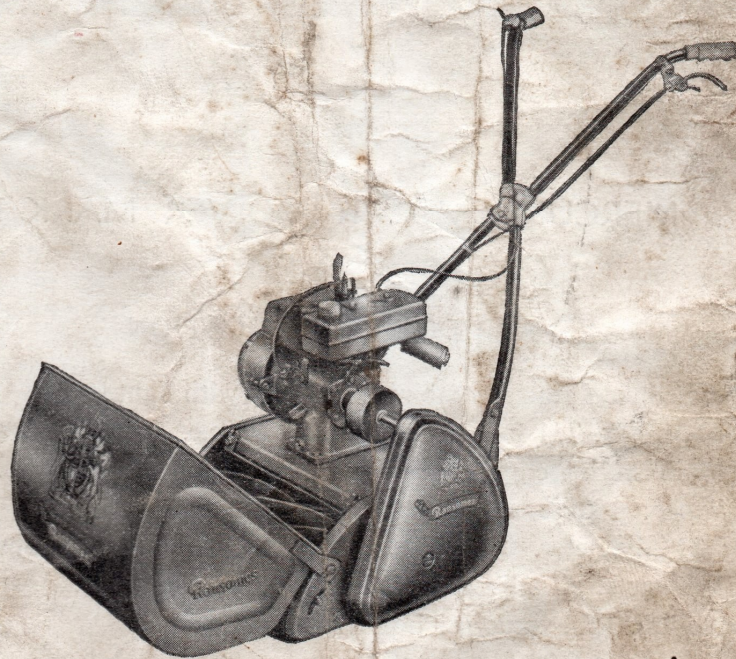


OPERATOR'S INSTRUCTIONS
AND
ILLUSTRATED LIST OF PARTS
FOR
Ransomes
"MERCURY" MOTOR MOWER
16-in Mark I



RANSOMES SIMS & JEFFERIES, LTD.
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MERCURY MOTOR MOWER MARK 1
16-IN. CUT

ABRIDGED SPECIFICATION

Chassis: Pressed steel frame combining strength with lightness.

Engine: Villiers Mk. 7/1 four stroke engine. 75 c.c.

Clutches: Main driving clutch centrifugal type. Clutch, plate type, in land roll.

Cutting Cylinder: 6-knife, all welded construction.

Land Roll: 7 $\frac{3}{4}$ " diameter. One piece steel, pressed and welded construction.

Handles: Tubular steel, adjustable for height and width.

Performance: 1,650 sq. yards per hour (1,380 sq. metres).

Petrol Consumption: 0.29 pints per hour.

Speed: From 1 $\frac{1}{2}$ m.p.h. up to 4 m.p.h. to suit operator.

Weight: 140 lbs.—including Grassbox.

GENERAL DESCRIPTION

The "Mercury" Mark 1 is a fully driven power mower fitted with a 75 c.c. Villiers 4-stroke engine, with automatic recoil rope starter. This smooth running engine drives through a centrifugal clutch, and, to give increased manœuvrability a plate clutch is incorporated in the land roll drive.

The "Mercury" is so designed that any adjustments that may be necessary can easily be made, and the purpose of this instruction book is to enable the owner-user to get the best possible service from his machine. A separate book is issued to cover the Villiers engine.

A list of parts is included in this book and it will help us or our Agents to give prompt attention to any demands if the registered number of the mower is quoted when ordering spares. This number will be found stamped on the name plate, located on the side frame.

MAIN DRIVING CLUTCH

This clutch (fig. 1) is of the automatic type and comes into operation as the engine speed increases. To delay the action of the centrifugal shoes P, springs Q are fitted which allow an engine speed of up to 500 r.p.m. without engagement. As the engine speed increases above this, the clutch shoes gradually take up the drive.

Should an overload be put on the clutch, the tendency will be for the clutch to pull down the engine speed and then slip, without stalling the engine. The clutch shoes are lined with bonded Ferodo linings T and to detach the shoes remove the bolts holding the engine to the deck plate and slide the engine to the right. Remove the clutch shoe pins and the shoes can then be released. When replacing, see that the hinged ends of the shoes point in direction of running. It is important to use the correct lining (LCC 82) and method of rivetting.

The engine bolts referred to above can be seen in fig. 3.

LAND ROLL PLATE CLUTCH

This clutch (see sectional view overleaf—Fig. 2) will allow the cutting cylinder to remain under power while the land roll is disengaged from the engine. This land roll clutch, controlled from the handle, should ALWAYS be disengaged when starting, or when the mower is left with the motor running.

