

THE

SUFFOLK

14" PUNCH

MARK VII

Motor Roller Lawn Mower

(Fitted with Microset Adjustment)

FOUR STROKE ENGINE

**OPERATING & MAINTENANCE
MANUAL**

Sales and Service Department :

SUFFOLK IRON FOUNDRY (1920) LTD.,

SUNNYHILL AVENUE,

DERBY,

ENGLAND.

Spares and Repairs Department :

SUFFOLK IRON FOUNDRY (1920) LTD.,

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The Suffolk Punch Motor Lawnmower

Mark VII

INSTRUCTIONS for Operation and Maintenance

I. GENERAL ADVICE.

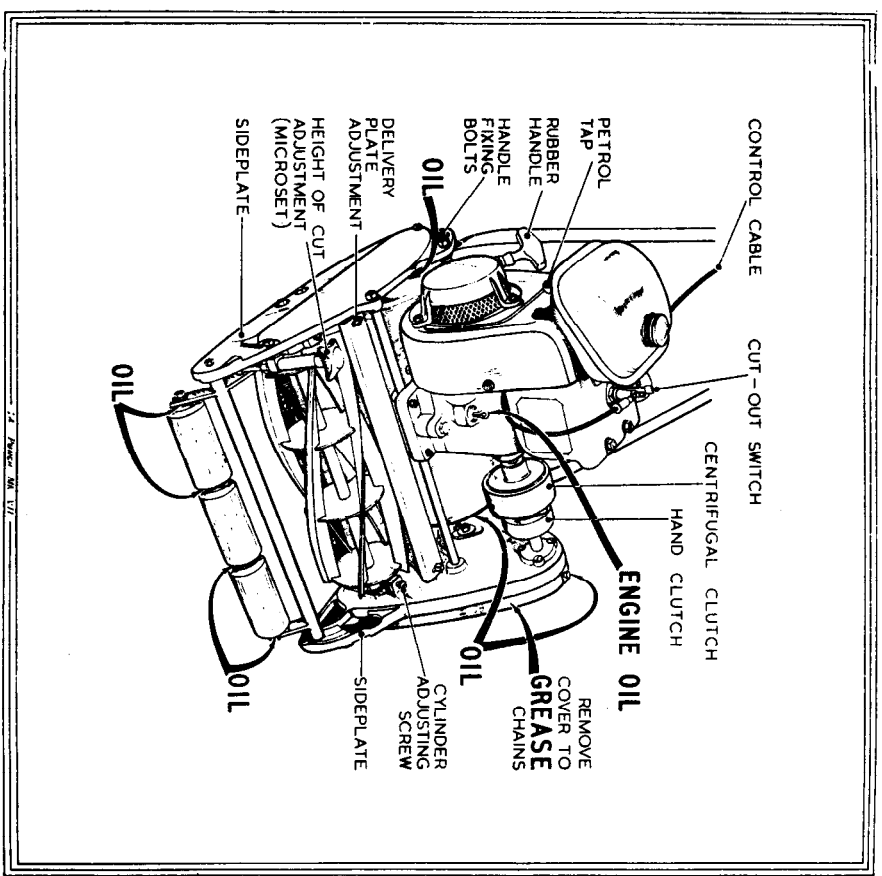
II. OPERATING INSTRUCTIONS.

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LUBRICATION and INSTRUCTION DIAGRAM



INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following.

- (a) The Model Name of the machine.
- (b) The chassis serial number stamped on the R.H. side plate. (See mower assembly illustration).
- (c) The engine serial number. (See engine assembly illustration).
- (d) The PART NO. of the part, NOT the illustration No.

I. GENERAL ADVICE

The Suffolk Punch Mark VII Lawnmower is sent out from the factory in perfect condition, and when received should be carefully examined to see that it has not been damaged in transit.

If damaged in any way, your dealer should be advised at once.

Flush out petrol tank with a small quantity of petrol before filling for the first time.

Do not start the engine in your shed or garage unless the doors are open. Exhaust gases are poisonous.

Before starting, always check that there is petrol in the tank and sufficient oil in the sump. Top up if necessary. Oil working parts regularly, according to instructions on Page 4.

Before mowing, make sure your lawn is quite free from stones and other obstructions, i.e. pieces of bones, wood, etc., which might cause damage to the cutting cylinder.

If any obstacle should get caught, NEVER ATTEMPT TO CLEAR OBSTACLE OR REVOLVE CYLINDER BY HAND WHILE ENGINE IS RUNNING.

Never drive the machine over gravel paths without keeping the revolving cutting cylinder well clear of the ground.

The petrol tank should not be filled while the engine is running. Petrol spilling on a hot engine can be dangerous.

DO NOT MIX OIL WITH PETROL. The S.I.F. engine is a 4 stroke type and is designed with separate oil lubrication. It is wise to filter your petrol through a fine wire gauze when filling the tank.

Do not race the engine. A speed of 3 miles per hour is recommended. At this speed the machine can mow a tennis court in less than 15 minutes.

After use, always wipe blades with oily rag.

If your mower is going to be stored for any length of time, drain the engine completely of fuel to prevent gum deposit forming on essential parts. Remove sparking plug, pour a teaspoonful of engine oil into the cylinder, and turn the engine round slowly by hand to spread the oil. Replace the sparking plug.

II. OPERATING INSTRUCTIONS

1. PREPARATION FOR USE.

(a) Fill the petrol tank with commercial petrol. The tank will hold 2 pints which is sufficient for 2 hours running under average working conditions.

DO NOT MIX ANY OIL WITH THE PETROL.

(b) Unscrew the filler plug from the front of the engine and fill with $\frac{1}{2}$ pint of any of the following recommended oils or equivalents. After filling replace plug.

Do NOT use a new engine without first filling sump with oil.

RECOMMENDED LUBRICATING OILS.

Climate	Shell	B.P.	Castrol	Mobil
Temperate	X-100 30	Energol SAE. 30	Castrol XL	Mobiloil A
Tropical	X-100 40	Energol SAE. 40	Castrol XXL	Mobiloil AF

(c) The cutting cylinder (78) and clutch shaft bearings (42) are pre-lubricated and sealed, no further lubrication is necessary for these bearings. Oil the following points with light machine oil. For the rear roller bearings (50) introduce a few drops of oil between spacers (33) and sideplates. For the bushes for front roller carrier (65) introduce a few drops of oil between the ends of the carrier and the sideplates. The Wood Roller Spindle (66) should be oiled along its length. Introduce a few drops of oil through the lubricator (111) at the top of the L.H. Sideplate (46).

NOTE: The centrifugal clutch must be kept free from oil.

See Mower Assembly Illustration

(d) Set the handles of the machine in the position most comfortable for your height, by slackening the bolts at the base of the handle. Re-tighten bolts when desired position is obtained.

See Diagram on Page 2

(e) Set the position of the wooden rollers at the front of the machine to give the desired height of cut by means of the single hand wheel on the R.H. side. Clockwise rotation lowers the roller and this increases the height of cut. It is advisable to set for high cutting at first and lower the machine to the height required.

See Diagram on Page 2

II. TO START ENGINE WHEN COLD.

- (a) Make sure that the **HAND CLUTCH** is out of engagement.

See Section II, Para. 6(b), on Page 7.

