# WORKING INSTRUCTIONS

AND

# ILLUSTRATED PARTS LIST

# THE HOWARD

## PATENT

# ROTARY HOE "TEN"

ROTARY HOES, LTD.
STATION ROAD
EAST HORNDON
ESSEX

'Phone :
HERONGATE 96 and 26

Telegrams :
ROTOVATE BRENTWOOD

**KEEP THIS BOOK IN A SAFE PLACE**
**ITS REPLACEMENT MAY BE DIFFICULT**

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AND

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# ROTARY HOE "TEN"

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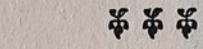
# THE ROTARY HOE "TEN"



This machine is a larger edition of the popular "Gem" and is designed to meet the requirements of the grower with a bigger area of land than the "Gem" owner. It is particularly suitable for orchardists and open-field market gardeners and is capable of filling the tillage requirements of the 20 acre holding.

The "Ten" is built with a standard cultivating width of 30" but where soil and other conditions permit their use, machines with a 36" width of cut can be supplied.

Built on the same sturdy lines as the "Gem" the Rotary Hoe "Ten" will give long and faithful service, and in order to assist users to get the best results from the implement the following directions on care and maintenance, together with a few practical hints on fault-finding are listed and should be closely studied.

**THE ENGINE.** The power unit is a 50° V-twin with a capacity of 1,300 c.c. Lubrication is on the dry sump principle and governed engine speed is 1,500 r.p.m.

On receiving delivery of a new machine check the engine carefully making sure that oil pipes have not been crushed or broken in transit. Also make sure that tap on oil feed pipe from tank to engine is turned on. **Starting up.** Before starting up make sure that both gear levers are in their neutral positions, turn on petrol and flood carburettor and retard ignition by moving magneto control lever upwards. Open throttle slightly by raising throttle control lever (R.H. handle bar) and engage starting handle on starting dog. Now stand alongside machine facing engine and with the L.H. turn the exhaust valve lifting lever upwards Swing the starting handle briskly and while still turning release the exhaust valve lever. As soon as engine has started advance ignition by moving magneto control lever downwards to its full extent. Do not forget to put starting handle back into its normal carrying position before commencing work.

**COMMENCING WORK.** When the engine is running satisfactorily, lift the clutch lever, situated under the left-hand handle bar, pull the travel gear lever into selected position, then pull the rotor gear lever into position, open the throttle lever fully (situated under the right-hand handle bar), and gently release the clutch.

**CULTIVATION.** For cultivating virgin soil or land tightly bound together with grass or roots, the best results are obtained by first cultivating shallow, just to take the surface off, leaving it for a few days and then cultivate to the required depth.

The low gear must be used when cultivating ground that is very hard or covered with heavy growths, which require to be thoroughly cut up, and the ground well pulverized. Second gear is used for all ordinary cultivation, and top gear for light cultivation, or running the machine to work. To get the required depth of tillage a special depth control skid is fitted, coupled to a depth control lever which, when moved up or down, varies the depth of tillage. Always work at the highest gear that gives the tilth required to avoid wastage of petrol, and avoid working the ground too fine.

# GENERAL MAINTENANCE AND ADJUSTMENTS

**ENGINE.** Check valve tappet clearances occasionally and when adjustments are necessary make sure that tappet lock nuts are securely tightened. Tappet clearances should be .010″ for exhaust valve and .008″ for inlet valve.

**THE OIL PUMP.** This is located in the timing box cover plate and is of the reciprocating gear drive plunger type driven from the camshaft. It is of very simple construction and unlikely to give any trouble. Care should however be taken to see that the oil pump fulcrum pin (8455) is securely screwed home. The end of this pin is located in a helically cut groove in the pump plunger which while rotating is made to travel backwards and forwards to the limit of this groove. Should the fulcrum pin get lost or even loose the plunger ceases to function and the engine should not be run until the fault has been remedied.

**ENGINE GOVERNOR.** A centrifugal type governor is incorporated on the timing end of engine crankshaft and is totally enclosed within the timing cover. It is of simple construction and is entirely automatic in operation. As delivered from works governors are set to allow a maximum engine speed of 1500 r.p.m. and provided the manually operated throttle control lever is set at the fully open position the governor will maintain constant engine speed at all loads. Engine speed should not be altered except under expert advice. It is essential that the governor control slide and links should be oiled occasionally so that carburettor can respond freely to demands made on it by the Governor.