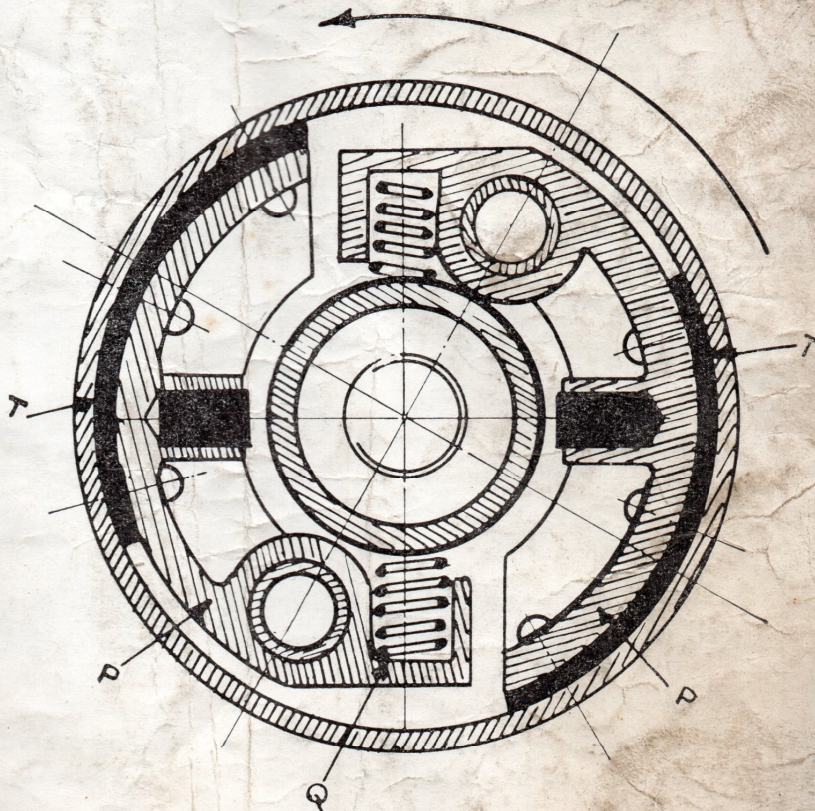


Fig. 1. Main Driving Clutch

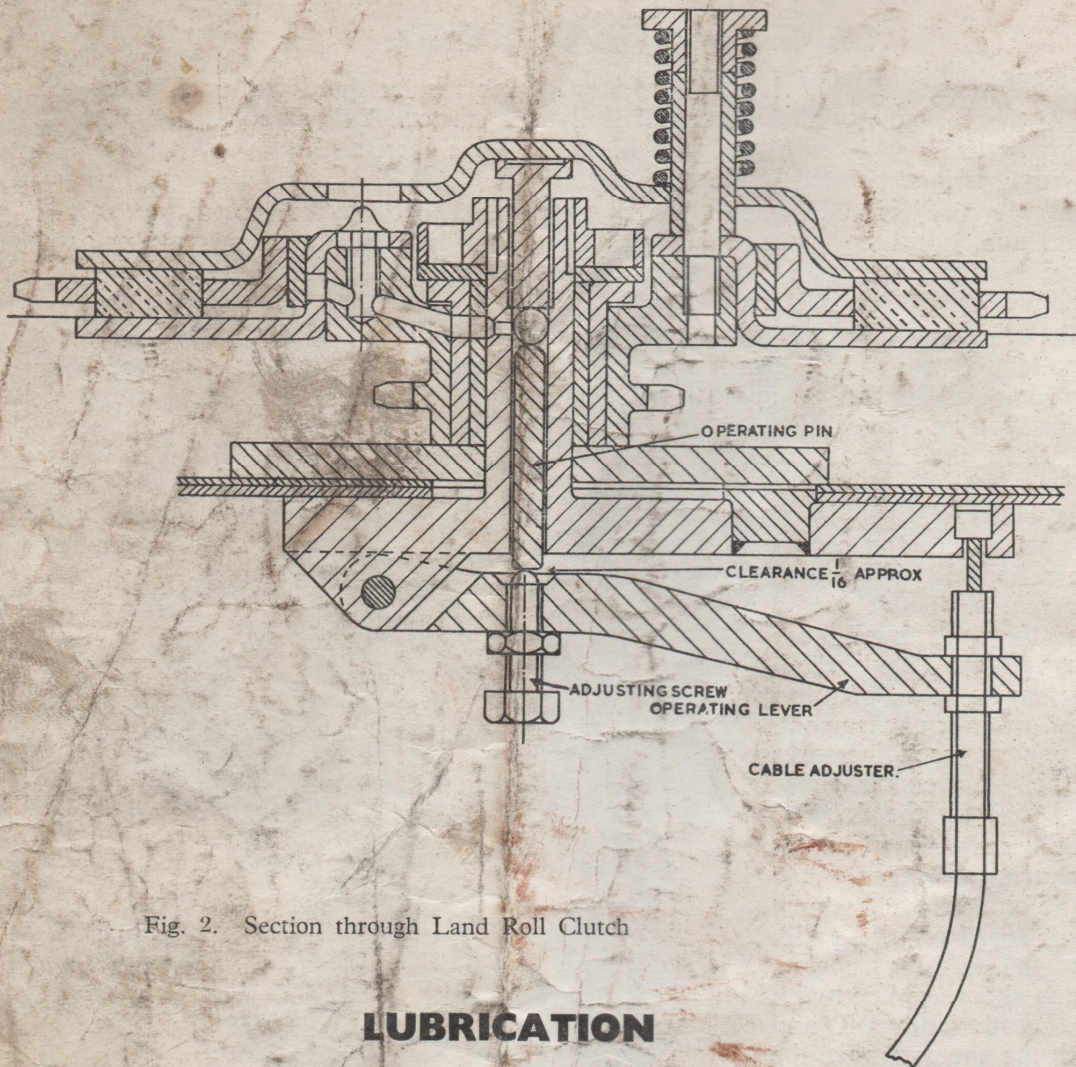


Fig. 2. Section through Land Roll Clutch

LUBRICATION

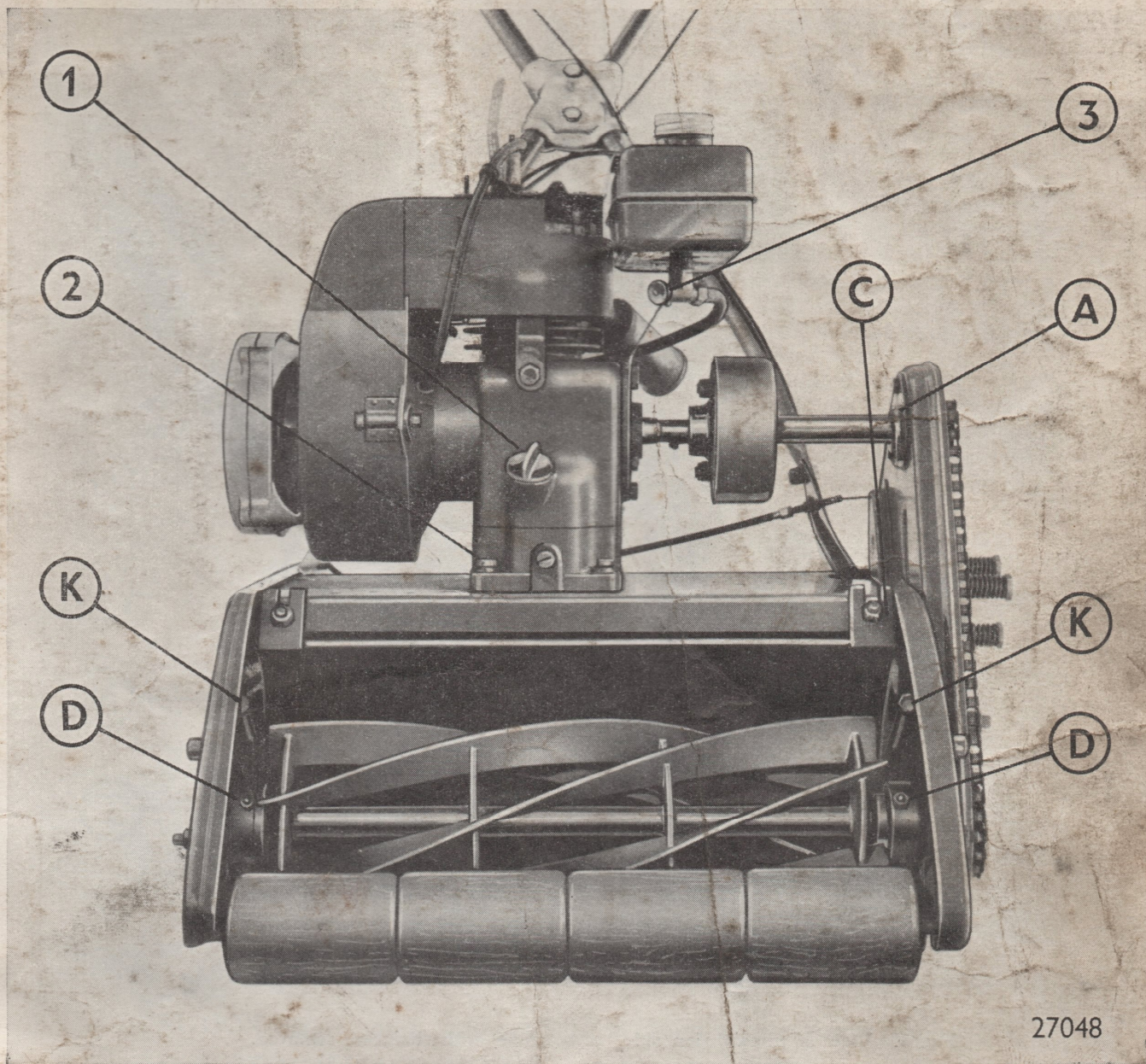
ENGINE

For lubrication instructions and recommended oils see the separate engine manual.

MOWER

The following points should be oiled following every eight hours work with the oil gun supplied in the tool kit. A good quality oil, SAE 30 or 50, should be used, NOT grease.

1. Clutch shaft bearing through nipple A. (Fig. 3, page 5.)
2. Land roll spindle bearings through nipple B in R.H. end of spindle (fig. 5, page 8) and through nipple C in L.H. side of deck plate (fig. 3, page 5).
