# 'Gem'

## SERIES IV MODEL

## INSTRUCTION BOOK
AND
## SPARE PARTS LIST

Publication No. RG4/B/1151

# 'Gem' Series IV model

This instruction book has been written with the object of providing in the simplest possible manner a complete guide for the owner in the operation of the "Gem" Series IV Model. Detailed instructions for the larger maintenance operations, especially those which may become necessary after long service, are not included in this publication, as such work should be entrusted to the local "Gem" Service Distributor.

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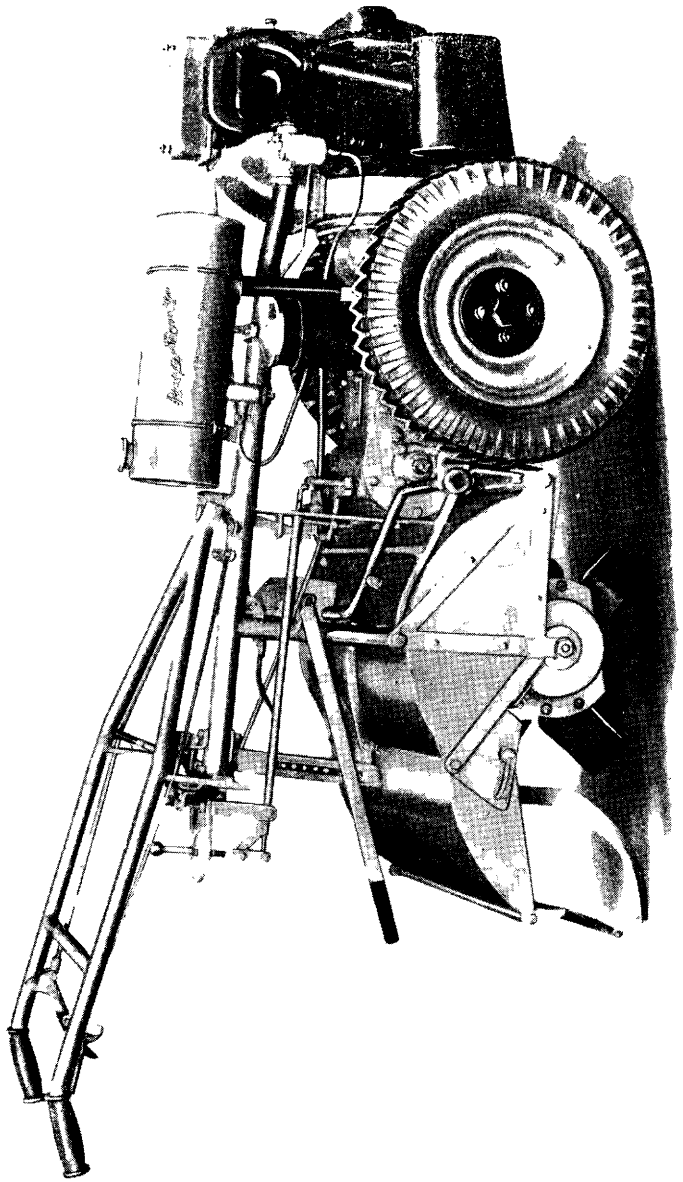
# INDEX



THE "GEM" Series IV Model.



## SPECIFICATION

**ENGINE**

Air-cooled (Fan) Twin cylinder (in line vertical) 4-stroke (810 cc.).

**BORE AND STROKE**

3″ diam. × 3½″ stroke.

**ENGINE SPEED**

2,000 r.p.m.

**FUEL TANK**

Capacity 2 gallons

**CLUTCH**

High duty single dry plate.

**GEAR-BOX**

Three speed and reverse transmission by hardened gears running in oil. All shafts mounted on ball bearings. Differential gear for easy turning automatically locked when rotor is engaged.

**SPEEDS**

1st gear—.87 m.p.h. 2nd gear—1.3 m.p.h.
3rd gear—1.83 m.p.h. Reverse gear—1.55 m.p.h.

**ROTOR**

Speed 172 r.p.m. 18″ diam.

**POWER TAKE-OFF PULLEY**

10″ diam. 4″ face. 500 r.p.m. 1,309 ft. per min.

**OVERALL DIMENSIONS OF MACHINE**

Length 6′ 8″. Width (24″ rotor) 2′ 5″.
(30″ rotor) 2′ 11″.

**WEIGHT**

5½ cwt. approximately.

## CONTROLS

### THROTTLE

The throttle control lever is fitted under the right handlebar grip. By raising it the engine speed is increased; by pressing it down the engine speed is reduced. The twin engine is governed, the hand throttle being used for starting and idling. At all other times the governor has control.

### CLUTCH

Control lever is mounted on left handlebar. Normal operation for forward travel, pull up lever to disengage drive, release to re-engage. To reverse machine, operate as follows: pull up clutch lever, move gear lever to reverse (which operates safety interlock), release clutch lever. No movement takes place until clutch lever is pushed down. Removal of pressure automatically stops machine. To disengage reverse gear, pull up clutch lever, move gear lever to neutral.

### HANDLEBAR POSITIONING LEVER

This is mounted on the main frame and is situated between the gear levers. To swing the handlebars to either side, press the handlebar positioning lever down to its full extent and swing the handlebar to whichever side is desired.

### HEIGHT OF HANDLEBARS

To adjust the height to suit the operator, remove the bolt at each end of the handlebar slide and select another hole in the lugs attached to the handlebars.

### ROTOR GEAR CONTROL LEVER

The lever on the quadrant engages with either of two notches. Pushing the lever forward disengages the rotor whilst pulling it back engages the rotor.

### TRAVEL GEAR CONTROL LEVER

Operates in a 4-star quadrant, marked 1, 2, 3, R to indicate forward travel and reverse positions. Neutral position is central. To engage gear, move lever to required position. Note safety feature, clutch interlock with reverse gear, see instructions under "Clutch".

### ROTOR DEPTH CONTROL LEVER

This is linked with the depth control skid, or wheel, and situated above the rotor shield. To lower the rotor for deeper work, the lever is raised to decrease the depth the lever is pushed down.

### EXHAUST VALVE LIFTING LEVER

This is placed under the main frame over the centre of the rotor shield and lifting up decompresses the engine for easy starting.

### THE ENGINE STARTING HANDLE

When this is not in use it is folded back on the rotor shield. When starting the engine, lift it out of the bracket and swing it forward until the recessed square on the handle will engage with the protruding square end of the starting dog on the gear-box. *Both travel gear and rotor must be out of gear when starting.*



## PREPARING FOR WORK

Before starting the engine check the oil and petrol supply. Check the oil level in the crankcase by means of the dipstick which is located on the exhaust side of the engine immediately below the governor radius arm.

Unscrew the dipstick, wipe clean, and check oil level without screwing in the threaded portion of the dipstick. The indicating marks on the dipstick indicate High and Low levels (when the thread of the dipstick is not engaged).

The engine should not be run with the oil level below the Low level as shown by the dipstick. Always top up the oil level before starting the day's work. The oil filler cap is situated on the exhaust side of the crankcase, just below the carburettor. The " Gem " Series IV being a wet sump model, the oil is carried in the engine sump.

Make certain that all the oiling points listed on the chart have received attention. See that no nuts or bolts are loose, particular attention being paid to the rotor blade bolts.

Standing on the right-hand side of the machine looking forward, flood the carburettor, and see that *both the rotor and the travel gears are in neutral.* Ensure that the throttle control lever is only just open. With the left hand lift the exhaust valve lifter. Place the starting handle into position. Briskly crank the engine and release the exhaust valve lifter after the first turn or two. When the engine starts replace the starting handle in the bracket provided on the shield.

Adjust throttle control to a brisk idling speed. See that the depth control handle is set so that the rotor is clear of the ground. Next, lift the clutch hand lever and engage the desired gear, release the clutch at the same time gently accelerating the engine.

## COMMENCING CULTIVATION

Adjust the depth control lever to give the required depth of work, select the appropriate travel gear to give the required fineness of tilth, put the rotor gear in mesh and commence work keeping the engine running at a constant speed whatever type of work is being done. Do not race the engine if the work is light nor labour the engine if the work is heavy. After a little practice, no difficulty will be found in maintaining the best engine speed.

**Rear Shield**

To avoid an accumulation of soil choking the rotor and causing the use of unnecessary power, always keep the rear shield well raised so that the blades will throw the soil clear.

**To stop the engine**

Put both gears in neutral and then lift the exhaust valve lifter.

## NOTES ON CULTIVATION

Since the scope of operation is so extensive, and as soil tillage methods differ so greatly with various crops, climates and soil conditions, it is only possible to deal briefly with this aspect. However, the following hints should enable the user to obtain the best results from the machine.

Virgin soil or land tightly bound together with grass or roots is best cultivated by first working shallow to break up the surface. The required depth may then be reached on successive runs over the ground.

The low gear must be used when cultivating ground that is very hard or covered with heavy growths. Second gear is used for all ordinary cultivation, and top gear for light cultivation. Always work on the highest gear that will produce the quality of tilth required. Always use top gear for running the machine between work. A depth control skid, or wheel, is fitted and by moving this up and down the depth of work is controlled in $\frac{3}{4}''$ stages from $\frac{3}{4}''$ to about 8″ in depth.

When cultivating a ploughed field, the " Gem " should be run across the furrows—not along them. This will ensure complete cultivation.

On hilly ground always run the machine around the contour, working from top to the bottom of the hill. After the first cut, one road wheel can be run in the soil just cut up and any tendency to slip will be obviated by the wheel coming against a wall of uncut soil.

If the land is exceptionally light special extension rims may be supplied to prevent the machine sinking in.

Do not overtax the power of the machine—far better results will be obtained from working in easy stages rather than by forcing the machine to do work in excess of its horsepower.



## NOTES FOR OPERATOR

1. The importance of regular and correct lubrication cannot be over-emphasized and particular attention must be paid to the Lubrication Chart on page 11.

2. *Air cleaner maintenance is of paramount importance. (See page 13.)*

3. The throttle must always be shut to idling position when lifting the clutch lever for engaging or disengaging gears.

4. The engine must not be allowed to idle at slow speeds for long periods.

5. Do not hold the handles firmly down if the machine jumps on striking a stump or similar obstacle, but just lightly resist the movement and let the machine right itself. This particularly applies when working on hillsides in badly cleared land.

6. When taking sharp corners, put the rotor out of gear, if necessary lifting the machine at the handles to help in turning.

7. Never run the " Gem " with the engine labouring. By selecting the right gear and the correct depth of work a reserve of engine power is always in hand.

8. When operating the " Gem," use the clutch in the same way as in a car; that is, for changing gear only. Do not " slip the clutch " to obtain extra engine speed.

9. For the first 12 hours after delivery, only light work should be done in order that the working parts are allowed to bed down properly.

## LUBRICATION

(*See Lubrication Chart, page* 11)

**ENGINE** Oil must be renewed completely after every 24 hours work. The oil may require topping up from time to time and the oil level should never be allowed to fall below the Low level on the dipstick.

**ROTOR DOG CLUTCH HOUSING** Remove the square-headed plug [point "B" on chart], and give half a dozen spurts of oil from the oil-can. This should be done every 24 hours and particularly before starting up after any prolonged period of rest.

**ROTOR DRIVE CHAIN BOX** Remove the square-headed plug [point "C" on chart] on top of the chain cover and using the dipstick from the gear-box, fill the case up to the lower mark. A quarter of a pint is sufficient. Do not overfill as this may result in oil being forced on to the rotor friction clutch causing it to slip unnecessarily. This should be checked after every 24 hours of work.

**ROTOR STUB AXLE** [Point "D" on chart.] Remove the round-headed screw and with an oil-can, fill the oil space inside the rotor tube, every 24 hours work.

**DEPTH CONTROL WHEEL** Remove round-headed screw and with oil-can fill space inside the axle, every 24 hours.

**GEAR-BOX** Every 24 hours check the level as indicated on the uppermost mark of the dipstick, which is attached to the square-headed plug [point "E" on chart], screwed into the top of the gear-box. Normally, it should only be necessary to drain and renew the oil in the gear-box after every four hundred hours of work. Drainage is best carried out when the oil is warm and it is a good practice to remove the drain plug at the end of a day's work leaving the plug out all night. Capacity of the gear-box is approximately ¾ gallon.

In addition to these lubrication directions, points such as the slide bar of the swinging handlebars, and the fulcrum levers of the throttle and the clutch controls should be oiled with engine oil to ensure free movement.

## ENGINE TROUBLE CHART

### Engine fails to start

**Fuel System:**

Fuel supply turned off.
Fuel pipe choked or air lock.
Water or dirt in fuel.
Throttle too wide open.

**Ignition System:**

Magneto contact breaker point gaps need adjustment (.012").
Spark plug dirty or faulty
Spark plug point gaps need adjustment. Should be .020"—.025" gap.
Water or moisture in magneto.
Magneto contact breaker points stuck or dirty.
High-tension lead cracked or perished.

(*continued on page* 12)

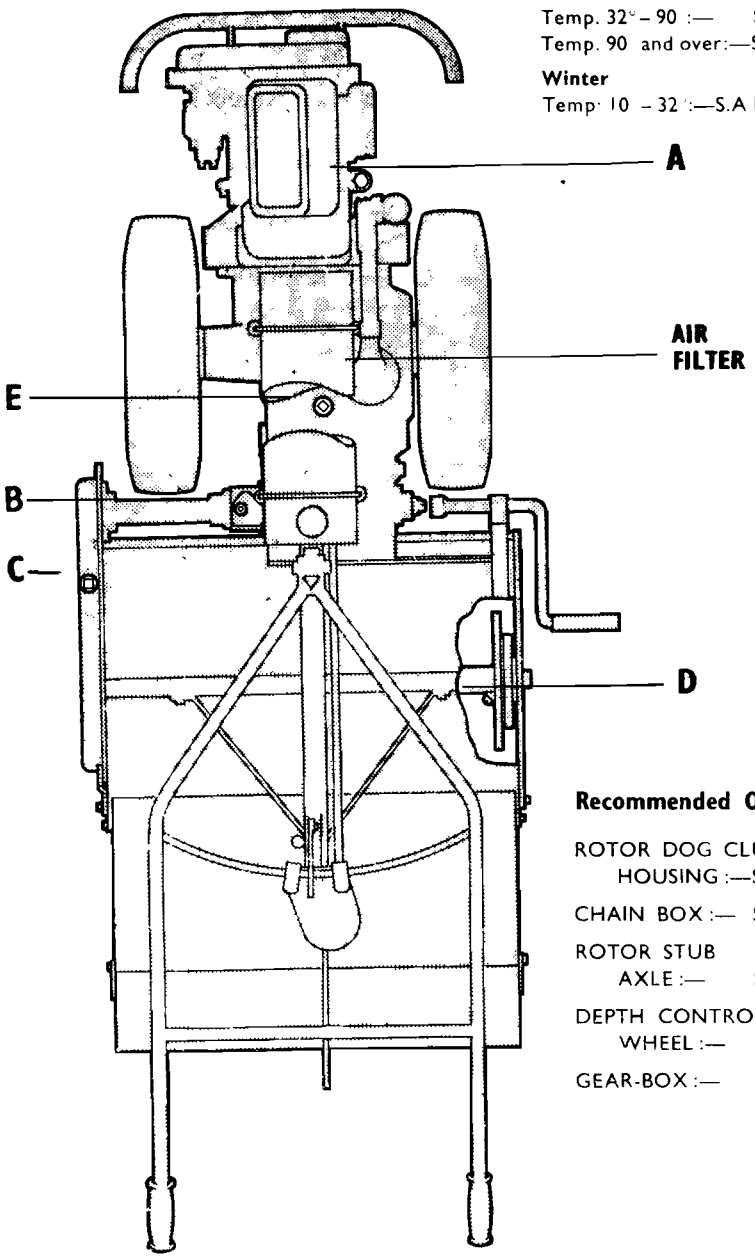


## LUBRICATION CHART

**ENGINE** Oils Recommended :

**Summer**
Temp. 32°–90 :— S.A.E. 40
Temp. 90 and over:—S.A.E. 50

**Winter**
Temp. 10 – 32 :—S.A.E. 30




**Recommended Oils :—**

ROTOR DOG CLUTCH HOUSING :—S.A.E. 90
CHAIN BOX :— S.A.E. 90
ROTOR STUB AXLE :— S.A.E. 50
DEPTH CONTROL WHEEL :— S.A.E. 50
GEAR-BOX :— S.A.E. 90

## Engine lacks power or runs irregularly

**Fuel System:**

Fuel pipe partially blocked.
Jets partially blocked, or not correctly adjusted.

