THE

SUFFOLK CORPORATION

MARK II

19" POWER MOWING MACHINE

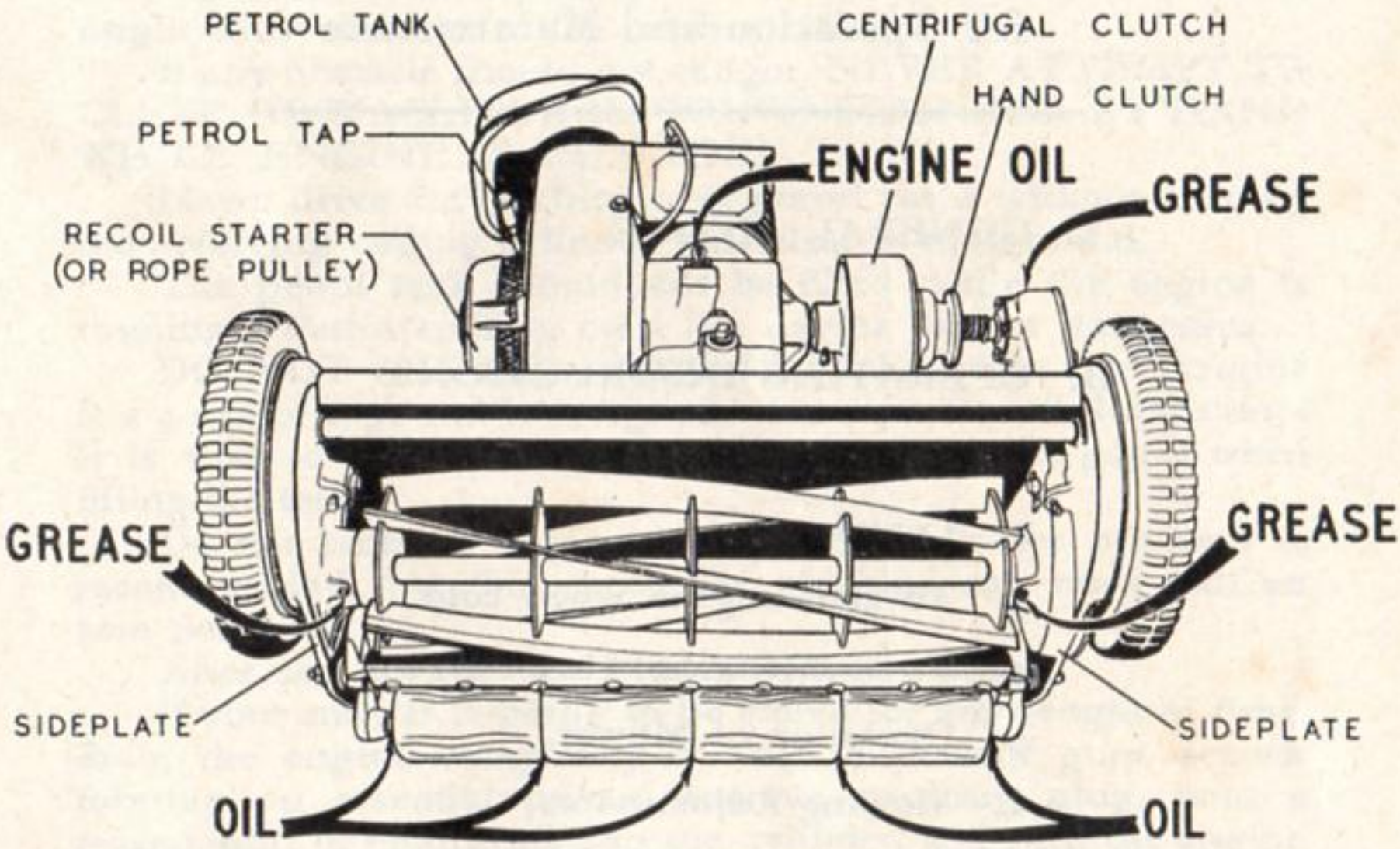
FOUR STROKE ENGINE

OPERATING & MAINTENANCE MANUAL

Sales and Service Department :
SUFFOLK IRON FOUNDRY (1920) LTD..
SUNNYHILL AVENUE,
DERBY,
ENGLAND.
Telephone Number : DERBY 21201 (10 lines)

Spares and Repairs Department :
SUFFOLK IRON FOUNDRY (1920) LTD..
STOWMARKET,
SUFFOLK,
ENGLAND.
Telephone Number STOWMARKET 2183 (5 lines)

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.**

The
Suffolk Corporation Mk. II
Power Mowing Machine

INSTRUCTIONS
for Operation and Maintenance

I GENERAL ADVICE.

The Suffolk Corporation Mk. II Power Mowing Machine 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. Should any part of the machine be 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 crank case. Top up if necessary. Oil and grease working parts regularly, with the exception of the CENTRIMATIC.

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 half an acre per hour.

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) Remove filler plug from the front of the engine and fill with ½ pint of any one of the following recommended oils or equivalents. After filling replace plug.

Do NOT use a new engine without first putting oil in sump.

See Page 2

RECOMMENDED LUBRICATING OILS.

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

(c) Lubricate all grease points of the machine.

See Section III. Para. 1, Page 10

(d) Before fitting handle (1) on mower, remove the bolts, nuts and washers (2) from the sideplates (3).

Fit the handle so that the bosses on the sideplates engage with the notches at the lower end of the handle. Replace the bolts through the sideplates and through the holes in the handle. The heads of the bolts should be on the inside of the sideplates.

See illustration Page 6

Replace washers and nuts on the bolts but set the handles in the position most comfortable for your height before tightening the nuts.

(e) Fit the control lever to either bar of the handle. Fasten the cable to the handle by the steel clip.

(f) Set the position of the roller brackets (5) at the rear of the machine to give the desired height of cut by slackening bolts (6). Retighten bolts after setting. If the grass is long it is advisable to set for high cutting at first. Then lower machine to normal height required for season. It is important that the two brackets should be adjusted equally.

A second hole (7) is provided in each sideplate as an alternative position for the roller bracket bolts, thus providing an even greater range of variation of height of cut.