**DIFFERENTIAL.** The gear box is provided with a differential gear which makes turning on headlands a very simple matter. Operating in conjunction with the rotor gear is a differential locking device which gives the effect of a solid axle while cultivating. When rotor gear is put in neutral position (which is essential when turning) the differential gear is automatically unlocked.

**MAGNETO.** The magnetos fitted will give years of trouble free service, but to ensure that they do so, periodic check over is necessary. See that contact breaker arm is working freely and that gap between points is properly adjusted using the gauge on magneto spanner for this purpose.

**CARBURETTOR.** To adjust the carburettor, screw needle in jet bolt, upwards but not too tightly, then unscrew one and a half turns. Open throttle slightly, start engine and close throttle to stop screw. If necessary, adjust idling air adjusting screw until engine runs smoothly. Turn this

screw inwards to make the mixture richer and outwards for a lean mixture. Adjust main jet adjusting screw as lean as possible (by screwing upwards) to get quick and even acceleration and smooth running when throttle is operated.

It is sometimes necessary to open main jet screw when starting in cold weather, closing it as lean as possible to get economical working after engine warms.

To clean the carburettor jet, it is necessary to take out the main jet bolt 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. It can be cleaned out with a fine wire.

**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 so that the thrust bearing is free except when the hand lever is lifted; adjustment can be made by unscrewing the clutch connecting rod in the eyebolts on clutch fulcrum lever near the engine.

**ENGINE OIL FILTER.** When changing engine oil make it a routine job to clean filter at the same time. To extract the filter element from the tube remove oil pipe connection on front end and undo the brass caps at both ends and withdraw the filter and centre tube. Wash thoroughly in petrol or Kerosene and if the bag is damaged replace with a new one. When replacing filter element make sure that the brass caps and the oil pipe (return to tank) are securely tightened up.

**AIR CLEANER.** To ensure regularity in attending to the air cleaner make this job also a routine one when changing engine oil. To remove cleaner loosen the clamping nut on top of clamping bracket, push clamp to one side and leaving cover still connected to hose connection take air cleaner bodily from its platform. Separate the top from the bottom half of the cleaner and pour away the dirty oil in the reservoir and wash out all sediment in the bottom thoroughly. Then remove the serrated spring clip in filter container and carefully take out the horsehair and gauze filters and wash in petrol or kerosene. Next refill oil reservoir up to just BELOW the air intake pipe using oil which has been drained from engine oil tank. Put horsehair and gauze plates back into horsehair container making sure that perforated plate to which the zinc cone is attached is placed in the bottom with apex of cone downwards. Now place the two halves together (with cork washer between), replace cover and clamp back into position.

**ROTOR FRICTION DRIVE.** The flanges to which the rotor blades are bolted are driven direct from the main gear box through a metal-to-metal friction clutch similar to that on the road wheels and is adjusted by four half-inch nuts. This clutch is not intended to operate except when

the rotor blades strike a submerged object, and must be adjusted so that no slip takes place when working under ordinary conditions.

**ROAD WHEELS.** The road wheels are mounted on wheel hubs and frictionally held in position by clamping plate with four springs and nuts. 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 wheel and gearbox.

**MAINTENANCE OF HOE BLADES.** It is essential that the cutting edge only should rub in the soil and the back have clearance. The blades are designed so that continual use in average soil tends to sharpen them, but if the machine is to be used on stony ground we suggest that two sets of hoe blades be kept and used alternatively keeping one set sharpened.

The efficiency of the machine depends largely on the condition of the hoe blades. If these get bent through striking solid obstacles in the ground and are not straightened up, 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: therefore a keen lookout should be kept for bent hoes, which should be straightened up as soon as noticed with the blade setting bar provided.