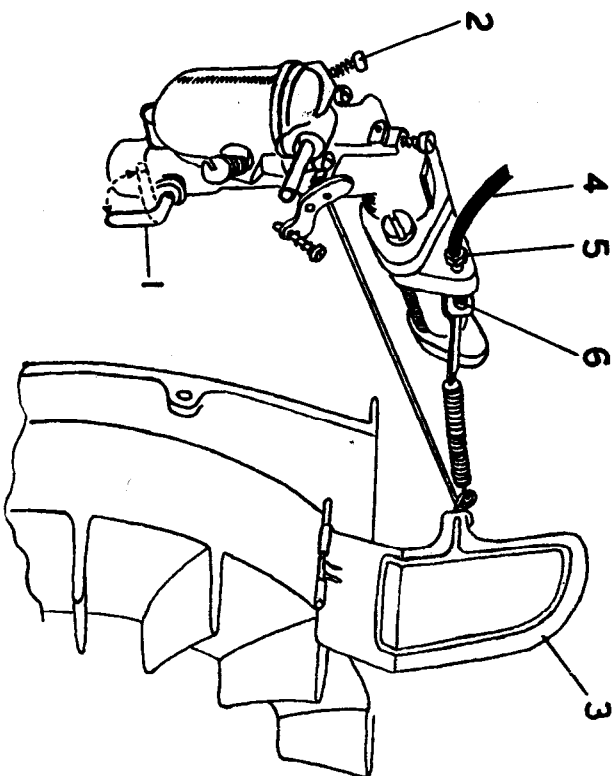
- (b) Turn on petrol by means of petrol tap immediately under petrol tank. Tap control button should be pulled out gently.

- (c) Close the air strangler by turning the small lever (1) at the side of the carburetter to horizontal position.

- (d) Open control lever on handle bar about one third of its full opening.

- (e) Press the tickler (2) on top of the carburetter float chamber until the petrol just commences to overflow.

See Illustration below.



- (f) To start the Engine grip the rubber handle firmly and pull smartly. Do not pull the rope out to its full extent, and do not release your grip on the handle until the rope has recoiled into position.

The Starter will automatically reset itself for further use.

- (g) After the engine has started, gradually open strangler as engine warms up. When engine is warm and running smoothly, partially close control lever so that engine is idling.

II. TO START ENGINE WHEN HOT.

The same procedure should be adopted except that it should not be necessary to close the strangler or to flood carburetter by pressing tickler.

II. TO STOP ENGINE.

To stop engine temporarily or in an emergency press the cut-out switch on to the sparking plug terminal and hold it there until it stops.

If the engine is going to be stopped for any length of time (several hours) turn the fuel off and allow the engine to continue running until it has used up the small amount of fuel left in the carburetter.

II. FAILURE TO START.

If after a reasonable number of trials the engine should not start, this may be due to one or more of several causes, such as :

- (a) Petrol Tank empty, lack of petrol through tap not being turned on or fuel supply choked, or vent hole in petrol tank filler cap blocked, or failure to flood the carburetter.

- (b) Too much petrol through excessive flooding causing wet sparking plug. If so, remove and dry the plug, turn engine over smartly with control lever closed. Replace plug.

- (c) Control lever open too wide. One quarter to one third is correct.

- (d) Sparking plug dirty or gap between points incorrect. Clean or adjust if necessary. Gap should be .020 in.—.022 in.

- (e) No spark. Remove plug and place plug body on top of cylinder with lead attached and turn engine. There should be a spark at the points. If not, clean and adjust gap between points.

If, after all above items have been checked, the engine still will not start, a more detailed examination will be required.

See section on 'Engine'.

II. MOWER CONTROLS.

(a) CENTRIFUGAL CLUTCH.

This clutch is automatic in operation, so that a single control lever gives the operator full command of the machine.

(b) HAND CLUTCH

An additional hand operated clutch is fitted on the outside of the centrifugal clutch to enable the engine to be disconnected from the mower for starting. To disengage, pull the outer cover of this hand clutch outwards (about $\frac{1}{2}$ ") over the spring loaded ball on the transmission shaft. To re-engage, push inwards.
Note:—Re-engage Clutch only when engine is idling.

See Diagram on Page 2

(c) DUAL DRIVE CLUTCH.

The dual drive mechanism consists of a special clutch fixed to the rear roller, which enables the mower either to be self-propelled, or to be pushed by the user with the engine still driving the cutting cylinder.

The rear roller dog (Ref. 26) is at the bottom right-hand corner of the chain case.

For the engine to drive the rear roller, the teeth on this dog must be FULLY engaged with the slots in the centre (14) of the rear sprocket (55). In this position the engine drives the dog (26) which engages by an internal slot with the pin (24) passing through the rear roller spindle.

To disconnect the power from the rear roller, pull the dog outwards (about $\frac{3}{8}$ ") against the spring (21) and turn it clockwise or anti-clockwise, approximately $\frac{1}{4}$ turn to hold it in position.

To re-connect the power to the rear roller, FIRST ENSURE THAT THE ENGINE IS IDLING. Turn the dog in the opposite direction from when disconnecting the engine, about $\frac{1}{4}$ turn, until it springs back into position. If the dog does not initially FULLY engage, it will automatically do so as soon as the engine is speeded up sufficient for the cutting cylinder to turn.

See Mower Assembly Illustration

II. OPERATION OF MOWER.

7. Having started the engine, to commence mowing the following procedure should be adhered to.

TO OPERATE MACHINE AS FULLY PROPELLED MOWER.

- (a) Allow engine to warm up before starting mowing.
- (b) Engage hand operated clutch. *See II 6 (b).*
- (c) Ensure that Dual Drive Clutch is engaged. *See II 6 (c).*
- (d) Pull open control lever smoothly. As the lever is opened up the machine will automatically take up the drive and move forward. Should the machine at any time fail to take up

the drive when the control lever is fully opened, close the control lever and free the cutting cylinder by turning the clutch shaft. **DO NOT ATTEMPT TO TURN THE CYLINDER BY HAND.**

- (c) To stop the mower, close the control lever fully. This will stop the mower but not the engine.

TO OPERATE MACHINE IN CONFINED SPACES, USING DUAL DRIVE.

(f) Disengage Dual Drive Clutch. *See II 6 (c).*

(g) Engage hand operated clutch. *See II 6 (b).*

(h) Pull open control lever smoothly. As the lever is opened up, the cutting cylinder will automatically commence to rotate but the machine will not move forward under its own power and must be pushed.

(j) To stop cutting cylinder rotating, close control lever fully.

II.

8. CUTTING ADJUSTMENTS.

The only parts other than the handles (see Para. II. 1 (d)) that may require adjusting are the cutting cylinder and the front roller, for height of cut.

(a) Cutting Cylinder.

If at any time the mower is found not to be cutting satisfactorily, a slight adjustment may be required to the cutting cylinder.

To bring the cylinder (78) closer to the cutting edge of the bottom blade (87), turn the adjusting screws (9), one on each side of the cylinder in a clockwise direction. Care should be taken to ensure that the cutting blades JUST TOUCH the cutting edge of the bottom blade equally all along its length. It is unnecessary to set cylinder blades HARD on to the bottom blade.

(b) Front Rollers.

The height of cut is governed by the position of the front wood rollers. Adjustment is by means of the single hand wheel (85) on the L.H. side of the mower.

See Paragraph II 1 (d) on Page 4

Care should be taken as it is possible to lower the machine so that the bottom blade touches the ground.

III. MAINTENANCE & REPAIRS.

I. ENGINE.

A description of the engine together with instructions for maintenance will be found later in this booklet.

III.

2. CUTTING CYLINDER—REMOVAL.

To remove the cutting cylinder for regrinding the following procedure should be adopted.

(a) Loosen the cylinder adjusting screws (9).

(b) Remove chain case cover (45).

(c) Remove primary (29) and intermediate (70) chains.

(d) Remove the chain wheels from the cylinder spindle after first removing nut (1).

(e) Remove the nuts (91 & 92) off the ends of the tie rods on the R.H. side of the mower, the screw (90) holding the sole-plate, R.H. side only and the screw (13) holding the delivery plate, R.H. side only.

(f) Remove the R.H. sideplate and withdraw the cutting cylinder (78).

To replace the cylinder reverse the above procedure. Take care not to damage or misplace the bearing seals (51 & 52).

Before replacing the R.H. ball bearing smear the cylinder spindle with a little "Loctite" or similar compound to prevent the inner race rotating on the spindle.