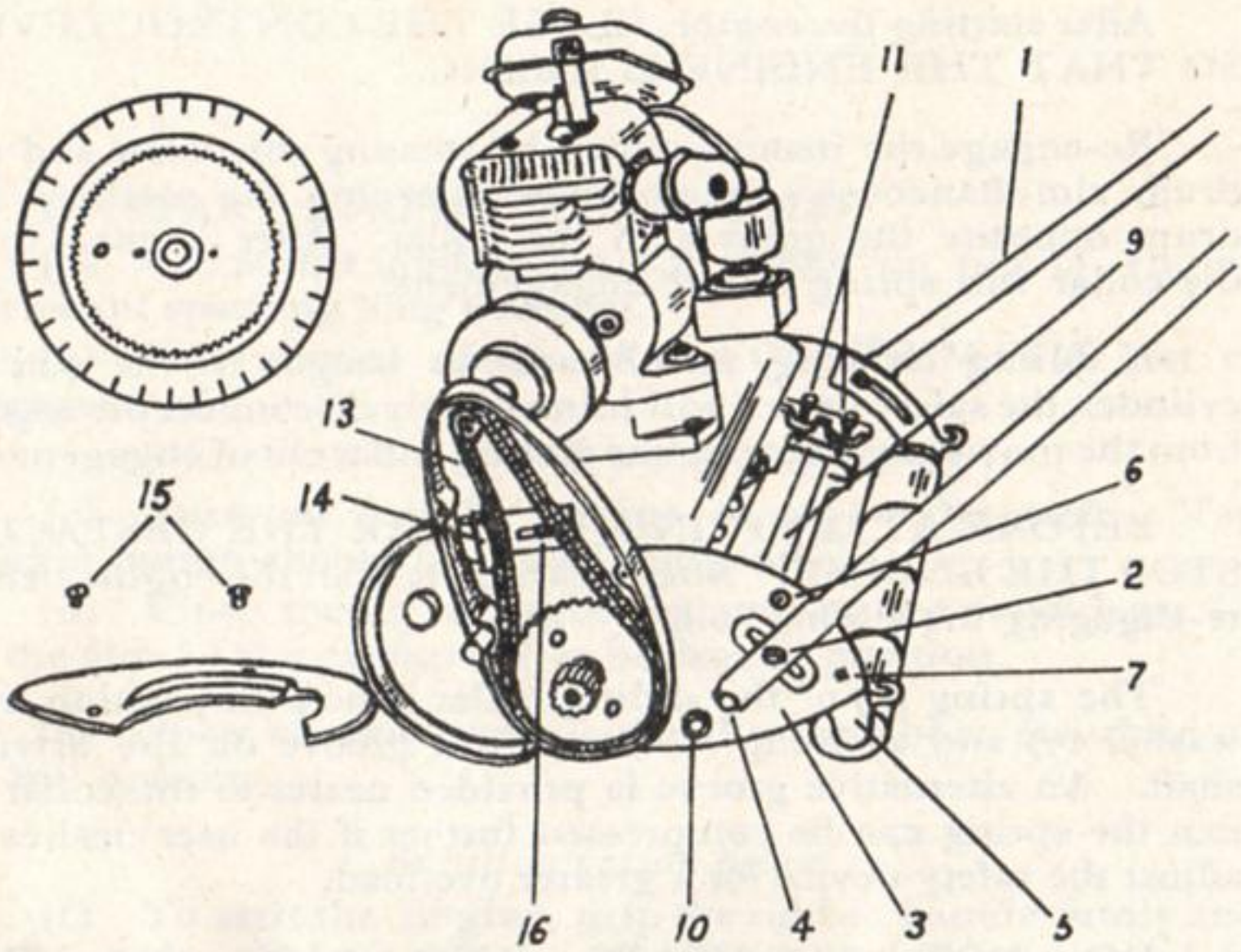
See illustration Page 6

(g) Before starting the mower, *spin the cutting cylinder to see that it runs freely.* If during transit the adjustment has been displaced, perfect alignment can readily be restored by resetting the bottom blade.

See Section II. Para. 6 (b), Page 9

(h) To fit a Grasscatcher attach the bottom edge of the grasscatcher to the special hooks on the roller brackets.

Hang the wire hook of the Grasscatcher over the 'v' shaped fork of the handles, bending the hook to suit so that the base of the Grasscatcher is just clear of the ground when the handle is in the desired position.



II.

2. THE CENTRIMATIC.

The mower is driven by the engine through the **SUFFOLK CENTRIMATIC** transmission which incorporates three special features :

(a) **An AUTOMATIC CENTRIFUGAL CLUTCH**—which enables the machine to be controlled completely by a single lever.

(b) **An OVERLOAD SAFETY DEVICE**—which prevents damage to the machine should an obstacle be caught in the cutting cylinder.

(c) **A MANUAL CLUTCH** which allows the engine to be disconnected from the mower for starting and testing purposes.

The centrifugal clutch is housed within the drum (1).

The manual clutch consists of a sliding collar (2) which is kept in engagement with the drum by a spring (3). The collar engages internally with a pin (4) passing through the driving shaft (5).

See illustration Page 7.

BEFORE STARTING THE ENGINE, pull the collar about $\frac{1}{2}$" along the driving shaft against the spring, and turn it anti-clockwise $\frac{1}{4}$ turn to hold it in position.

This will also disengage the collar from the pin in the driving shaft.

The centrifugal clutch cannot now drive the mower.

After starting the engine, CLOSE THE CONTROL LEVER SO THAT THE ENGINE IS IDLING.

Re-engage the manual clutch by rotating the collar and the drum simultaneously anticlockwise, keeping the teeth of the drum opposite the grooves in the collar. After about ¼ turn the collar will spring into re-engagement.

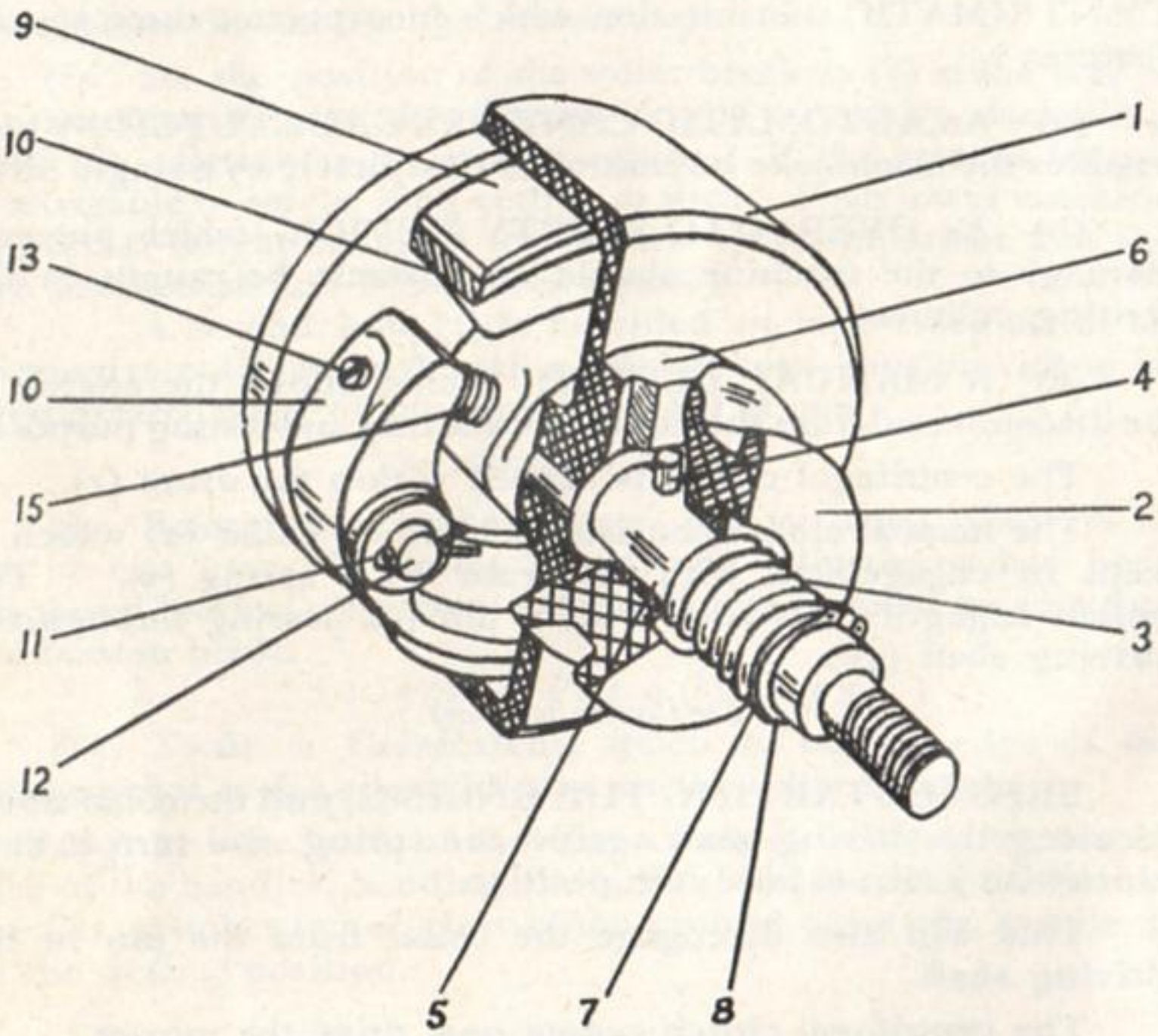
If during mowing, an obstacle be caught in the cutting cylinder, the safety device will immediately disconnect the engine from the mower by throwing the sliding collar out of engagement.