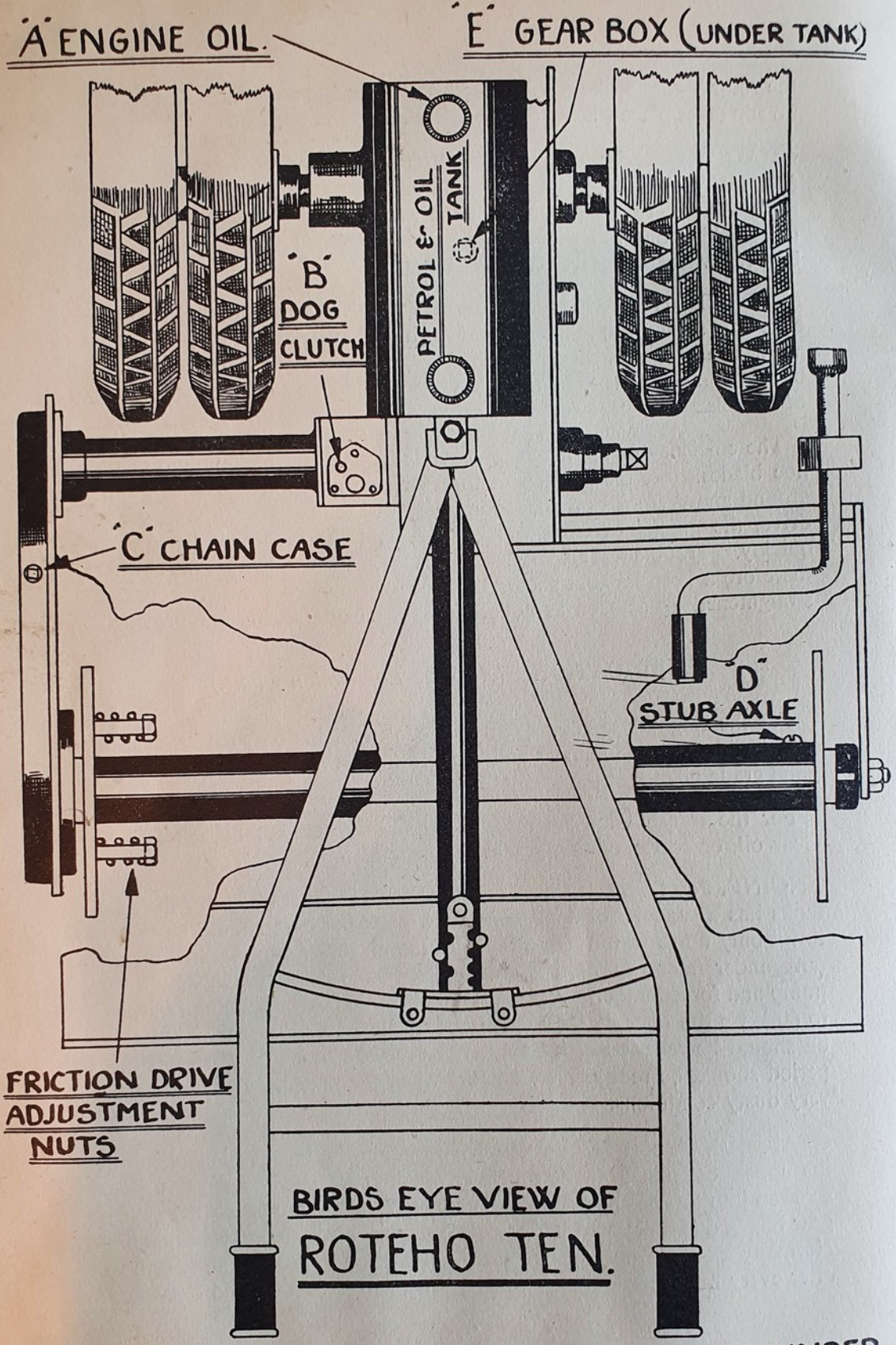
## LUBRICATION. *(Also see Lubrication Chart.)*

For the Engine use good quality air cooled engine oil such as Castrol XL, Triple Shell (Summer) and Double Shell (Winter) or any similar good grade oil.

For the transmission we recommend Castrol Swanshot Shell Spirax Gear oil, or corresponding grades by other manufacturers.

**ENGINE. Point 'A' on Chart.** The oil compartment (front) of the fuel tanks has a capacity of approximately 3 pints but care should be taken to fill only up to within half-an-inch of the oil return pipe located inside tank under filter cap. Oil is gravity fed to the delivery end of the oil pump and forced under pressure into the big end bearings, being returned to tank via the filter by the suction end of pump. As a general practice oil should be renewed completely after every 36 hours of work but this period should be reduced to 24 hours when the machine is operating in very dusty conditions.

