Fig. 13. Left-hand Offset Cut shown in position.

**Note.**—Alternative complete Cutter Assemblies are available, namely :—  
2 ft. 0 in. wide for confined places.  
4 ft. 0 in. wide for cultivated crops.

## FINGERS

The Fingers should be replaced by new ones as soon as the edges over which the Knife Sections slide become rounded or the guards over the Knives broken.

Correct adjustment of the Knife Blade and the Knife Bar Pads will save excessive wear of the Fingers.

The part of the Fingers over which the Knives slide must all be in line so that the Knives press evenly on all the Fingers at once. Keep the points on the Fingers sharp so that they may part the grass without dragging.

A set of Fingers for a standard three-foot Finger Bar consists of nine Single Fingers, Part No. 6, one right-hand double Finger, Part No. 6 R.H., and one left-hand double Finger, Part No. 6 L.H.

## SERVO CLUTCH SETTING

The Servo clutch is set correctly on assembly, and should not need any attention for many months.

The correct setting is for the clutch hand lever (854) to be just free of the notch in the clutch release trigger (846) when the clutch is felt to be fully engaged. When in this position the set screw in the pawl lifting lever (849) should be set to leave 1/16 in. clearance between its end and the base of the ratchet pawl (845). The clutch hand lever (854) can now be sprung lightly into the retaining notch of the clutch release trigger (846) and the trigger (846) released without undue pressure.

## TYRES

The tyres fitted to the ALLEN MOTOR SCYTHE are specially designed to prevent clogging with the cut grass.

They will only work effectively if fitted to the machine the right way round with the studs on the outside.

**Tyres must be kept inflated hard.**

In the event of a puncture, it is not usually necessary completely to remove the tyre or the road wheel from the machine. It will often facilitate the repair of punctures if the cutting unit is removed completely, thus enabling the machine to be turned over on its side with the damaged tyre uppermost.

In the event of a tyre being damaged beyond repair it is advisable to replace it by a similar special tread tyre which can be obtained either from our dealers or direct from ourselves.

# OPERATING INSTRUCTIONS

## VILLIERS MARK 25c TWO-STROKE ENGINE (SPECIFICATION 184B)

The two-stroke engine fitted to the ALLEN MOTOR SCYTHE is of the most simple and robust design, there being only three main moving parts in the whole engine.

Starting should be easy under all conditions providing the instructions on pages 4 and 5 are noted. If the engine does not start after a reasonable number of trials, check first of all to see if there is an ample flow of petrol to the carburetter when the tickler button is pressed. If fuel does not flow freely, check the filters in the petrol line and the vent hole in the petrol tank cap. There is unlikely to be anything further wrong with the engine itself, but a check may be made of the ignition. The sparking plug should be unscrewed and laid on top of the engine, taking care that the terminal does not touch the cylinder. When the engine is rotated with the starting cord, a spark should appear at the plug points. If there is no spark the plug should be dismantled and thoroughly cleaned and the gap between the points set to .015 of an inch. This is about the thickness of an ordinary postcard. If there is still no spark the high tension lead should be checked to see that it is not chafed or burnt through and that it has not become loose in the vulcanite terminal on the magneto. This terminal may be unscrewed, and it will be seen that at the end there is a small carbon finger which is spring loaded and stands out about  $\frac{3}{8}$ ". This forms the T.V. suppressor and should press firmly on to the brass disc on the high tension coil in the magneto which should be quite clean. The end of the carbon finger is copper plated, and should it be damaged in any way it is better to replace the whole high tension lead complete. If you should still get difficulty in obtaining a spark it will be necessary to remove the starter pulley and fan cowlings so as to expose the contact breaker box, the cover of which is held in place by a spring nut. Removal of this will disclose the contact breaker points which on rotation

of the fly-wheel should open about .015 of an inch. If they do not open sufficiently, adjustment can be obtained by releasing the large hexagon nut with the box spanner in the tool kit and moving the contact bracket to give the desired opening. This should be checked with the points in the open position. The points themselves must be quite clean, if dirty or oily a slip of card dipped into cleaning fluid should be placed between the points and the fly-wheel rotated so the points close on to the card which may then be withdrawn, cleaning off any oil or dirt. Care should be taken to leave the points quite clean. The spark is timed to take place  $\frac{1}{2}$ " before top dead centre. These are the normal items which can be checked, and if a spark still cannot be obtained it will be advisable to call in one of our Dealers.

The carburetter itself does not need frequent adjustment but should be kept clean. After a long period of running a certain amount of wear can take place on the fuel needle and seat, increasing slightly the height of the petrol level in the float chamber. The needle should be renewed to correct this. The taper needle in the end of the throttle slide will also wear slightly in the centre piece and jet. Lengthening the taper needle will compensate for this wear. This is carried out by screwing down in a clockwise direction the screw found in the top centre of the throttle slide. Eventual renewal of these two parts may become necessary.

Difficult starting when the engine is hot usually indicates wear of the parts mentioned above causing an over-rich mixture.

If the engine has been choked when hot withdraw the throttle slide from the carburetter, start the engine and then replace the throttle slide while the engine is running. Keep throttle control on handlebar wide open.

The silencer and exhaust port should be kept clean, and decarbonizing of the engine only undertaken when this is felt to be absolutely necessary. The only point to take care of when decarbonizing is to see that the cylinder is lifted straight off the piston and replaced in the same manner. Twisting round may cause breakage of the piston rings.

The Mark 25c two-stroke engine on the Allen Scythe has a special form of governing or speed limiting device. This is by means of a centrifugal section on the boss or centre of the fly-wheel which operates the make and break mechanism. At a speed of approximately 2,400 this section raises against the

control spring and cuts out the ignition for one or two revolutions, thus keeping the speed within the prescribed limits. This governor mechanism should not require any adjustment except perhaps when the engine needs a complete overhaul by one of the manufacturer's accredited Dealers. With a wide open throttle on a light load the governor will operate which will be indicated by unsteady firing. An increase in the load or alternatively closing the throttle will allow the engine to run smoothly.