BEFORE ATTEMPTING TO CLEAR THE OBSTACLE, STOP THE ENGINE. After clearing, re-start the engine before re-engaging the sliding collar.

The spring (3) of the sliding collar is held in position by a washer (7) and a circlip (8) fitted in a groove on the driving shaft. An alternative groove is provided nearer to the collar so that the spring can be compressed further if the user desires to adjust the safety device for a greater overload.

DO NOT LUBRICATE ANY PART OF THE CENTRIMATIC.

See illustration below.



II.

3. TO START ENGINE WHEN COLD.

(a) Check that ignition cut out switch on top of engine is clear of sparking plug terminal.

(b) Pull manual clutch of the CENTRIMATIC out of engagement.

See Para. II 2, Page 6, and illustration Page 7.

(c) Turn on fuel by means of tap under tank. Tap control button should be pulled out gently.

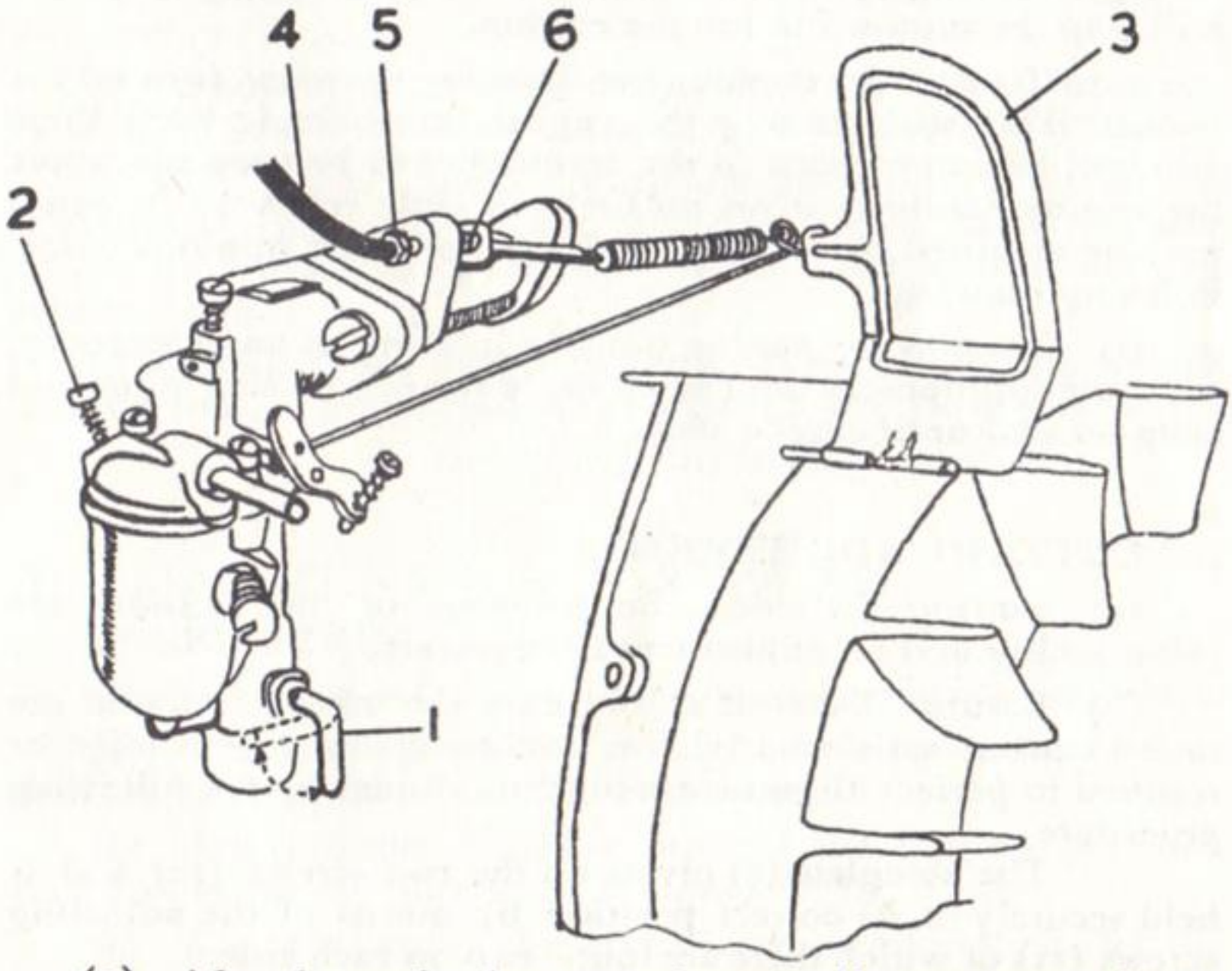
(d) Close the air strangler by turning the small lever (1) at the side of the carburetter to horizontal position.

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

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.

(h) When engine is idling, engage the manual clutch of the CENTRIMATIC. Machine will not move forward but is now ready for use.

II.

4. TO START ENGINE WHEN HOT.

The same procedure should be adopted except that it should not be necessary to close the strangler

II. USING THE MOWER.

5. The following procedure for using the machine should be adhered to :

(a) Ensure that cutting cylinder spins freely before starting engine.

(b) Allow engine to warm up before starting mowing.

(c) Engage manual clutch of CENTRIMATIC ONLY WHEN ENGINE IS IDLING.

(d) Open control lever smoothly, when the machine will automatically take up the drive and move forward.

(e) Do not race the engine. A speed of 3 m.p.h. is recommended.

(f) Reduce speed on corners by closing the lever slightly until you get used to the control of the machine.

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

(h) To stop the engine after finishing mowing, turn off the petrol. This will not stop the engine immediately since there will still be some petrol in the carburetter to be used up before the engine finally receives no fuel. A little economy in petrol may be obtained by turning off the petrol a few minutes before finishing mowing.

(i) To stop the engine quickly in event of an emergency, press the ignition cut out switch on to top of sparking plug, and keep pressed until engine stops.

II.

8. CUTTING ADJUSTMENTS.

(a) Cutting Cylinder—the bearings of the cylinder are self-aligning and no adjustment is necessary.