3. Cutting cylinder bearings through nipples D (fig. 3, page 5).
4. Land roll clutch through nipple G in outer plate (fig. 4, page 6),
5. Wood rolls. Oil spindle between the rolls and at each end.



27048

Fig. 3. View of front of Machine (Chaincase removed).

- 1. Oil Sump Filler.
- 2. Engine Holding Bolts.
- 3. Petrol Tap.

TO START ENGINE

- 1. Consult the Villiers Engine Manual.
- 2. See that the land roll clutch is disengaged.

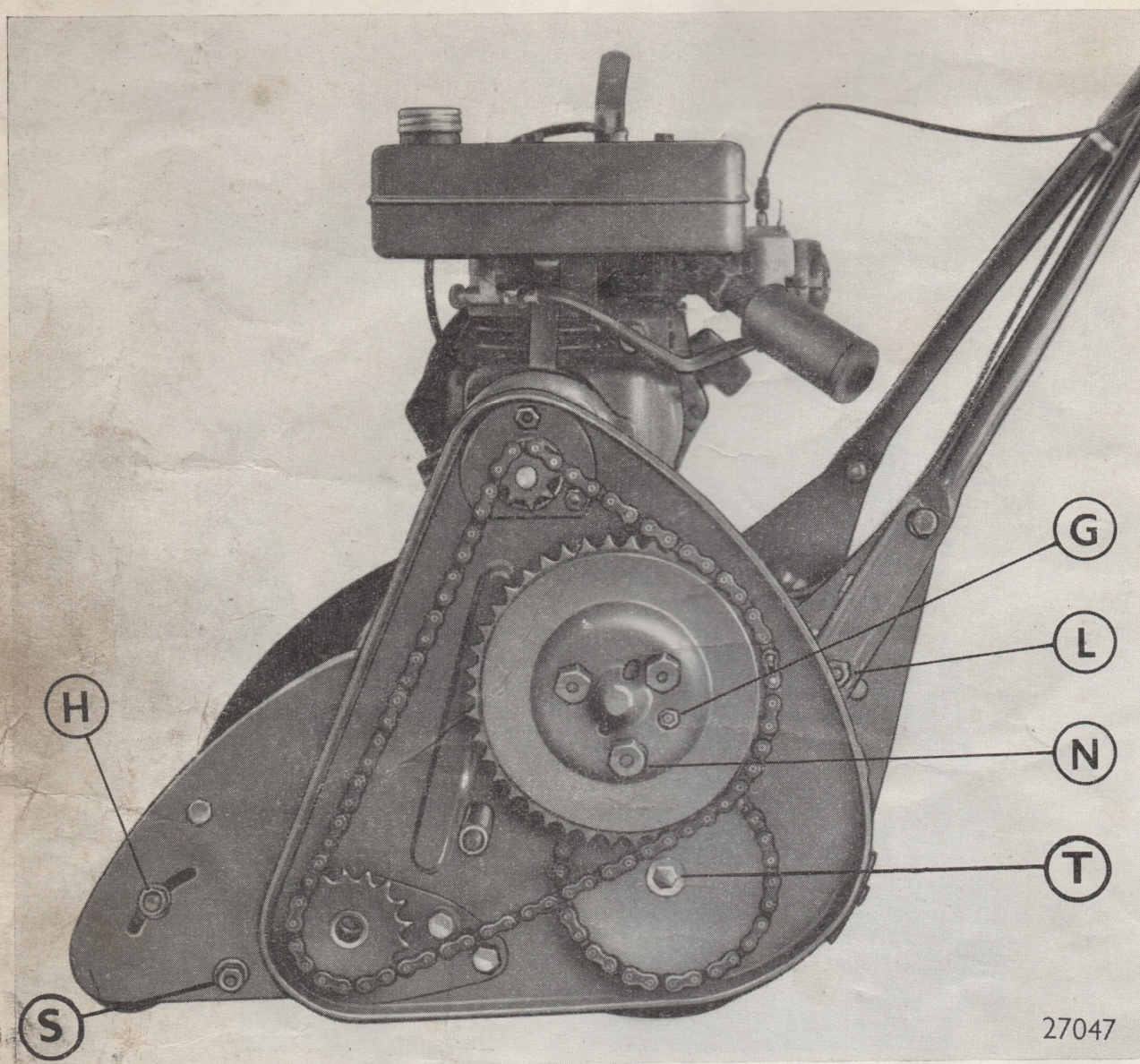


Fig. 4. View of transmission side of machine, with chaincase removed.