## VILLIERS MARK 25 FOUR-STROKE ENGINE (SPECIFICATION No. 002D)

Before starting the engine be careful to check the oil level in the sump. This should be up to the shoulder of the filler plug dip-stick. The correct oil to use is shown on page 2. The petrol tank must be filled with a good quality petrol and please note that oil is *not* mixed with the petrol. The oiling system on this engine is entirely separate.

Starting the engine is by means of a cord which is wrapped round the starter pulley in a clockwise direction. Before rotating the engine the petrol tap should be opened and the strangler on the air cleaner closed and the carburetter flooded by pressing the tickler button on top of the float chamber. The engine is pulled over sharply using both hands on the starting cord and accelerating sharply at end of pull at about waist height. When the engine starts up open the choke gradually until the engine runs smoothly with the choke fully open. When starting a warm engine the same procedure should be adopted, but do not strangle or flood the carburetter. This is unnecessary and may make starting difficult.

Failure to obtain a ready start may be due to failure in the fuel supply and it should be checked to see that the petrol tap is open. If the petrol does not flow freely to the carburetter when the tickler button is pressed the petrol filters should be checked. One may be found where the petrol pipe joins the carburetter and the other fitted to the petrol tap and projecting upwards into the petrol tank.

The ignition should also be checked, and this may be done by removing the sparking plug and reconnecting the high tension lead to the sparking plug which may be laid on top of the engine, taking care that the terminal does not touch the cylinder. When the engine is rotated a spark should appear at the plug points. If there is no spark the plug should be dismantled and thoroughly cleaned. The gap between the points being set to .015 of an inch. This is about the thickness of an ordinary postcard. If there is still no spark the high tension lead should be checked to see that it is not chafed or burnt through and that it has not become loose in the vulcanite terminal on the magneto. The correct type of sparking plug is a Lodge CB3.

If you should still get difficulty in obtaining a spark the same procedure should be applied as mentioned on the previous page in reference to the magneto. The same also applies to the carburetter.

This engine being a four-stroke, it is fitted with an inlet and exhaust valve and when occasion arises for decarbonizing these valves should be lifted off the seats and checked whether they require regrinding. When the valve springs are compressed the split tappet collars which hold the bottom spring seat in place can be removed thus allowing the valves to be taken out. All traces of grinding compound must be removed before reassembly of the valves. A suitable grade of valve grinding compound is Carborundum No. 360 fine. When the valves are closed there must be a clearance between the end of the valve stem and the tappet cap. Shims are fitted between the tappet cap and may be added or removed to provide necessary adjustment. Clearance should be between .006 of an inch and .010.

The magneto timing on this engine is set so that the spark occurs  $\frac{1}{8}$  of an inch before top dead centre.

The governor on this engine is of the centrifugal type with an external adjustment. This is set to give an engine speed of 2,400 r.p.m. which gives a satisfactory speed for all normal cutting purposes and is set to give the correct speed for operating various attachments. It should not be altered. If any alteration is made great care should be taken to reset the governor before any of the attachments are used, particularly with the Generator, as damage may be caused by generating excess voltage.



Care should be taken to see that the oil level is maintained and, if necessary, topped up with the recommended grade of oil. The sump must be level when checking otherwise an incorrect amount of oil may be put in. After every 100 hours' operation drain all the old oil from the sump by removing the small slotted plug fitted at the side. This is best done when the engine is warm as the oil will then run freely. Refill the sump with clean new oil of the correct grade. If the above operation is not carried out at the proper intervals the operation of the engine may be affected due to excessive wear.

## VILLIERS MARK 15 FOUR-STROKE ENGINE (SPECIFICATION No. 454A)

This engine forms an alternative power unit for the Allen Scythe for those users who prefer a four-stroke engine. Its weight, speed and power are for all practical purposes identical to the standard two-stroke. This engine is fitted with overhead valves and sump lubrication. Petrol only should be used in the petrol tank. The lubricating oil is in the sump and should be kept up to the correct level as shown on the dip-stick. On no account should oil be added to petrol. The correct grades of oil are shown on page 2.

The starting and running instructions for this engine are similar in most respects to those given relating to the Villiers Mark 25 four-stroke. Any difficulty in starting should be given a similar routine. Checking the method of governing and maintenance is also the same.

The breather valve which is fitted into the side of the top cover should be taken apart and cleaned in petrol after approximately 200 running hours. The pad should be softened in the fingers before being replaced. The valve clearance on this engine should be .006 of an inch for the exhaust valve and .003 for the inlet. These clearances refer to a cold engine. The magneto is timed so that the contact breaker points commence to open when the piston is  $\frac{1}{8}$  of an inch before top dead centre.

## PLATE NO. 1

When ordering Spares, please quote Part Number and Machine Number

PART No.	No. PER MACHINE	DESCRIPTION
376	1	Pinion
417	1	Petrol cock
417A	1	Petrol cock filter
418	1	Filler cap and measure (up to M/C. No. 51,680)
511	1	Sparking plug
516	1	Washer for petrol cock
562	1	Throttle cable clip
593	3	Self-tapping screws for machine number plate (2) and clip 562 (1)
594	1	Shield transfer
641	1	Felt washer for engine register (M/C. No. 40,000 and up)
644	1	25C Engine, complete with carburetter, silencer, pinion, felt washer and cable clip (M/C. No. 40,000 and up)
645	1	Carburetter "Junior" and air cleaner (M/C. No. 40,000 and up)
652	1	Silencer (M/C. No. 40,000 and up)
663	1	Petrol pipe and unions (flexible)
718	1	Petrol tank
732	1	Transfer (Clutch Instructions)
740	1	Filler cap and measure (M/C. No. 51,681 and up)
		<b>SEE VILLIERS' LIST</b>
D.7581	1	Inlet manifold (curved)
V.496	1	Air cleaner
V.611E	1	Air cleaner adapter
V.326	1	Body clip
V.107 x 16	1	Body clip screw
V.234B/DQ	1	Control cable complete
E.422	1	Nut for driving shaft
E.424	1	Spring washer for driving shaft
E.1130	1	Silencer clip
E.435	1	Silencer clip bolt
E.364	1	Silencer clip bolt nut
M.2051	1	Felt strip for fan cowl
494	1	High tension lead 17" complete
M.4	1	Waterproof plug cover
E.7100	1	Bolt inlet manifold
E.6902	1	Stud inlet manifold
E.6965	1	Joint washer inlet manifold
E.401	1	Nut 1/4"