**Ignition System:**

Spark plug dirty
Spark plug point gaps need adjustment.
Magneto contact points dirty or need adjustment.

**Mechanical Faults:**

Valve springs weak or broken.
Cylinder head gaskets leaking.
Valve stuck open. Valves badly burnt.
Valve clearance incorrect. Broken piston rings.
Badly worn piston rings and/or cylinder bore.
Badly worn valve guides.

## Engine stops suddenly

**Fuel System:**

Fuel tank empty. Water in fuel.
Overheating owing to lack of oil.
Jet blocked by foreign matter.

**Ignition System:**

Magneto contact breaker points stuck.

## Engine overheats

Ignition retarded too far.
Spark plug dirty.
Spark plug point gaps need adjustment.
Insufficient or poor grade of oil.
Engine requires decarbonising.
Valves not seating properly.
Engine cowling blocked with grass or weeds.
Flywheel fan blocked with grass or weeds.

# GENERAL MAINTENANCE

**ENGINE CLUTCH** The clutch is of a single fibre disc type, simple in operation and efficient in work. It should be adjusted with a little play on the lever (about $\frac{1}{4}$" at the end) so that the thrust bearing is free except when the Hand lever is lifted. Adjustment can be made by means of the wing nut.

**ROTOR FRICTION DRIVE** The rotor to which the blades are bolted is driven direct from the main gear-box through a friction clutch. This clutch is not intended to operate except when the rotor blades strike an obstacle, and, when leaving the factory, is adjusted so that no slip takes place under ordinary working conditions. If it is suspected that the clutch slips



too freely, it should be adjusted by means of the four nuts; tighten up, then slack back half a turn.

**ROAD WHEELS** The road wheels are mounted on hubs, driven by friction clutches. These are adjusted so that the wheels have sufficient grip to pull the machine but will slip if they become jammed with an obstruction between the wheels and the frame. Adjustment as for rotor clutch.

**AIR CLEANER** *Regular attention to this is most important.* The oil level must be checked after every 8 hours running and after every 24 hours it must be dismantled and thoroughly cleaned out. To remove the cleaner, loosen the clamping screw and, leaving the cover still connected to the hose connection, take the air cleaner from its platform. Separate the top from the bottom half of the cleaner, and pour the dirty oil from the reservoir. Thoroughly wash out all sediment in the bottom with petrol. Remove the serrated spring clip in the filter container, take out the wire gauze filters and wash them in petrol. Refill the oil reservoir to the correct level with *clean* engine oil. Put the wire gauze filter back into the container then replace the perforated plates and the serrated spring clip. Now put the two halves together with the felt washer between and replace. Fit the cover taking care that the cover felt washer is intact and clamp back into position.

If working under exceptionally dusty conditions the air cleaner requires cleaning every 6 hours.

**MAINTENANCE OF HOE BLADES** *It is essential that only the cutting edge should rub in the soil and that the back should have clearance.*

The Blades are designed so that use in average soil tends to sharpen them, but if the machine is used on stony ground it is suggested that two sets of hoe blades should be used alternately in order that one set may be kept sharpened.

The efficiency of the machine depends largely on the condition of the hoe blades. If bent through striking solid obstacles in the ground and not straightened, they will require twice the power to drive, the quality of work will be poor and the blades will wear out quickly. Trouble will also be experienced with clogging under the shield. Blades should therefore be straightened up as soon as noticed with the blade setting bar which is provided for the purpose, the hooked end of which is intended to fit over the blade.

**ROTOR FLANGE WEEDCUTTERS** Two weedcutter blades are provided to prevent long grass or weeds from binding round the end rotor flanges. To adjust, slack the two setscrews

securing the weedcutter blade and tap the blade until it is within 1/32″ of the rotor flange, revolve the rotor by hand to make sure the blade does not foul and retighten the setscrews.

**ENGINE CARBURETTOR** Before the engine leaves the works, the carburettor is tested and the variable jet adjusted to give the best all-round performance. If, at any time, the setting is disturbed, it will be found that one and a half turns open is a satisfactory position.

**To clean the carburettor jet** it is necessary to take out the main jet body (Part No. B.J.9106) through which the main jet adjusting screw operates; the idling jet is a very small hole drilled in the groove halfway up the jet bolt.

If black smoke (not blue) is emitted from the silencer when the engine is running under normal load the jet should be slowly screwed in until this stops.

If black smoke is seen when the engine is idling, the idling jet adjusting screw (Part No. B.J.9104) requires to be unscrewed slowly until this stops.

**DECARBONISING THE ENGINE** This will only be necessary after at least 400 hours running, and should preferably be left to the service agent who has the facilities to do the work and check the extent of cylinder, piston and valve wear.

If, however, it is essential for this work to be done on the site the following method should be followed.

Disconnect the exhaust valve lifter, throttle control, air cleaner hose, petrol pipe and exhaust. Remove the induction and exhaust manifold, sparking plugs, cowl, and valve gear cover. Slacken and remove the six cylinder holding nuts, lift the rocker assembly. The cylinder head will now lift off the block. Turn the engine until the piston is at the top of its stroke and remove the carbon deposit with a blunt knife, do not scratch the piston but thoroughly clean off any carbon. Leave a ring of carbon about $\frac{1}{8}$″ wide around the edge of the piston as this assists in maintaining an oil seal. Remove the carbon adhering to the bore *above* the piston's travel.

Next remove the valves. Carefully mark the valve heads to ensure that they are replaced in the correct positions. Place cylinder head on a bench and with two screwdrivers, compress the spring so that the split taper cotters can be removed. The valves will then withdraw. The valve heads should be cleaned with sandpaper and any carbon deposit removed from the valve pockets. Smear a small amount of *fine* grinding paste on the bevelled face of the valve and placing a broad-headed screwdriver in the slot in the head, rub the valve on its seating



with an oscillating rotary action. Do not rotate the valve continually in one direction. The valve should show a continuous bright ring all round. If any breaks or thin places show, repeat the operation. Only the minimum grinding must be given to produce this condition: a deep recessed groove in the face will impair the seating of the valve Any burnt or deeply pitted valves should be replaced by new ones. The valve seating should show a similar continuous bright ring of uniform width. If the seat width is much over 1/16″ it is necessary to have it refaced, and this should be attended to by the Service Agent at the first opportunity.

Remove all trace of grinding paste from the valve and seating by washing in petrol. Reassemble the valves, smearing a little clean oil on the valve stems.

Clean the face of the cylinder head and cylinder and replace the gasket which, if at all damaged, should be renewed. When tightening up the cylinder head bolts, tighten each an equal amount until they are all dead tight. Set tappet clearance to .008 on all tappets. Reassemble all parts in the reverse of the dismantling order. Run the engine for two or three minutes on closed throttle and re-tighten the cylinder head nuts. Take care that the engine does not overheat.

## ATTACHMENTS AND EQUIPMENT

*Various attachments may be used with the "GEM" Machine :—*

**For Mobile Work**

Furrowing Attachment.
Furrow Covering Attachment.
Picktyne Rotor.
Depth Control Wheel
Roller Attachment.
Extension Rims.
Leaf Guards.

**For Stationary Work**

Power Take-off Pulley.
Soil Shredder.
Waterproof Cover.

## FITTING THE ATTACHMENTS

**THE FURROWING ATTACHMENT** is fitted on to the depth control skid. First remove the depth control skid by pivoting the depth control lever clip; pull the depth control lever sideways until the pin engaging in the skid is withdrawn and the skid may then be pulled out of the depth control socket from under the rotor shield.

Assemble the furrowing attachment on to the depth control skid leaving the bottom of the attachment approximately ½" above the foot of the skid, or as required for the crop to be planted, and tighten locking nut. Fit the assembly in the depth control socket and connect to depth control lever. For machines where a depth control wheel has been fitted in place of a skid, the skid must also be ordered in addition to the furrowing attachment. When using the furrower, the rotor is put in gear so that the combined operations of cultivating and furrowing are carried out simultaneously.

**THE FURROW COVERING ATTACHMENT** is fitted into the depth control socket in the same way as the furrower, except that it is supplied with its own pedestal. When in use, the rotor should be out of gear and allowed to roll over the ground like a wheel.

**THE ROLLER ATTACHMENT** is used in place of the depth control wheel or skid, and is intended to consolidate the land. The roller may be loaded with sand to increase its weight and will



leave a smooth surface ready for drilling or planting. This attachment is used in conjunction with the rotor.

Depth for the above operations is controlled in the same way as for ordinary cultivation.

**ROAD WHEEL EXTENSION RIMS** can be supplied when the machine has a tendency to sink in very light lands, and to prevent side slip when working on steep contours. They are bolted by five bolts to holes provided in the existing road wheels (cleated type only). The road wheel extension flange can be supplied with or without serrations (the illustration in the Parts List shows the serrated type). Alternatively, the flange may be removed to leave a plain extension rim only. An extended starting handle is required with these rims and is supplied with all orders for rims.

**THE PICKTYNE ROTOR** which is used for special work such as dealing with very hard soil conditions or for pasture renovation is fitted as follows: —

Slack off all nuts and bolts holding the support bracket carrying the stub axle, staytube and rotor shield. Remove the four rotor friction drive adjusting nuts and springs. Spring the bracket off the stub axle with bar and slide the rotor sideways and withdraw. The Picktyne rotor is fitted by reversing the operations above. Unless otherwise stated, the Picktyne rotor is supplied complete with Picktynes, bolts and nuts and stub axle assembly.

To fit the **POWER TAKE-OFF:**—Remove the hinge bolt for the starting handle, remove the four set screws holding the starting dog bearing cover in place on the gear-box side-plate and remove the cover and loose dog. Assemble power take-off casting in place of the bearing cover, and ensure that the dogs in the bearing and power take-off mesh before replacing the four set screws. Next insert a long bolt in the hole provided in the power take-off casting and tighten. After oiling the power take-off bearing behind the pulley it is ready for use.

To fit the **SOIL SHREDDER:**— Remove depth control skid or wheel and one end rotor blade on the right-hand flange and replace by feeder blade. Lift the back of the machine sufficiently high to pass the shredder into position under the rotor, lower the machine ensuring that the lugs on the shredder locate the staytube and chain case and tighten the clamping bolts.

A **WATERPROOF CANVAS COVER** can be supplied for covering the "Gem" when not in use.

# SPARE PARTS LIST

# AND

# DIAGRAMS

## ORDERING SPARE PARTS

**IMPORTANT. When ordering spare parts always give part number and name and quote the serial number of your machine which is stamped on the main frame member at the rear of the fuel tank. In the case of engine parts the number of the engine should be also quoted. This information will ensure correct parts being sent.**

All reference to left and right hand are to be read as from rear of machine looking forward.

When ordering a new part it should be located from the Parts Diagrams, on following pages and the part number noted. Refer to the Parts Lists and obtain the correct name of the part.

The following parts are supplied assembled:—

25021 Bull wheel supplied complete with differential pinion studs 25024.

25028 Differential plate supplied complete with differential pinion studs 25024.

25286 Fly wheel supplied complete with driving pins B.J.8002.

It is also recommended that:—

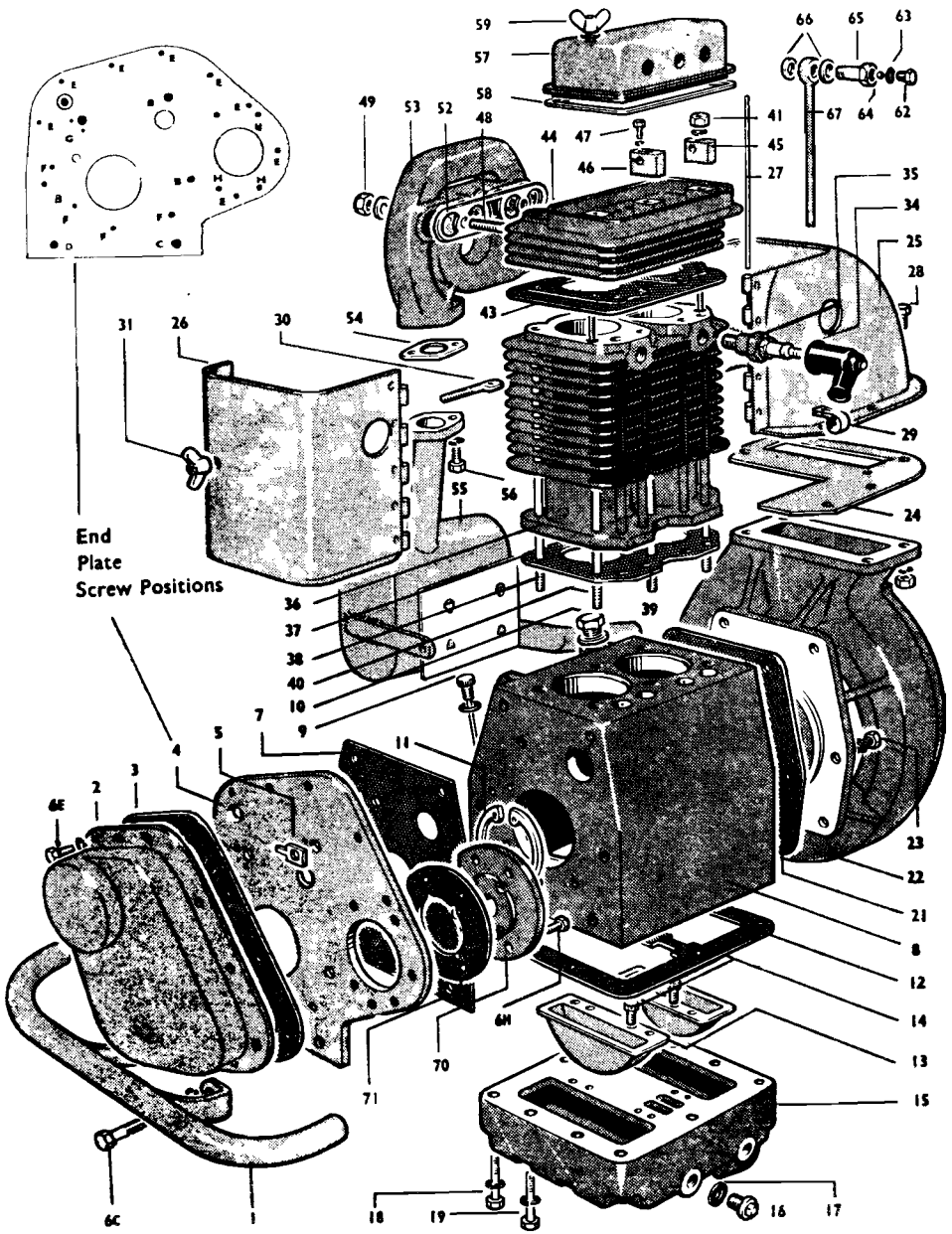
Crown wheel and pinion be paired.

Road wheel shaft be supplied assembled with fixed hub gear.