TO OPERATE MACHINE

The mower can be operated either by driving on the land roll clutch, or by leaving this clutch engaged and driving with the throttle lever through the automatic centrifugal clutch. This latter method is very convenient for straightforward mowing, but the former is more suitable when mowing up to blind ends or round flower beds, and restricted areas.

To drive on the land roll clutch proceed as follows. Start engine and let it run for a minute or two to warm up, then increase the engine speed and engage the land roll clutch gently and at the same time open the throttle. Let clutch fully in and

the mower will glide forward. Adjust the throttle lever so that a comfortable walking speed is maintained. To stop the mower, disengage the clutch and close the throttle. If the mower is left with the engine running, in order, say, to empty the grassbox, see that the motor is throttled down to a "tick over" so that the cylinder stops revolving, as otherwise the rotating cylinder will mark or bruise the grass.

To drive on the centrifugal clutch, start engine, and allow it to run long enough to warm up, then reduce engine speed until the clutch shaft stops revolving. Engage the landroll clutch and the mower can now be controlled solely by the throttle lever. Speed up the engine, and the centrifugal clutch will take up the drive and the mower will move off. Reduce the engine speed and the mower will slow down, and when the engine speed falls below 500 r.p.m., or "tick over" speed, the mower will stop. With very little practice it will be found that manipulation of the machine with this self-energising clutch becomes very simple, with an exceptionally smooth take off, especially when starting and stopping in long grass.

For safety the landroll clutch should always be disengaged if the mower is left standing with the engine running. The mower should be driven at a comfortable walking pace, and can be operated and adjusted entirely to suit individual requirements for all types of cutting. Do not try to help the mower to do its work, but simply hold it steady and watch the cutting so as to get a regular and even cut.

ADJUSTMENTS

ADJUSTING THE CUTTING CYLINDER

Every machine is sent away from our works with the cutting cylinder properly set to the bottom blade, but it is possible that this adjustment may get upset during transit. If the machine does not cut perfectly, set the cutting cylinder carefully to the bottom blade so that the revolving cutters just touch the bottom blade throughout the whole width of the blade, but not with any great frictional pressure. If the cutting cylinder is set hard on to the bottom blade no cleaner cut is obtained, the only result being extra work put on the mower and undue wear on blade and cutters.

To set the cutters a simple method is used, viz. adjusting screws K (see fig. 3, page 5) on either side of the machine. To set the cylinder closer to the bottom blade turn these screws in a clockwise direction, making small alterations to each screw alternatively. When correctly set, the knives should revolve freely and at the same time cut a leaf or piece of writing paper cleanly, when held at the edge of the bottom blade. Make this test over the width of the bottom blade.

After making any adjustments check that the cutting cylinder drive chain is not too tight.

CAUTION.—Never touch cutting cylinder or chains when engine is running.

TO ALTER HEIGHT OF CUT

Slacken the nuts H and S (fig. 4, page 6) and slide brackets up or down as required, taking care to see that the front roll is kept square to the bottom block.

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

To check that the height of cut is set correctly, tilt the machine backwards until it rests on its handles, place a straight edge across the land and front rolls; the bottom blade should be clear of the straight edge. In dry weather $\frac{1}{8}$ " to $\frac{3}{16}$ ", and in wet weather $\frac{3}{16}$ " to $\frac{5}{16}$ " should be allowed for the mower sinking into the turf.

ADJUSTING THE HANDLES

The height of the handles can be adjusted to suit the user. Slacken the bolts L (fig. 4, page 6) at the base of the handles, alter the height as required, and re-tighten the bolts.

The width of the handles can be adjusted or offset, for working close to walls. Slacken the bolts M (fig. 6, page 10) in the centre clamp, adjust as required, and re-tighten bolts.