**GEAR BOX—Point 'E' on Chart.** Maintain the level as indicated on the uppermost mark on the dipstick, which is attached to the gas plug screwed into top of Gear Box. The clutch thrust race is located inside gear box and is lubricated by the constant swirl of oil maintained therein. Normally it should only be necessary to drain and renew oil in gear box after every hundred hours of work. This job is best carried out when




BIRDS EYE VIEW OF

# ROTEHO TEN.

CLUTCH UNDER. THROTTLE UNDER.

OILING CHART

oil is warm and a good practice is to remove drain plug at the end of a day's work leaving the plug out all night. Capacity of gear box up to required level is about approximately $1\frac{1}{4}$ gallons.

**ROTOR DRIVE DOG GEAR BOX—Point 'B' on Chart.** Remove square headed gas plug and oil liberally with oil can daily.

**ROTOR DRIVE CHAIN BOX—Point 'C' on Chart.** Remove Gas plug on top of chain case cover and maintain level of gear oil up to lower mark on main gear box dipstick referred to above. Do not overfill as this may result in oil being forced on to the rotor friction clutch causing it to slip unnecessarily.

**ROTOR STUB AXLE—Point 'D' on Chart.** Remove round headed screw and fill cup located inside rotor tube with engine oil from oil can. It will generally be found that this supply is sufficient for 24 hours work and can be attended to when routine changing of engine oil is carried out.

In addition to the lubrication directions enumerated such points as the depth control pedestal to skid or wheel, slide bar of swinging handlebars and fulcrum levers of throttle and clutch controls should be oiled frequently with oil can to ensure free movement.

# ATTACHMENTS AND EQUIPMENT

Following is a list of the various attachments which can be used with the Rotary Hoe Ten for mobile and stationary work.

## MOBILE.

Furrowing Attachment.
Furrow Covering Attachment.
Picktine Rotor.

## STATIONARY.

Machine Stand.
Power Take off Pulley.
Soil Shredder.

## FITTING ATTACHMENTS.

The furrowing attachment is fitted in place of the depth control wheel or skid. Where the latter has been supplied as standard equipment it is used as the pedestal for the furrower. For machines where depth control **wheel** has been fitted the skid must be ordered in addition to the furrower body. When using furrower, the Rotor is put in gear so that the combined operations of cultivating and ridging are carried out simultaneously.

The furrow covering attachment is supplied complete with its own pedestal and it is fitted in the same way as the furrower. When in use the rotor should be **out of gear,** allowing the rotor to roll over the ground like a wheel.

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

To fit picktine Rotor which is used for special work such as dealing with very hard soil conditions or pasture renovation, proceed as follows:

Remove all nuts and bolts holding the stub axle to the Rotor Support Bracket, Staytube and Rotor Shield, then remove the four Rotor Friction Drive Adjusting nuts and springs, by sliding the Rotor sideways it can be withdrawn. The Picktine Rotor is then fitted by reversing the operations above.

For all stationary work the Rotary Hoe must be mounted on the specially provided machine stand which should be ordered with either the Power Take Off Pulley or Soil Shredder.

**NOTE.**—The same stand is suitable for either purpose.

To fit the Machine Stand, place a strong wooden box under the engine silencer and lift machine clear of the ground by the handle bars, pivoting on the wooden box, the stand is then put in position so that Road Wheel Axle Bearing casting sits in the two " U " shaped arms provided on the stand. The machine is then lowered and the Road Wheels will be clear of the ground, the wooden box can now be removed. See that the machine is standing on the Depth Control Skid or Wheel, and that the weight is not on the Rotor. When using the Power Take Off the machine should be put in low gear to ensure that the oil circulates. **DO NOT PUT ROTOR IN GEAR** unless you are using the Soil Shredder. The Rotor should not be used when using Power Take Off only.

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, see that the Dogs in the bearing and the Power Take Off Shaft mesh, and replace the four set screws. Next insert the Starting Handle hinge 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 Soil Shredder remove the two end rotor blades near the Stub Axle and replace them with the Feeder Blades, next lift machine sufficiently high to pass the Shredder into position under the Rotor, lower machine, seeing that the lugs on the Shredder locate on the Staytube and Chain Case, tighten the clamping bolts and start work. The Machine Stand **must** be used with the Shredder as for all stationary work.