**ABOVE PARTS FOR MACHINE No. 40,000 AND UP**

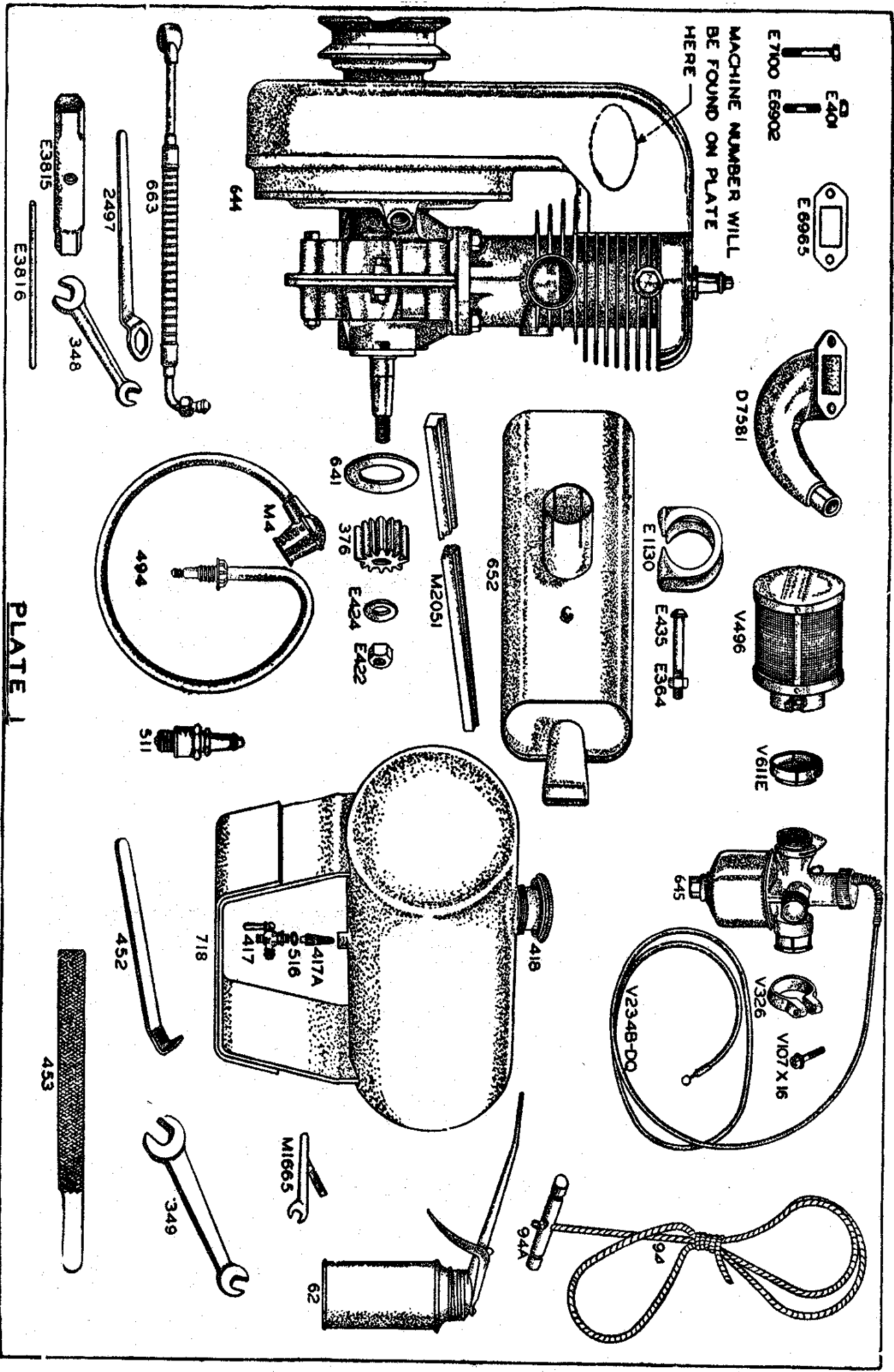


PLATE 1

PARTS SHOWN ABOVE ARE FOR MACHINE No. 40,000 AND UP

## PLATE NO. 2

When ordering Spares, please quote Part Number and Machine Number

PART No.	No. PER MACHINE	DESCRIPTION
83A	1	Nut for cutter crank $\frac{1}{2}$ "
85	1	Split pin $1" \times \frac{1}{8}"$ for cutter crank
89	6	Nut for engine stud and bell crank bolt
124	4	Washer for engine stud
220	2	Washer for petrol tank set screw
285	1	Crank die
288	2	Ball bearing for cutter crank
289	1	Bolt and nut for balance weight
289A	1	Split pin $1" \times \frac{1}{8}"$ for balance weight
314	2	Bolt and nut for rocker spring
314A	2	Lock washer for rocker spring bolts
373	1	Worm
377	1	Gear wheel
378	2	Friction plate
379	1	Slip clutch spring
380	1	Cutter crank
385	3	Bolt and nut for gear case cover
386	4	Engine stud
387	1	Balance weight
389	1	Rocker fulcrum
391	1	Back distance piece
392	1	Front distance piece
395	1	Gear case
396/425	1	Gear case cover and fulcrum bush
400	1	Gear case cap
406	1	Nut for bell crank bolt
408	1	Rocker spring
410	4	Handlebar keep
424	2	Axle bush
425	1	Rocker fulcrum bush
428	8	Set screws for gear case cover and petrol tank fixing
429	8	Stud and nut for handlebar keep
430	1	Lock washer for balance weight bolt
433	1	Felt washer for rocker fulcrum
434	1	Oil filler plug
435	1	Oil level plug
437	1	Bolt for bell crank
455	2	Circlip
502	1	Washer for cutter crank
503	1	Split pin $1" \times \frac{3}{32}"$ for bell crank fulcrum bolt
504	2	Dowel pin for axle bush