III.

3. CHAIN.

Access to the chains is readily obtained by removing the screw from the chain cover and then removing the cover.

The cylinder driving chain (29) is fitted with a hook type adjuster (72) complete with Nylon Slipper (73) which can be adjusted to take up any variations in chain wear, by means of a nut (95). The intermediate chain (70) may be adjusted by the following procedure :

1. Ensure cutting cylinder is adjusted correctly.

2. Slacken nut (110) at the end of Intermediate Spindle (57) which can be reached between Sideplate (46) and Rear Roller (79), and move Sprocket (80) to give correct chain tension.

3. Tighten nut.

All chains should be kept well lubricated with grease.

See Mower Assembly Illustration.

III.

4. CENTRIFUGAL CLUTCH.

The clutch consists of a backplate (35) on which are mounted two lined shoes (16) which pivot on pins (12). As the engine speed is increased, these shoes, which are spring-loaded, swing outwards by centrifugal action and grip the drum (27). Access to the clutch is obtained by slackening the bolts fixing the engine to the tie rods (63 & 64) and sliding the engine along to the R.H. side.

If it is suspected that the clutch is not operating satisfactorily, this may be due to one or more of the following causes :

(a) Oil or grease on the linings of the clutch shoes or the inside of the drum. Clean thoroughly with petrol or other degreasing agent.

(b) Clutch shoes unable to turn on pivot pins. Clean and free obstruction.

(c) Linings of clutch shoes worn. Remove shoes by withdrawing split pins (17) which secure the shoes to their pivot pins. Fit new linings using new rivets.

(d) If after attention to the foregoing points the clutch is found still to be slipping, turn the spring adjusting screws (11) in the clutch shoes in an anti-clockwise direction to allow the shoes to exert a greater pressure on the drum.

AFTER ADJUSTMENT, CHECK THAT THE CUTTING CYLINDER DOES NOT TURN WHEN THE ENGINE IS IDLING.

III.

5. DUAL DRIVE CLUTCH.

Access to the dual drive clutch is readily obtained by the following procedure :

(a) Remove the plug button (23) by prizing out with a screwdriver. Circlip (22) can then be removed by springing it out of its groove. Washer (25), spring (21), dog (26), and bush (18) can then be withdrawn.

(b) If it is required to remove the sprocket (55), first withdraw the pin (24). The second circlip (22) can then be removed together with washer (20). The sprocket can then be withdrawn.

To re-assemble, reverse the above procedure.

The teeth of the rear roller dog and the corresponding slots on the sprocket centre should always be kept clean.

See Mower Assembly Illustration

The Suffolk Four Stroke Engine

Type 75 G.14
Model No. 14A

DESCRIPTION & INSTRUCTIONS for the Operation and Maintenance

I. DESCRIPTION.

II. OPERATION INSTRUCTIONS.

1. Preparation for use.
2. To start engine when cold.
3. To start engine when hot.
4. To stop engine.
5. Speed Regulation.
6. Failure to start.
7. Lubrication.
8. Ignition.

III. MAINTENANCE & REPAIRS.

1. Magneto Description.
2. Magneto Service Instructions.
3. Carburetter Description.
4. Carburetter adjustments and maintenance.
5. Control Cable adjustments.
6. Engine dismantling.

I. DESCRIPTION.

Engine.	Petrol, four stroke, single cylinder, air cooled.
Cylinder Dimensions.	Bore, 50.8 millimetres. Stroke, 38.1 millimetres. Cubic Capacity, 75 c.c.
Max. H.P.	1.0 at 3,000 revolutions per minute.
Valves.	Mushroom. Side valve.
Valve Clearances.	Exhaust .015 inches. Inlet .007 inches. Inlet valve opens 2 degrees after Top Dead Centre. With above valve clearances the correct opening and closing of the valves will follow.
Camshaft.	One piece helical gear driven.
Piston.	Material, low expansion aluminium alloy. 1 Compression Ring, 1 Scraper Ring, 1 Oil Control Ring. Gudgeon Pin fixing by 2 circlips.
Connecting Rod.	Material, aluminium alloy. Big end bearing, plain and direct on crankshaft.
Crankshaft.	Material, Steel Forging.
Main Bearings.	Steel backed white metal lined.
Ignition.	MAGNETO, FLYWHEEL TYPE. TIMING, 22—24 degrees before top dead centre. DRIVE direct main shaft. SPARKING PLUG, size 14 mm. 3/8 in. reach CHAMPION J8, or equivalent. Three-eighths inch reach. Zenith 13TCA-2.
Carburettor.	Special 'Oil-mist' method.
Lubrication System.	Special 'Oil-mist' method.
Fuel Tank Capacity.	2 pints.
Fuel Consumption.	.8 pints per H.P. hour.
Rotation.	Clockwise looking at recoil starter.
Method of fixing.	By four hook bolts 5/16 in. dia. in base at 6 3/8 in. by 3 1/8 in. centres.

II. OPERATION INSTRUCTIONS.

1. PREPARATION FOR USE.
See Para. II 1, Page 4
2. TO START ENGINE WHEN COLD.
See Para. II 2, Page 5
3. TO START ENGINE WHEN HOT.
See Para. II 3, Page 6
4. TO STOP ENGINE.
See Para. II 4, Page 6
5. SPEED REGULATION.
The speed of the engine is controlled by the lever at the end of the cable attached to the carburettor.
An automatic governor (3) is fitted which will maintain a constant speed whether the engine is running light or under load, according to the setting of the control lever. Adjustment to this device should not be attempted unless absolutely necessary.
See illustration on Page 5
6. FAILURE TO START.
See Para. II 5, Page 6
If all the points in *Para. II 5, Page 6* have been checked and the engine still will not start it may be due to one or more of the following causes.
 - (a) Plug cable in poor condition.
 - (b) Carburettor.
If it is suspected that foreign matter may have entered carburettor remove screws from lid of float chamber and remove float. Then clean out float chamber and needle seat.
For more detailed instructions, see section on Carburettor Maintenance.
 - (c) Magneto.
If after examining sparking plug and its cable, there is still no spark, remove the flywheel cover and check magneto.
See section on Magneto Service Instructions.
 - (d) Cylinder Compression.
Lack of compression may be caused by
 - (i) Insufficient valve clearance. There should be a clearance of .015 in. between exhaust valve stem and tappet and .007 in. between inlet valve stem and tappet throughout the closed period of the valves respectively
 - (ii) Valves sticking. Remove valve chest cover to see if valve stems are moving their full distance as engine is turned over.
If not, remove cylinder head, clean away any foreign matter under valve head on valve stem and free the valve.
 - (iii) Joint between cylinder and head of cylinder not tight. This is not likely to occur unless the cylinder head has been removed and replaced incorrectly, or replaced with a faulty gasket.
7. LUBRICATION.
Complete lubrication of all working parts of the engine including valves, etc., is automatically ensured by the special 'oil-mist' method, whereby it is unnecessary to add upper cylinder lubricant.
Always maintain oil in sump at correct level as indicated by marks on dipstick.

Do not remove the oil plug whilst the engine is running.

After every 30 hours running and preferably when the engine is hot drain the oil by unscrewing the drain plug in the sump at the base of the engine. Flush out with flushing oil (not paraffin). Make sure drain plug is replaced and tightened before refilling with fresh lubricating oil.

8. IGNITION.

Ignition is fixed. If the magneto is removed for any reason, mark the relative position of engine and magneto in order that the timing should not be altered.

The magneto is timed to spark at 22—24 degrees before top dead centre.

III. MAINTENANCE & REPAIRS.

1. MAGNETO DESCRIPTION.

The Flywheel Magneto produces a high spark output at low-speeds for easy starting, and maintains a maximum spark output over a wide timing range.

It consists of two main parts: a FLYWHEEL and a STATOR PLATE. The Flywheel contains in its rim a permanent magnet of special alloy.