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **CRANKCASE AND CYLINDER** (Plate 1) | |
| 1 | 25604 | Bumper bar ... ... ... ... ... ... | 1 |
| 2 | 25691 | Timing case ... ... ... ... ... ... | 1 |
| 3 | 25192 | Timing case cover gasket ... ... ... ... | 1 |
| 4 | 25195 | Crankcase end plate ... ... ... ... | 1 |
| 5 | 25714 | Tab washer ... ... ... ... ... ... | 1 |
| 6A | | Countersunk screw $\frac{3}{8}$" B.S.F. × $\frac{5}{8}$" L. ... ... | 1 |
| 6B | | Setscrews Hex. Hd. $\frac{3}{8}$" B.S.F. × $\frac{5}{8}$" L. ... ... | 3 |
| 6C | | Setscrews Hex. Hd. $\frac{3}{8}$" B.S.F. × $1\frac{1}{4}$" L. ... ... | 1 |
| 6D | | Setscrews Hex. Hd. $\frac{3}{8}$" B.S.F. × $1\frac{1}{4}$" L. ... ... | 1 |
| — | | Spring washers $\frac{3}{8}$" dia. ... ... ... ... | 4 |
| 6E | | Setscrews Hex. Hd. $\frac{1}{4}$" B.S.F. × $\frac{1}{2}$" L. ... ... | 8 |
| 6F | | Setscrews Hex. Hd. $\frac{1}{4}$" B.S.F. × $\frac{7}{8}$" L. ... ... | 4 |
| — | | | |
| 6H | | Setscrews securing magneto $\frac{1}{4}$" B.S.F. × $\frac{7}{16}$" L. | 4 |
| — | | Spring washers $\frac{1}{4}$" dia. ... ... ... ... | 4 |
| 7 | 25196 | Crankcase end plate gasket ... ... ... | 1 |
| 8 | 25126 | Crankcase ... ... ... ... ... ... | 1 |
| 9 | 25257 | Dipstick ... ... ... ... ... ... | 1 |
| — | 25414 | Dipstick washer ... ... ... ... ... | 1 |
| 10 | 25243 | Filler plug ... ... ... ... ... ... | 1 |
| — | 25244 | Filler plug washer ... ... ... ... ... | 1 |
| 11 | | Circlip—Internal 3" dia. ... ... ... ... | 1 |
| 12 | 25186 | Crankcase sump gasket ... ... ... ... | 1 |
| 13 | 25189 | Scoop trough ... ... ... ... ... | 2 |
| 14 | 25334 | Setscrews securing troughs ... ... ... | 8 |
| — | 25335 | Locking wire ... ... ... ... ... | 2 |
| 15 | 25127 | Crankcase sump ... ... ... ... ... | 1 |
| 16 | 25258 | Sump drain plug ... ... ... ... ... | 2 |
| 17 | 25259 | Sump drain plug washer ... ... ... ... | 2 |
| 18 | | Bolt, Sump, Corners Hx. Hd. $\frac{1}{4}$" B.S.F. × $1\frac{3}{4}$" L. | 4 |
| 19 | | Bolt, Sump intermediate Hx. Hd. $\frac{1}{4}$" B.S.F. × $2\frac{1}{4}$" L. | 6 |
| 20 | | | |
| — | | Spring washers $\frac{1}{4}$" dia. ... ... ... ... | 10 |
| 21 | 25256 | Flywheel fan housing gasket ... ... ... | 1 |
| 22 | 25129 | Flywheel fan housing ... ... ... ... | 1 |
| 23 | | Setscrew Hex. Hd. $\frac{3}{8}$" B.S.F. × $\frac{3}{8}$" L. ... ... | 6 |
| — | | Spring washer $\frac{3}{8}$" dia. ... ... ... ... | 6 |
| 24 | 25592 | Cowling, base plate ... ... ... ... | 1 |
| 25 | 25591/1 | Cowling, rear half ... ... ... ... ... | 1 |
| 26 | 25591/2 | Cowling, front half ... ... ... ... | 1 |
| 27 | 25591/4 | Cowling hinge pin ... ... ... ... ... | 1 |
| 28 | | Setscrew securing rear cowling $\frac{1}{4}$" B.S.W. × $\frac{1}{2}$" L. | 6 |
| — | | Spring washer $\frac{1}{4}$" dia. ... ... ... ... | 6 |
| — | | Nut $\frac{1}{4}$" B.S.W. ... ... ... ... ... | 3 |
| 29 | 25593 | Magneto lead clip ... ... ... ... ... | 1 |
| 30 | 25695 | Captive bolt securing front cowling ... ... | 1 |
| 31 | 25694 | Wing nut $\frac{1}{4}$" B.S.F. ... ... ... ... ... | 1 |
| 32 | | | |
| 33 | | | |
| 34 | 25408 | Spark plug cover and terminal ... ... ... | 2 |
| 35 | 25343 | Spark plug (14 mm. long reach) ... ... ... | 2 |
| — | 25344 | Spark plug washer ... ... ... ... ... | 2 |
| 36 | 25270 | Cylinder block assembly ... ... ... ... | 1 |
| 37 | 25180 | Cylinder block gasket ... ... ... ... | 1 |
| 38 | 25272 | Cylinder block stud, short ... ... ... | 3 |
| 39 | 25338 | Cylinder block stud, medium ... ... ... | 1 |
| 40 | 25271 | Cylinder block stud, long ... ... ... ... | 2 |
| 41 | | Nut $\frac{3}{8}$" B.S.F. ... ... ... ... ... | 6 |
| — | | Spring washer $\frac{3}{8}$" dia. ... ... ... ... | 6 |
| 42 | | | |
| 43 | 25183 | Cylinder head gasket ... ... ... ... | 1 |

# PLATE I




**CRANKCASE AND CYLINDER ASSEMBLY**



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 44 | 25188 | Cylinder head ... ... ... ... ... | 1 |
| 45 | 25300 | Rocker shaft end bearing ... ... ... ... | 2 |
| 46 | 25301 | Rocker shaft centre bearing ... ... ... | 1 |
| 47 | | Centre bearing set screw ¼" B.S.F. × ¾" L. ... | 1 |
| — | | Spring washer ¼" dia. ... ... ... ... | 1 |
| 48 | 25238 | Manifold stud ... ... ... ... ... | 2 |
| — | | Spring washer ¼" dia. ... ... ... ... | 2 |
| 49 | | Nut ¼" B.S.F. .. ... ... ... ... | 2 |
| 50–51 spare | | | |
| 52 | 25276 | Manifold gasket ... ... ... ... ... | 1 |
| 53 | 25228 | Combined inlet and exhaust manifold ... ... | 1 |
| 54 | 25649 | Exhaust muffler gasket ... ... ... ... | 1 |
| 55 | 25311 | Exhaust muffler assembly ... ... ... ... | 1 |
| 56 | | Setscrew ¼" B.S.W. × ¾" L. ... ... ... | 2 |
| — | | Spring washer ¼" dia. ... ... ... ... | 2 |
| 57 | 25339 | Cylinder head cover ... ... ... ... | 1 |
| 58 | 25280 | Cylinder head cover gasket ... ... ... | 1 |
| 59 | 25694 | Wing nut ¼" B.S.F. ... .. ... ... ... | 2 |
| — | 25578 | Fibre washer ... ... ... ... ... | 2 |
| 62 | 8390 | Breather valve body plug ... ... ... ... | 1 |
| 63 | 1394 | Fibre washer ... .. ... ... ... | 1 |
| 64 | 8411 | Breather valve ball ... ... ... ... | 1 |
| 65 | 8380 | Breather valve body ... ... ... ... | 1 |
| — | 8420 | Spring ... ... ... ... ... ... | 1 |
| 66 | 1396 | Fibre washers ... ... ... ... ... | 2 |
| 67 | 8400 | Breather pipe assembly ... ... ... ... | 1 |
| 68–69 spare | | | |
| 70 | 25197 | Magneto flange ... ... ... ... ... | 1 |
| 71 | 25255 | Magneto flange gasket ... ... ... ... | 1 |
| — | A-1137 BZ | Magneto (complete) ... ... ... ... | 1 |
| | | (For Magneto Spare Parts see Illustration Nos. 801-870 below) | |

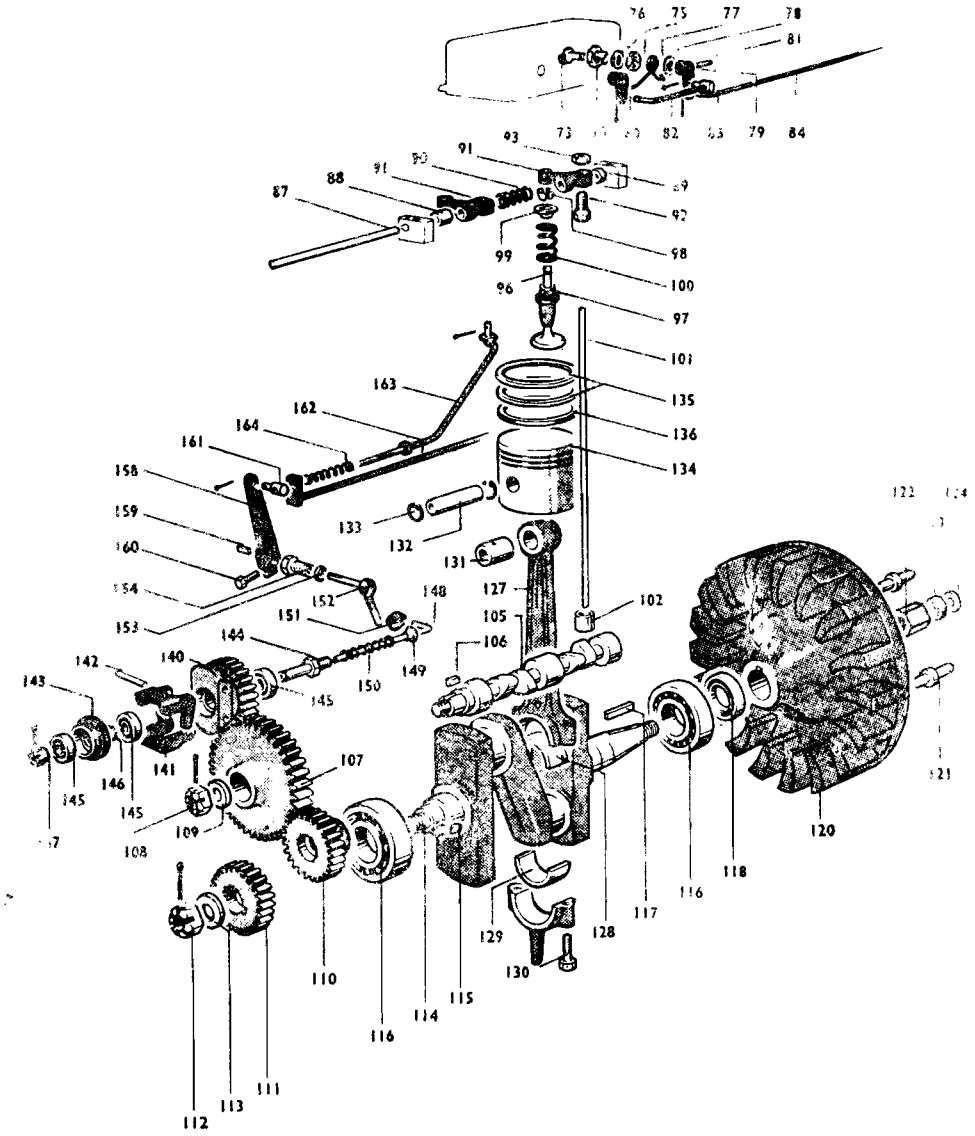
## DECOMPRESSOR CONTROL (Plate 2)

| | | | |
|---|---|---|---|
| 72 | | | |
| 73 | 25583 | Exhaust valve lifting cam ... ... ... ... | 2 |
| 74 | 25594 | Sleeve ... ... ... ... ... ... ... | 2 |
| 75 | 25585 | Nut ... ... ... ... ... ... ... ... | 2 |
| 76 | 25586 | Fibre washer ... ... ... ... ... | 2 |
| 77 | 25590 | Return spring ... ... ... ... ... | 1 |
| 78 | 25716 | Washer ... ... ... ... ... ... | 2 |
| 79 | 25580 | Long lever ... ... ... ... ... ... | 1 |
| 80 | 25581 | Short lever ... ... ... ... ... ... | 1 |
| 81 | 25587 | Mills pin ... ... ... ... ... ... | 2 |
| 82 | 25582 | Connecting link ... ... ... ... ... | 1 |
| 83 | 25715 | Trunnion ... ... ... ... ... ... | 1 |
| 84 | 25646 | Control rod ... ... ... ... ... | 1 |
| 85 | | | |
| — | | Split pin $\frac{1}{16}$" dia. × ½" l. ... ... ... ... | 2 |

## VALVE AND CAMSHAFT (Plate 2)

| | | | |
|---|---|---|---|
| 86 | | | |
| 87 | 25299 | Rocker shaft ... ... ... ... ... | 1 |
| 88 | 25303 | Spacer tube, long ... ... ... ... ... | 2 |
| 89 | 25304 | Spacer tube, short ... ... ... ... ... | 2 |
| 90 | 25302 | Rocker shaft spring ... ... ... ... | 2 |
| 91 | 25297 | Rocker lever, inlet and exhaust ... ... ... | 4 |
| 92 | 25298 | Rocker lever adjusting screw ... ... ... | 4 |
| 93 | | Locknut ¼" B.S.F. ... ... ... ... ... | 4 |
| 94–95 spare | | | |

# PLATE 2



CRANKSHAFT ASSEMBLY



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 96 | 25203 | Valve | 4 |
| 97 | 25209 | Valve guide | 4 |
| 98 | 25239 | Split collet | 4 |
| 99 | 25249 | Collar | 4 |
| 100 | 25275 | Valve spring | 4 |
| 101 | 25202 | Push rod | 4 |
| 102 | 25237 | Tappet | 4 |
| 105 | 25190 | Cam shaft | 1 |
| 106 | 25307 | Key | 1 |
| 107 | 25204 | Timing pinion, camshaft | 1 |
| 108 | | Slotted nut $\frac{8}{16}$" B.S.F. | 1 |
| 109 | | Washer $\frac{8}{16}$" dia. plain | 1 |
| — | | Split pin $\frac{1}{8}$" dia. × $1\frac{1}{2}$" L. | 1 |
| 110 | 25199 | Magneto pinion | 1 |
| | | **CRANKSHAFT** (Plate 2) | |
| 111 | 25194 | Timing pinion, crankshaft | 1 |
| 112 | | Slotted nut $\frac{5}{8}$" B.S.F. | 1 |
| 113 | | Washer $\frac{5}{8}$" dia. plain | 1 |
| — | | Split pin $\frac{1}{8}$" dia. × $1\frac{1}{2}$" L. | 1 |
| 114 | 25125 | Crankshaft | 1 |
| 115 | 25288 | Woodruff key | 1 |
| 116 | BRL. $1\frac{3}{8}$ | Ball bearing 3" × $1\frac{3}{8}$" × $\frac{11}{16}$" W. | 2 |
| 117 | 25285 | Key | 1 |
| 118 | | Oil seal $2\frac{1}{16}$" × $1\frac{3}{8}$" × $\frac{3}{8}$" W. | 1 |
| 119 | | | |
| 120 | 25286 | Flywheel assembly (with clutch pins) | 1 |
| 121 | 25246 | Flywheel clutch pin | 6 |
| 122 | 25187 | Flywheel nut (see below for assembly) | 1 |
| 123 | BRL. $\frac{1}{2}$" | Ball bearing $1\frac{5}{16}$" × $\frac{1}{2}$" × $\frac{3}{8}$" W. | 1 |
| 124 | BJ.8007 | Bearing retainer washer | 1 |
| 125 | | | |
| 126 | | | |
| — | 25287 | Flywheel nut complete assembly | 1 |
| | | **CONNECTING ROD AND PISTON** (Plate 2) | |
| 127 | 25124 | Connecting rod (top and bottom parts) | 1 |
| 128 | 25216 | Half bearing, top | 2 |
| 129 | 25217 | Half bearing, bottom | 2 |
| 130 | 25251 | Bolt | 4 |
| — | 25333 | Locking wire | 2 |
| 131 | 25242 | Gudgeon pin bearing | 2 |
| 132 | 25291 | Gudgeon pin | 2 |
| 133 | 25292 | Gudgeon pin circlip | 4 |
| 134 | 25122 | Piston | 2 |
| 135 | 25293 | Piston ring, plain | 4 |
| 136 | 25294 | Piston ring, scraper | 2 |
| 137 | | | |
| 138 | | | |
| 139 | | | |
| | | **GOVERNOR** (Plate 2) | |
| 140 | 25220 | Governor pinion (see below for assembly) | 1 |
| 141 | 25253 | Governor weight | 2 |
| 142 | 25254 | Governor weight pin | 2 |
| — | 25308 | Governor pinion and weight riveted assembly | 1 |
| 143 | 25225 | Thrust plate | 1 |
| 144 | 25229 | Governor sleeve | 1 |
| — | | Grub screw a B.A. × $\frac{5}{16}$" L. | 1 |
| 145 | 25354 | Ball bearing $1\frac{1}{8}$" × $\frac{1}{2}$" × $\frac{1}{4}$" W. | 3 |