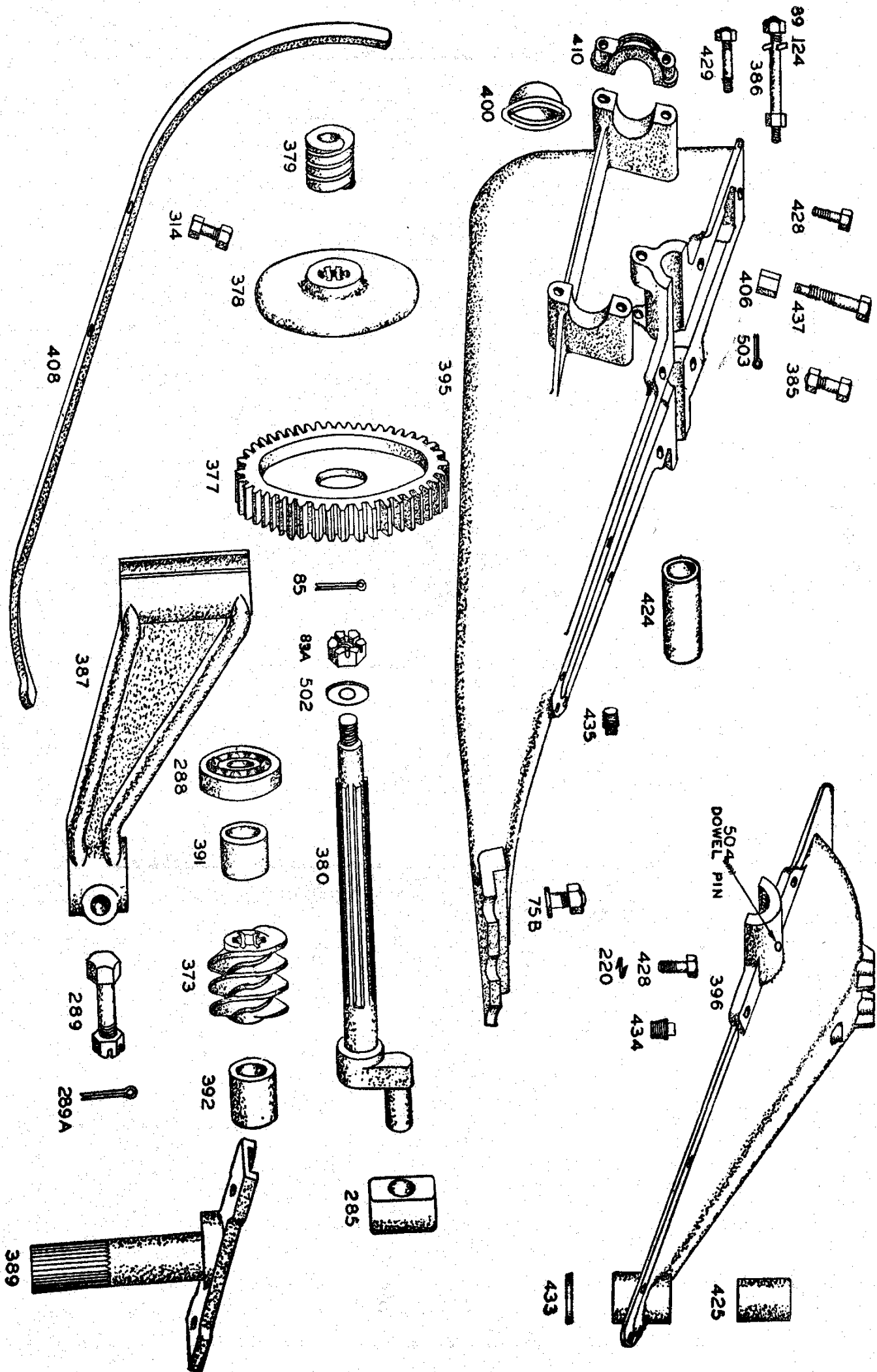


PLATE 2

When ordering Spares, please quote Part Number and Machine Number

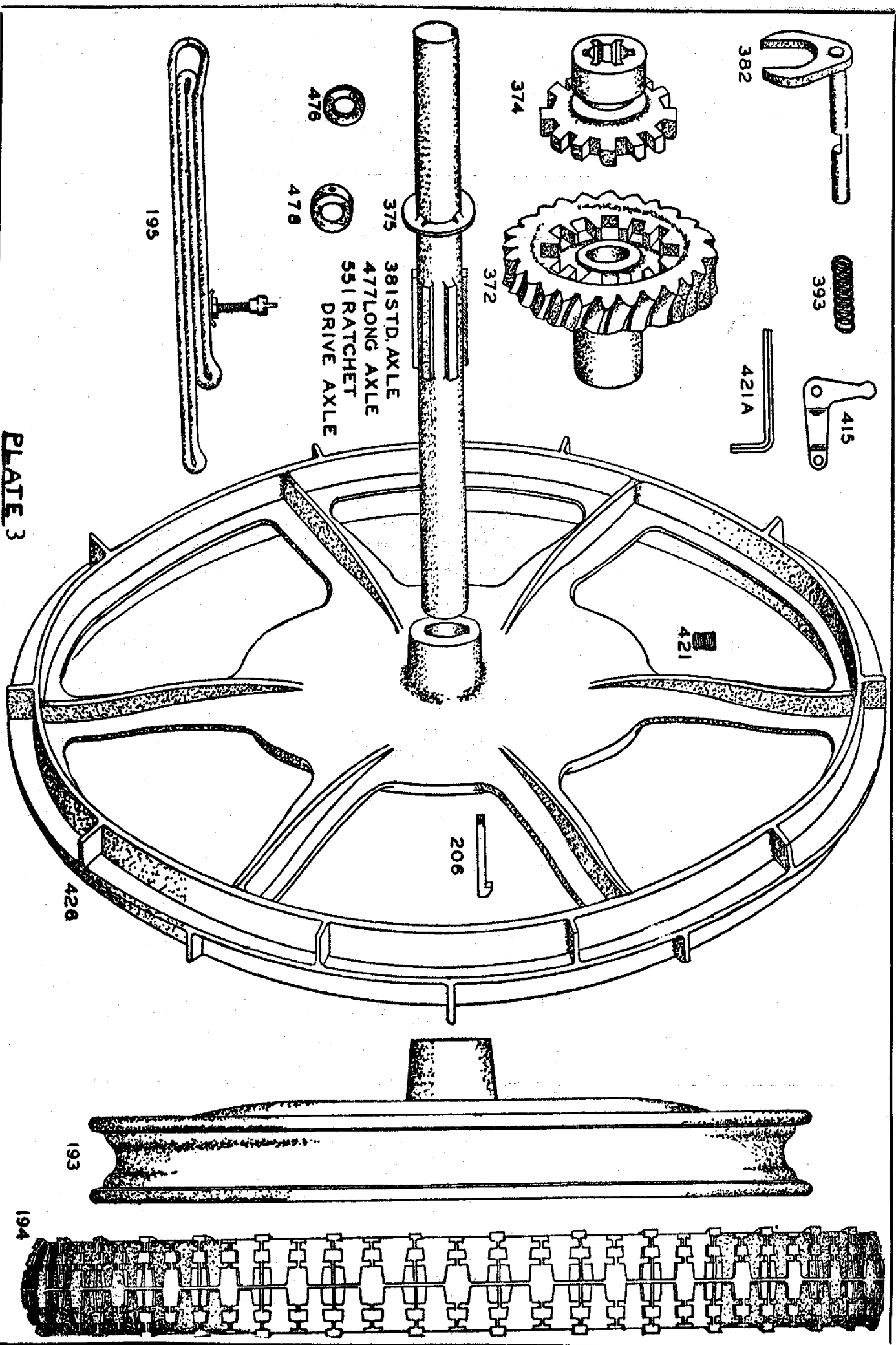
### PLATE NO. 3

PART No.	No. PER MACHINE	DESCRIPTION
193	2	Road wheel (key fitting)
194	2	Outer cover
195	2	Inner tube
206	2	Key for road wheel No. 193
372	1	Worm wheel
374	1	Driven dog
375	2	Tab washer for axle
381	1	Axle (for key fitting wheels)
382	1	Bridle
393	1	Spring for bridle
415	1	Bell crank
421	4	Set screw for road wheel (key fitting)
426	1	Road wheel (cast iron tread)
477	1	Long axle 3 ft.
478	4	Collar for long axle
551	1	Axle for ratchet drive

### TOOL KIT

The following tools are supplied with a new machine and, except where otherwise listed, are shown on Plate No. 1.

PART No.	No. PER MACHINE	DESCRIPTION
452	1	Lifter for rocker spring
E.3815	1	Tubular box spanner
E.3816	1	Tubular box spanner tommy bar
M.1665	1	Screw driver and gauge magneto point
D.2497	1	Sparking plug spanner
62	1	Oil can
421A	1	Wrench for set screw (shown on Plate No. 3)
348	1	$\frac{1}{4}$ " $\times$ $\frac{5}{16}$ " spanner