(b) Bottom Blade—if at any time the mower is found not to be cutting satisfactorily, the bottom blade may readily be restored to perfect alignment with the cylinder by the following procedure.

The soleplate (9) pivots on the two screws (10) and is held securely in its correct position by means of the adjusting screws (11) of which there are four—two on each side.

To lower the soleplate, thus bringing the bottom blade away from the cutting cylinder, loosen the rear pair of adjusting screws and tighten the front pair. To raise the bottom blade towards the cutting cylinder, loosen the front pair and tighten the rear pair.

When correctly adjusted, the cutting cylinder should just touch the bottom blade throughout its whole length.

It is of the utmost importance that all four adjusting screws are equally tight on the soleplate so that undue strain on the sideplate is avoided.

See illustration Page 6

(c) Height of Cut—the height of cut is regulated by the position of the roller brackets.

See Section II. Para. 1 (*f*)

(d) Handles—

See Section II. Para. 1 (*d*)

II

7. 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) Lack of petrol through tap not being turned on, fuel supply choked, 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 pull recoil starter. 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.'

III. MAINTENANCE & REPAIRS.

1. LUBRICATION.

The following points should be greased regularly before use:

(a) The driving wheels through the nipples provided at their centres, behind the detachable wheel discs.

(b) The cylinder bearings through the nipples provided each end of the cylinder shaft, underneath the mower.

(c) The bearing at the end of the driving shaft, by the nipple at the top of the chain case.

The following points should be oiled regularly with light machine oil :

(d) The driving pinions on each side of the mower. Lift one side of the machine well clear of the ground and turn the driving wheel round until its specially provided hole reveals the pinion within. The free-wheel and pinion can then be oiled through the hole. Repeat for the other wheel.

(e) The wooden land rollers.

In addition, always check that the sump of the engine is full, to the upper mark on the dipstick. Top up if necessary.

DO NOT LUBRICATE ANY PART OF THE CENTRIMATIC.

See illustration Page 2

2. CHAIN.

The cylinder driving chain (13) is packed with grease before leaving the works and should require no further lubrication.

The chain is fitted with an adjuster (14) in order to take up any variations in chain wear.

To obtain access to the chain adjuster first remove the driving wheel next to the chain case by removing the wheel disc, spring clip and washer, then sliding the wheel off its spindle. Remove the two screws (15) on the outside of the chain case and withdraw the cover.

Slacken the nut (16) and move the adjuster to give the required tension on the chain. Retighten the nut. Check the tension in several different positions of the chain before re-assembling the mower.

See illustration Page 6

3. THE CENTRIMATIC.

i. Centrifugal Clutch.

Access to the centrifugal clutch of the CENTRIMATIC is readily obtained by removing the screws which fix the engine to the mower platform and withdrawing the engine.

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 (9) of the clutch shoes (10) or on the inside of the clutch drum (1). Clean thoroughly with petrol or other degreasing agent.

(b) Clutch shoes unable to turn on pivot pins (12). Clean if necessary and free the obstruction.

(c) Linings of clutch shoes worn. This is not likely to occur except after very prolonged life. Remove shoes by withdrawing split pins (11) which secure the shoes to their pivot pins and fit new shoes.

(d) If, after attention to the foregoing points, the clutch is found still to be slipping, turn the spring adjusting screws (13) in an anticlockwise direction. This will allow the shoes to exert a greater pressure on the clutch drum.

After adjustment check that clutch is completely disengaged when engine is idling.

ii. Safety Device & Hand Clutch.

Should the safety device operate prematurely and disengage the manual clutch during normal mowing, check that there is no oil, grease or obstruction on the teeth of the drum or in the grooves of the collar. Check the spring.

See Illustration Page 7

4. PROCEDURE FOR CHANGING SIDE & REMOVING DRIVING SPROCKET.

1. Remove engine—see Para. III 3. i. P. 11.

2. Remove wheel, chain case cover and slacken chain adjuster. See Para. III 2. P. 11.

3. Remove chain.

4. Remove cylinder sprocket (48) by blocking cutting cylinder (37) with a wooden wedge and tapping sprocket in clockwise direction with a brass drift. If any difficulty is experienced, apply heat to sprocket.

5. Remove engine platform screws (4).

6. Remove soleplate screw (28) and tie rod nut (24).

7. Sideplate (6) can then be withdrawn together with clutch drum (72) and clutch spindle (79).

8. Remove clutch drum after first removing circlip (71) and washer (70).

9. Hold the spindle (79) in a vice and remove nut (79a) on outside of driving sprocket (49). Then withdraw driving sprocket.

See Mower Assembly illustration.

5. THE ENGINE.

A description of the engine together with instructions for maintenance will be found in a separate section towards the end of this booklet.

6. BOLTS AND NUTS

After the first 5 hours use, all bolts and nuts should be checked for tightness, and this should be repeated after every 30 hours use.

The
Suffolk Four Stroke Engine

Type 98 G 14

Model No. 1. B

DESCRIPTION & INSTRUCTIONS

for Operation and Maintenance

I. DESCRIPTION.

Engine.	Petrol, four stroke, single cylinder, air cooled.
Cylinder Dimensions.	Bore, 57.1 millimetres. Stroke, 38.1 millimetres. Cubic Capacity, 98 c.c.
Max. H.P.	1.5 at 3,000 revolutions per minute.
Valves.	Mushroom. Side valve.
Valve Clearances.	Exhaust .015 inches. Inlet .007 inches. Inlet valve opens 10 degrees before 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.
Carburetter.	Zenith 13TCA2, (11 m.m. choke).
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 bolts 5/16 in. diameter 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 3, *Page* 7

3. TO START ENGINE WHEN HOT.

See Para. II 4, *Page* 9

4. SPEED REGULATION.

The speed of the engine is controlled by the lever at the end of the cable attached to the carburetter.

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 8

5. 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.

The crank case should always be kept full of oil, to the upper mark on the 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 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.

Note: The oil should be changed after the first 5 hours running with a new engine.

6. 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 degrees before top dead centre.

7. TO STOP ENGINE.

See Para. II, 5 (h & i) Page 9

8. 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) Lack of petrol through tap not being turned on or fuel supply choked or failure to flood carburetter.

(b) Too much petrol through excessive flooding, causing too rich a mixture and wet sparking plug. If so, remove and dry plug. Turn engine over smartly a few times by hand with control lever closed. This will expel excessive petrol vapour. Replace plug.

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

(d) Poor spark arising from dirty plug. Remove and clean plug and adjust points. Gap should be .020 in.—.022 in.

(e) No spark. Remove plug and place body on top of cylinder with cable attached and pull recoil starter smartly. There should be a spark at the points of the plug. If not, clean and adjust gap between points. Also check that plug cable is in good condition.

If after all above items have been checked, the engine still will not start the following examination will be required :

(f) Carburetter.

If it is suspected that foreign matter may have entered carburetter, 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 Carburetter Maintenance.

(g) 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.

(h) 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.

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 ASSEMBLY. The Flywheel contains in its rim a permanent magnet of special alloy.

The Stator Assembly 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 ¼" away from some unpainted portion of the engine. Turn the engine over smartly and a spark should jump this gap.

If no spark is visible, then

(b) Remove the magneto cowling by unscrewing the cowling fixing screws, and withdrawing the cowling complete with petrol tank, after first disconnecting the petrol pipe from the carburetter.

(c) Remove the Flywheel and the pawl hub. 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.