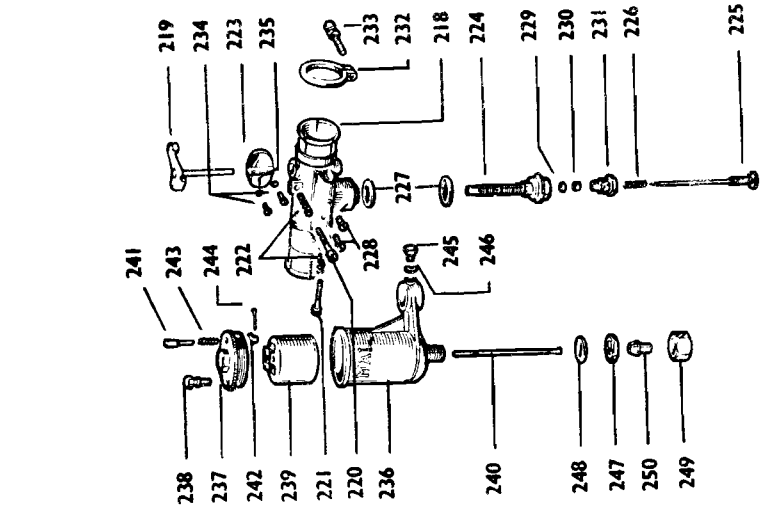
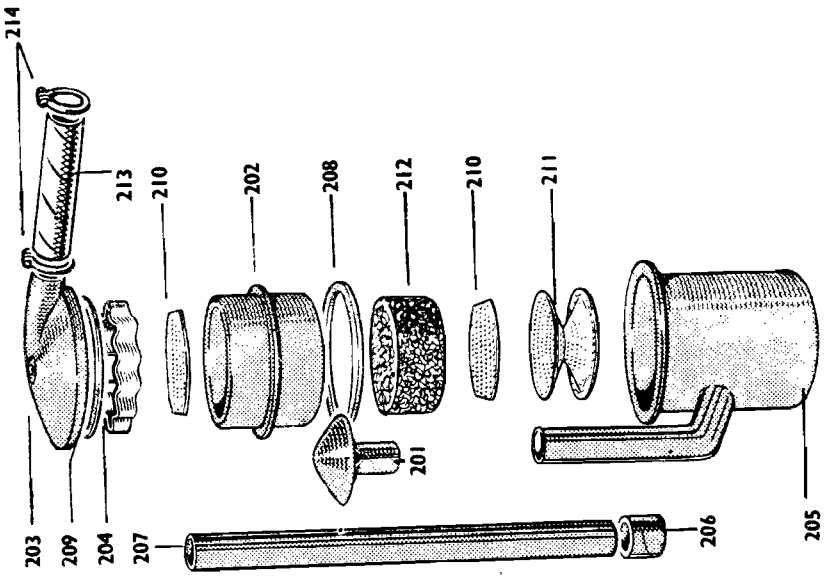



PLATE 3

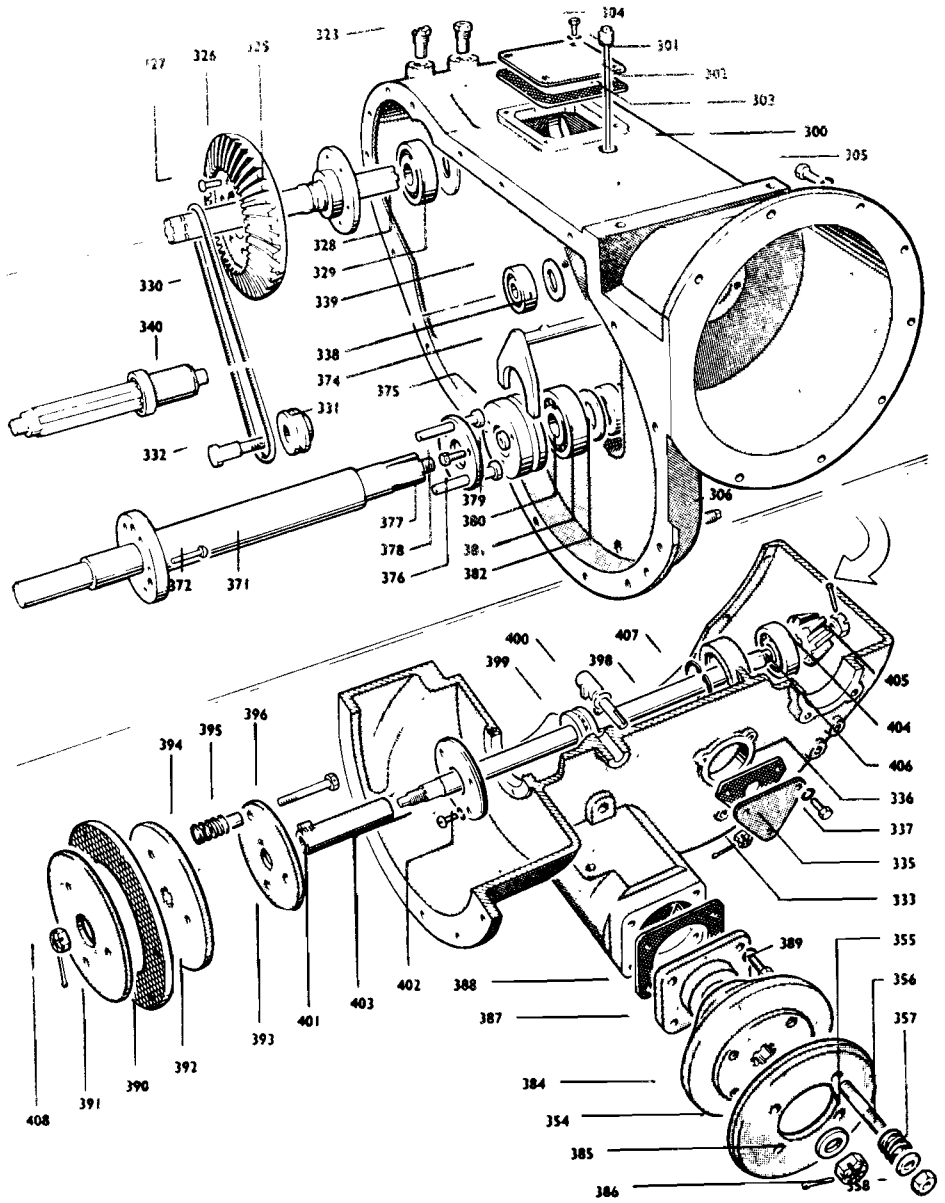
AIR CLEANER and CARBURETTOR






| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 146 | | Circlip external ½" dia. ... ... ... ... | 1 |
| 147 | 25240 | Adjusting nut ... ... ... ... ... | 1 |
| — | | Split pin $\frac{1}{16}$" dia. × 1" L. ... ... ... ... | 1 |
| 148 | 25230 | Spindle ... ... ... ... ... ... | 1 |
| 149 | 25579 | Collar ... ... ... ... ... ... | 1 |
| 150 | 25245 | Spring ... ... ... ... ... ... | 1 |
| 151 | 25247 | Trunnion ... ... ... ... ... ... | 1 |
| 152 | 25248 | Cranked spindle ... ... ... ... ... | 1 |
| 153 | 25409 | Sealing ring ... ... ... ... ... ... | 1 |
| 154 | 25317 | Sleeve ... ... ... ... ... ... | 1 |
| 155-157 | spare | | |
| 158 | 25594 | Lever ... ... ... ... ... ... | 1 |
| 159 | 25713 | Key ... ... ... ... ... ... | 1 |
| 160 | | Setscrew ¼" B.S.F. × ½" L. ... ... ... | 1 |
| 161 | G.789 | Trunnion ... ... ... ... ... ... | 1 |
| — | | Split pin $\frac{1}{16}$" dia. × ½" L. ... ... ... ... | 1 |
| 162 | 25601 | Throttle control rod from frame arm ... ... | 1 |
| 163 | 25600 | Throttle control rod from governor to carb. ... | 1 |
| 164 | 25603 | Spring ... ... ... ... ... ... | 1 |
| | | **AIR CLEANER** (Plate 3) | |
| 201 | G.178 | Inlet pipe cap ... ... ... ... ... | 1 |
| 202 | G.180 | Gauze container ... ... ... ... ... | 1 |
| 203 | G.181 | Tank cover ... ... ... ... ... ... | 1 |
| 204 | G.182 | Gauze container clip ... ... ... ... | 1 |
| 205 | G.185 | Tank ... ... ... ... ... ... ... | 1 |
| 206 | | | |
| 207 | G.269 | | |
| 208 | G.270 | Tank gasket ... ... ... ... ... ... | 1 |
| 209 | G.271 | Cover gasket ... ... ... ... ... | 1 |
| 210 | G.272 | Perforated plate ... ... ... ... ... | 2 |
| 211 | G.273 | Perforated cone ... ... ... ... ... | 1 |
| 212 | G.274A | Gauze filter ... ... ... ... ... | 2 |
| 213 | J.9530 | Hose connection to carburettor ... ... ... | 1 |
| 214 | G.276 | Hose clips ... ... ... ... ... ... | 2 |
| | | **CARBURETTOR** (Plate 3) | |
| — | BJ.8098 | Carburettor, complete assembly ... ... | 1 |
| 215-217 | spare | | |
| 218 | BJ.9100 | Carburettor body ... ... ... ... ... | 1 |
| 219 | BJ.9101 | Throttle lever, spindle and stop ... ... ... | 1 |
| 220 | BJ.9102 | Throttle stop screw ... ... ... ... | 1 |
| 221 | BJ.9104 | Air adjusting screw ... ... ... ... | 1 |
| 222 | BJ.9135 | Locknuts ... ... ... ... ... ... | 2 |
| 223 | BJ.9105 | Throttle valve ... ... ... ... ... | 1 |
| 224 | BJ.9106 | Adjustable main jet body ... ... ... ... | 1 |
| 225 | BJ.9107 | Needle for main jet ... ... ... ... | 1 |
| 226 | BJ.9134 | Locknut ... ... ... ... ... ... | 1 |
| 227 | BJ.9108 | Washer for float chamber union ... ... ... | 2 |
| 228 | BJ.9110 | Plug screws for mixing chamber ... ... ... | 2 |
| 229 | BJ.9111 | Gland washer ... ... ... ... ... | 1 |
| 230 | BJ.9112 | Cork gland ... ... ... ... ... ... | 1 |
| 231 | BJ.9113 | Gland adjusting screw ... ... ... ... | 1 |
| 232 | BJ.9114 | Outlet pipe clip ... ... ... ... ... | 1 |
| 233 | BJ.9115 | Outlet pipe clip pin ... ... ... ... | 1 |
| 234 | BJ.9116 | Throttle valve screw ... ... ... ... | 2 |
| 235 | BJ.9117 | Locking washers ... ... ... ... ... | 2 |
| — | BJ.9118 | Float chamber complete assembly ... ... | 1 |

# PLATE 4

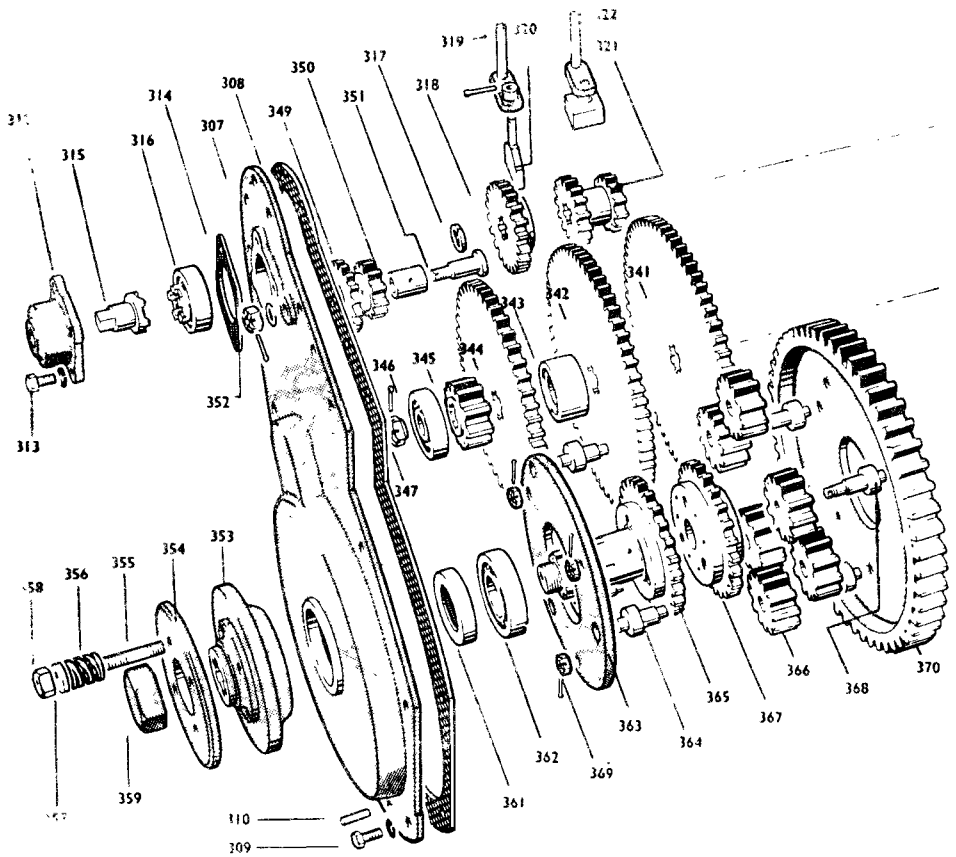



GEAR-BOX



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 236 | BJ.9119 | Float chamber only | 1 |
| 237 | BJ.9120 | Float chamber cover | 1 |
| 238 | BJ.9121 | Cover lock screw | 1 |
| 239 | BJ.9122 | Float | 1 |
| 240 | BJ.9123 | Needle | 1 |
| 241 | BJ.9124 | Tickler | 1 |
| 242 | BJ.9136 | Tickler stop | 1 |
| 243 | BJ.9126 | Tickler spring | 1 |
| 244 | BJ.9127 | Tickler cotter pin | 1 |
| 245 | BJ.9128 | Plug screw | 1 |
| 246 | BJ.9129 | Plug screw washer | 1 |
| 247 | BJ.9130 | Needle seat lock nut | 1 |
| 248 | BJ.9131 | Needle seat lock nut | 1 |
| 249 | G.229 | Petrol pipe union nut | 1 |
| 250 | G.227 | Petrol pipe union nipple | 1 |
| 251–299 spare | | | |
| | | **GEAR-BOX CASING** (Plates 4 & 5) | |
| 300 | 25048 | Casing | 1 |
| 301 | G.476 | Dipstick | 1 |
| 302 | 25121 | Inspection cover | 1 |
| 303 | 25185 | Inspection cover gasket | 1 |
| 304 | | Setscrew ¼" B.S.W. Rd. Hd. × ⅜" L. | 1 |
| — | | Spring washer ¼" dia. | 4 |
| 305 | | Flywheel housing bolt ¼" B.S.W. × ¾" L | 8 |
| — | | Spring washer ¼" dia. | 8 |
| 306 | G.479 | Drain plug | 1 |
| 307 | 25049 | Gear-box cover | 1 |
| 308 | 25050 | Cover gasket | 1 |
| 309 | | Cover setscrews 5/16" B.S.W. × ¾" L. | 15 |
| — | | Spring washers 5/16" dia. | 15 |
| 310 | 25059 | Mills pin | 2 |
| 312 | G.374 | Starting dog bearing housing | 1 |
| 313 | | Setscrew ⅜" B.S.W. × ¾" L. | 4 |
| — | | Spring washer ⅜" dia. | 4 |
| 314 | G.402 | Starting dog bearing housing gasket | 1 |
| 315 | G.373 | Starting dog | 1 |
| 316 | G.437 | Starting dog bearing | 1 |
| | | **JACKSHAFT** (Plates 4 & 5) | |
| 317 | G.436 | Circlip | 1 |
| 318 | 25006 | Single pinion | 1 |
| 319 | 25074 | Reverse selector | 1 |
| 320 | 25072 | Reverse selector block | 1 |
| — | | Split pin 1/16" dia. × ¾" L. | 1 |
| 321 | 25005 | Double pinion | 1 |
| 322 | 25115 | Speed change selector assembly | 1 |
| 323 | G.481 | Selector bush | 2 |
| 325 | 25029 | Jackshaft | 1 |
| 326 | 25008 | Crownwheel | 1 |
| 327 | | Rivets 5/16" dia. × ¾" L. Rd. Hd. | 6 |
| 328 | G.451 | Ball bearing | 1 |
| 329 | G.461 | Jackshaft shim | As req. |
| 330 | 25065 | Spring lubricating belt | 1 |
| 331 | 25063 | Lubricating belt wheel | 1 |
| 332 | 25064 | Pin | 1 |
| 333 | | Slotted nut ⅜" B.S.F. | 1 |
| — | | Split pin 1/16" dia. × 1" L. | 1 |
| 334 | | | |