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## SPECIAL NOTE.

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

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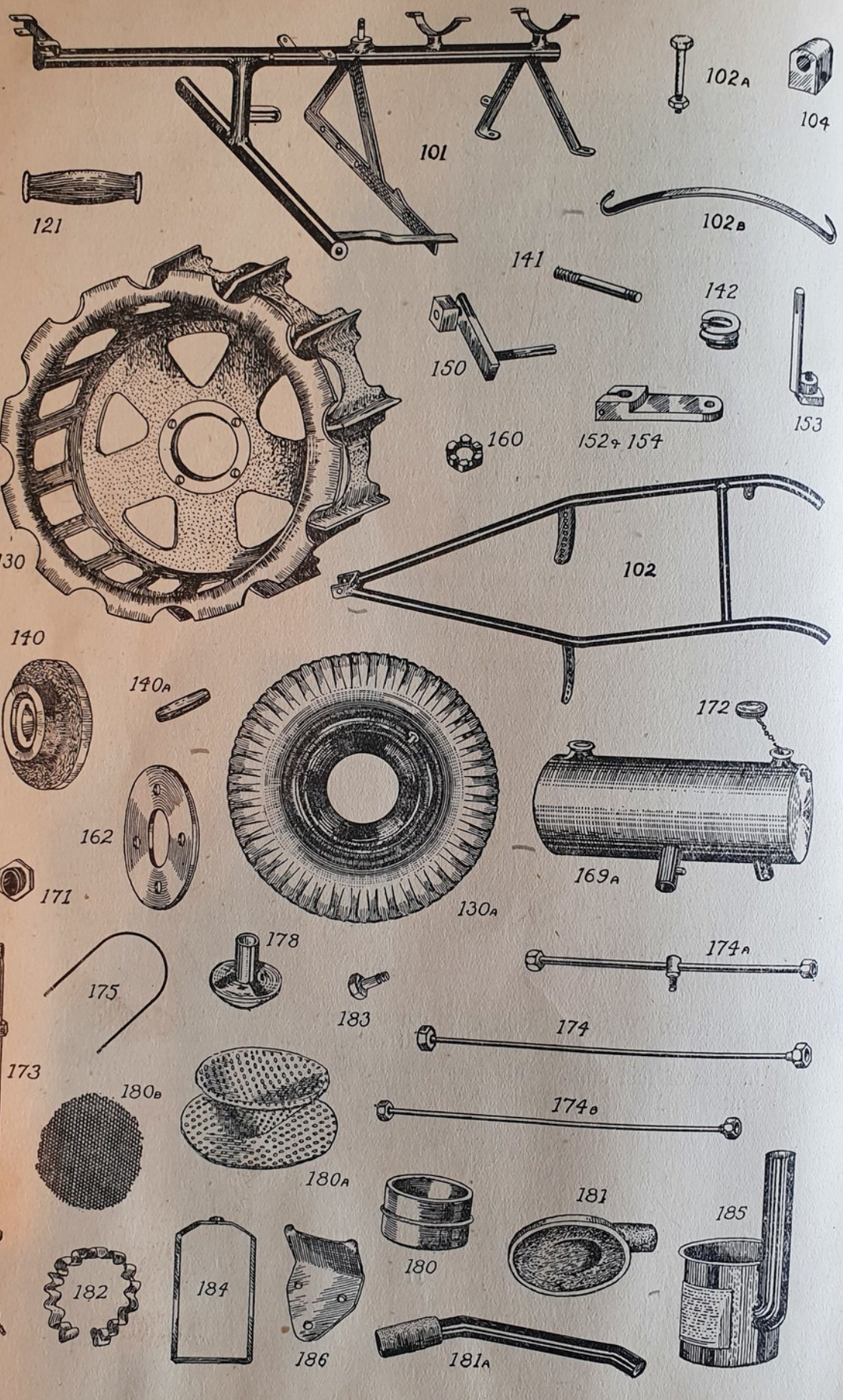
**Important.** When ordering spare parts always quote the serial number of your machine which will be found stamped on main frame member in rear of fuel tank. This information will ensure correct parts being sent.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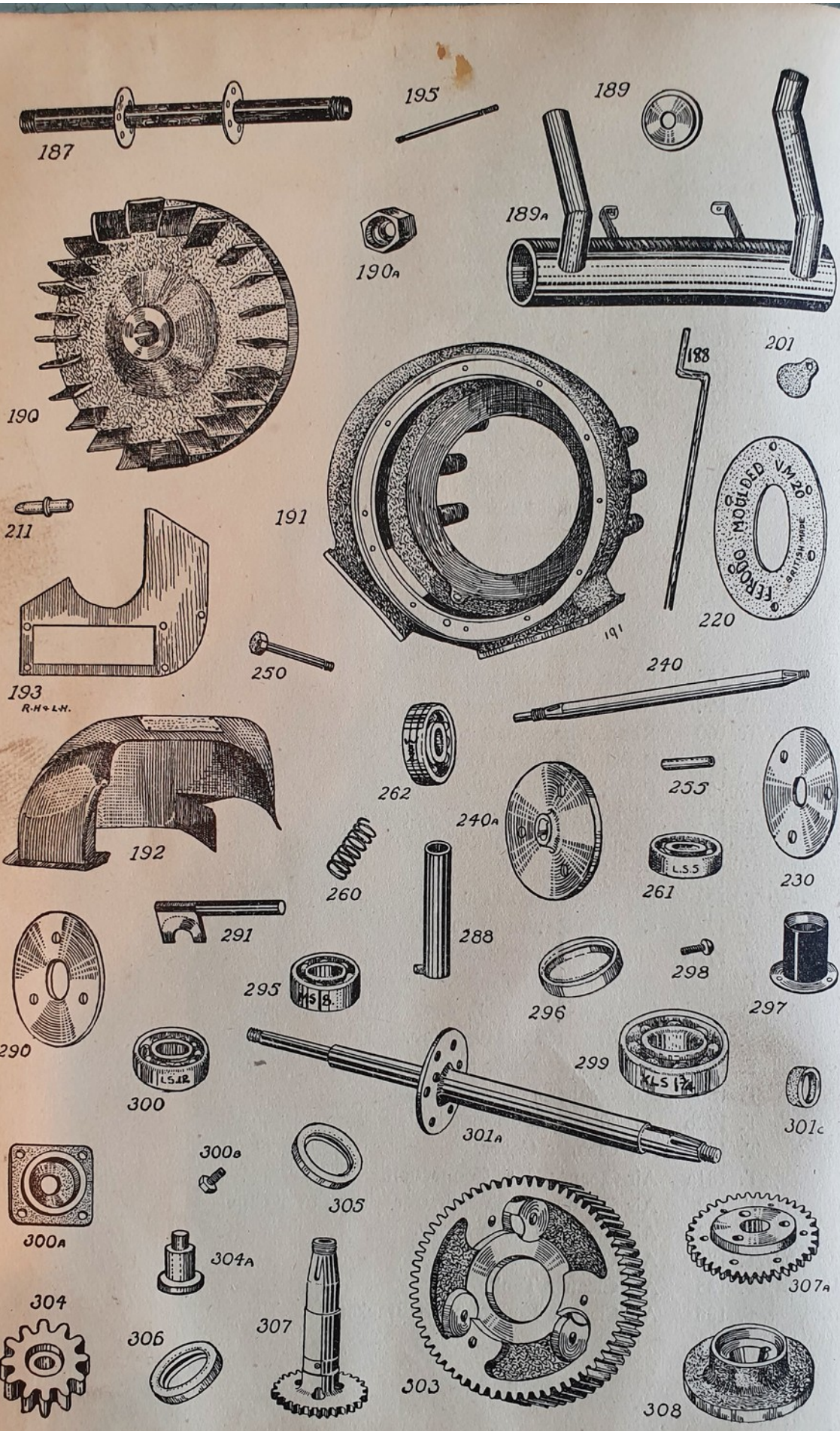
| Part No. | Description of Part. |
|---|---|
| T. 101 | Main Frame for Swinging Handle Bars. |
| T. 102 | Swinging Handle Bars. |
| T. 102a | Handle Bar Slide Bolts (2) |
| T. 102b | Handle Bar Slide. |
| T. 104 | Handle Bar Pivot Block. |
| T. 121 | Handle Grips (Pair). |
| T. 130 | Road Wheel. Cast Iron. Cleated Type (state left or right-hand). |
| T. 130a | Road Wheels for Pneumatics. (State left or right-hand.) |
| T. 140 | Road Wheel Hub. |
| T. 140a | Road Wheel Hub Keys. (2 per hub.) |