The Stator Plate contains the H.T. Coil mounted on a laminated core, the condenser and the breaker mechanism, all of which are easily accessible.

2. MAGNETO SERVICE INSTRUCTIONS.

If the engine fails to start, and there is indication that the magneto is at fault, the following procedure should be adopted.

(a) Disconnect the H.T. lead from the spark plug, and hold it about $\frac{1}{2}$ " away from some unpainted portion of the engine. Turn the engine over manually and a spark should jump this gap. If no spark is visible then,

(b) Remove the magneto cowl complete with starter.

(c) Remove the Flywheel. Remove the pawl hub and spacer. Unscrew the hexagon nut (L.H. thread) at the end of the crankshaft. If the flywheel will not withdraw easily, grasp it firmly and while attempting to pull it off tap the end of the crankshaft with a mallet. Be careful not to damage the thread. Make sure that there are no metallic particles inside the flywheel.

(d) Check that the H.T. cable is not broken, disconnected from the coil, or damaged in any way. Also check other wiring.

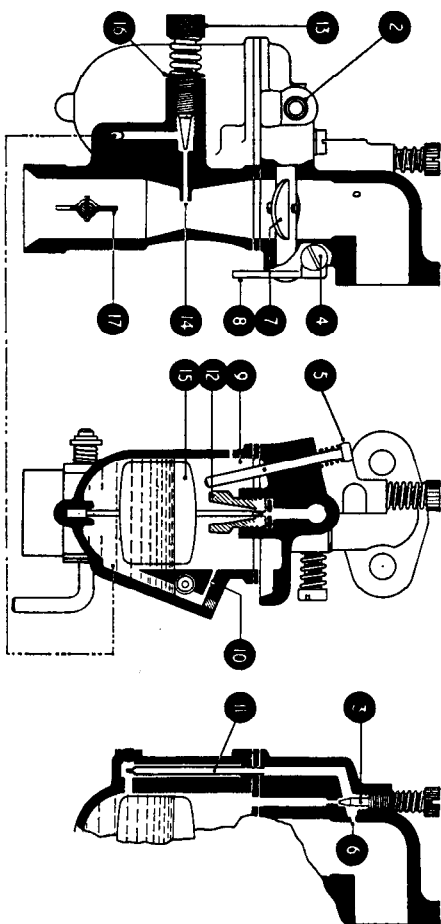
(e) Check that the contact breaker points are clean.

Turn the engine over until the points are fully open. Measure the opening with a feeler gauge. This opening should be .018"—.020". If the points need adjusting, loosen the large screw which locks the breaker plate and move the latter to give the correct opening by turning the small screw, which is eccentric. Then lock the large screw. Check the opening.

The breaker points setting should only be adjusted in the manner described; at no time should the fixed contact be loosened to provide adjustment.

If either the fixed or moving points at any time need replacement, it is recommended that both be replaced at the same time.

(f) A weak or faulty condenser can be detected by badly burnt or pitted points, or a continuous blue spark across the contacts when running. A small white spark is normal. The condenser can be removed by undoing the screws holding the clamp and disconnecting the leads from it.



3. CARBURETTER DESCRIPTION.

The 17CA-2 carburetter shown above has a high non-flooding angle in all directions, and consists of two principal castings. The upper portion or throttle body incorporates the right angle inlet bend and the fixing flange which is bolted on to the inlet manifold of the engine; the lower portion consists of the float chamber (or bowl) and the air intake. The choke tube is cast integrally as part of the air intake.

Operation.

Fuel enters the carburetter through the inlet spigot (2) at the top of the bowl cover. It then passes through the needle seating (12) into the bowl.

As the petrol rises it lifts the combined float and needle (13), thus cutting off further supplies when correct level is reached. The tickler (5) is provided so that the float may be depressed to raise the level temporarily, for easy starting from cold. A small hole is drilled in the side of the bowl, just above the petrol level, to prevent excessive flooding.

Starting From Cold.

The necessary rich mixture required for starting is supplied when the strangler flap (17) is closed and the engine is turned over. The resulting depression is consequently imposed on the tube (14), providing a very rich mixture, and the engine starts and continues to run.

In very cold weather the tickler (5) may also be used. If the engine has been switched off for a relatively short period only, it will not always be necessary to use the strangler when restarting; it may, however, be found advantageous in some cases to use the tickler to ensure an immediate fire when the engine is turned over.

Idling.

When the throttle is in the idling position, fuel will be drawn up through the combined slow-running jet and dip tube (11) to the air regulating screw (3). At this point it meets air from the inside of the bowl, and the resulting mixture is inspired by the engine through the orifice (6).

The mixture is enriched by turning the screw clockwise: unscrewing it has, of course, the opposite effect.

High Speed Operation.

The main jet adjustment screw (13) controls the fuel flow at high engine speeds. The main jet discharge tube (14) terminates in the restricted portion of the choke tube, where the depression is at its maximum. The tapered end

of the screw (13) enters the outer end of the discharge tube, thereby regulating the amount of fuel drawn into the choke tube. The volume of petrol/air mixture inspired by the engine is controlled by the butterfly throttle (7), which in turn is operated by the throttle lever (8). The small hole (10) bleeds air from the inside of the bowl into the main jet system, as shown.

This hole should not be allowed to become choked.

4. ADJUSTMENTS.

Idling.

It is usual to set the idling speed at 1,000-1,100 r.p.m.; the throttle stop screw (4) must be turned clockwise to increase, and anti-clockwise to reduce this. Smooth idling is ensured by careful adjustment of the air regulating screw (3).

Should difficulty be found in obtaining satisfactory idling, check that the gasket between the barrel and the bowl is in good condition, and that the face of the attachment flange on the barrel is perfectly flat to ensure an airtight joint. A thin gasket should always be used at this flange point.

Main Jet.

The main jet screw (13) is set by the engine manufacturer, and the setting should not be changed without good reason. This adjustment is always sensitive on small engines, consequently it should not be altered more than one-eighth of a complete turn at a time until the effect has been carefully noted. (The shallow notch in the head is provided solely as a mark to indicate the position of the screw). Always regulate the screw with the engine under load, at normal full speed with the throttle wide open; it is not satisfactory to adjust the main jet when the engine is running light on the speed governor, with the throttle nearly closed. Turning the screw (13) clockwise will reduce the fuel flow, therefore weakening the mixture supplied to the engine. Turning it anti-clockwise will increase the flow and provide a richer mixture.

DO NOT FORCE THE SCREW INTO ITS SEATING AS THIS WILL DAMAGE THE TAPER, thereby making correct adjustment extremely difficult.

If the setting is too weak, it will result in lack of power and possibly overheating of the cylinder, together with poor pick-up, or cutting-out when the load is applied. Do not attempt to operate on a very lean mixture, as better performance and fuel economy will be obtained if the mixture is set for full power. An excessively rich mixture will produce black smoke from the exhaust, and may cause rapid carbon formation in the cylinder head and on the piston crown. Carbon will also quickly form on the sparking plug points, resulting in difficult starting.

The washer (16) is to prevent fuel leaking from the thread of the screw.

General.

Flooding may be caused by excessive engine vibration, dirt in the needle seating, a bent float, or possibly by the tickler (5) sticking down and depressing the float. Should the flooding continue after cleaning and checking the carburetter, fit a new float and needle (15) and needle seating (12), as these parts in time are subject to wear as a result of engine vibration.

IMPORTANT. In all cases of bad starting or unsatisfactory performance, first check the setting of the **MAIN JET SCREW (13)** and **SLOW RUNNING JET ADJUSTING SCREW (3)**.

See Illustration on Page 16

5. AIR FILTER (PLASTIC FOAM TYPE).

This filter is intended to be used dry, and when necessary the element should be washed in petrol and wrung out dry.