# PLATE 5

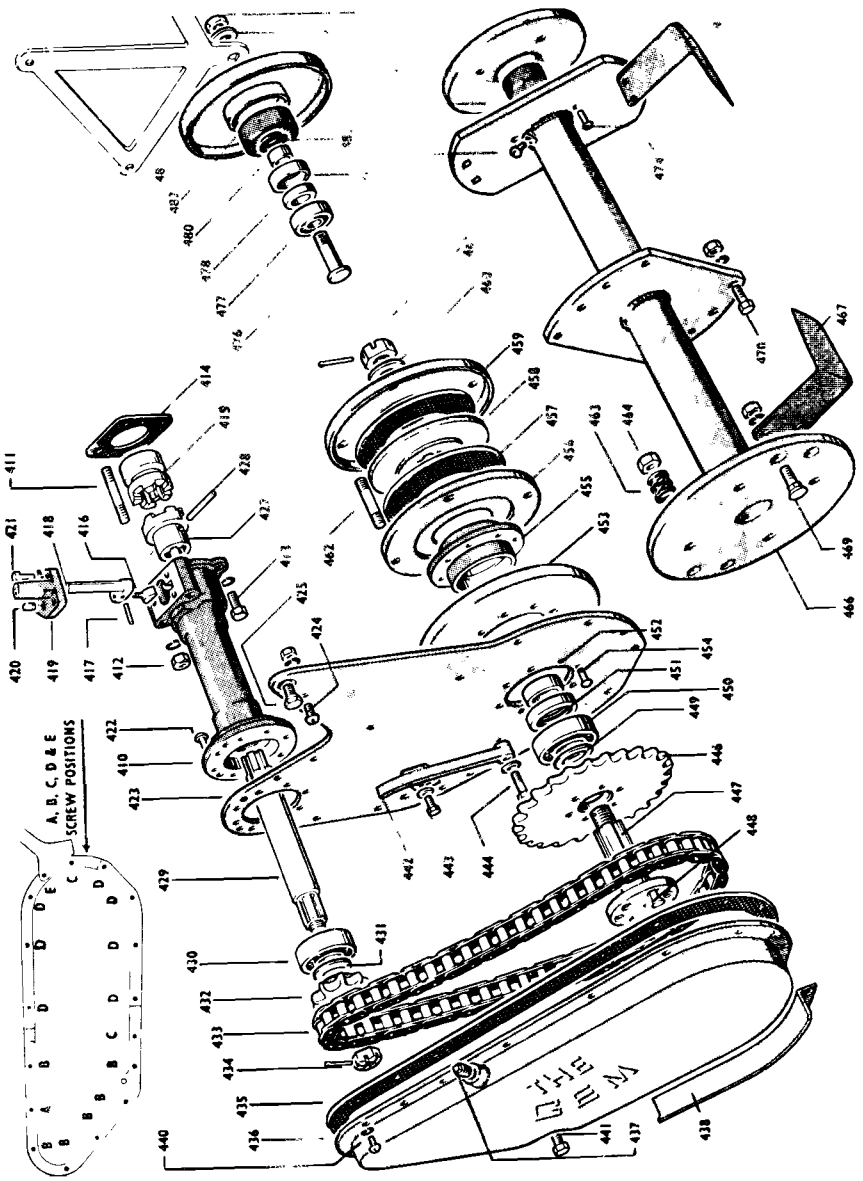



GEAR-BOX



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **LAYSHAFT** (Plates 4 & 5) | |
| 335 | G.354 | Bearing stop ... ... ... ... ... | 1 |
| 336 | G.355 | Gasket ... ... ... ... ... ... | 1 |
| 337 | | Setscrew $\frac{5}{16}$" B.S.W. × $\frac{5}{8}$" L. ... ... ... | 3 |
| — | | Spring washer $\frac{5}{16}$" dia. ... ... ... ... | 3 |
| 338 | 25054 | Shim ... ... ... ... ... ... | As req. |
| 339 | G.353 | Ball bearing ... ... ... ... ... ... | 1 |
| 340 | 25037 | Layshaft ... ... ... ... ... ... | 1 |
| 341 | 25011 | Large gear ... ... ... ... ... ... | 1 |
| 342 | 25012 | Medium gear ... ... ... ... ... ... | 1 |
| 343 | 25015 | Spacer ... ... ... ... ... ... | 1 |
| 344 | 25013 | Small gear ... ... ... ... ... ... | 1 |
| 345 | 25025 | Bull pinion ... ... ... ... ... ... | 1 |
| 346 | BLRI | Ball bearing 2$\frac{1}{4}$" × 1" × $\frac{5}{8}$" w ... ... ... | 1 |
| 347 | 25038 | Special nut ... ... ... ... ... ... | 1 |
| 348 | | | |
| — | | Split pin $\frac{3}{32}$" dia. × 2" L. ... ... ... ... | 1 |
| 349 | 25027 | Reverse idler gears ... ... ... ... | 1 |
| 350 | 25034 | Reverse idler gears ... ... ... ... | 1 |
| 351 | 25026 | Reverse idler gears bush ... ... ... ... | 1 |
| — | | Washer $\frac{1}{2}$" dia. ... ... ... ... ... | 1 |
| 352 | | Slotted nut $\frac{1}{2}$" B.S.W. ... ... ... ... | 1 |
| — | | Split pin $\frac{3}{32}$" dia. × 1$\frac{1}{4}$" L. ... ... ... | 1 |
| | | **ROADWHEEL SHAFT** (Plates 4 & 5) | |
| 353 | 25051 | Wheelhub, right ... ... ... ... ... | 1 |
| 354 | G.162 | Wheelhub disc (both wheels) ... ... ... | 2 |
| — | 25393 | Studs, long } 30" machine ... ... ... | 4 |
| — | 25394 | Studs, short } ... ... ... | |
| 355 | G.141 | Studs (both wheels) 24" machine ... ... | 8 |
| 356 | G.142 | Springs (both wheels) ... ... ... ... | 8 |
| 357 | | Washers (both wheels) $\frac{1}{2}$" dia. ... ... ... | 8 |
| 358 | | Nuts (both wheels) $\frac{1}{2}$" B.S.W. ... ... ... | 8 |
| 359 | 25351 | Hub nut, right ... ... ... ... ... | 1 |
| 360 | | | |
| 361 | G.305 | Oil seal ... ... ... ... ... ... | 1 |
| 362 | BRE.1$\frac{3}{4}$ | Ball bearing 3" × 1$\frac{3}{4}$" × $\frac{5}{16}$" W. ... ... ... | 1 |
| 363 | 25028 | Differential plate ... ... ... ... ... | 1 |
| 364 | 25023 | Differential pinion pins ... ... ... ... | 3 |
| 365 | 25020 | Loose hub gear ... ... ... ... ... | 1 |
| 366 | 25022 | Differential pinions ... ... ... ... | 6 |
| 367 | 25019 | Fixed hub gear ... ... ... ... ... | 1 |
| 368 | 25021 | Pinion studs ... ... ... ... ... | 3 |
| 369 | 25042 | Special nut ... ... ... ... ... ... | 3 |
| — | | Split pin $\frac{3}{32}$" dia. × 1$\frac{3}{4}$" L. ... ... ... | 3 |
| 370 | 25021 | Bull wheel ... ... ... ... ... ... | 1 |
| 371 | 25046 | Road wheel axle ... ... ... ... ... | 1 |
| 372 | | Rivet $\frac{1}{4}$" dia. × 1$\frac{3}{4}$" L. Rd. Hd. ... ... ... | 6 |
| 373 | | | |
| 374 | 25359 | Differential lock selector ... ... ... ... | 1 |
| 375 | G.313 | Differential lock ... ... ... ... ... | 1 |
| 376 | G.314 | Differential lock ring ... ... ... ... | 1 |
| 377 | 25056 | Differential lock pin ... ... ... ... | 3 |
| 378 | G.317 | Differential lock setscrew ... ... ... | 3 |
| 379 | G.316 | Differential lock spacer ... ... ... ... | 3 |
| 380 | BRL.1$\frac{1}{4}$ | Ball bearing 2$\frac{3}{4}$" × 1$\frac{1}{4}$" × $\frac{11}{16}$" w. ... ... | 1 |
| 381 | 25058 | Oil seal disc ... ... ... ... ... | 1 |
| 382 | | Oil seal 2" × 1$\frac{1}{4}$" × $\frac{1}{2}$" ... ... .. ... | 1 |
| 383 | | | |
| 384 | 25052 | Wheel hub, left ... ... ... ... ... | 1 |

**PLATE 6**




**JACKSHAFT EXTENSION, CHAINCASE and ROTOR**



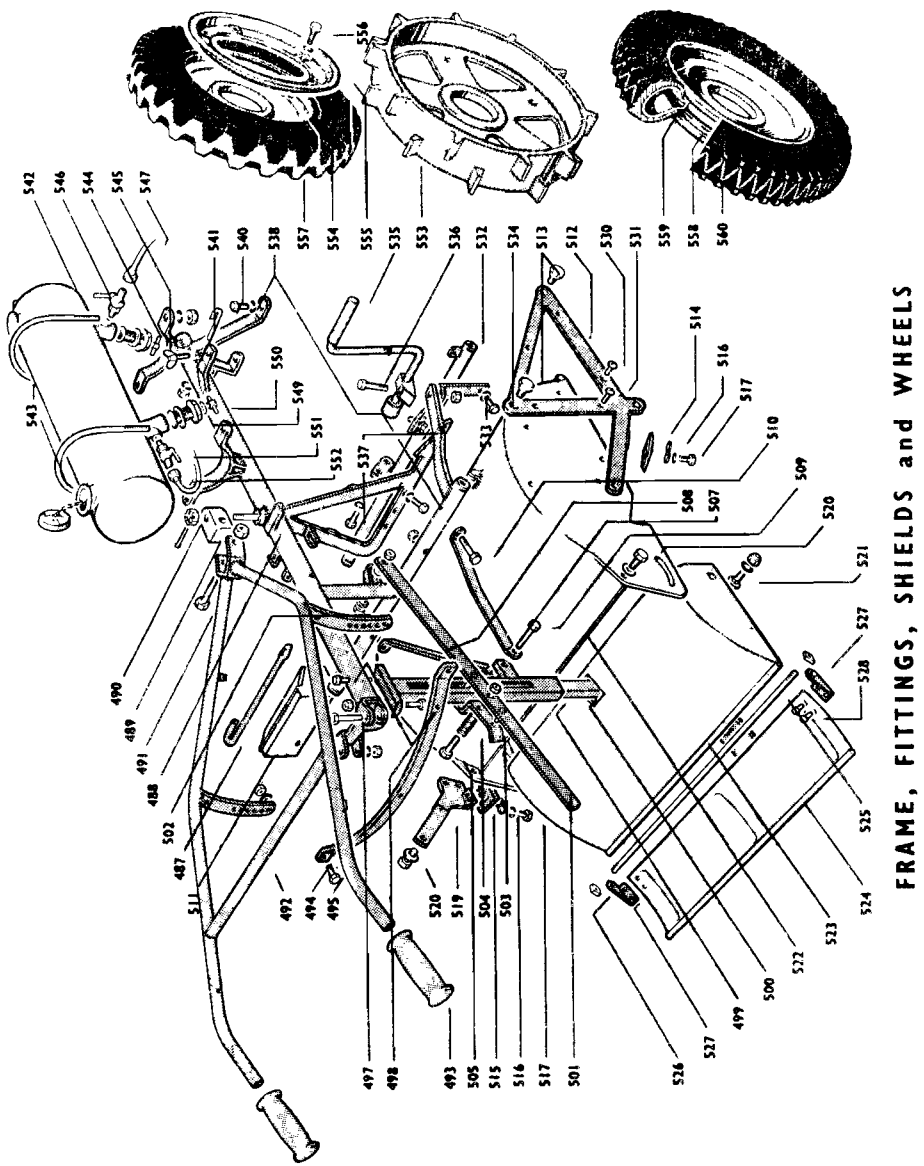
| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 385 | | Hub washer, ½" dia. | 1 |
| 386 | 25047 | Hub nut | 1 |
| — | | Split pin $\frac{5}{32}$" dia. × 2" L. | 1 |
| 387 | 25053 | Axle bearing stop | 1 |
| 388 | 25057 | Axle bearing stop gasket | 1 |
| 389 | | Setscrew ⅜" B.S.W. × ⅞" L. | 4 |
| — | | Spring washer ⅜" dia. | 4 |
| | | **ENGINE CLUTCH** (Plate 4) | |
| 390 | G.220 | Friction disc | 1 |
| 391 | G.230 | Loose plate | 1 |
| 392 | 25071 | Fixed plate | 1 |
| 393 | G.290 | Thrust plate with driving pin | 1 |
| — | G.234 | Thrust plate driving pin only | 1 |
| 394 | G.260 | Spring | 3 |
| 395 | G.255 | Distance piece | 3 |
| 396 | G.250 | Bolt | 3 |
| 397 | | | |
| 398 | 25009 | Shaft | 1 |
| 399 | SFL. ¾ | Thrust race ¾" bore | 1 |
| 400 | G.291 | Operating pawl | 1 |
| 401 | G.288 | Thrust sleeve | 1 |
| 402 | 25069 | Shaft oil seal | 1 |
| 403 | | Setscrew ¼" B.S.W. × ¾" L. Rd. Hd. | 3 |
| — | | Spring washer ¾" dia. | 3 |
| 404 | 25007 | Spiral bevel pinion | 1 |
| 405 | 25061 | Special nut | 1 |
| — | | Split pin $\frac{3}{32}$" dia. × 1¼" L. | 1 |
| 406 | BRM. ¾ | Ball race 2" × ¾" × $\frac{11}{16}$" W. | 1 |
| 407 | | Circlip | 1 |
| 408 | 25062 | Special nut | 1 |
| — | | Split pin | 1 |
| | | **JACKSHAFT EXTENSION** (Plate 6) | |
| 410 | 25735 | Housing (30" machine) | 1 |
| 410 | 25470 | Housing (24" machine) | 1 |
| 411 | G.454 | Housing studs | 2 |
| — | | Spring washers ⅜" dia. | 2 |
| 412 | | Nuts ⅜" B.S.W. | 2 |
| 413 | | Setscrews ⅜" B.S.W. × 1" L. | 2 |
| — | | Spring washers ⅜" dia. | 2 |
| 414 | G.402 | Gasket | 1 |
| 415 | G.439 | Sliding dog | 1 |
| 416 | G.156 | Selector block | 1 |
| 417 | G.157 | Selector cotter pin | 1 |
| 418 | G.153 | Selector | 1 |
| 419 | G.456 | Dog clutch housing cover | 1 |
| 420 | G.458 | Oil plug | 1 |
| 421 | | Setscrews $\frac{5}{16}$" B.S.W. × ¾" L. | 2 |
| — | | Spring washers $\frac{5}{16}$" dia. | 2 |
| 422 | | Rivets ⅛" dia. × ⅝" L. Rd. Hd. | 8 |
| | | **CHAINCASE** (Plate 6) | |
| 423 | G.530 | Chaincase back plate | 1 |
| 424 | | Setscrew, back plate to shield ¼" B.S.W. × ½" L. Rd. Hd. | 1 |
| — | | Spring washer ¼" dia. | 1 |
| — | | Nut ¼" B.S.W. | 1 |
| 425 | 591 | Frame setscrew, countersunk head | 1 |
| 426 | | | |

| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **JACKSHAFT EXTENSION** (Plate 6) | |
| 427 | G.452/2 | Fixed dog | 1 |
| 428 | G.452/3 | Fixed dog rivet | 1 |
| 429 | 25738 | Shaft (30″ machine) | 1 |
| 429 | 25468 | Shaft (24″ machine) | 1 |
| 430 | BRM.1 | Ball bearing 2½″ × 1″ × 1¾″ W. | 1 |
| 431 | G.462 | Shim | As req. |
| 432 | G.460 | Sprocket | 1 |
| | | **CHAINCASE** (Plate 6) | |
| 433 | 25101 | Drive chain complete | 1 |
| — | 25101/2 | Chain connecting link (quote make of chain) | |
| 434 | G.455 | Sprocket nut | 1 |
| — | | Split pin ⅛″ dia. × 1½″ L. | 1 |
| 435 | G.523 | Chaincase gasket | 1 |
| 436 | G.520 | Chaincase | 1 |
| 437 | G.522 | Oil filler plug | 1 |
| 438 | G.519 | Wearing shoe | 1 |
| 439 | | | |
| 440A | | Setscrew ¼″ B.S.W. × ⅜″ L. Rd. Hd. | 1 |
| 440B | | Setscrew ¼″ B.S.W. × ½″ L. Rd. Hd. | 6 |
| 440C | | Setscrew ¼″ B.S.W. × ⅝″ L. Rd. Hd. | 2 |
| 440D | | Setscrew ¼″ B.S.W. × ¾″ L. Rd. Hd. | 7 |
| 440E | | Setscrew ¼″ B.S.W. × ¼″ L. Hx. Hd. | 1 |
| — | | Spring washers ¼″ dia. | 17 |
| — | | Nuts, on 440C, D & E ¼″ B.S.W. | 10 |
| 441 | G.590 | Setscrew, chain box to stay tube | 1 |
| 442 | G.585 | Chain skid | 1 |
| 443 | | Chain skid locking screw 5/16″ B.S.W. × ¾″ L. | 1 |
| — | | Washer 5/16″ dia. | 1 |
| — | | Nut 5/16″ B.S.W. | 1 |
| 444 | | Chain skid hinge bolt 5/16″ B.S.W. × 1¼″ L. | 1 |
| — | | Washer 5/16″ dia. | 1 |
| — | | Nut 5/16″ B.S.W. | 1 |
| | | **ROTOR DRIVE** (Plate 6) | |
| 445 | | | |
| 446 | G.560 | Drive sprocket | 1 |
| 447 | G.550 | Drive shaft | 1 |
| 448 | | Sprocket rivets ¼″ dia. c'sk × ⅝″ L. | 6 |
| 449 | G.554 | Sprocket shim | As req. |
| 450 | BRM.030 | Ball bearing 72 mm. × 30 mm. × 19 mm. W. | 1 |
| 451 | | Oil seal 2½″ × 1½″ × ½″ W. | 1 |
| 452 | G.552 | Spacing sleeve | 1 |
| 453 | G.545 | Dust cover | 1 |
| 454 | | Bearing housing rivets ¼″ dia. Rd. Hd. × ¾″ L. | 8 |
| 455 | G.540 | Drive shaft bearing housing | 1 |
| | | **ROTOR SAFETY CLUTCH** (Plate 6) | |
| 456 | G.605 | Drive plate | 1 |
| 457 | G.607 | Ferodo fibre rings | 2 |
| 458 | G.606 | Drive disc | 1 |
| 459 | G.544 | Wearing plate | 1 |
| 460 | G.1369 | Drive shaft washer | 1 |
| 461 | | Drive shaft nut ¾″ B.S.F. slotted | 1 |
| — | | Split pin ⅛″ dia. × 1½″ L. | 1 |
| 462 | G.603 | Studs | 4 |
| 463 | G.602 | Springs | 4 |
| 464 | | Nuts | 4 |



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **ROTOR** (Plate 6) | |
| 466 | 25734 | Rotor (30″ machine) | 1 |
| 466 | 25462 | Rotor (24″ machine) | 1 |
| 467 | G.900R | Hoe blade, right | 6 |
| 468 | G.900L | Hoe blade, left | 6 |
| 469 | G.919 | Blade bolts (end flanges) | 8 |
| 470 | G.918 | Blade bolt (intermediate flanges) | 16 |
| — | G.920 | Blade spring washers | 24 |
| — | | Blade nuts 7/16″ B.S.F. | 24 |
| | | **ROTOR STUB AXLE** (Plate 6) | |
| 471 | G.635 | Back plug | 1 |
| 472 | | Oiling screw ¼″ B.S.W. × ⅜″ L. Rd. Hd. | 1 |
| 473 | G.639 | Inner dust cover | 1 |
| 474 | | Inner dust cover rivets 3/16″ dia. × ½″ L. Rd. Hd. | 3 |
| 475 | | | |
| 476 | G.630 | Stub axle | 1 |
| 477 | BRM. 6/8 | Ball bearing 1 13/16″ × ⅝″ × ⅝″ W. | 1 |
| 478 | | Oil seal 1½″ × 7/8″ × 13/32″ W. | 1 |
| 479 | G.637 – | Oil seal holder | 1 |
| 480 | G.634 | Spacing sleeve | 1 |
| 481 | G.629 | Felt dust seal | 1 |
| 482 | G.632 | Bearing cap | 1 |
| 483 | G.640 | Outer dust cover | 1 |
| 484 | G.648 | Washer | 1 |
| 485 | | Nut ⅝″ B.S.F. locknut | 1 |
| 486 | G.630 | Stub axle | 1 |
| | | **FRAME** (Plate 7) | |
| 487 | 24G.993<br>30G.993 | Rotor blade setting bar { 24″ machine / 30″ machine } | 1 |
| 488 | 25322<br>25730 | Main frames { 24″ machine / 30″ machine } | 1 |
| | | **HANDLEBARS** (P'ate 7) | |
| 489 | G.104 | Pivot block | 1 |
| 490 | | Slotted nut ⅝″ B.S.F. | 1 |
| — | | Split pin ⅛″ dia. × 1¼″ L. | 1 |
| 491 | | Pivot bolt ½″ B.S.W. × 2¼″ L. | 1 |
| — | | Locknut ½″ B.S.W. | 1 |
| 492 | G.122 | Handlebars | 1 |
| 493 | G.121 | Grips | 2 |
| 494 | G.123 | Slide | 1 |
| 495 | | Bolts ⅜″ B.S.W. × 1¼″ L. | 2 |
| — | | Spring washers ⅜″ dia. | 2 |
| — | | Nuts ⅜″ B.S.W. | 2 |
| — | | | |
| 496 | | | |
| 497 | 25392 | Slide clamp bolts | 2 |
| — | | Spring washers ⅜″ dia. | 2 |
| — | | Nuts ⅜″ B.S.W. | 2 |
| | | **DEPTH CONTROL** (Plate 7) | |
| 498 | | Socket bolts ⅜″ B.S.W. × 2½″ L. | 2 |
| — | | Nuts ⅜″ B.S.W. | 2 |
| 499 | 25219 | Socket | 1 |
| 500 | G.950 | Skid 24″ model only | 1 |
| | | (Depth control wheel for 30″ model see Plate 9) | |
| 501 | G.671 | Arm | 1 |

PLATE 7



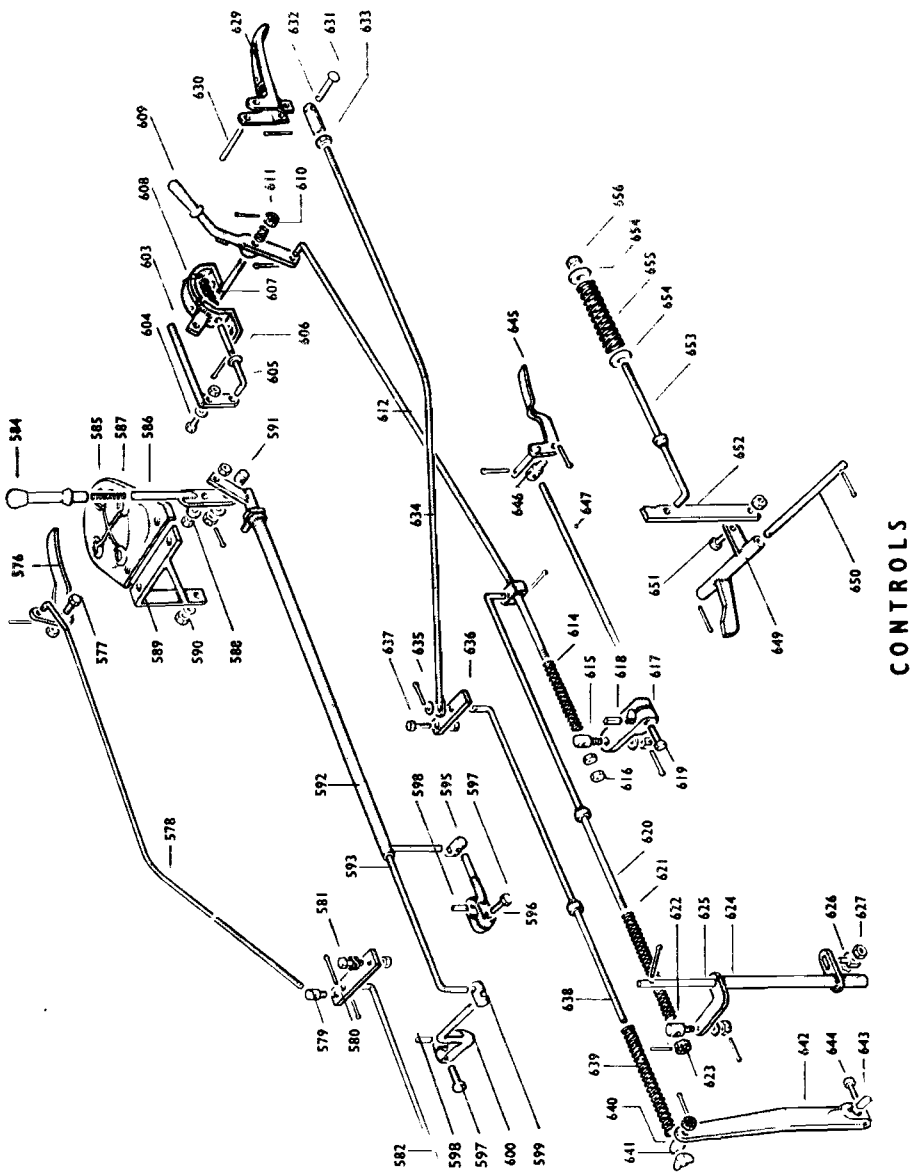
FRAME, FITTINGS, SHIELDS and WHEELS



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 502 | | Pivot bolts ⅜″ B.S.W. × 1¾″ L. ... ... ... | 1 |
| — | | Thackeray washer ⅜″ dia. ... ... ... ... | 1 |
| — | | Washer ⅜″ dia. ... ... ... ... ... | 1 |
| — | | Nut ⅜″ dia. ... ... ... ... ... ... | 1 |
| 503 | G.674 | Arm clip ... ... ... ... ... ... | 1 |
| 504 | G.675 | Arm clip spring ... ... ... ... ... | 1 |
| 505 | | Arm clip bolt ¼″ B.S.W. × 1½″ L. ... ... | 1 |
| — | | Nut ¼″ B.S.W. ... ... ... ... ... | 1 |
| 506 | | | |
| | | **FRAME** (Plate 7) | |
| 507 | G.667 | Support stay, right ... ... ... ... | 1 |
| 508 | G.668 | Support stay, left ... ... ... ... ... | 1 |
| 509 | | Bolt, support stay to socket ¼″ B.S.W. × 1″ L. ... | 1 |
| — | | Spring washers ¼″ dia. ... ... ... ... | 1 |
| — | | Nut ¼″ B.S.W. .. ... ... ... ... | 1 |
| 510 | | Crossmember bolts ⅜″ B.S.W. × 1¾″ L. ... | 3 |
| — | | Spring washers ⅜″ dia. ... ... ... ... | 3 |
| — | | Nuts ⅜″ B.S.W. ... ... ... ... ... | 3 |
| 511 | G.790 | Tool box ... ... ... ... ... ... | 1 |
| 512 | G.650 | Side frame ... ... ... ... ... ... | 1 |
| 513 | G.591 | Setscrew, countersunk head ... ... ... | 2 |
| 514 | G.821 | Weed cutter blade, right ... ... ... ... | 1 |
| 515 | G.820 | Weed cutter blade, left ... ... ... ... | 1 |
| 516 | G.830 | Keeper plate ... ... ... ... ... | 2 |
| 517 | | Setscrew ¼″ B.S.W. × ½″ L. ... ... ... | 4 |
| — | | Spring washers ¼″ dia. ... ... ... ... | 4 |
| 518 | | | |
| 519 | G.825 | Weed cutter bracket ... ... ... ... | 1 |
| | | **SHIELD** (Plate 7) | |
| 520 | | Rear shield hinge bolts ⅜″ B.S.W. × 1″ L. ... | 2 |
| — | | Spring washers ⅜″ dia. ... ... ... ... | 2 |
| 521 | G.644 | Rear shield champing bolts ... ... ... | 2 |
| — | | Washers ⅜″ dia. ... ... ... ... ... | 2 |
| — | | Simmonds nut ⅜″ B.S.W., thick ... ... ... | 2 |
| 522 | 25436 | Front shield { 24″ machine | 1 |
| | 25743 | Front shield { 30″ machine } ... ... ... | |
| 523 | 25443 | Rear shield { 24″ machine | 1 |
| | 25744 | Rear shield { 30″ machine } ... ... ... | |
| 524 | 25454 | Trailing board { 24″ machine | 1 |
| | 25746 | Trailing board { 30″ machine } ... ... ... | |
| 525 | 25479 | Trailing board, hinge bar { 24″ machine | 1 |
| | 25751 | Trailing board, hinge bar { 30″ machine } ... | |
| 526 | | Hinge lock nuts 5/16″ B.S.W. ... ... ... | 2 |
| 527 | G.647 | Hinge bracket ... ... ... ... ... | 2 |
| 528 | | Bracket rivets 3/16″ dia. Rd. Hd. × ½″ L. ... ... | 4 |
| 530 | | Setscrews, side frame ¼″ B.S.W. Rd. Hd. × 5/8″ L. | 3 |
| 531 | | Setscrews, side frame ¼″ B.S.W. Rd. Hd. × 7/8″ L. | 2 |
| — | | Spring washers ¼″ dia. ... ... ... ... | 5 |
| — | | Nuts ¼″ dia. ... ... ... ... ... | 5 |
| | | **FRAME** (Plate 7) | |
| 532 | 25428 | Staytube { 24″ machine | 1 |
| | 25747 | Staytube { 30″ machine } ... ... ... ... | |
| 533 | G.381 | Starting handle support lug ... ... ... | 1 |
| 534 | | Setscrew lug to staytube ⅜″ B.S.W. × ¾″ L. ... | 1 |
| — | | Spring washer ⅜″ dia. ... ... ... ... | 1 |
| 535 | 25466 | Starting handle and block { 24″ machine | 1 |
| | 25561 | Starting handle and block { 30″ machine } ... | |
| | | (See also Road wheel ext. Plate 9) | |

PLATE 8

CONTROLS





| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 536 | G.382 | Bolt starting handle block to frame ... ... | 1 |
| — | | Nut $\frac{7}{16}$" B.S.W. ... ... ... ... ... | 1 |
| 537 | | Setscrews, staytube to gear-box $\frac{3}{8}$" B.S.W. × 1". L. ... ... ... ... ... ... ... | 4 |
| — | | Spring washers $\frac{3}{8}$" dia. ... ... ... ... | 4 |
| 538 | | Setscrews, main frame to gear-box $\frac{3}{8}$" B.S.W. × $\frac{3}{4}$" L. ... ... .. .. ... ... | 5 |
| — | | Spring washers $\frac{3}{8}$" dia. ... ... ... ... | 5 |
| 539 | | | |
| 540 | G.708 | Throttle rod hook bolt ... ... ... ... | 1 |
| — | | Spring washer $\frac{1}{4}$" dia. ... ... ... ... | 1 |
| — | | Nut $\frac{1}{4}$" B.S.W. ... ... ... ... ... | 1 |
| 541 | G.183 | Air cleaner clamp screw ... ... ... ... | 1 |
| | | **FUEL TANK** (Plate 7) | |
| 542 | 25376 | Tank assembly complete with cap ... ... | 1 |
| 543 | G.175 | Tank straps ... ... ... ... ... | 2 |
| — | | Spring washers $\frac{1}{4}$" dia. ... ... ... ... | 4 |
| — | | Nuts $\frac{1}{4}$" B.S.W. ... ... ... ... ... | 4 |
| 544–548 | spare | | |
| 549 | G.171 | Petrol filter core ... ... ... ... ... | 1 |
| 550 | 25413 | Petrol filter drain plug ... ... ... ... | 1 |
| — | | Petrol filter drain fibre washer $\frac{3}{8}$" dia. ... ... | 1 |
| 551 | G.166 | Petrol supply cock ... ... ... ... ... | 1 |
| 552 | 25376 | Petrol pipe ... ... ... ... ... ... | 1 |
| | | **WHEELS** (Plate 7) | |
| 553 | G.130 | Land wheel ... ... ... ... ... ... | 2 |
| 554–557 | spare | | |
| 558 | G.131 | Pneumatic wheel, left ... ... ... ... | 1 |
| 558 | G.132 | Pneumatic wheel, right ... ... ... ... | 1 |
| 559 | G.133 | Inner tube ... ... ... ... ... ... | 2 |
| 560 | G.134 | *Outer cover ... ... ... ... ... (*2 each additional for double wheels, see "extension hubs") | 2 |
| | | **THROTTLE CONTROL** (Plate 8) | |
| 561–575 | spare | | |
| 576 | 797 | Hand lever ... ... ... ... ... ... | 1 |
| 577 | | Lever fulcrum bolt $\frac{1}{4}$" B.S.W. × $\frac{3}{4}$" L. ... ... | 1 |
| — | | Locknut $\frac{1}{4}$" B.S.W. ... ... ... ... | 1 |
| 578 | G.795 | Control rod, hand lever to frame arm ... ... | 1 |
| — | | Split pin $\frac{1}{16}$" dia. × $\frac{1}{2}$" L. ... ... ... | 1 |
| 579 | G.789 | Trunnion ... ... ... ... ... | 1 |
| — | | Split pin $\frac{1}{16}$" dia. × $\frac{1}{2}$" L. ... ... ... | 1 |
| 580 | G.799 | Frame arm ... ... ... ... ... | 1 |
| 581 | | Arm pivot bolt $\frac{1}{4}$" B.S.W. × $\frac{1}{8}$" L. ... ... | 1 |
| — | | Thackeray washer $\frac{1}{4}$" dia. ... ... ... ... | 1 |
| — | | Locknut $\frac{1}{4}$" B.S.W. ... ... ... ... | 1 |
| 582 | 25601 | Throttle control rod ... ... ... ... | 1 |
| — | | Split pin $\frac{1}{16}$" dia. × $\frac{1}{2}$" L. ... ... ... ... | 1 |
| 583 | | | |
| | | **TRAVEL GEAR CONTROL** (Plate 8) | |
| 584 | 25154 | Gear lever handle ... ... ... ... ... | 1 |
| 585 | 25161 | Spring ... ... ... ... ... ... | 1 |
| 586 | 25158 | Gear lever ... ... ... ... ... ... | 1 |
| 587 | 25173 | Gate ... ... ... ... ... ... | 1 |
| 588 | | Fulcrum bolt $\frac{1}{4}$" B.S.W. × $\frac{3}{4}$" L. ... .. ... | 1 |
| — | | Washer $\frac{1}{4}$" dia. ... ... ... ... ... | 1 |