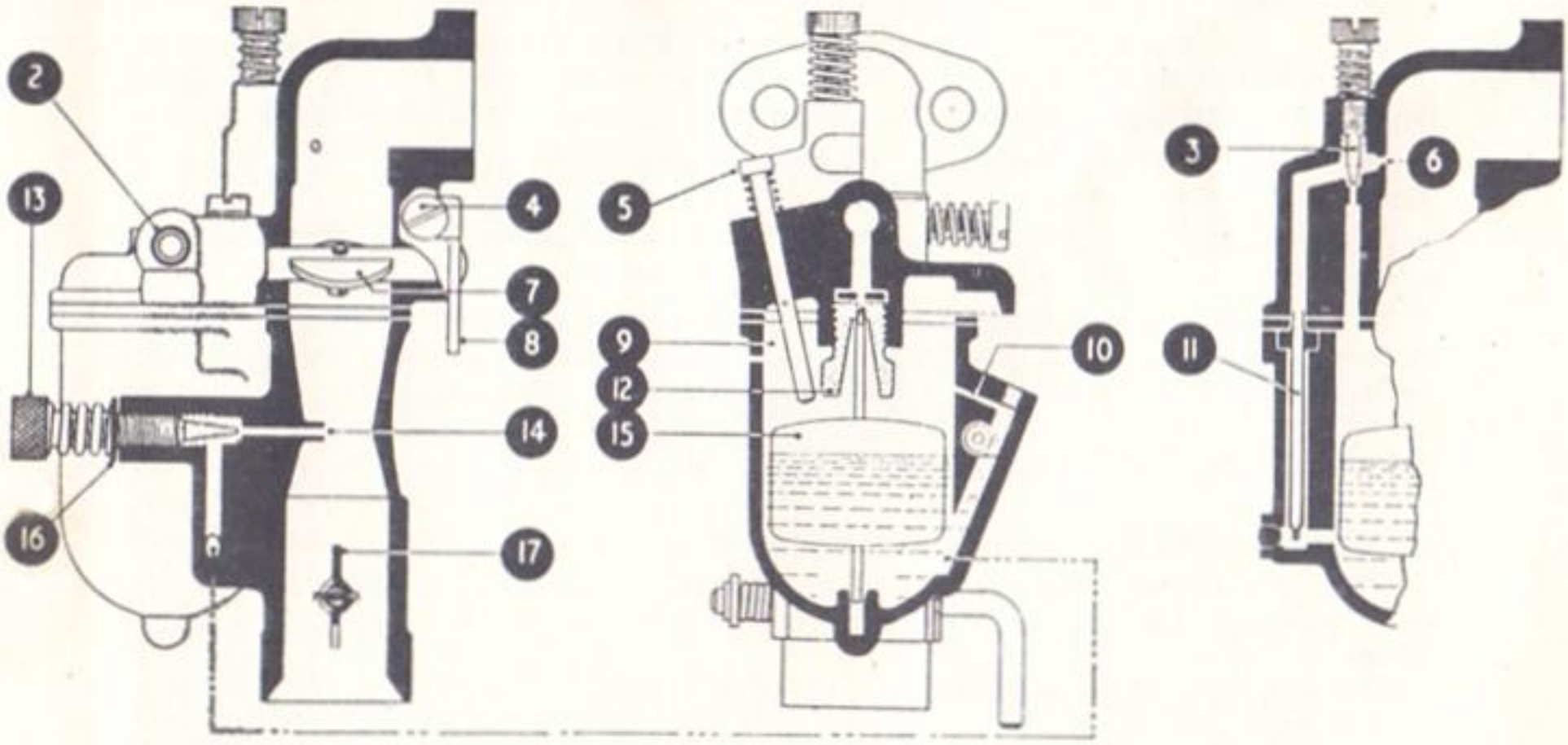
(e) Check that the contact breaker points are clean.

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 adjuster 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.

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

3. CARBURETTER DESCRIPTION.



The 13TCA-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 directly on to the inlet port of cylinder : 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 (15), 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 air-tight 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 17

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 8

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 carburettor assembly at joint between inlet manifold and cylinder block.
7. Remove flywheel, woodruff key, cam sleeve and wave washer.
8. Remove cylinder head.
9. Remove magneto stator unit, drawing H.T. lead through rubber sleeve in magneto backplate.
10. Remove engine sump.
11. Remove big end setscrews, 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 piston, 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

CORPORATION Mk. II MOTOR MOWER SPARE PARTS LIST.

Ref. No.	Description.	Part No.	No. per set.
1.	Engine Platform	L.7412	1
2.	Engine Fixing Screws	3D086A	4
3.	Spire Grip Nuts	L.6960	4
4.	Screw for fixing Engine Platform ...	3D039A	4
5.	Washer for fixing Engine Platform ...	L.3843	4
6.	Sideplate L.H.	L.7410	1
7.	Sideplate R.H.	L.7411	1
9.	Handle Grip	L.3742	2
10.	Bolt for Tubular Handle	1M876A	2
11.	Washer for Tubular Handle	1N625	2
12.	Nut for Tubular Handle	1N46A	2
13.	Wood Roller	L.3931	4
14.	Wood Roller Spindle	L.3923	1
14a.	Split Cotter Pin	L.4085	1
15.	Roller Bracket L.H.	L.7413	1
16.	Roller Bracket R.H.	L.7414	1
17.	Bolts for Roller Bracket	1M850A	2
18.	Washer for Roller Bracket	1N625	2
19.	Nut for Roller Bracket	1N46A	2
20.	Screw for Soleplate	L.4321	4
21.	Locknut for Soleplate	4N84A	4
22.	Nut for Wheel Pin	L.6959	2
23.	Tie Rod—Front	L.3921	1
24.	Nut for Tie Rod	L.6956	2
25.	Soleplate	L.5322	1
26.	Bottom Blade—Flat	L.2633	1
27.	Screw for Bottom Blade	1K039A	9
28.	Nut for Soleplate Tie Rod	L.6956	2
29.	Washer for Soleplate	L.5327	2
30.	Grease Nipple	L.3989	5
31.	Cup	L.3922	2
32.	Washer for Wheel Pin	L.5598	2
33.	Wheel Pin	L.7493	2
34.	Driving Wheel	L.7713	2
35.	Rubber Tyre	L.2399	2
36.	Wheel Retaining Clip	L.5714	2
37.	Cylinder Sub. Assembly	L.7749	1
38.	Shroud, Short (L.H.)	L.4008	1
39.	Shroud, Long (R.H.)	L.4009	1
40.	Pinion L.H.	L.180	1
41.	Pinion R.H.	L.131	1
42.	Ball Retainer	L.3957	2
43.	Cone, Fixed, L.H. complete with Ref. No. 89	L.7687	1
44.	Cone, Free, R.H. complete with Ref. No. 89	L.7688	1
45.	Thackeray Washer for Cone, R.H. ...	L.4064	1
46.	Pawl, Rectangular	L.378	2
47.	Mills Pin	L.4131	1
48.	Sprocket, 36 teeth	L.3939	1
49.	9-Tooth Driving Sprocket	L.4701	1
50.	Chain, complete with Con. Link ...	L.3961	1
51.	Chain Adjuster	L.8038	1
52.	Screw for Chain Adjuster	1D324A	1
53.	Nut for Chain Adjuster	1N46A	1
55.	Chain-case Cover	L.8040	1
56.	Screw for Chain-case Cover	1K038A	2
57.	Washer for Chain-case Cover ...	L.3844	2
60.	Clutch Backplate	L.3918	1