349	1	$\frac{3}{8}$ " $\times$ $\frac{7}{16}$ " spanner
596	1	$\frac{3}{16}$ " $\times$ $\frac{1}{8}$ " spanner (not shown)
94	1	Starting cord
94A	1	Handle for starting cord
453	1	Reaper file



**When ordering Spares, please quote Part Number and  
Machine Number**

**PLATE NO. 4**

PART No.	No. PER MACHINE	DESCRIPTION
546	4	Pawl stud split pin 1" x 1/8"
547	2	Pawl catch
548	2	Pawl catch washer
549	2	Pawl catch fulcrum pin
550	2	Pawl spring
551	1	Axle for ratchet drive
552	2	Ratchet centre
553	2	Ratchet centre key
554	2	Road wheel only, ratchet drive for 1/2" studs
676	2	Road wheel only, ratchet drive for 5/8" studs
555	2	Set screw for ratchet centre and long axle collar
556	2	Springwell oil-cup
542	4	Pawl with 1/2" hole
544	4	Pawl stud 1/2" dia.
545	8	Pawl stud washer 1/2" hole
685	4	Pawl stud nut 1/2" B.S.F.
		<b>IMPORTANT</b> Machines up to No. 44,235 use 1/2" pawls
667	4	Pawl with 5/8" hole
668	4	Pawl stud 5/8" dia.
669	4	Pawl stud nut 5/8" B.S.F.
670	8	Pawl stud washer 5/8" hole
		<b>IMPORTANT</b> Machine No. 44,236 and upwards use 5/8" pawls
677	2	Steel washer for axle on ratchet drive machines