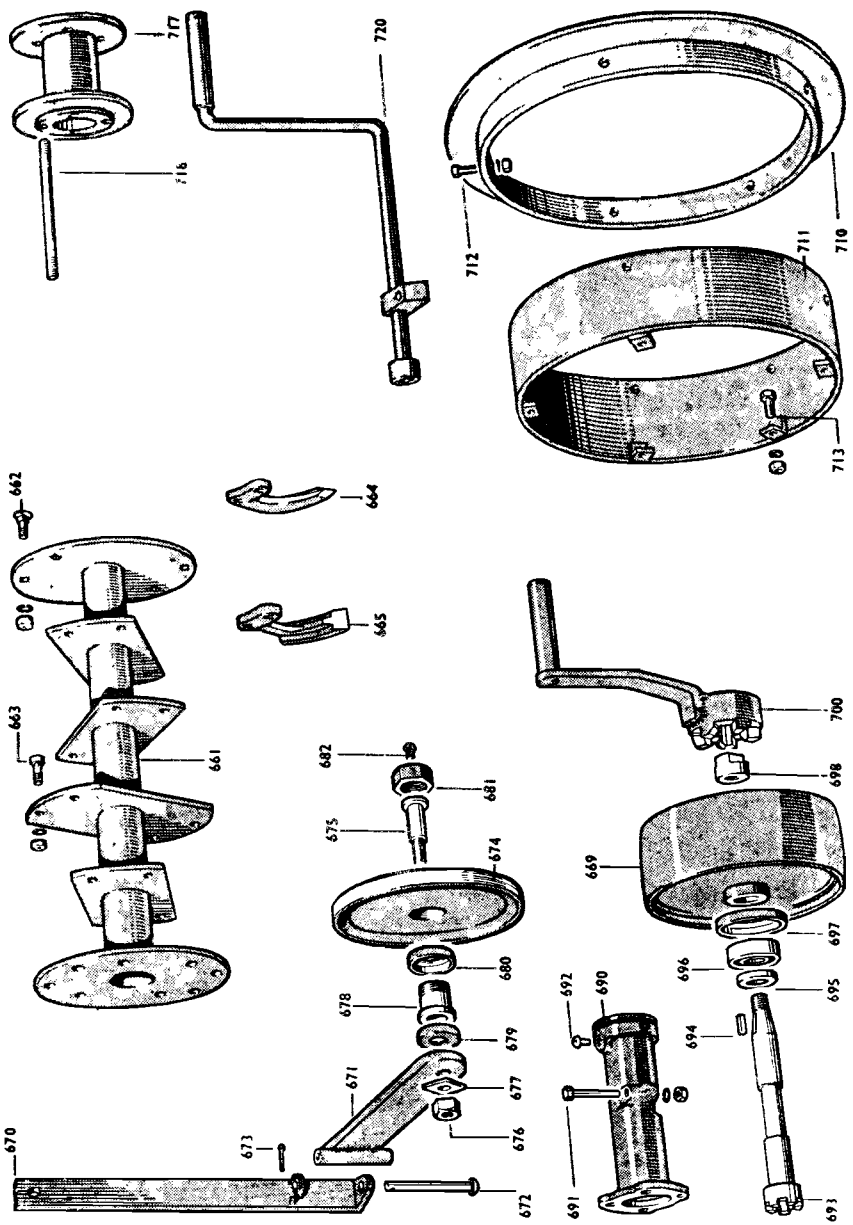
| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| — | | Locknut ¼" B.S.W. ... ... ... ... ... | 1 |
| 589 | 25136 | Rear support bracket ... ... ... ... | 1 |
| 590 | | Nut ⅝" B.S.W. ... ... ... ... ... | 1 |
| — | | Washer ⅝" dia. ... ... ... ... ... | 1 |
| 591 | 25415 | Trunnion ... ... ... ... ... | 1 |
| — | | Washer ⅝" dia. ... ... ... ... | 1 |
| — | | Slotted nut ⅝" B.S.W. | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... | 1 |
| 592 | 25139 | Control tube (to 2nd and 3rd gears) ... | 1 |
| 593 | 25165 | Control rod (to 1st and rev. gears) ... ... | 1 |
| 594 | | | |
| 595 | 25172 | Universal joint (2nd and 3rd gears) ... ... | 1 |
| 596 | 25332 | Control arm (2nd and 3rd gears) ... ... | 1 |
| 597 | | Control arm clamping bolt ⅝" B.S.W. × 1" L. ... | 2 |
| 598 | G.155 | Control arm key ... ... ... ... ... | 2 |
| 599 | 25166 | Universal joint (1st and rev. gears) ... ... | 1 |
| 600 | 25331 | Control arm (1st and rev. gears) ... ... | 1 |
| 601 | | | |
| 602 | | | |
| | | **HANDLEBAR CONTROL** (Plate 8) | |
| 603 | 25320 | Positioning arm ... ... ... ... ... | 1 |
| 604 | | Fulcrum bolt ¼" B.S.W. × ¾" L. ... ... ... | 1 |
| 605 | G.465 | Positioning pin ... ... ... ... ... | 1 |
| 606 | | Washer ⅝" dia. ... ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 607 | G.466 | Spring ... ... ... ... ... ... | 1 |
| | | **ROTOR AND DIFFERENTIAL CONTROL** (Plate 8) | |
| 608 | 25222 | Control quadrant ... ... ... ... ... | 1 |
| 609 | G.781 | Control hand lever ... ... ... ... | 1 |
| 610 | G.792 | Hand lever spring ... ... ... ... ... | 1 |
| 611 | | Nut ⅝" B.S.W. slotted ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × 0" L. ... ... ... ... | 1 |
| 612 | G.793 | Rotor control rod ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 613 | | | |
| 614 | G.794 | Control rod spring ... ... ... ... | 1 |
| 615 | G.773 | Trunnion ... ... ... ... ... | 1 |
| — | | Washer ⅝" dia. ... ... ... ... ... | 1 |
| — | | Slotted nut ⅝" B.S.W. ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 616 | | Locknuts ⅝" B.S.W. ... ... ... ... | 2 |
| 617 | G.152 | Rotor control arm ... ... ... ... | 1 |
| 618 | G.155 | Control arm key ... ... ... ... ... | 1 |
| 619 | | Control arm clamping bolt ⅝" B.S.W. × 1" L. ... | 1 |
| 620 | G.321 | Differential lock control rod ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 621 | G.324 | Control rod spring ... ... ... ... | 1 |
| 622 | G.773 | Trunnion ... ... ... ... ... | 1 |
| — | | Washer ⅝" dia. ... ... ... ... ... | 1 |
| — | | Slotted nut ⅝" B.S.W. ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 623 | | Slotted nut ⅝" B.S.W. ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 624 | 25356 | Differential lock selector quadrant ... ... | 1 |
| 625 | 25352 | Quadrant pin ... ... ... ... | 1 |
| — | | Split pin 1/16" dia. × ½" L. ... ... ... ... | 1 |
| 626 | G.319 | Trunnion ... ... ... ... ... ... | 1 |
| 627 | | Locknuts ½" B.S.W. ... ... ... ... | 2 |
| 628 | | | |



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **CLUTCH CONTROL** (Plate 8) | |
| 629 | 25145 | Hand lever ... ... ... ... ... ... | 1 |
| 630 | G.699 | Hand lever fulcrum rivet ... ... ... ... | 1 |
| 631 | 25149 | Pivot pin ... ... ... ... ... ... | 1 |
| — | | Split pin 1/16" dia. × ½" L. ... ... ... ... | 1 |
| 632 | 25150 | Adjusting link ... ... ... ... | 1 |
| 633 | | Locknut ⅝" B.S.W. ... ... ... ... | 1 |
| 634 | 25170 | Control rod, hand lever to frame arm ... ... | 1 |
| 635 | | Washer ¼" dia. ... ... ... ... ... | 1 |
| 636 | 25144 | Frame arm ... ... ... ... ... | 1 |
| 637 | | Frame arm pivot bolt ¼" B.S.W. × 1" L. ... | 1 |
| — | | Locknut ¼" B.S.W. ... ... ... ... ... | 1 |
| 638 | 25446 | Rod, frame arm to control arm ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 639 | 25412 | Control rod spring ... ... ... ... | 1 |
| 640 | 25410 | Trunnion ... ... ... ... ... ... | 1 |
| — | | Slotted nut ⅝" B.S.W. ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 641 | 25411 | Wing nut ... ... ... ... ... ... | 1 |
| 642 | G.710 | Control arm ... ... ... ... ... | 1 |
| 643 | G.711 | Control arm key ... ... ... ... ... | 1 |
| 644 | | Control arm clamping bolt ⅝" B.S.W. × 1" L. | 1 |
| | | **DECOMPRESSOR CONTROL** (Plate 8) | |
| 645 | G.188 | Hand lever ... ... ... ... ... ... | 1 |
| — | | Split pin 3/32" dia. × ¾" L. ... ... ... ... | 1 |
| 646 | G.789 | Trunnion ... ... ... ... ... | 1 |
| — | | Split pin 1/16" dia. × ½" L. ... ... ... ... | 1 |
| 647 | 25646 | Control rod... ... ... ... ... ... | 1 |
| 648 | | | |
| | | **REVERSE INTERLOCK** (Plate 8) | |
| 649 | 25132 | Rocker ... ... ... ... ... ... | 1 |
| 650 | 25153 | Rocker pin ... ... ... ... ... | 1 |
| — | | Split pins 1/16" dia. × 1" L. ... ... ... | 2 |
| 651 | | Linking setscrew ¼" B.S.W. × ¾" L. ... ... | 1 |
| — | | Locknut ¼" B.S.W. ... ... ... ... ... | 1 |
| 652 | 25152 | Vertical link ... ... ... ... | 1 |
| 653 | 25181 | Tension rod ... ... ... ... ... | 1 |
| 654 | 25178 | Special washers ... ... ... ... ... | 2 |
| 655 | | Spring ... ... ... ... ... ... | 1 |
| 656 | 25130 | Tensioning nut ⅝" B.S.W. ... ... ... | 1 |
| 657–660 | spare | | |
| | | **PICKTYNE ROTOR ASSEMBLY** (Plate 9) | |
| | | *Note.*—Picktyne rotor will be supplied complete with stub axle to facilitate fitting. | |
| 661 | 25473 | { Picktyne rotor (7 flanges, 24" machine) / Picktyne rotor (9 flanges, 30" machine) } ... | 1 |
| 662 | G.922 | End flange bolts ... ... ... ... ... | 8 |
| 663 | G.921 | Intermediate flange bolts ... ... ... ... | 4 per flange |
| — | | Spring washers 7/16" dia. ... ... ... ... | 4 per flange |
| — | | Nut 7/16" B.S.F. ... ... ... ... ... | 4 per flange |
| 664 | 991 | Picktyne, Lucerne } Alternatives ... ... ... | 2 per flange |
| 665 | 992 | Picktyne chisel } | |

PLATE 9

PICKTYNE ROTOR, DEPTH CONTROL WHEEL, POWER TAKE-OFF, ROAD WHEEL EXTENSION, HUBS and RIMS






| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|

## DEPTH CONTROL WHEEL ASSEMBLY (Plate 9)

Standard fitting for 30″ model, alternative to skid for 24″ machine.

666–669 spare

| | | | |
|---|---|---|---|
| 670 | G.664 | Pedestal | 1 |
| 671 | G.663 | Arm | 1 |
| 672 | G.666 | Swivel pin | 1 |
| 673 | | Split pin ⅛″ dia. × 1″ L. | 1 |
| 674 | G.660 | Wheel | 1 |
| 675 | G.661 | Axle | 1 |
| 676 | | Axle locknut ⅝″ B.S.W. | 1 |
| 677 | G.665 | Locking washer | 1 |
| 678 | G.659 | Wheel bush | 1 |
| 679 | G.657 | Inner dust cover | 1 |
| 680 | G.658 | Outer dust cover | 1 |
| 681 | G.662 | Wheel cap | 1 |
| 682 | | Oiling screw ¼″ B.S.W. Rd. Hd. × ⅜″ L. | 1 |

## POWER TAKE-OFF ASSEMBLY (24″ machine only) (Plate 9)

683–689 spare

| | | | |
|---|---|---|---|
| 690 | 25475 | Housing | 1 |
| 691 | | Housing bolt ⅜″ B.S.W. × 2½″ L. | 1 |
| — | | Spring washer ⅜″ dia. | 1 |
| — | | Nut ⅜″ B.S.W. | 1 |
| 692 | | Oiling screw ¼″ B.S.W. Rd. Hd. × ½″ L. | 1 |
| 693 | 25477 | Shaft | 1 |
| 694 | G.939 | Shaft key | 1 |
| 695 | G.932 | Thrust collar | 1 |
| 696 | G.936 | Ball bearing | 1 |
| 697 | G.935 | Bearing dust cover | 1 |
| 698 | G.938 | Shaft nut | 1 |
| 699 | G.940 | Pulley wheel | 1 |
| 700 | G.941 | Starting handle | 1 |

## EXTENSION RIMS FOR CLEATED LAND WHEELS (Plate 9)

701–709 spare

| | | | |
|---|---|---|---|
| 710 | G.135/1 | Land wheel extension flange | 2 |
| 711 | 24G.135/3 | Land wheel extension rim (24″ machine) | 2 |
| 712 | | Flange bolt ⅜″ B.S.W. × 1″ L. | 10 |
| 713 | | Rim attachment bolt ⅜″ B.S.W. × 1¼″ L. | 10 |
| — | | Spring washer ⅜″ dia. | 20 |
| — | | Nut ⅜″ B.S.W. | 20 |