Ref. No.	Description	Part No.	No. per set.
61.	Bush for Backplate	L.3958	1
62.	Woodruff Key for Clutch Backplate	L.3845	1
63.	Screw for Clutch Backplate	L.8377	1
64.	Clutch Shoe Sub. Assembly	L.5319	2
65.	Clutch Spring	L.3756	2
66.	Screw for Clutch Shoe...	L.4037	2
67.	Mills Pin	L.3725	2
68.	Washer for Clutch Backplate, Roller Bracket, Chain Adjuster & Tubular Handle	1N562A	7
69.	Split Pin for Clutch Backplate	L.3847	2
70.	Clutch Thrust Washer	L.3953	2
71.	Circlip for Clutch Spindle	L.4063	2
72.	Clutch Drum	L.7746	1
73.	Bush for Drum	L.3959	1
74.	Thrust Washer for Clutch	L.4054	1
75.	Sliding Dog	L.3929	1
76.	Bush for Sliding Dog	L.4053	1
77.	Spring for Sliding Dog	L.3999	1
78.	Thrust Washer	L.3954	1
79.	Clutch Spindle	L.8039	1
79a.	Nut for 9-tooth Sprocket	L.8388	1
80.	Mills Pin	L.4426	1
81.	Screw for Bearing Cover	L.4668	3
82.	Bearing Cover	L.3926	1
83.	Clutch Shaft Bearing	L.3730	1
84.	Control Lever	E.6947	1
85.	Cable	E.7166	1
86.	Cable Clip	E.6015	1
87.	Grass Catcher (not illustrated)	L.7696	1
88.	Wheel Disc Sub. Assembly	L.7719	2
89.	Dust Shield	L.7417	2
90.	Tubular Handle	L.7750	1
91.	Tie Rod for Soleplate	L.5323	1
92.	Bush for Tie Rod	L.5324	2
93.	Insert for Clutch Drum	L.7747	2
94.	Screw for Clutch Drum	L.7748	2
95.	Washer for Clutch Drum	1N623	2

The above list to be read in conjuction with

MOWER ASSEMBLY ILLUSTRATION

INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following :

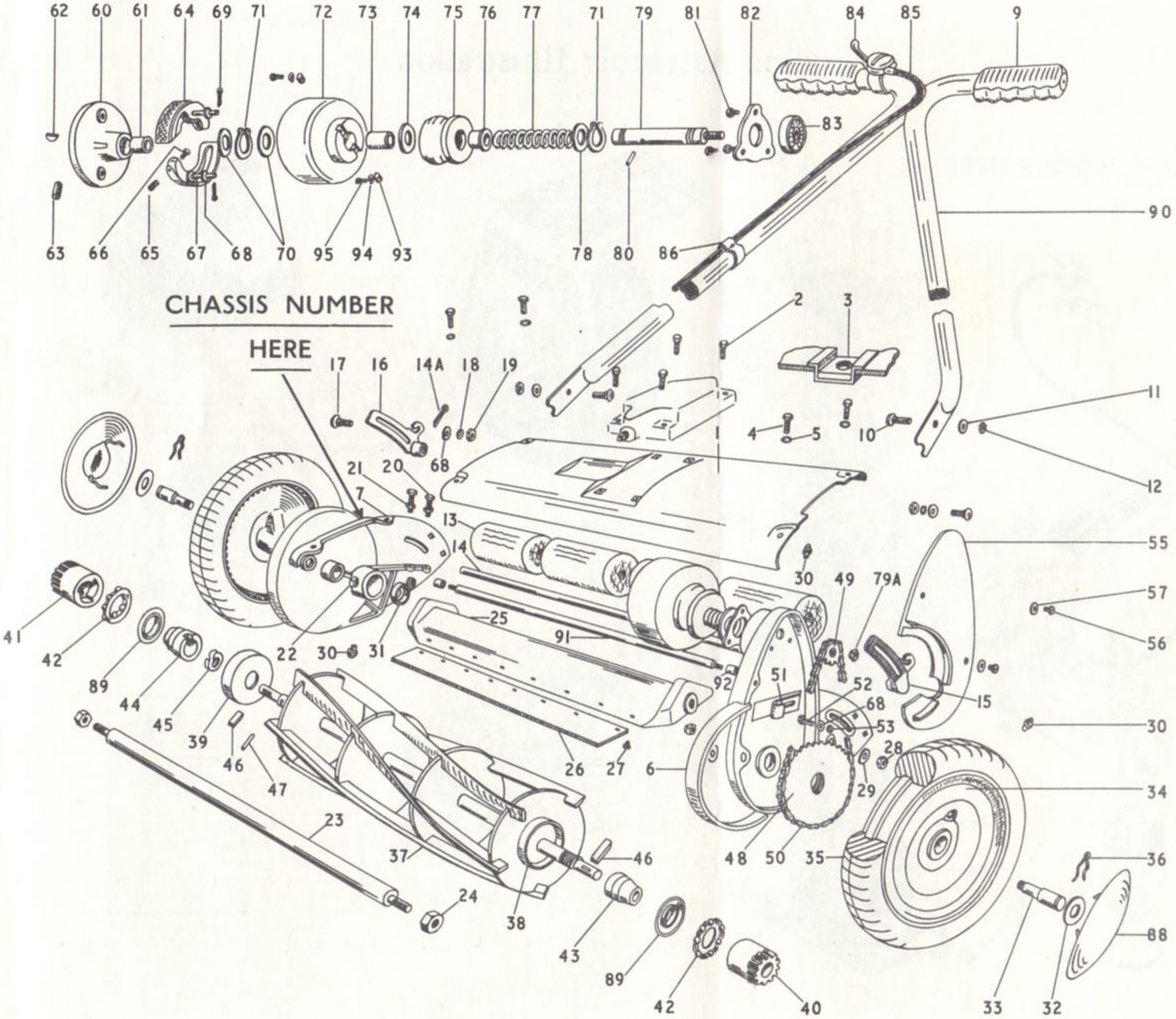
(a) The Model Name of the machine.

(b) The chassis serial number stamped on the R.H. side plate. (*See mower assembly illustration*).