| T. 141 | Road Wheel Hub Studs (8). |
| T. 142 | Road Wheel Hub Stud Springs (8). |
| T. 150 | Road Wheel Gear Selector. |
| T. 152 | Road Wheel Gear Selector Arm. |
| T. 153 | Rotor Gear Selector. |
| T. 154 | Rotor Gear Selector Arm. |
| T. 160 | Road Wheel Shaft Nut. |
| T. 162 | Road Wheel Hub Disc. (pair.) |
| T. 169a | Petrol and Oil Tank. |
| T. 171 | Oil and Petrol Drain Plug (2). |
| T. 172 | Petrol and Oil Tank Caps (2). |
| T. 173 | Petrol Pipe. |
| T. 174 | Oil Pipe Tank to Engine. |
| T. 174a | Oil Pipe Return to Tank. |
| T. 174b | Oil Pipe Return from Engine. |
| T. 175 | Petrol and Oil Tank Straps (pair). |
| T. 175a | Petrol and Oil Tank Strap Nuts (4). |
| T. 178 | Air Cleaner Inlet Pipe Cap. |
| T. 180 | Air Cleaner Horse Hair Container. |
| T. 180a | Air Cleaner Perforated Plate. |
| T. 180b | Air Cleaner Perforated Plate Base. |
| T. 181 | Air Cleaner Cover. |
| T. 181a | Air Cleaner Hose Connection. |
| T. 182 | Air Cleaner Horse Hair Container Cover Clip. |
| T. 183 | Air Cleaner Clamp Screw. |