6. CONTROL CABLE ADJUSTMENT.

The control lever is connected to the carburetter by the cable (4) which is located in the carburetter manifold by the ferrule (5). If after considerable use it is found that the cable has stretched, adjustment can be made by rotating the ferrule (5). This adjustment should be made with the control lever in the closed position and the throttle control spring (6) fully expanded.

See Illustration on Page 5

7. ENGINE DISMANTLING.

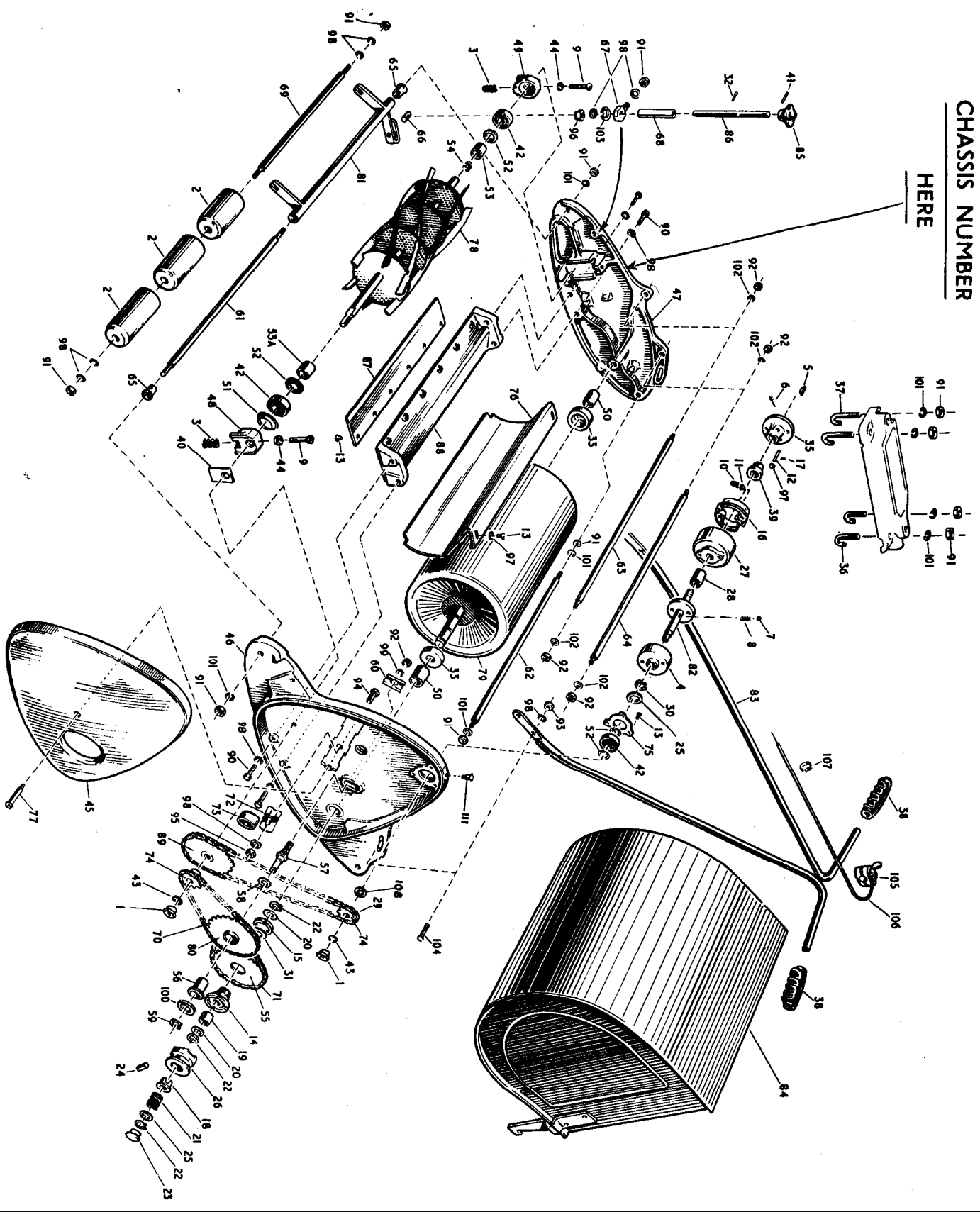
1. Disconnect plug lead from sparking plug.
2. Remove sparking plug.
3. Disconnect petrol pipe from top of carburetter.
4. Remove cowl complete with petrol tank and starter.
5. Remove governor blade from spindle and disconnect from throttle link.
6. Remove carburetter assembly at joint between inlet manifold and cylinder block.
7. Remove magneto flywheel, woodruff key, contact breaker cam, and cam spring.
8. Remove cylinder head.
9. Remove magneto stator plate, drawing plug lead through rubber grommet in magneto backplate.
10. Remove engine sump.
11. Remove big end set screws, locking strip, oil splasher, and big end bearing cap.
12. Remove piston and connecting rod complete by drawing upwards through cylinder.
13. Remove rings from pistons, one circlip and gudgeon pin.
14. Remove magneto backplate.
15. Remove crankshaft.
16. Remove valve chest cover, breather retaining spring and crankcase breather.
17. Compress valve springs and remove cotter pins.
18. Remove camshaft by tapping out camshaft spindle TOWARDS magneto end of engine with a brass drift.
19. Remove tappets.

TO RE-ASSEMBLE, REVERSE THE ABOVE PROCEDURE.