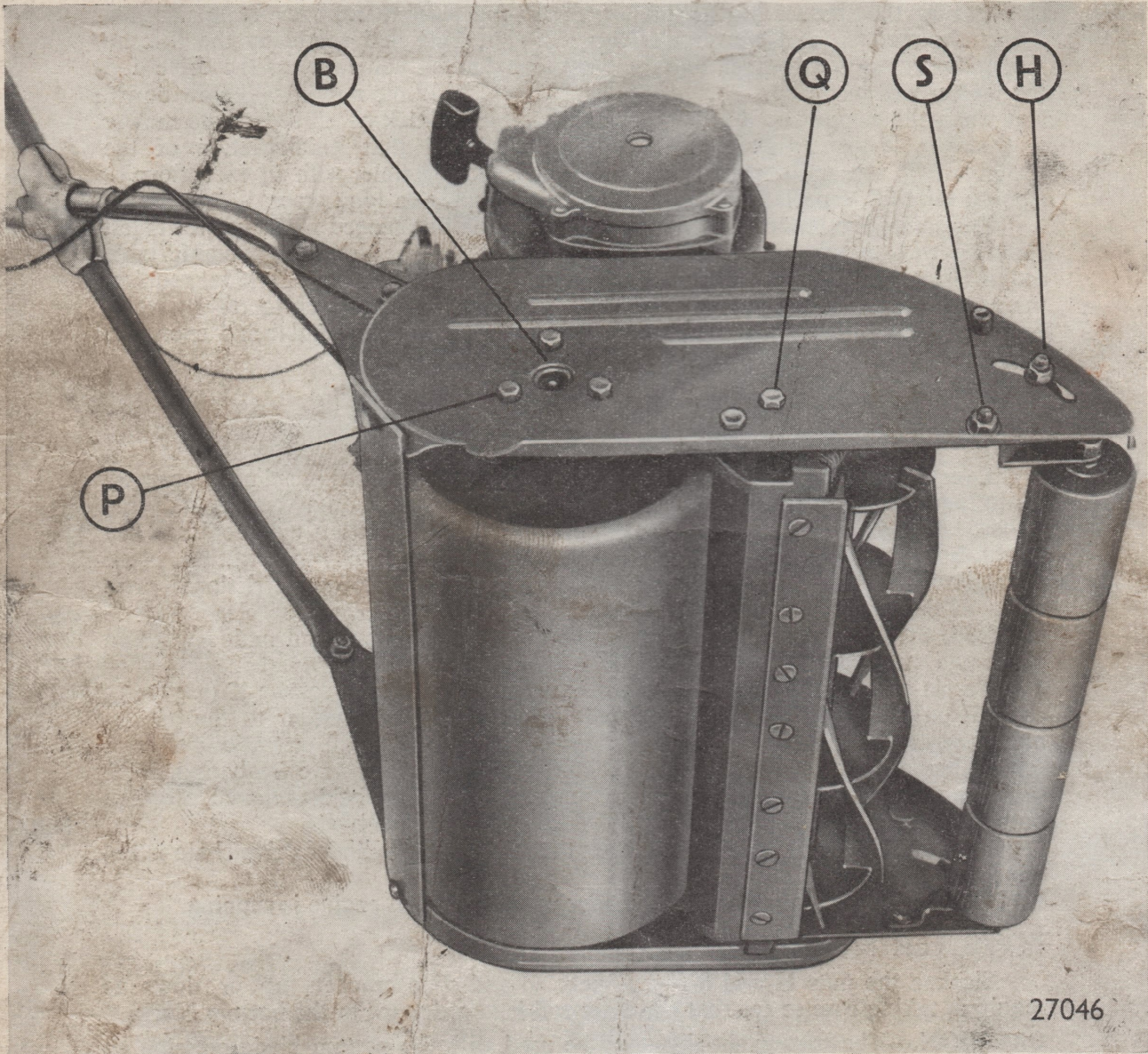


Fig. 5.

ADJUSTING THE CONCAVE

Slacken self-locking nuts at front edge of deckplate. Move top of concave forward checking that the bottom edge of the concave is correctly bedded down on to the bottom block. When the concave is correctly adjusted grass cuttings should enter the grassbox about one inch below the front edge.

Do *not* allow the concave to rub against the cutting cylinder. Reversal of the hinge brackets "C" will sometimes help in positioning the concave correctly.

ADJUSTING TRANSMISSION CHAINS

Both chains are adjusted by repositioning the land roll plate clutch assembly. (Fig. 4). To adjust, disengage the clutch by lifting the clutch lever, turn the outer plate until the two holes in it line up with two holes in the nut beneath, insert special pin spanner provided in the tool kit and turn anti-clockwise to slacken nut. The clutch assembly can now be slid in the required direction to tighten the chains. Re-tighten nut. When correctly adjusted the chains should be slightly slack.

If at any time a chain is removed, take care when replacing that the gap in the spring clip points away from the direction of rotation.

ADJUSTING LAND ROLL CLUTCH

Adjustment is provided at the lower end of the Bowden cable (see fig. 6). When it is adjusted correctly there should be a small amount of play between the end of the operating pin and lever when the clutch is in the drive position. (The operating pin is shown in fig. 2, page 4.)

MAINTENANCE

REMOVING LAND ROLL ASSEMBLY

First undo screw in chain case and remove it and then take off land roll clutch assembly complete with chains. To remove this assembly proceed as follows. Undo the three hexagonal nuts N (fig. 4, page 6), and take off springs and distance tubes; the outer plate, chain wheel and chains can now be removed. Using the special pin spanner, slacken and remove the securing nut, and remove intermediate chain wheel and clutch stiffener plate.

Remove the locking screw "T" (fig. 4, page 6), noting that this screw has a R.H. thread, and now unscrew the chain wheel on the land roll spindle noting that this component has a L.H. thread. To prevent the land roll spindle turning with the chain wheel, engage the special key (LCG 427) in the slot at the opposite end of the spindle. After removing the set screws P (fig. 5, page 8) (three each side of the machine) which secure the land roll spindle bearings, the entire assembly may be dropped out of the main chassis.

Assemble in reverse order.

REMOVING CUTTING CYLINDER AND BOTTOM BLADE UNIT

Remove chaincase cover, concave and driving chains. Prevent the cutting cylinder turning by placing a piece of wood in cutters and unscrew the cylinder pinion, noting that this pinion has a L.H. thread. Remove the two screws Q (fig. 5, page 8) from each side of the machine which secure the cutting unit and the entire assembly can be dropped out of the mower.

REMOVING FRONT ROLL ASSEMBLY

Loosen off height adjusting nuts H (fig. 4, page 6) and drop the wood roll spindle until it is clear of the chassis. Remove nuts on end of wood roll spindle and draw out spindle. If it is desired to remove the adjusting brackets undo completely the height adjusting nuts and withdraw the brackets from their pivot bolts.

Assemble in the reverse order.

GENERAL ADVICE

Every machine leaves our factory in perfect condition. If any damage is apparent when delivery is made, report the details at once to the makers or to the agent supplying the machine.

Do not start the engine in your shed or garage unless the doors are open as exhaust fumes are dangerous.

Before cutting, make sure the lawn is free from stones, etc., these may well damage the cutting cylinder.

Do not refuel while the engine is running, petrol (gasoline) spilt on a hot engine may well cause a fire, and avoid spilling fuel on the lawn as this will destroy grass.

The mower should not be put away with grass cuttings left in the box.

Always *stop* the engine before touching cutter cylinder or driving chains.

After using the machine apply a little oil with a brush to all the cutters. This will prevent them from rusting.