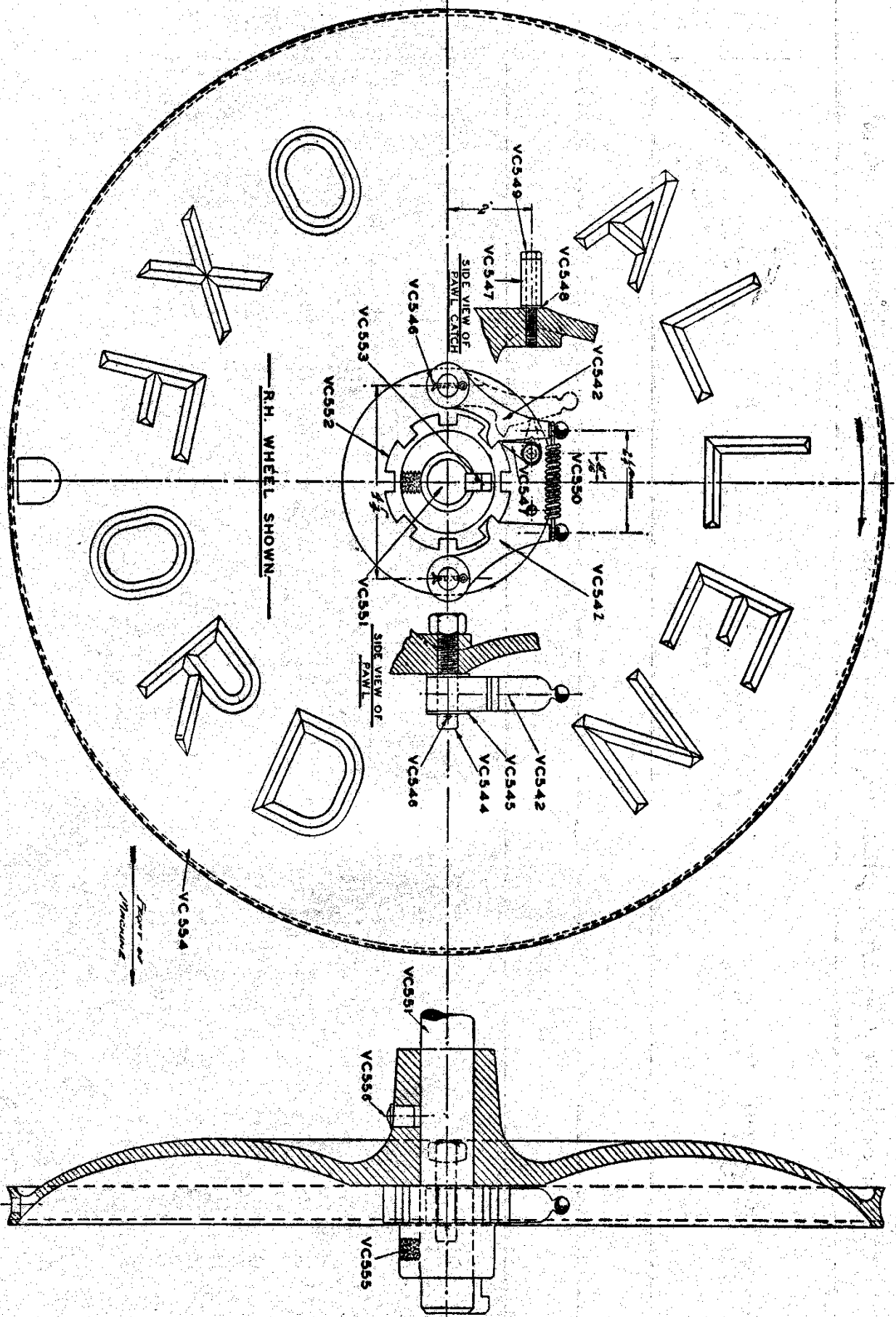
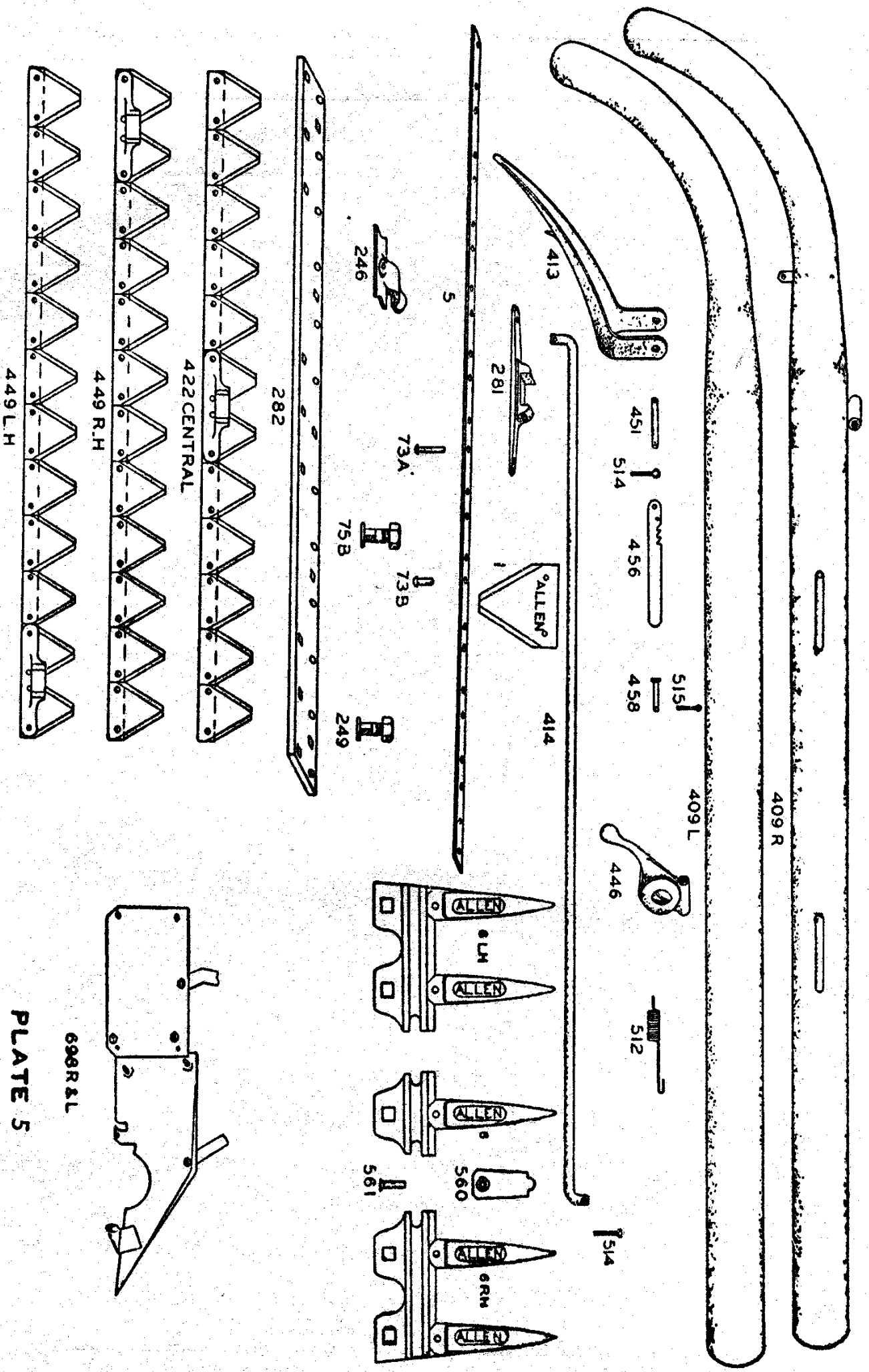