714–716 spare

## EXTENSION HUBS FOR DOUBLE PNEUMATIC TYRED WHEELS (Plate 9)

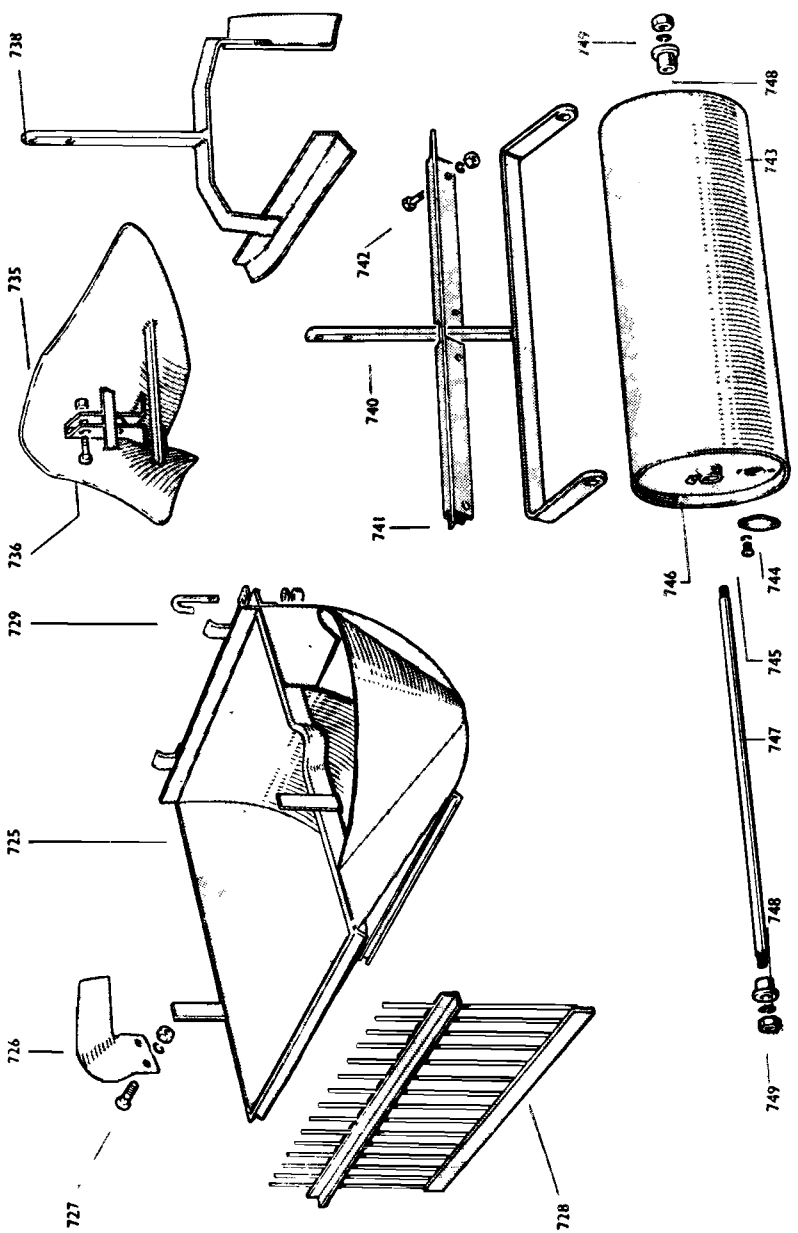
Standard for 30″ machine, optional fitting for 24″ machine.

| | | | |
|---|---|---|---|
| 717 | 25396 | Hub, R.H. | 1 |
| 717 | 25397 | Hub, L.H. | 1 |
| 718 | 25393 | Studs, R.H. | 4 |
| 718 | 25394 | Studs, L.H. | 4 |

(Tyres cannot be supplied as spares by us. Pneumatic tyres and their wheels will be supplied as required; see Plate 7.

N.B.—The double pneumatic wheels required are THREE right hand, Pt. No. B.132 and one left hand, Pt. No. G.131).

PLATE 10

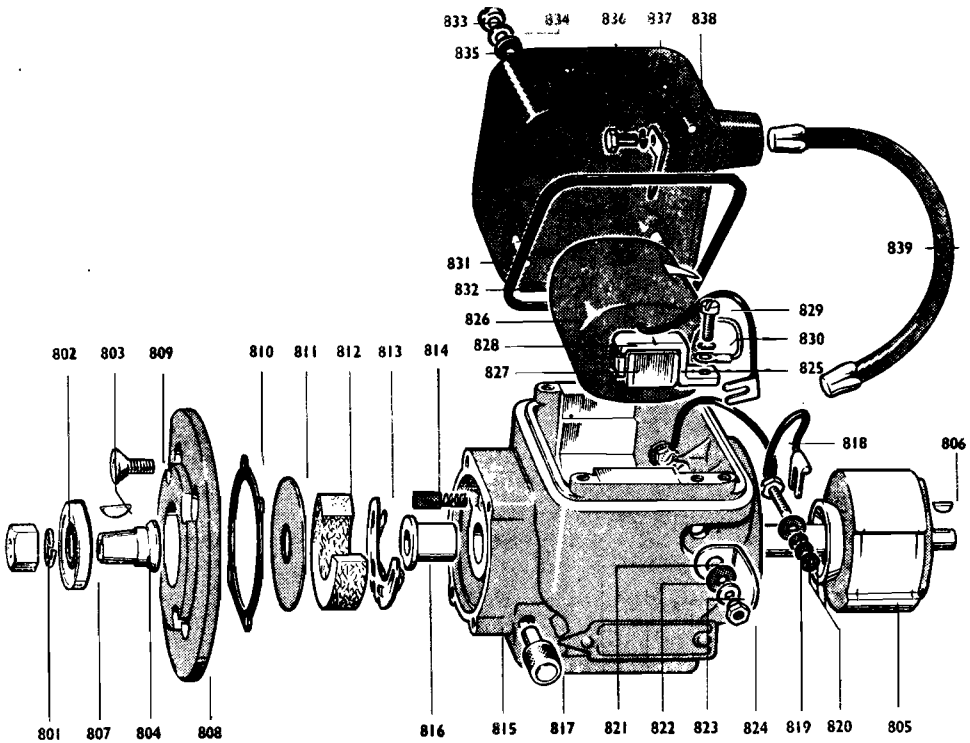


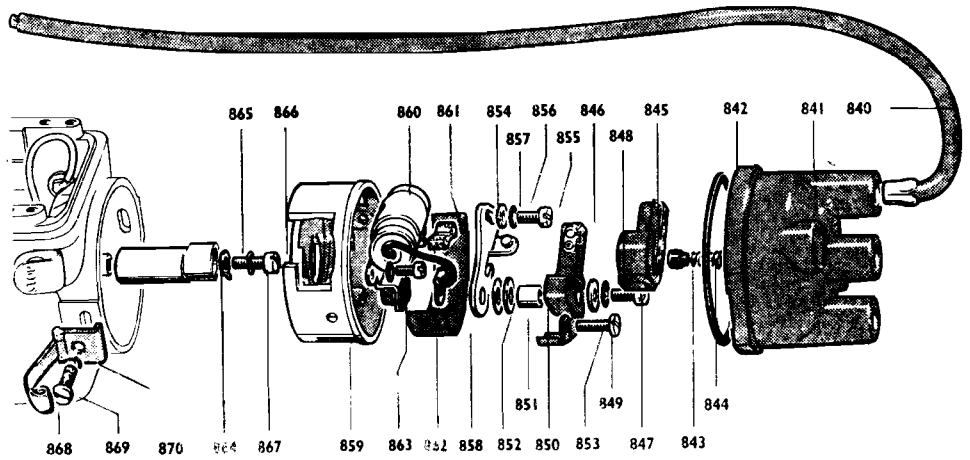

SOIL SHREDDER, FURROWING ATTACHMENT
FURROW COVERING ATTACHMENT, ROLLER



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| | | **STARTING HANDLES FOR USE WITH EXTENSION RIMS AND HUBS** (Plate 9) | |
| 719 | | | |
| 720 | 25561 | For 24″ machine fitted with extension rims ... | 1 |
| 720 | 25395 | For 24″ machine fitted with twin tyres ... | 1 |
| | | (N.B.—The appropriate handle will be supplied whichever wheel extensions are ordered.) | |
| | | **SOIL SHREDDER (24″ model only)** (Plate 10) | |
| 721–724 spare | | | |
| 725 | 24G.1000 | Trough ... ... ... ... ... ... | 1 |
| 726 | G.1001 | Feeder blade ... ... ... ... ... | 2 |
| 727 | G.919 | Feeder blade bolt ... ... ... ... | 4 |
| — | | Spring washer $\frac{7}{16}$″ dia. ... ... ... ... | 4 |
| — | | Nut $\frac{7}{16}$″ B.S.F. ... ... ... ... ... | 4 |
| 728 | 24G.1002 | Soil screen, coarse ... ... ... ... ... | 1 |
| 728 | 24G.1004 | Soil screen, fine ... ... ... ... ... | 1 |
| 729 | G.1003 | Hook bolt ... ... ... ... ... ... | 2 |
| — | | Spring washer $\frac{3}{8}$″ dia. ... ... ... ... | 2 |
| — | | Nut $\frac{3}{8}$″ B.S.W. ... ... ... ... ... | 2 |
| 730–734 spare | | | |
| | | **FURROWING ATTACHMENT** (Plate 10) | |
| 735 | G.952 | Mould board ... ... ... ... ... | 1 |
| 736 | | Clamping bolt $\frac{1}{2}$″ B.S.W. × 1″ L. ... ... | 1 |
| — | | Nut $\frac{1}{2}$″ B.S.W. ... ... ... ... ... | 1 |
| | | **FURROW COVERING ATTACHMENT** (Plate 10) | |
| 737 | | | |
| 738 | G.951 | Attachment complete ... ... ... ... | 1 |
| 739 | | | |
| | | **ROLLER ASSEMBLY (24″ model only)** (Plate 10) | |
| 740 | 24G.1007 | Roller fork ... ... ... ... ... ... | 1 |
| 741 | 24G.1017 | Roller scraper ... ... ... ... ... | 1 |
| 742 | | Scraper clamping bolt $\frac{1}{4}$″ B.S.W. × 1″ L. ... | 2 |
| — | | Flat washer $\frac{1}{4}$″ dia. ... ... ... ... ... | 2 |
| — | | Spring washer $\frac{1}{4}$″ dia. ... ... ... ... | 2 |
| — | | Nut $\frac{1}{4}$″ B.S.W. ... ... ... ... ... | 2 |
| 743 | 24G.1005 | Roller drum ... ... ... ... ... | 1 |
| 744 | G.1011 | Roller filler plate ... ... ... ... ... | 1 |
| 745 | | Setscrew $\frac{1}{4}$″ B.S.W. Rd. Hd. × $\frac{3}{8}$″ L. ... ... | 2 |
| — | | Spring washer ... ... ... ... ... | 2 |
| 746 | G.1012 | Grease nipple $\frac{1}{8}$″ B.S.P. ... ... ... ... | 2 |
| 747 | 24G.1006 | Axle ... ... ... ... ... ... ... | 1 |
| 748 | G.1008 | Axle bush ... ... ... ... ... ... | 2 |
| 749 | | Axle nut $\frac{5}{8}$″ B.S.W. locknut ... ... ... | 2 |
| — | | Axle spring washer $\frac{5}{8}$″ dia. ... ... ... | 2 |
| | | **WICO MAGNETO TYPE. A-1137 BZ.** (Plate 11) | |
| — | ZX.207 | Drive shaft adaptor assembly (comprising the following)— | |
| 801 | 1365A | Drive shaft adaptor nut ... ... ... ... | 1 |
| 802 | M.121XB | Drive shaft adaptor nut lock washer ... ... | 1 |
| 803 | 1146D | Drive shaft adaptor nut key ... ... ... | 1 |
| 804 | E.113XA | Drive shaft adaptor ... ... ... ... | 1 |
| 805 | X.1399M | Rotor assembly ... ... ... ... ... | 1 |
| 806 | 1146 | Breaker cam key ... ... ... ... ... | 1 |

# PLATE 11




**MAGNETO**



| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| — | FX.193 | End plate group (comprising the following)— | |
| 807 | B.33X | Oil seal | 1 |
| 808 | F.153 | End plate | 1 |
| 809 | A.72XC | End plate screw | 4 |
| 810 | I.VA–715 | End plate gasket | 1 |
| — | X.1669C | Oiling disc unit (comprising the following)— | |
| 811 | I.VA–487 | Oiling disc | 1 |
| 812 | 1379 | Main oil pad | 1 |
| 813 | X.2505B | Main oil pad spring | 1 |
| 814 | X.1487 | Oil scraper assembly | 1 |
| — | GX.1414EPM | Main housing group (comprising the following)— | |
| 815 | X.1414EPM | Main housing unit (includes items 816 & 817) | 1 |
| 816 | 2495 | Main housing bushing | 2 |
| 817 | 1423 | Oiler | 2 |
| 818 | X.1596 | Earth stud group (2 screws, connecting wire and breaker lead) | 1 |
| 819 | I.XA.862 | Earth stud fibre washer | 2 |
| 820 | M.34X | Earth stud fibre insulating bushing | 6 |
| — | B.140X | Stop button unit (comprising the following)— | |
| 821 | B.138X | Stop button contact | 2 |
| 822 | I.XA.862 | Earth stud fibre washer | 2 |
| 823 | I.XA.256 | Earth stud washer | 2 |
| 824 | A.142X | Earth stud nut (right side) | 1 |
| OR | M.72 | Earth stud nut (left side) | 1 |
| — | X.1411 | Coil and core group (comprising the following)— | |
| 825 | X.1409 | Coil core group | 1 |
| 826 | X.1410 | Coil group | 1 |
| 827 | 2264B | Coil wedge | 2 |
| 828 | 1384 | Coil core clamp | 2 |
| 829 | M.126XB | Coil core clamp screw | 2 |
| 830 | M.55XA | Coil core clamp screw lock washer | 2 |
| — | X.1412 | Cover group (comprising the following)— | |
| 831 | X.2009 | Cover unit (includes items Nos. 836, 837 & 838) | 1 |
| 832 | 1385 | Cover gasket | 1 |
| 833 | 1117 | Cover screw | 4 |
| 834 | I.XA–256 | Cover screw washer | 4 |
| 835 | 1118 | Cover screw leather washer | 4 |
| 836 | 1328 | Coil contact screw | 1 |
| 837 | M.55XA | Coil contact screw lock washer | 1 |
| 838 | 1397 | Coil contact | 1 |
| 839 | X.1615Z | Secondary interlead group | 1 |
| 840 | IKFP.121 | H.T. lead group (16") | 2 |
| 841 | X.1622B | Distributor cap cover (includes item No. 842) | 1 |
| 842 | 16–159 | Distributor cap gasket | 1 |
| — | X.NC–74 | Rotor arm contact bush group (comprising the following)— | |
| 843 | 1216 | Rotor arm contact bush | 1 |
| 844 | 1217 | Rotor arm contact bush spring | 1 |
| 845 | 16–X.477B | Rotor arm | 1 |
| — | X.1878B | Breaker assembly (comprising the following)— | |
| 846 | X.1408B | Breaker arm group | 1 |
| 847 | M.31X | Breaker arm clamp screw | 1 |
| 848 | M.55XA | Breaker arm clamp screw lock washer | 1 |
| 849 | 1207 | Breaker arm clamp washer | 1 |

| Illust. No. | Part No. | Description | No. off |
|---|---|---|---|
| 850 | 1418 | Breaker arm bearing bush ... ... ... | 1 |
| 851 | 1197 | Breaker arm spring washer ... ... ... | 1 |
| 852 | 1197B | Breaker arm spring shim ... ... ... ... | 2 |
| 853 | 6017 | Breaker arm spring screw ... ... ... | 1 |
| 854 | 1196 | Fixed contact ... ... ... ... ... | 1 |
| 855 | M.31X | Fixed contact screw ... ... ... ... | 1 |
| 856 | M.54X | Fixed contact screw lock washer ... ... | 1 |
| 857 | 1.XA.256 | Fixed contact screw washer ... ... ... | 1 |
| 858 | 16–818B | Breaker box insulation strip ... ... ... | 1 |
| 859 | X.2175B | Breaker assembly housing ... ... ... | 1 |
| 860 | X.1413 | Condenser group (includes items 862 & 863) ... | 1 |
| 861 | 5446M | Breaker cam oil pad ... ... ... ... | 1 |
| 862 | 1100 | Condenser screw ... ... ... ... ... | 2 |
| 863 | M.900 | Condenser screw lock washer ... ... ... | 2 |
| — | X.1561 | Breaker cam unit (comprising the following)— | |
| 864 | 1107 | Breaker cam ... ... ... ... ... | 1 |
| 865 | 1381 | Cam screw lock plate ... ... ... ... | 1 |
| 866 | M.31X | Cam screw ... ... ... ... ... ... | 1 |
| 867 | M.55XA | Cam screw lock washer ... ... ... ... | 1 |
| 868 | X.1700 | Distributor cap clip assembly ... ... ... | 2 |
| 869 | 2073 | Breaker box screw ... ... ... ... | 2 |
| 870 | M.55XA | Breaker box screw lock washer ... ... ... | 2 |

RG4-TSP-17-3-750