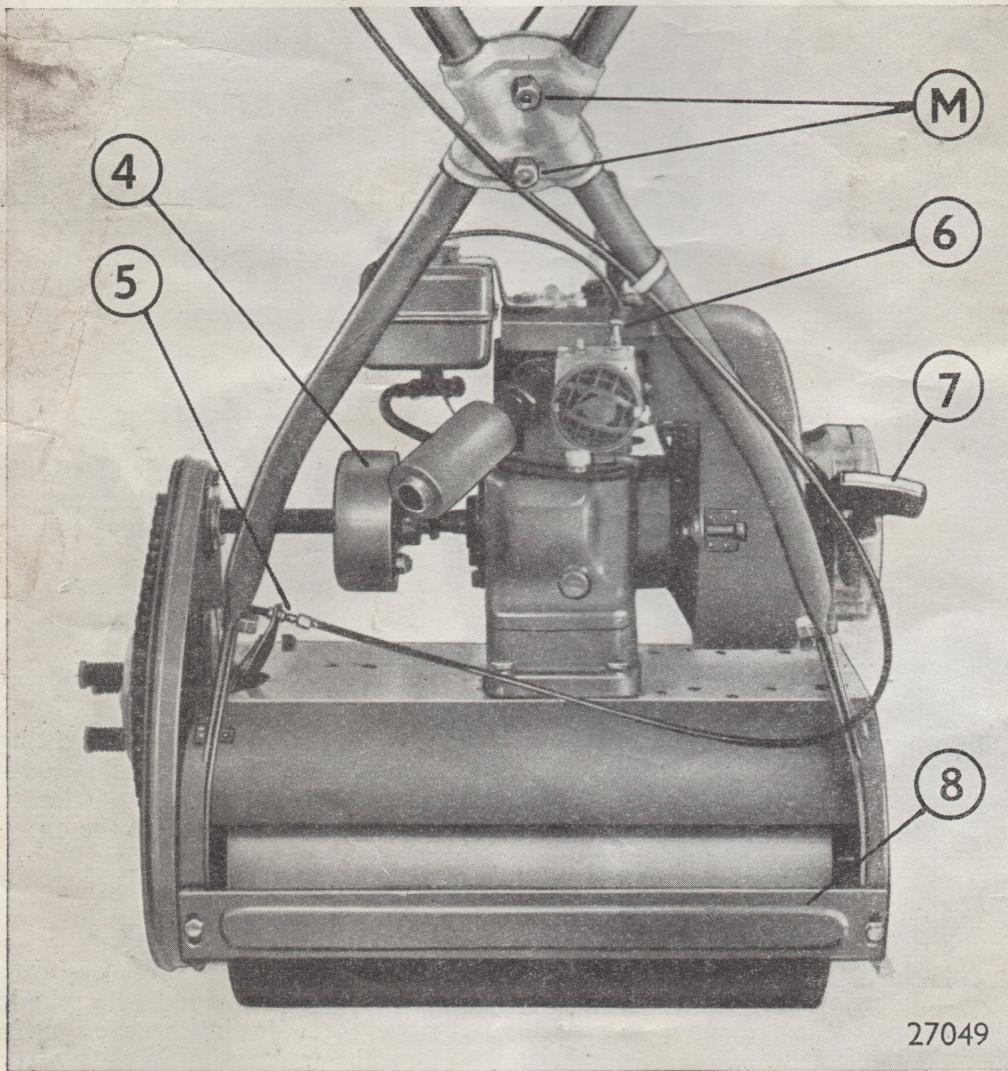


Fig. 6.

4. Centrifugal Clutch. 5. Clutch Adjuster. 6. Choke Control.
7. Automatic Recoil Starter. 8. Land Roll Scraper.

CORRECTION OF MINOR FAULTS

FAULT	REMEDY
<i>Grass is cut in uneven strips leaving a "step" between each cut.</i>	Front rolls are not square with bottom blade. Make necessary adjustments as per instructions on page 5.
<i>Grass is cut unevenly in wavy or hummocky fashion.</i>	Alignment of cutting cylinder has been upset, probably through running into an obstruction. Consult your nearest Service Agent.
<i>Grass is torn off instead of being cut cleanly.</i>	Adjust cutting cylinder to bottom blade (see page 6). If grass is still not cut cleanly, cutting blades require grinding.
<i>Grass is entirely removed and mower works very hard.</i>	Bottom blade is set too low. Check for correct clearance (see page 5).
<i>Engine races but mower moves forward sluggishly.</i>	Cylinder may have run into an obstruction. Stop engine or motor and clear. If no obstruction, this may be due to clutch slip. Adjust cable and if fault is not cured, fit new pads to clutch plate.
<i>Cuttings not entering grassbox properly</i>	Adjust throw of concave (see page 8).

ILLUSTRATED LIST OF PARTS

MERCURY MOTOR MOWER MARK I

<i>Primary Drive, Main Frame and Handles</i>	- - -	Pages 12—13
<i>Cutting Unit and Front Rolls</i>	- - -	Pages 14—15
<i>Landroll and Transmission</i>	- - -	Pages 14—15
<i>Tool List</i>	- - -	Page 16

NOTE

When ordering spare parts it is essential that the customer should quote the registered number of the machine and the mark of the spare part required. Failure to do this may result in delay in delivery.

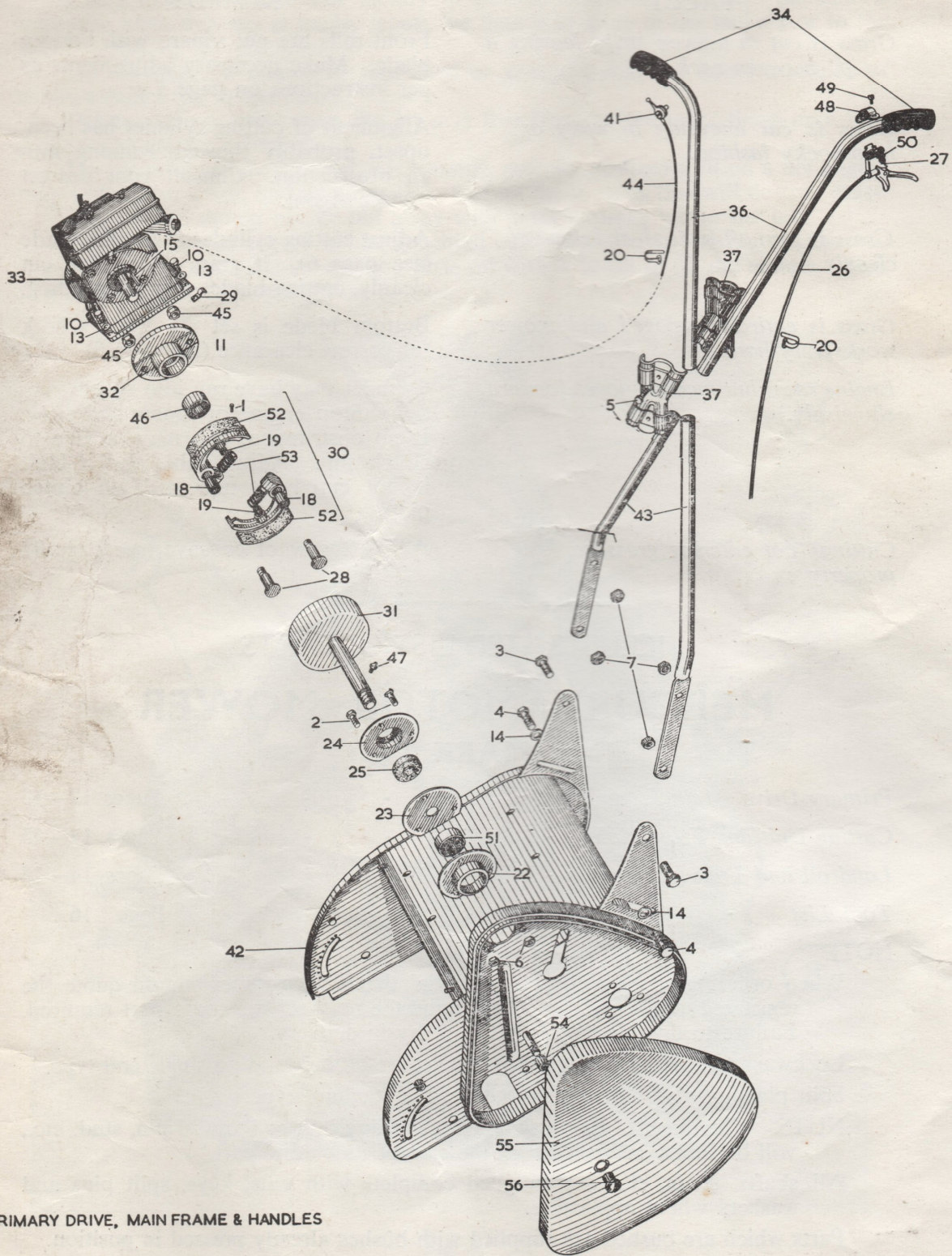
Lockwashers where not quoted in this list are of the standard single coil type.