| T. 184 | Air Cleaner Clamp. |
| T. 185 | Air Cleaner Tank. |
| T. 186 | Air Cleaner Tank Support Bracket. |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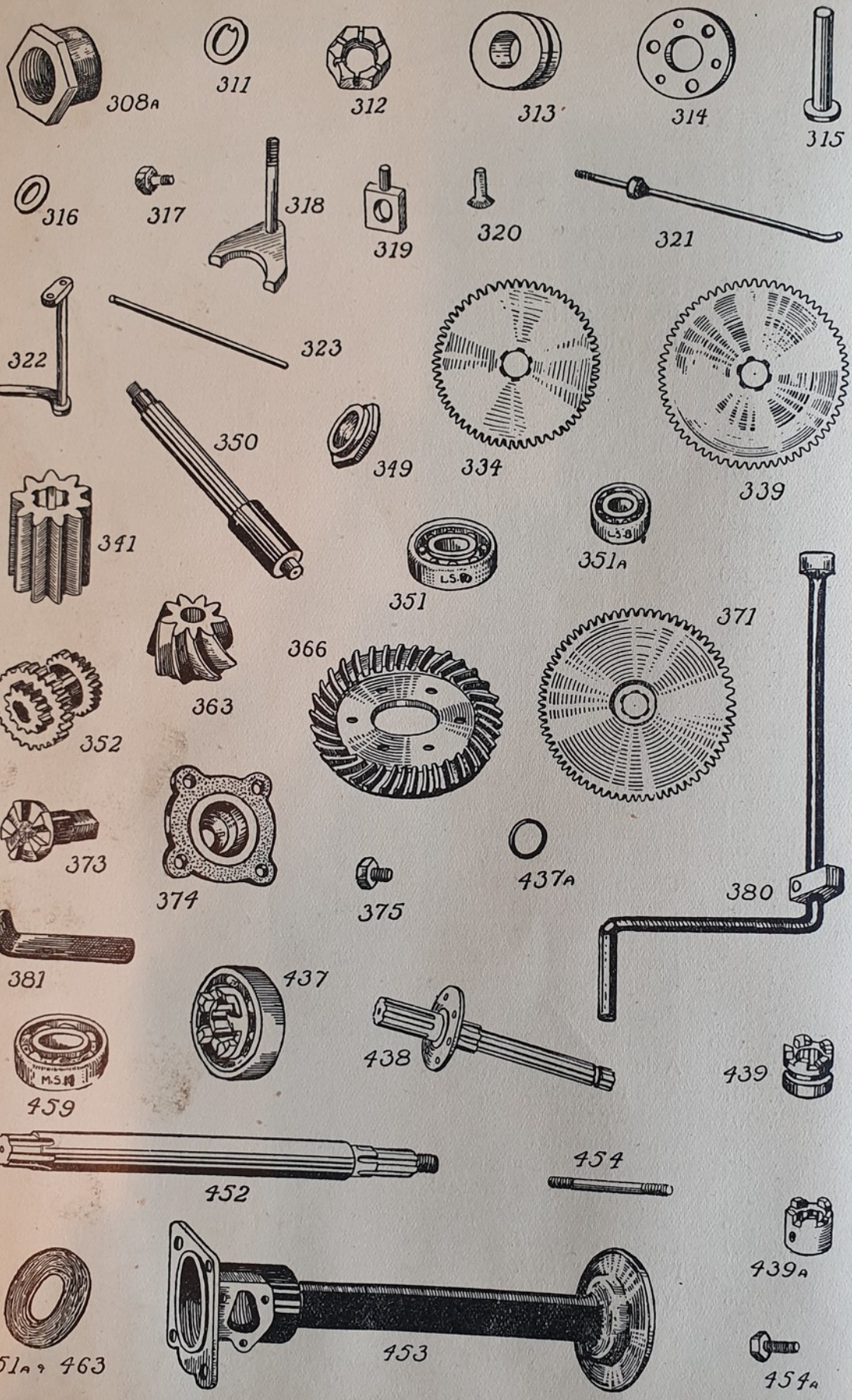
| Part No. | Description of Part. |
|---|---|
| T. 187 | Exhaust Muffler Tube. (Centre.) |
| T. 188 | Exhaust Valve Hand Lifting Lever. |
| T. 189 | Exhaust Muffler End Plates (2). |
| T. 189a | Exhaust Muffler. |
| T. 190 | Fly Wheel. |
| T. 190a | Fly Wheel Nut. |
| T. 190b | Fly Wheel Key. |
| T. 191 | Fly Wheel Housing. |
| T. 192 | Cooling Blast Shroud. (State left or right-hand.) |
| T. 193 | Cooling Blast Shroud Base Plate. (State left or right-hand.) |
| T. 195 | Engine Support Studs. 4 short 2 long. |
| T. 201 | Clutch Housing Inspection Plate. |
| T. 211 | Clutch Pins for Fly Wheel. |
| T. 220 | Clutch Friction Fibre Plate. |
| T. 230 | Clutch Friction Plate Loose. |
| T. 240 | Clutch Shaft. |
| T. 240a | Clutch Plate Fixed. |
| T. 250 | Clutch Bolts for Springs (3). |
| T. 255 | Clutch Spring Bolt Distance Piece (3). |