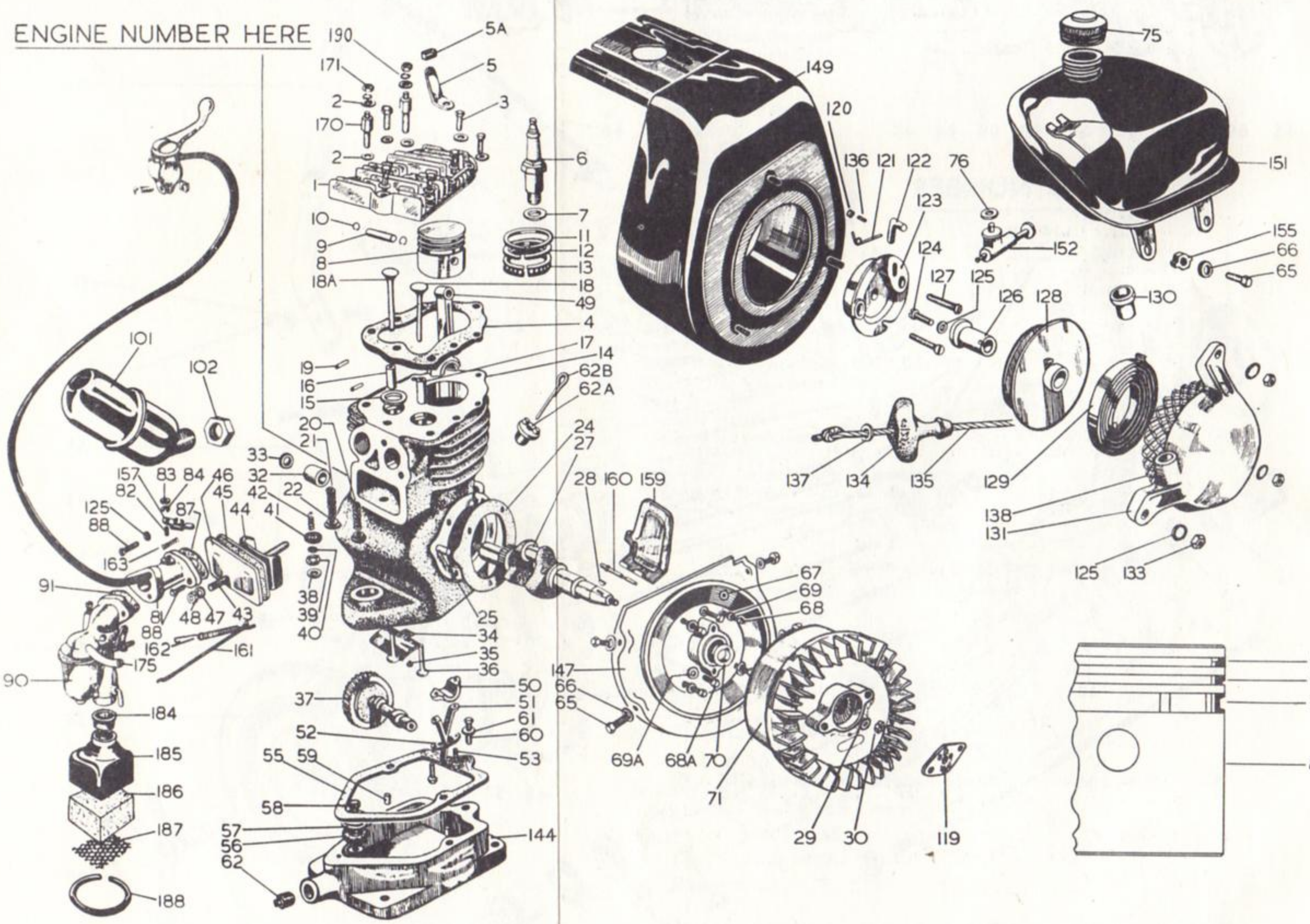
(c) The engine serial number (*See Engine Assembly Illustration*).

(d) The PART NO. of the part, NOT the illustration No.

Mower Assembly Illustration



Engine Assembly Illustration



ENGINE SPARE PARTS LIST.

MODEL 98 G 14 - 1.B.

Ref. No.	Description	Part No.	No. per set
1	Cylinder Head	E.8223	1
2	Washer for Cylinder Head	3N561A	10
3	Set-Screws for Cylinder Head	5D336S	6
4	Cylinder Head Gasket	E.8224	1
5	Cut-out switch	E.3969	1
5a	Rubber Tube for Cut-out Switch	E.4083	1
6	Spark Plug) supplied together	E.8400	1
7	Washer for Spark Plug)		
8	Piston	E.8218	1
9	Gudgeon Pin	E.8222	1
10	Wire Circlips	E.3518	2
11	Compression Ring	E.8219	1
12	Scraper Ring	E.8220	1
13	Oil Ring	E.8221	1
14	Cylinder Block	E.8207	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	E.3526	1
18a	Exhaust Valve	E.8225	1
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.3968	2
24	Paper Gasket for Magneto Backplate	E.3859	3
25	Camshaft Spindle	E.6789	1
27	Crankshaft	E.8210	1
28	Key for Magneto Flywheel	E.3597	1
29	Washer for Crankshaft	E.8390	1
30	Nut for Crankshaft (Left Hand Thread) ...	E.8043	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.8217	2
37	Camshaft	E.8209	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	Stud 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.3543	1
47	Washer for Stud	E.7132	1
48	Nut for Stud	1N44A	1
49	Connecting Rod)Supplied together complete	E.8214	1
50	Big End Bearing Cap) with ref. No's.52 & 53		
51	Oil Splasher	E.3522	1
52	Locking Strip	E.3523	1
53	Screws for Big End Bearing Cap	1D585S	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	Setscrew for Sump	1DO87A	1
61	Shakeproof Washer for Setscrew	E.3821	1
62	Drain Plug	E.3822	1

Ref. No.	Description	Part No.	No. Per set
62a	Filler Plug	E.7506	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	Rubber Sleeve	E.8405	1
68	Screw for Magneto Backplate	3DO48A	4
68a	Screw for Magneto Stator Plate	3DO48A	2
69	Washer for Magneto Backplate	E.3844/P	4
69a	Washer for Magneto Statorplate	E.7132/P	2
70	Cam Sleeve	E.8146	1
71	Flywheel	E.8161	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.8017	1
83	Nut for Throttle Lever	E.8015	1
84	Washer for Throttle Lever	3N610A	1
87	Gasket for Inlet Manifold	E.7469	1
88	Screw for Carburettor & Inlet Manifold ...	E.7772	4
90	Carburettor	E.8268	1
91	Gasket for Carburettor	E.3550	1
101	Exhaust Silencer	E.4000	1
102	Locknut for Exhaust Silencer	E.3568	1
119	Spacer for Recoil Starter	E.8378	1
120	Nylon Distance Piece	E.8093	1
121	Spring for Driving Pin	E.8092	1
122	Driving Pin	E.7339	1
123	Pawl Hub	E.8094	1
123a	Pawl Hub Sub. Assy. Comprising with Ref. No's. 120, 121, 122, 123 and 136	E.7407	1
124	Centre Screw	1K298A	1
125	Shakeproof Washer for Centre Screw, Cover, Inlet Manifold & Carburettor Assembly ...	E.6865/P	8
126	Bush	E.5524	1
127	Screws for Pawl Hub	1H335A	2
128	Ratchet Pulley	E.7338	1
129	Recoil Spring	E.5516	1
130	Rope Guide Bush	E.5522	1
131	Cover for Recoil Starter	E.5534	1
133	Nuts for Cover	3N31A	3
134	Rubber Handle	E.5518	1
135	Nylon Rope	E.5517	1
136	Pin for Retaining Spring	E.8091	1
137	Washer for Rubber Handle	E.7132/P	1
138	Screen	E.6590	1
139a	Recoil Starter Assembly, comprising Ref. No's. 119 to 138, inc., except 123a	E.8346	1
144	Sump	E.8226	1
147	Magneto Backplate	E.8144	1
149	Cowl	E.8205	1
151	Petrol Tank	E.7251	1
152	Petrol Tap Complete	E.7250	1
155	Nut for Tank Fixing Screw	L.6961	3
157	Throttle Lever	E.7161	1
159	Governor Blade	E.8202	1
160	Governor Blade Spindle	E.8336	1
161	Throttle Link	E.8335	1
162	Governor Spring	E.8334	1

Ref. No.	Description	Part No.	No. Per set
163	Throttle Return Spring	E.6531	1
170	Studs for Cylinder Head	E.6619	2
171	Nuts for Cylinder Head Studs	3N45A	2
175	Petrol Tube	E.5309	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	1
188	Wire Circlip for Air Filter	E.3579	1
189	Air Filter Assembly, comprising Ref. No's. 184 to 188, inc. ...	E.7176	1
190	Spring Washer for Cylinder Head Stud ...	3N624	2
191	Elbow for Air Filter (not illustrated) ...	E.4136	1
192	Screw for Elbow (not illustrated)	E.6078/P.	1

The above list to be read in conjunction with

ENGINE ASSEMBLY ILLUSTRATION.