PLATE 4

**PLATE NO. 5**

**When ordering Spares, please quote Part Number and Machine Number**

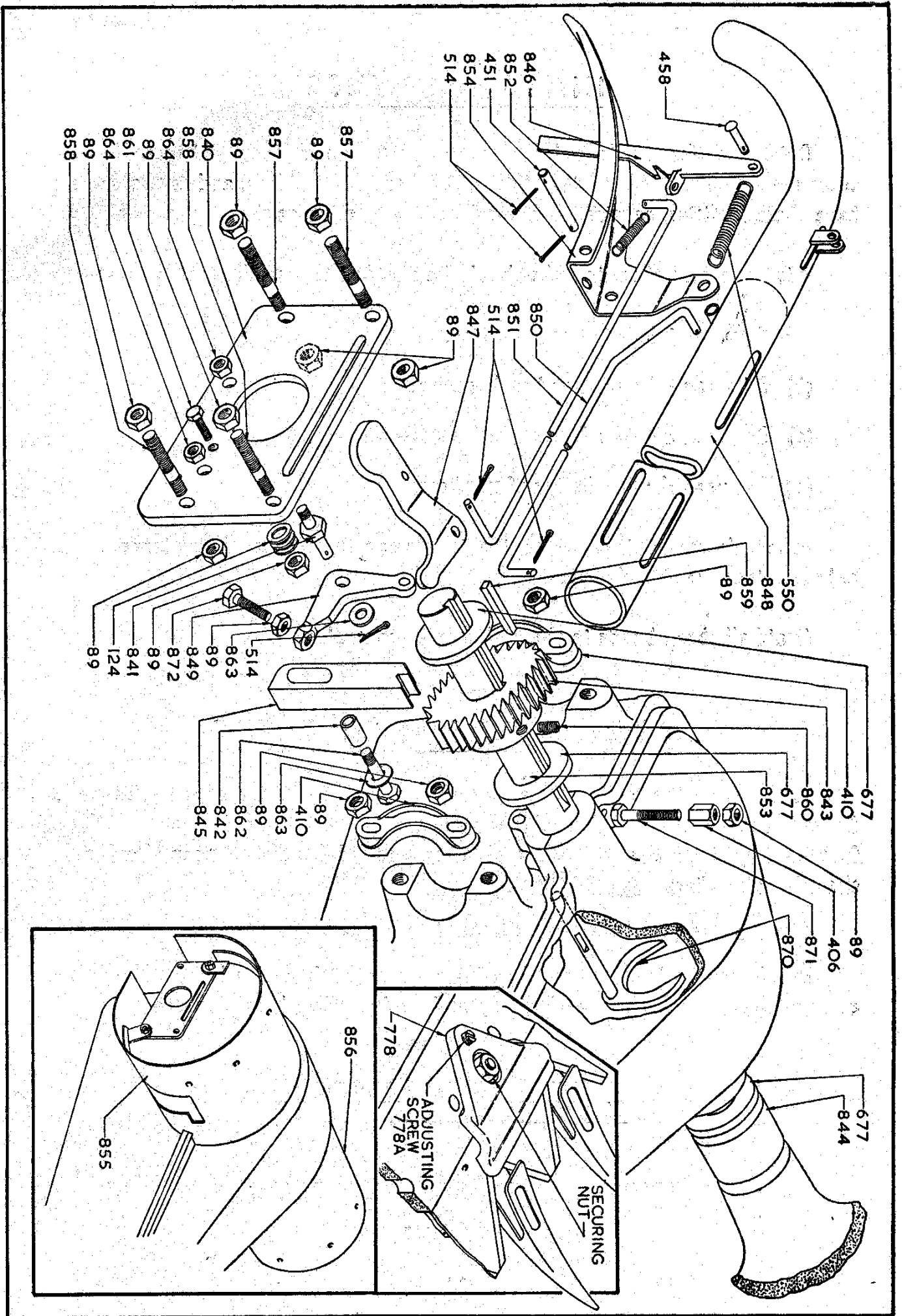
<b>PART No.</b>	<b>No. PER MACHINE</b>	<b>DESCRIPTION</b>
1	12	Knife section
5	1	3-ft knife bar
6	9	Finger (single)
6 RH	1	Finger (double) right-hand
6 LH	1	Finger (double) left-hand
73A	4	Rivet (long) for knife section
73B	20	Rivet (short) for knife section
75B	16	Bolt for finger and finger bar fixing
75D	3	Lock washer for above
246	4	Knife pad
249	4	Bolt and nut for knife pad
281	1	Knife bar lug
282	1	3-ft. Finger bar
409 R	1	Handlebar, right-hand
409 L	1	Handlebar, left-hand
413	1	Clutch lever
414	1	Clutch drag link
422	1	3-ft. Spare blade, central
446	1	Throttle control
449 R	1	3-ft. Spare blade, right-hand offset
449 L	1	3-ft. Spare blade, left-hand offset
451	1	Clutch lever pin
456	1	Clutch trigger
457	1	Trigger fulcrum bracket
458	1	Clutch trigger pin
512	1	Clutch trigger spring
514	4	Split pin $\frac{3}{8}$ " $\times$ $\frac{3}{32}$ " for clutch lever pin and drag link
515	1	Split pin $\frac{3}{8}$ " $\times$ $\frac{1}{16}$ " for clutch trigger pin
501	1	<b>3-ft. Standard Central Cutting Assembly</b>
559A	2	Split pin $1\frac{1}{4}$ " $\times$ $\frac{1}{8}$ " for throttle boss
560	13	Ledger plate
561	13	Rivet for ledger plate
564	1	<b>4-ft. Standard Cutting Assembly Complete</b>
597	1	4-ft. Spare blade, central
361	1	4-ft. Finger bar
362	1	4-ft. Knife bar
569	1	<b>2-ft. Standard Cutting Assembly Complete</b>
607	1	2-ft. Spare blade, central
567	1	2-ft. Knife bar
568	1	2-ft. Finger bar
698 R	1	Swath board, right-hand
698 L	1	Swath board, left-hand