Mower Assembly Illustration

CHASSIS NUMBER

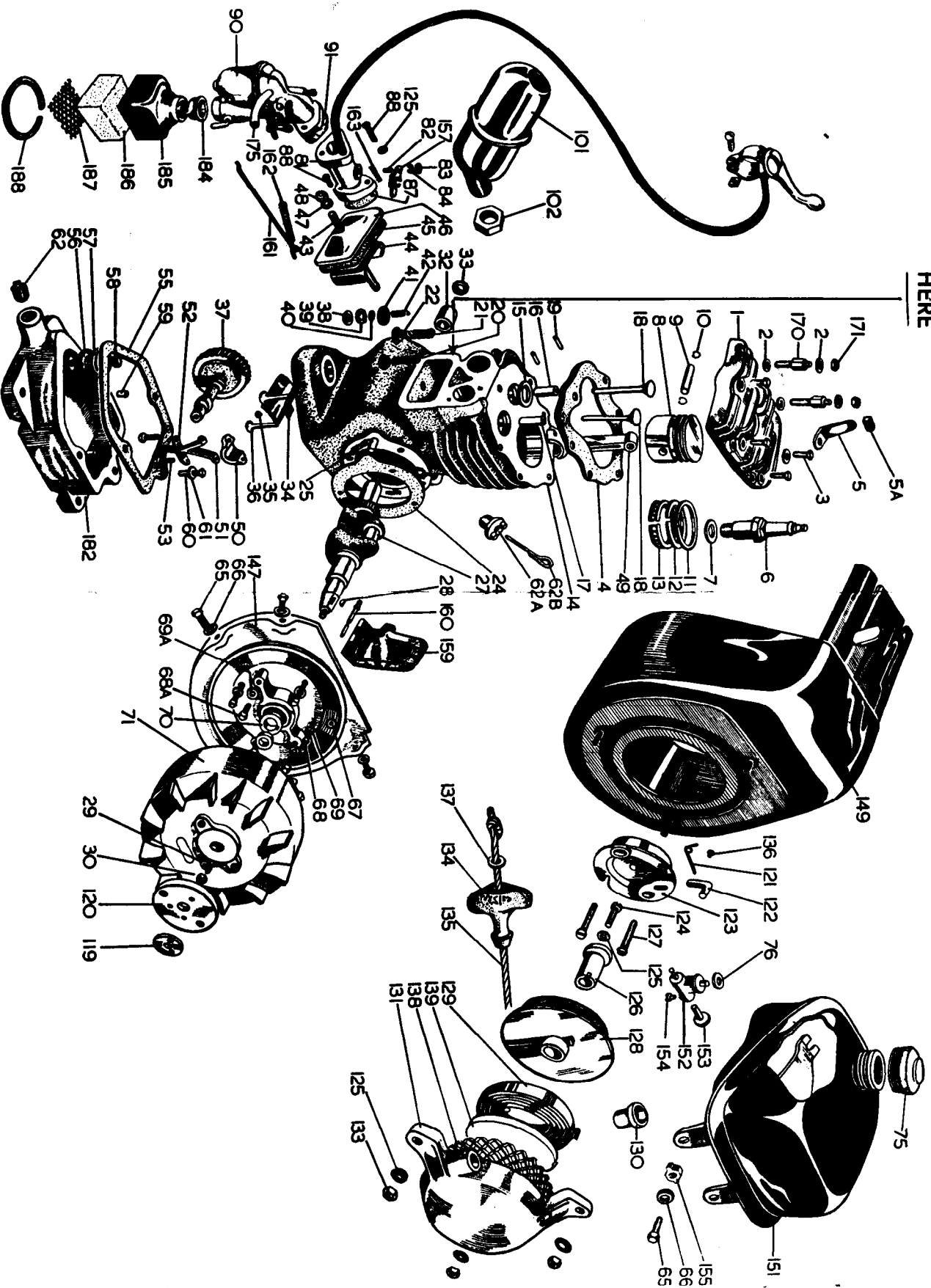
HERE



Engine Assembly Illustration

ENGINE NUMBER

HERE



PUNCH MK. VII MOTOR MOWER SPARE PARTS LIST

Ref. No.	Description	Part No.	No. per set
1.	Nut for 7 Tooth Sprocket ...	L-2966	2
2.	Wood Roller ...	L-3436	3
3.	Spring for Bearing Block ...	L-3494	2
4.	Pin Cover ...	L-3660	1
5.	Woodruff Key ...	L-3845	1
6.	Set-Screw for Backplate ...	L-7178	1
7.	Ball for Clutch Spindle ...	L-3848	1
8.	Spring for Ball ...	L-4231	1
9.	Adjusting screw for Cylinder ...	L-4331	2
10.	Clutch Spring ...	L-4473	2
11.	Adjusting Screw for Clutch ...	L-4474	2
12.	Mills Pin for Clutch ...	L-4476	2
13.	Screws for Bearing Cover, Delivery Plate and Bottom Blade ...	L-4668	11
14.	Centre for Rear Roller Sprocket ...	L-4676	1
15.	Locking Ring for Rear Roller ...	L-4677	1
16.	Clutch Shoe ...	L-4704	2
17.	Split Pin for Mills Pin ...	L-4710	2
18.	Bush for Rear Roller Dog ...	L-4972	1
19.	Bush for Rear Sprocket ...	L-4973	1
20.	Washer for Rear Roller Spindle (Large) ...	L-4974	2
21.	Spring for Rear Roller ...	L-4975	1
22.	Circlip for Rear Roller Spindle ...	L-4976	3
23.	Plug Button ...	L-7233	1
24.	Mills Pin ...	L-4978	1
25.	Washer (Small) for Rear Spindle and Clutch Spindle ...	L-4980	2
26.	Rear Roller Dog ...	L-7232	1
27.	Clutch Drum ...	L-5104	1
28.	Bush for Drum ...	L-5127	1
29.	Primary Chain ...	L-7109	1
30.	Circlip for Clutch Spindle ...	L-5149	1
31.	Washer for Rear Sprocket ...	L-5152	1
32.	Split Pin for Adjusting Screw ...	L-5376	1
33.	Spacer for Rear Roller ...	L-5500	2
35.	Clutch Backplate ...	L-6097	2
36.	Hook Bolts (Short) ...	L-6103	1
37.	Hook Bolts (Long) ...	L-6104	2
38.	Handle Grips ...	L-6136	2
39.	Bush for Backplate ...	L-6162	1
40.	Felt Pad for Cylinder Spindle ...	L-7124	1
41.	Mills Pins for Adjusting Screw ...	L-6776	1
42.	Bearing for Cylinder and Clutch Spindle ...	L-6856	3
43.	Spring Washer for Sprocket ...	L-6941	2
44.	Nut for Cylinder Adjusting Screw ...	L-6955	2

Ref. No.	Description	Part No.	No. per set
45.	Chain Cover ...	L-7025	1
46.	Sideplate L.H. ...	L-7030	1
47.	Sideplate R.H. ...	L-7031	1
48.	Bearing Block L.H. ...	L-7032	1
49.	Bearing Block R.H. ...	L-7033	1
50.	Bush for Sideplate ...	L-7034	2
51.	Bearing Seal (Cylinder) ...	L-7036	1
52.	Bearing Seal (Cylinder and Clutch Shaft) ...	L-7037	4
53.	Distance Piece for Cylinder (Short) ...	L-7038	1
53A.	Distance Piece for Cylinder (Long) ...	L-7039	1
54.	Spring Washer for Cylinder ...	L-7044	1
55.	Rear Roller Sprocket ...	L-7045	1
56.	Bush for Intermediate Sprocket ...	L-7046	1
57.	Spindle for Intermediate Sprocket ...	L-7047	1
58.	Washer for Intermediate Sprocket Spindle ...	L-7048	1
59.	Circlip for Intermediate Sprocket Spindle ...	L-7049	1
60.	Dust Cover for Intermediate Sprocket Spindle ...	L-7050	1
61.	Front Tie Rod ...	L-7051	1
62.	Rear Tie Rod ...	L-7052	1
63.	Front Engine Tie Rod ...	L-7053	1
64.	Rear Engine Tie Rod ...	L-7054	1
65.	Bushes for Roller Carrier ...	L-7055	2
66.	Trunnion Nut ...	L-7056	1
67.	Anchor Block ...	L-7057	1
68.	Spacer for Adjusting Screw ...	L-7058	1
69.	Wood Roller Spindle ...	L-7059	1
70.	Intermediate Chain ...	L-7060	1
71.	Final Drive Chain ...	L-7061	1
72.	Chain Adjuster ...	L-7062	1
73.	Nylon Slipper for Chain Adjuster ...	L-7063	1
74.	7 Tooth Sprocket ...	L-6112	2
75.	Bearing Cover ...	L-7065	1
76.	Delivery Plate ...	L-7066	1
77.	Screw for Chain Cover ...	L-7067	1
78.	Cylinder ...	L-7068	1
79.	Rear Roller ...	L-7069	1
80.	Intermediate Sprocket ...	L-7070	1
81.	Front Roller Carrier ...	L-7071	1
82.	Clutch Spindle ...	L-7073	1
83.	Tubular Handle with Grips ...	L-7074	1
84.	Grassbox ...	L-7076	1
85.	Finger Wheel ...	L-5350	1
86.	Adjusting Screw ...	L-6127	1
87.	Bottom Blade ...	L-7089	1
88.	Soleplate ...	L-7090	1

ENGINE SPARE PARTS LIST
MODEL 75 G 14-14A

Ref. No.	Description	Part No.	No. per set
89.	Cylinder Sprocket	L-7097	1
90.	Bolt for Soleplate	L-7105	4
91.	Nut for Anchor Block, Wood Roller Spindle, Tie Rod Rear and Front, and Hook Bolts	IN32A	11
92.	Nut for Engine Tie Rod	IN33A	4
93.	Nut for Tubular Handle	IN45A	2
94.	Screw for Chain Adjuster	IDO49A	1
95.	Nut for Chain Adjuster	IN84A	1
96.	Slotted Nut for Adjusting Screw	IN111A	1
97.	Washer for Clutch and Delivery Plate	E-7132	4
98.	Washer for Wood Roller Spindle, Soleplate, Tubular Handle, Anchor Block, Chain Adjuster and Chain Cover	IN561A	13
99.	Washer for Intermediate Sprocket Spindle	L-5327	1
100.	Washer for Intermediate Sprocket Spindle	IN563A	1
101.	Spring Washer for Tie Rod Rear and Front, and Hook Bolts	IN624	8
102.	Spring Washer for Engine Tie Rod	IN625	4
103.	Spring Washer for Adjusting Screw	IN664	1
104.	Bolt for Tubular Handle	IN862A	2
105.	Control Lever	E-7005	1
106.	Cable	E-7165	1
107.	Rubber Cleat... ..	E-5315	1
108.	Spacing Washer for Clutch Spindle	L-7112	1
109.	Washer for Adjusting Screw	IN562A	1
110.	Nut for Intermediate Spindle	IN85A	1
111.	Lubricator for L.H. Sideplate	L-6751	1

AUXILIARY WHEELS

The following items (not illustrated) may be fitted in place of items, 2, 69, 91 (2 per set), 98 (4 per set).