Split pins are also not quoted, but are the standard type.

NUTS. The mark of the nut applicable to any bolt or screwed pin, stud, etc., will be found in brackets by the side of its mating part.

All shafts, studs, etc., are supplied complete with nuts, keys, split pins and washers where applicable.

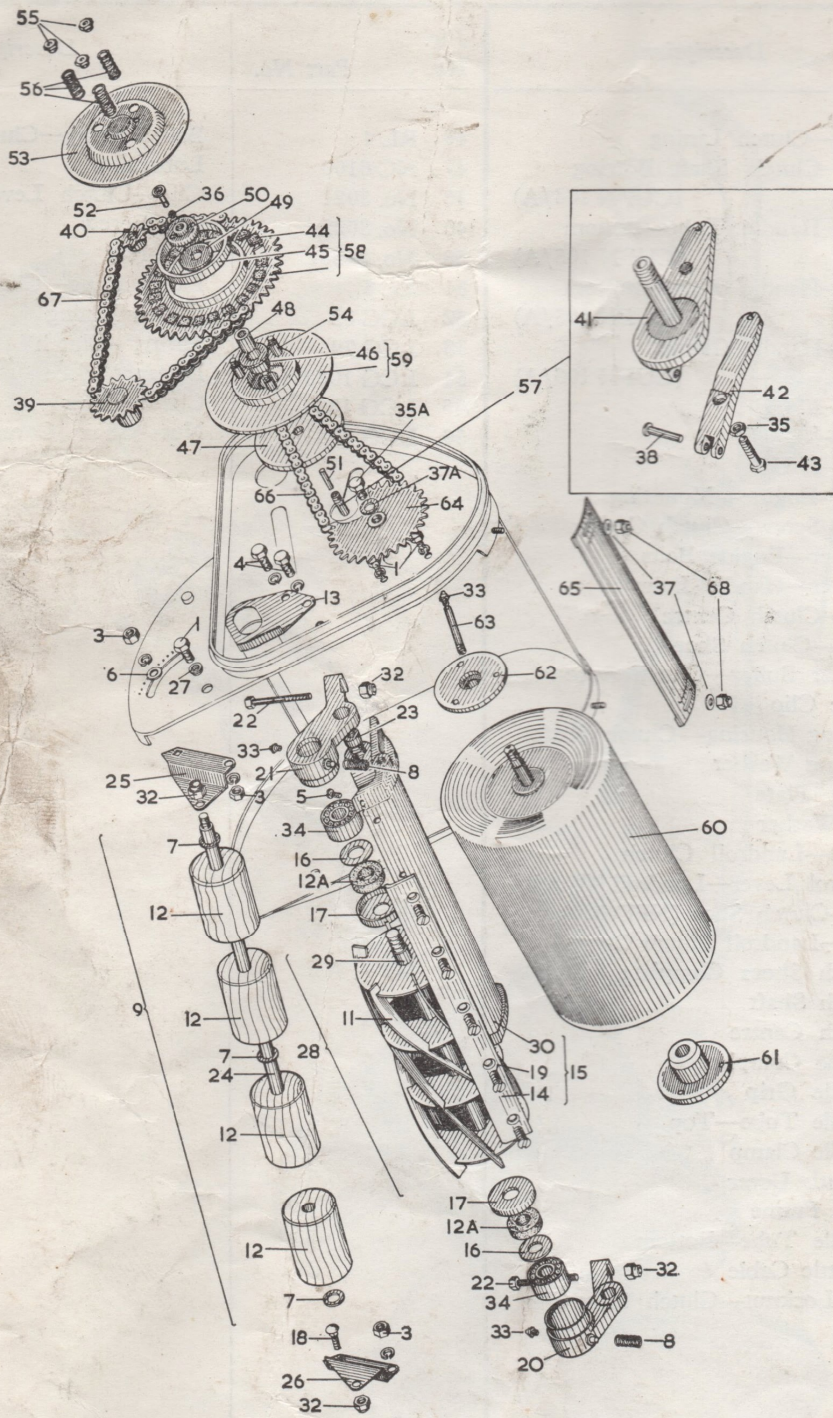
Parts which are bushed are supplied with bushes already pressed in position.



PRIMARY DRIVE, MAIN FRAME & HANDLES

MAIN FRAME, HANDLES AND PRIMARY DRIVE (Section 1)