## SERVO CLUTCH MECHANISM

When ordering Spares, please quote Part Number and Machine Number

PART No.	DESCRIPTION
89	Nut, $\frac{3}{8}$ -in.
124	Bright flat washer
406	Nut for bell crank bolt
410	Handlebar keep
451	Clutch lever pin
458	Clutch trigger pin
514	Split pin
539	Set screw key
550	Spring
677	Steel axle washer
778	Adjustable knife bar pad
778A	Adjusting screw
840	Plate
841	Pawl lifting lever pivot
842	Ratchet pawl pivot bush
843	Saw tooth ratchet
844	Spacing collar
845	Ratchet pawl
846	Clutch release trigger
847	Clutch operating lever
848	Handlebar, right-hand
849	Pawl lifting lever
850	Push rod
851	Servo drag link
852	Clutch release trigger spring
853	Road wheel axle
854	Servo clutch lever
855	Guard, right-hand
856	Guard, left-hand
857	Stud, short
858	Stud, long
859	Key for 843
860	Set screw for ratchet
861	Pawl stop set screw
862	Pawl pivot bolt
863	Bright flat washer
864	Nut, $\frac{5}{16}$ -in.
870	Bridle, $\frac{9}{16}$ -in.
871	Fulcrum bolt
872	Adjusting screw
—	$\frac{1}{4}$ -in. shakeproof washer
—	$\frac{5}{16}$ -in. shakeproof washer
—	$\frac{3}{8}$ -in. shakeproof washer



## HINTS AND TIPS

Driving shafts should only be taken apart by a skilled mechanic. Special tools are required for ensuring alignment when reassembling, and as the makers have these facilities, repairs can be undertaken by them at the lowest cost.

It is important that air leaks should be avoided at the following points:—

- (a) Between inlet pipe and cylinder.
- (b) Between inlet pipe and carburetter.
- (c) Between cylinder base and crankcase.
- (d) Between the two halves of crankcase.

When decarbonizing the engine it is very important that silencers and exhaust pipes are also cleaned out.

Avoid all sharp bends in the carburetter control cables.

## ORDERING REPLACE PARTS

When ordering spare parts, please quote the part number (see *Parts Book*) together with the machine number. The machine number will be found stamped on the oval brass plate on the left-hand side near the top of the engine cowling.

**Always use genuine Allen Parts.**

Should any difficulty arise which is not dealt with in this handbook, please communicate immediately with your local dealer or with us direct:—

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JOHN ALLEN & SONS (OXFORD) LTD.

COWLEY, OXFORD

**Attachments available for the Allen Scythe include:—**

**Spray Pump and Equipment**

**Hedge Trimmer**

**Circular Saw**

**Carrier**

**Low-loading Trailer**

**Roller**

**Horticultural Plough**

**Hay Sweep**

**Hedge Cutter**

**Knife Sharpener**

**Snow Plough**

**Light Hoe**

**Grassmaster**

**Centrifugal Pump**

**Bulldozer**

**30 In. Grass Cutter**

**400 Watt Generator**

**Trailer Seat**

**Chain Saw**

# Manufacturers' Warranty

**T**HE goods supplied by the Company shall be accepted by the purchaser subject to the conditions hereinafter mentioned and subject to the following express warranty, which excludes all warranties, conditions and liabilities whatsoever, whether statutory or otherwise, which might exist against the Company, but for provision, viz.:

In the event of any defect being disclosed in any part or parts of the goods and if the part or parts alleged to be defective are returned to the Company's works carriage paid within six months after delivery, the Company undertakes to examine same, and should any fault due to defective material or workmanship be found on examination by the Company, it will repair the defective part or supply free of charge a new part in place thereof.

The Company's responsibility is limited to the terms of this guarantee, and it shall not be answerable for any contingent or resulting liability, or loss arising through any defects.

This guarantee does not relate to defects caused by wear and tear, misuse or neglect, or to the defects in any parts which have been altered after leaving the Company's works.

JOHN ALLEN & SONS (OXFORD) LIMITED issue no warranty of the goods except as stated herein. This warranty is limited to the despatch to the purchaser without charge except for transportation of the part or parts, whether new or repaired, in exchange for those acknowledged by the Company to be defective. The purchaser shall send to the Company's Works such part or parts as are alleged or claimed to be defective promptly on discovery of the claimed defect. Transportation is to be prepaid by the purchaser, and said part or parts to be properly packed for transit and clearly marked for identification with the name and full address of the purchaser and with the maker's number of the machine from which the said part or parts were taken.

The purchaser shall post to the Company at its works on or before despatch of such part or parts alleged to be defective, a full and complete description of the claim and the reasons therefor.

The Company does not guarantee the specialities of other firms, such as magnetos, carburettors, etc.

The judgment of JOHN ALLEN & SONS (OXFORD) LIMITED in all cases of claims shall be final and conclusive, and the purchaser agrees to accept its decision on all questions as to defects and to the exchange of part or parts. After the expiration of six days from the despatch of notification of the Company's decision, the part or parts submitted may be scrapped or returned, carriage forward, by the Company.