Ref. No.	Description	Part No.	No. per set
112.	Split Pin	L-6751P	2
113.	Auxiliary Wheel	E-8056	2
114.	Spindle	L-7896	1
115.	Nut for Spindle	3N32A	2
116.	Washer, small	3N561A	4
117.	Washer, large	3N564A	4
118.	Auxiliary Wheel Sub-Assembly comprising items 112-117 inc.	L-7895	1

INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following:

- (a) The Model Name of the machine.
- (b) The chassis serial number stamped on the R.H. side plate. (See *owner assembly illustration*.)
- (c) The engine serial number. (See *engine assembly illustration*.)
- (d) The PART NO. of the part, NOT the illustration No.

Ref. No.	Description	Part No.	No. per set
1.	Cylinder Head	E-7257	1
2.	Washer for Cylinder Head	3N561A	8
3.	Set-Screws for Cylinder Head	ED336S	4
4.	Cylinder Head Gasket	E-7280	1
5.	Cut-out Switch	E-5969	1
5a.	Rubber Tube for Cut-out Switch	E-4083	1
6.	Spark Plug	E-3808	1
7.	Washer for Spark Plug		
8.	Piston	E-3513	1
9.	Gudgeon Pin	E-5517	1
10.	Wire Circlips	E-3518	2
11.	Compression Ring	E-3514	1
12.	Scrap Ring	E-3515	1
13.	Oil Ring	E-3516	1
14.	Cylinder Block	E-7438	1
15.	Valve Seat Insert—Exhaust	E-3534	1
16.	Exhaust Valve Guide	E-3532	1
17.	Inlet Valve Guide	E-3533	1
18.	Inlet Valve and Exhaust Valve	E-3526	2
19.	Valve Spring Cotter Pin	E-3531	2
20.	Inlet Valve Spring	E-3529	1
21.	Exhaust Valve Spring	E-3528	1
22.	Valve Spring Retainer	E-3668	2
24.	Paper Gasket for Flywheel Magneto Backplate	E-3859	3
25.	Camshaft Spindle	E-6789	1
27.	Cranksaft	E-3524	1
28.	Key for Magneto Flywheel	E-3597	1
29.	Washer for Cranksaft	IN562A	1
30.	Nut for Cranksaft (Left Hand Thread)	E-7842	1
32.	Main Bearing	E-3536	2
33.	Oil Seal	E-3813	2
34.	Breather Baffle	E-3561	1
35.	Drive Screw for Breather Baffle	E-3814	1
36.	Tappets	E-3535	2
37.	Camshaft	E-3510	1
38.	Washer for Crankcase Breather	E-3594	1
39.	Breather Body	E-3555	1
40.	Disc Valve	E-3557	1
41.	Breather Cap	E-3556	1
42.	Breather Retainer Spring	E-3558	1
43.	Strud for Valve Chest Cover	E-7098	1
44.	Baffle for Valve Chest Cover	E-3560	1
45.	Gasket for Valve Chest Cover	E-3549	1
46.	Cover for Valve Chest	E-3545	1
47.	Washer for Stud	E-7132	1
48.	Nut for Stud	IN44A	1
49.	Connecting Rod		
50.	Big End Bearing Cap	E-3519	1
51.	Oil Splasher	E-6108	1
52.	Locking Strip	E-3523	1
53.	Screws for Big End Bearing Cap	1D-585S	2
55.	Paper Gasket for Sump	E-3547	1
56.	Washer for Bolt—Asbestos	E-3749	1
57.	Collar for Bolt	E-3566	1
58.	Bolt for Sump	1A139A	1
59.	Dowels for Sump	E-3819	2
60.	Setcrew for Sump	1DO87-A	1
61.	Shakeproof Washer for Setcrew	E-3821	1
62.	Drain Plug	E-3822	1

} Supplied together Complete with Ref. No's. 52 and 53

It is essential to quote the following:

- (a) The Model Name of the machine.
- (b) The chassis serial number stamped on the R.H. side plate. (See *owner assembly illustration*.)
- (c) The engine serial number. (See *engine assembly illustration*.)
- (d) The PART NO. of the part, NOT the illustration No.

Ref. No.	Description	Part No.	No. per set
62a.	Filler Plug (Export only) ...	E-7306	1
62a.	Filler Plug (Home Trade only) ...	E-6894	1
62b.	Dip Stick for Filler Plug ...	E-6895	1
65.	Screw for Cowl and Tank	3D270A	7
66.	Washer for Cowl and Tank	E-7132/P	7
67.	Grommet ...	E-5051	1
68.	Screw for Flywheel Magneto Backplate	3DO48A	4
68a.	Screw for Magneto Stator Plate ...	3DO48A	2
69.	Washer for Flywheel Magneto Backplate	E-3844	4
69a.	Washer for Screw for Magneto Stator Plate	E-7132/P	2
70.	Cam—Contact Breaker ...	E-5098	1
71.	Flywheel ...	E-5010	1
75.	Petrol Tank Cap ...	E-3589	1
76.	Washer for Petrol Tap	L-7613	2
81.	Inlet Manifold	E-7437	1
82.	Stud for Throttle Lever ...	E-3505	1
83.	Nut for Throttle Lever ...	L-6958	1
84.	Washer for Throttle Lever ...	3N610A	1
87.	Gasket for Inlet Manifold ...	E-7469	1
88.	Screw for Carburettor Assembly and Inlet Manifold	E-7772	4
90.	Carburettor ...	E-7179	1
91.	Gasket for Carburettor ...	E-3550	1
101.	Exhaust Silencer ...	E-4000	1
102.	Locknut for Exhaust Silencer ...	E-3568	1
119.	Spacer (Small) for Recoil Starter	E-5527	1
120.	Spacer (Large) for Recoil Starter	E-5535	1
121.	Spring for Recoil Starter ...	E-7778	1
122.	Driving Pin ...	E-7339	1
123.	Pawl Hub ...	E-7357	1
123a.	Pawl Hub Sub. Assy.		1
124.	Centre Screw ...	E-7407	1
125.	Shakeproof Washer for Centre Screw, Cover, Inlet Manifold and Carburettor Assembly	1K398A	1
126.	Bush ...	E-6865/P	8
127.	Screws for Pawl Hub/Spacer	E-5524	1
128.	Ratchet Pulley	1H387A	2
129.	Recoil Spring	E-7338	1
130.	Rope Guide Bush	E-5516	1
131.	Cover for Recoil Starter	E-5522	1
133.	Nut for Cover	E-5534	1
134.	Rope Handle	3N31A	3
135.	Nylon Rope	E-5518	1
136.	Screw for Spring	E-5517	1
137.	Washer for Rope Handle	E-5528	1
138.	Screen	E-7132/P	1
139.	Housing for Recoil Spring	E-6590	1
139a.	Recoil Starter Assembly comprising Ref. No's. 119 to 139, inc., except 122a	E-7340	1
147.	Flywheel Magneto Backplate	E-7336	1
149.	Cowl ...	E-6533	1
151.	Petrol Tank ...	E-6532	1
152.	Petrol Tap Body ...	E-6756	1
153.	Petrol Control Button	E-6596	1
154.	Screw for Petrol Tap	E-6597	1
154a.	Petrol Tap Assy. comprising Ref. No's. 152, 153, 154	E-6598	1
155.	Nut for Tank Fixing Screw	E-7250	1
157.	Throttle Lever	L-6961	3
159.	Governor Blade	E-7161	1
160.	Governor Blade Spindle	E-6529	1
161.	Throttle Link	E-6528	1
162.	Governor Spring	E-6752	1
		E-6536	1