Fig. No.	Part No.	Description	Fig. No.	Part No.	Description
1	C 6	Rivet—Clutch Lining	46	RL 4	Ball Bearing—Clutch Centre
2	CUFB 104/4R	Bolt—Clutch Shaft Bearing (CUFN 104/A)	47	NC 6100	Lubricator
3	CUFB 105/5R	Bolt—Handle Tube—Bottom (CUFN 105/A)	48	No. 3021	Clip—Clutch Lever
4	CUFB 105/6R	Bolt—Handle Tube—Bottom (CUFN 105/A)	49	No. 3022	Clip Screw
5	CUFB 106/13R	Bolt—Handle Clamp (CUFN 106/A)	50	No. 3023	Half-Nut
6	CUFN 104/A	Nut— $\frac{1}{4}$ " UF	51	RL 5	Ball Bearing—Clutch Shaft
7	CUFN 105/A	Nut— $\frac{5}{16}$ " UF	52	LCC 82	Clutch Lining
8	CUFN 106/A	Nut— $\frac{3}{8}$ " UF	53	LCC 79	Spring—Clutch
10	CUFB 105/9R	Bolt—Engine—Mounting	54	LCG 1033	Distance Piece
11	GSF 2020 KF	Grub Screw—Clutch Centre	55	LCG 1034	Chain Cover
13	GSF 2150 D	Washer—Engine Bolts	56	LCG 1041	Nut—Chain Cover
14	GSF 2152 B	Washer—Handle Bolts			
15	GSF 2200 BN	Key—Clutch Centre			
18	GSF 3001 TP	Bush—Clutch Shoe			
19	LOC 96	Rubber Buffer—Clutch Shoe			
20	LAY 63	Cable Clip			
22	LCG 99	Bearing Housing—Clutch Shaft			
23	LCG 100	Spacing Washer			
24	LCG 101	Cover Plate			
25	LCG 102	Felt Washer			
26	LCG 1486	Cable—Landroll Clutch			
27	LCO 228	Control Lever—Landroll Clutch			
28	LCC 84	Pin—Clutch Shoe (NPD 086)			
29	LCG 1329	Clip—Landroll Clutch Cable			
30	LMS 651	Clutch Shoes Complete			
31	MBA 0471	Clutch Shaft			
32	MBA 2355	Clutch Centre			
33	MBA 0469	Engine Complete			
34	LS 2316/24	Handle Grip			
36	MAA 0535A	Handle Tube—Top			
37	MAA 0537A	Handle Clamp			
41	EM 2428	Throttle Lever			
42	MBA 0475	Main Frame			
43	MBA 0482	Handle Tube—Bottom			
44	V 234 B/JQ	Throttle Cable			
45	NPD 086	Self Locknut—Clutch Shoe Pin			



CUTTING UNIT, LANDROLL & TRANSMISSION.

CUTTING UNIT AND FRONT ROLLS (Section 2)

Fig. No.	Part No.	Description	Fig. No.	Part No.	Description
1	CUFB 105/5R	Bolt—Front Roll Carriage (CUFN 105/A)	18	LS 2514/4	Bolt—Front Roll Carriage (CUFN 105/A)
2	CUFB 105/12R	Bolt	19	LS 2521/7	Screw—Bottom Blade
3	CUFN 105/A	Nut— $5/16$ " UF	20	MAA 0639	Cylinder Housing R.H.
4	CUFS 106/6R	Screw—Bottom Block	21	MAA 0640	Cylinder Housing L.H.
5	GSF 1094 HC	Screw—Bottom Block Spring	22	MAA 0641	Adjusting Screw (NPD 106)
6	GSF 2150 D	Washer—Carriage Bolt	23	MAA 0643	Pivot—Bottom Block
7	GSF 2150 H	Washer—Front Roll Spindle	24	MBA 0460	Spindle—Front Roll (NPD 106)
8	GSF 2240 KT	Adjusting Spring	25	MBA 0641	Carriage L.H.
9	LAS 202 A	Front Rolls Complete	26	MBA 0642	Carriage R.H.
11	LBK 16 in.	Spiral Cutter	27	MBA 0643	Washer—Carriage Bolt
12	LBZ 116	Wood Roll	28	MBA 0464	6-Knife Cylinder, Complete
12A	LCG 156	Felt Washer		MBA 0487	5 Knife Cylinder, Complete
13	LCG 189	Cover Plate—Cylinder Slot	29	MBA 0465	Spindle—Cutting Cylinder
14	LIH $16\frac{1}{2}$ -in.	Bottom Blade	30	MBA 0466	Bottom Block
15	LMS 3726	Bottom Block and Blade Complete	32	NPD 106	Self-Locking Nut
16	LO 12	Dust Washer	33	NC 6100	Lubricator
17	LO 13	Dust Cover	34	RL 5	Ball Bearing—Cutting Cylinder

LANDROLLS AND TRANSMISSION (Section 3)

Fig. No.	Part No.	Description	Fig. No.	Part No.	Description
1	CUFB 105/5R	Bolt—Landroll Bearings	51	LCG 1475	Operating Rod—Clutch
35	CUFN 204/A	Locknut—Clutch Lever Screw	52	LCG 1476	Flanged Rod—Clutch
35A	CUFS 105/6R	Screw—Landroll Spindle	53	LCG 1479	Outer Plate—Clutch
36	GSF 1200 AH	Steel Ball	54	LCG 1480	Distance Tube
37	GSF 2150 C	Washer—Scraper	55	LCG 1481	Nut—Clutch Spring
37A	GSF 2154 EB	Retaining Washer—Chainwheel	56	LCG 1482	Clutch Spring
38	GSF 2180 KM	Rivet Clutch Lever	57	LMA 407	Back Plate, Complete
39	LCG 1176	Pinion—Cylinder Drive	58	LMA 408	Intermediate Chainwheel, Complete
40	LCG 1236	Sprocket—Clutch Shaft	59	LMA 409	Intermediate Pinion, Complete
41	LCG 1437	Back Plate—Clutch	60	MBA 0451	Landroll and Spindle
42	LCG 1445	Lever—Clutch	61	MBA 0455	Bearing R.H.—Landroll
43	LCG 1448	Screw—Clutch Lever	62	MBA 0456	Bearing L.H.—Landroll
44	LCG 1452	(CUFN 204/A)	63	MBA 0457	Oil Tube—L.H. Bearing
		Clutch Pad	64	MBA 0458	Chainwheel—Landroll
45	LCG 1453	Bush—Intermediate Chainwheel	65	MBA 0467	Scraper—Landroll
46	LCG 1458	Bush—Intermediate Pinion	66	No. 111049/39	Chain—Landroll Drive
47	LCG 1468	Stiffener Plate—Clutch	67	No. 111049/68	Chain—Cylinder Drive
48	LCG 1469	Clutch Bearing	68	NPD 086	Self-Locking Nut—Scraper
49	LCG 1470	Locking Washer—Clutch			
50	LCG 1471	Securing Nut—Clutch			

TOOL LIST

<i>Part No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Description</i>
E 7402	Magneto Spanner	W 4	Allen Key $\frac{1}{4}$ " UF
LCC 149	Tool Wrap	LCG 1491	Clutch Spanner
LS 2506/4	Oil Gun	LSA 195	Tommy Bar
LS 2507/1	Screwdriver	LS 2686	Tool Kit, Complete
LS 2508A/5A	Box Spanner $5\frac{1}{16}$ " \times $\frac{3}{8}$ " UF	M 2693E	Feeler Guage
LS 2509/22	Spanner $\frac{1}{8}$ " \times $3\frac{1}{16}$ " B.S.W.		
LS 2509/24A	Spanner $\frac{1}{4}$ " \times $5\frac{1}{16}$ " UF		
*LCG 427	Key for Land Roll Spindle		

*Not supplied in standard tool kit.

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