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.**

SPARE PARTS LIST FOR ZENITH CARBURETTER S. 3123
(11 mm choke) TYPE 13TCA-2 PART NO. E.8268

Ref. No.	Description	Part No.
1.	Air Regulating Screw	015457
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	B.16493
5.	Spring for Ref. No. 4	08539
6.	Carburetter Barrel Assembly	B.17766
7.	Washer for Needle Seating	08523
8.	Needle Seating	B.17767
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	B.16025
14.	Strangler Spindle and Pin Assembly	020579
15.	Strangler Flap	013635
16.	Split Pin for Ref. No. 15	05370
17.	Split Pin for Spindle	05370
18.	Washer for Spindle	08860
19.	Friction Spring	013650
20.	Carburetter Bowl	B.17730
21.	Slow running Tube	020582
22.	Split Pin for Tickler Stem	05890
23.	Tickler Spring	015454
24.	Tickler Stem	020572

This list to be read in conjunction with
EXPLODED ILLUSTRATION OF CARBURETTER on Page 26

INSTRUCTIONS FOR ORDERING SPARE PARTS

It is essential to quote the following:

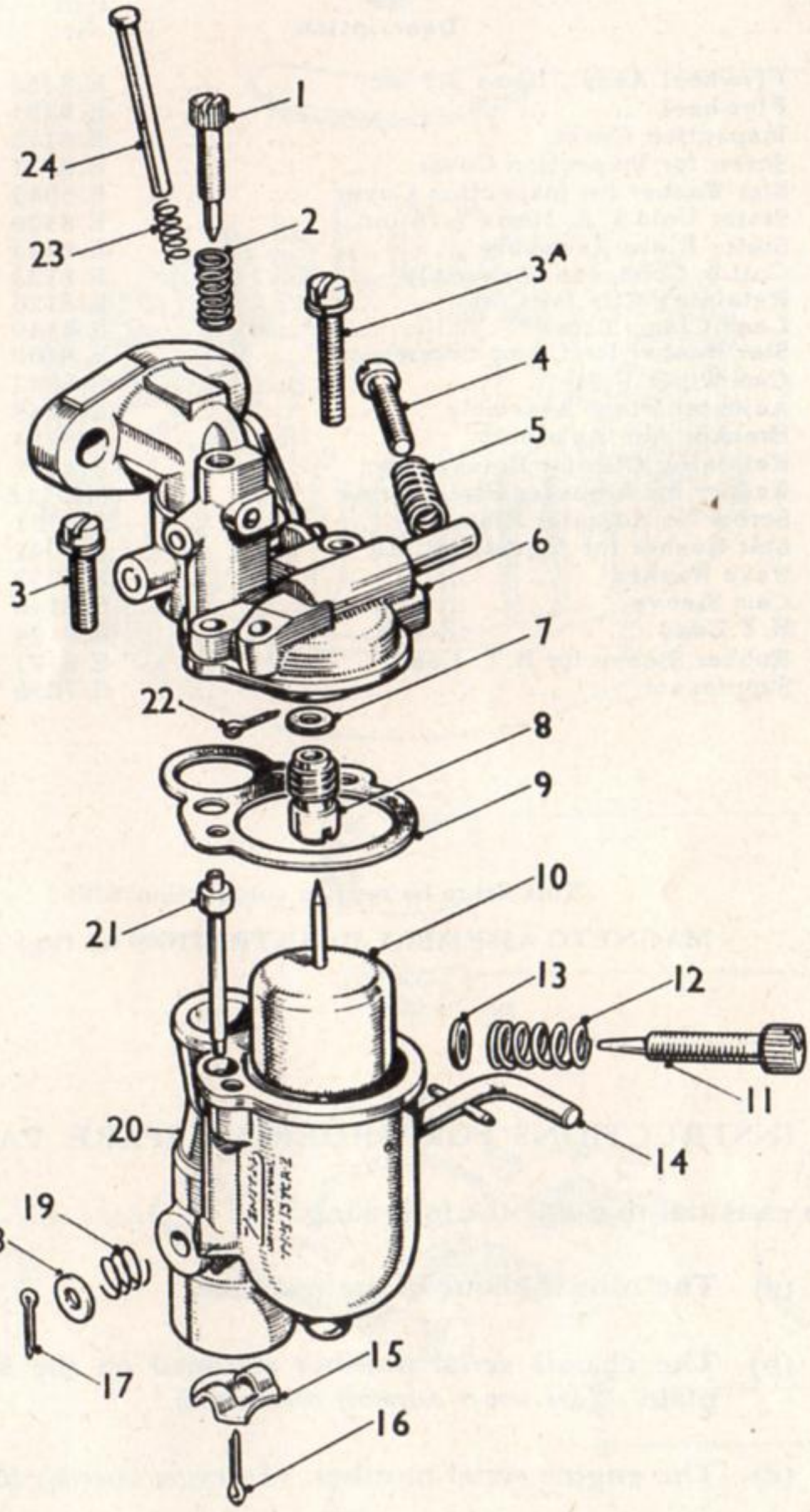
(a) **The Model Name of the machine.**

(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.**

Carburetter Illustration



MAGNETO SPARE PARTS LIST

Ref. No.	Description	Part No.	No. Per set
1	Flywheel Assy., Items 2-5 inc.	E.8168	1
2	Flywheel	E.8161	1
3	Inspection Cover	E.8113	1
4	Screw for Inspection Cover	E.8131	1
5	Star Washer for Inspection Cover	E.5042	1
6	Stator Unit S/A, Items 7-18 inc.	E.8108	1
7	Stator Plate Assembly	E.8115	1
8	Coil & Condenser Assembly	E.8123	1
9	Retaining Clip for Coil	E.8126	1
10	Lead Clamp Screw	E.8149	1
11	Star Washer for Clamp Screw	E.8160	1
12	Cam Wiper Felt	E.5047	1
13	Adjuster Plate Assembly	E.8148	1
14	Breaker Arm Assembly	E.8154	1
15	Retaining Clip for Breaker Arm	E.8137	1
16	Washer for Adjuster Plate Screw	6N611A	1
17	Screw for Adjuster Plate	E.8131	1
18	Star Washer for Adjuster Plate	E.5042	1
19	Wave Washer	E.5052	1
20	Cam Sleeve	E.8146	1
21	H.T.Lead	E.8124	1
22	Rubber Sleeve for H.T. Lead	E.8171	1
23	Suppressor	E.7858	1

This list to be read in conjunction with

MAGNETO ASSEMBLY ILLUSTRATION on Page 28

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.

Magneto Assembly Illustration