Ref. No.	Description	Part No.	No. per set
163.	Throttle Return Spring ...	E-6531	1
170.	Studs for Cylinder Head ...	E-6519	2
171.	Nuts for Cylinder Head Studs	3N45A	2
175.	Petrol Tube ...	E-5309	1
182.	Sump ...	E-6975	1
184.	Rubber Bush for Air Filter	E-7174	1
185.	Air Filter Body	E-7173	1
186.	Air Filter Element (Foam)	E-7172	1
187.	Air Filter Screen	E-7175	2
188.	Wire Clip for Air Filter	E-3579	1
189.	Air Filter Sub. Assembly, comprising Ref. No's. 184 to 188, inc.	E-7176	1
190.	Spring Washer for Cylinder Head Stud (not illustrated)	3N624	2

The above list to be read in conjunction with
ENGINE ASSEMBLY ILLUSTRATION

INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following:

- The Model Name of the machine.
- The chassis serial number stamped on the R.H. side plate. (See *mower assembly illustration*).
- The engine serial number. (See *engine assembly illustration*).
- The PART NO. of the part, NOT the illustration No.

SPARE PARTS LIST FOR ZENITH CARBURETTOR
TYPE 13.TCA—2

Ref. No.	Description	Part No.
1.	Air Regulating Screw	013457
2.	Spring for Ref. No. 1	015458
3.	Screw and Spring Washer fixing Bowl to Barrel (Short)	020584
3a.	Screw and Spring Washer fixing Bowl to Barrel (Long)	019651
4.	Throttle Stop Screw	015547
5.	Spring for Ref. No. 4	08339
6.	Carburetor Barrel Assembly	020573
7.	Washer for Needle Seating	08323
8.	Needle Seating	020574
9.	Gasket (Bowl to Barrel)	020583
10.	Float and Needle Assembly	020507
11.	Adjustment Needle	020576
12.	Spring for Ref. No. 11	09846
13.	Fibre Washer for Ref. No. 11	16709
14.	Strangler Spindle and Pin Assembly	020579
15.	Strangler Flap	013635
16.	Split Pin for Ref. No. 15	03370
17.	Split Pin for Spindle	03370
18.	Washer for Spindle	08860
19.	Friction Spring	013650
20.	Carburetor Bowl	020575
21.	Slow running Tube	020582
22.	Split Pin for Ticker Stem	03890
23.	Ticker Spring	015454
24.	Ticker Stem	020572

This list to be read in conjunction with

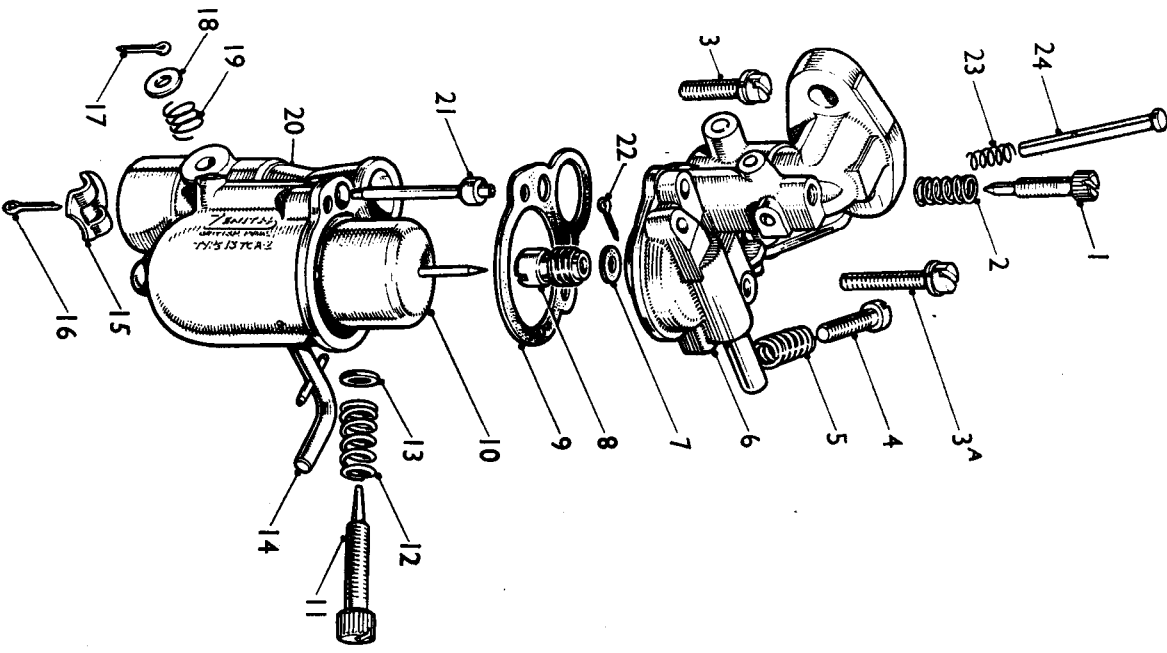
EXPLODED ILLUSTRATION OF CARBURETTOR on Page 26

INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following:

- (a) The Model Name of the machine.
- (b) The chassis serial number stamped on the R.H. side plate. (See *mower assembly illustration*).
- (c) The engine serial number. (See *engine assembly illustration*).
- (d) The PART NO. of the part, NOT the illustration No.

Carburetor Illustration



Magneto Assembly Illustration



Ref. No.	Description	Part No.	No. per set
1.	Flywheel	E.5010	1
2.	Clip for Condenser	E.5013	1
3.	Adjuster Plate	E.5014	1
4.	Inspection Cover	E.5019	1
5.	Eccentric Rivet	E.5020	1
6.	Screw for Condenser Clip	E.5021	2
7.	Breaker Arm and Contact	E.7468	1
8.	Contact Point and Bolt	E.5026	1
9.	Nut for Contact Point and Bolt	IN471A	1
10.	Washer for Contact Point and Bolt	IN611A	2
11.	Screw, locking Adjusting Plate	IK007A	1
12.	Washer for Screw, locking Adjusting Plate	IN610A	1
13.	Spring Retainer	E.5032	1
14.	Breaker Spring	E.5033	1
15.	Washer	E.5034	2
17.	Condenser	E.5037	1
18.	Cam Sleeve	E.5038	1
19.	Coil	E.7220	1
20.	Screw for Inspection Cover	E.5041	2
21.	Washer for Inspection Cover and Contact Point and Bolt	E.5042	3
22.	Pad—Lubricating	E.5047	1
23.	Lead—High Tension	E.7409	1
23A.	Suppressor	E.7858	1
24.	Grommet—Rubber	E.5051	1
25.	Cam Spring	E.5052	1
26.	Stator Assembly	E.5053	1
29.	Spring Washer for Stem	E.5043	1

This list to be read in conjunction with
MAGNETO ASSEMBLY ILLUSTRATION on Page 28

INSTRUCTION FOR ORDERING SPARE PARTS

It is essential to quote the following:

- (a) The Model Name of the machine
- (b) The chassis serial number stamped on the R.H. side plate. (See *number assembly illustration*).
- (c) The engine serial number. (See *engine assembly illustration*).
- (d) The PART NO. of the part, NOT the illustration No.