| T. 260 | Clutch Springs (3). |
| T. 261 | Clutch Shaft Spigot Bearing. LS 5. |
| T. 262 | Clutch Shaft Thrust Race. W$\frac{3}{4}$. |
| T. 288 | Clutch Thrust Sleeve. |
| T. 290 | Clutch Thrust Plate. |
| T. 291 | Clutch Fulcrum Pawl. |
| T. 295 | Clutch Shaft Bearing. MS 8. |
| T. 296 | Clutch Shaft Gitseal. |
| T. 297 | Clutch Shaft Gitseal Holder. |
| T. 298 | Clutch Shaft Gitseal Holder Screws. |
| T. 299 | Loose Hub Gear Outer Ball Bearing. XLS 1$\frac{3}{4}$. |
| T. 299a | Loose Hub Gear Inner Ball Bearing XLS 1$\frac{7}{8}$. |
| T. 300 | Road Wheel Shaft Bearing. LS 12. |
| T. 300a | Road Wheel Shaft Bearing Stop. |
| T. 300b | Road Wheel Shaft Bearing Stop Screws. |
| T. 301a | Axle. |
| T. 301c | Axle Felt Seal. |
| T. 303 | Bull Wheel. |
| T. 304 | Wheel Pinions (6). |
| T. 304a | Wheel Pinion Studs (6). |
| T. 305 | Loose Hub Gear Oil Seal. |
| T. 306 | Road Wheel Shaft Gitseal. |
| T. 307 | Loose Hub Gear. |
| T. 307a | Fixed Hub Gear. |
| T. 308 | Wheel Hub. |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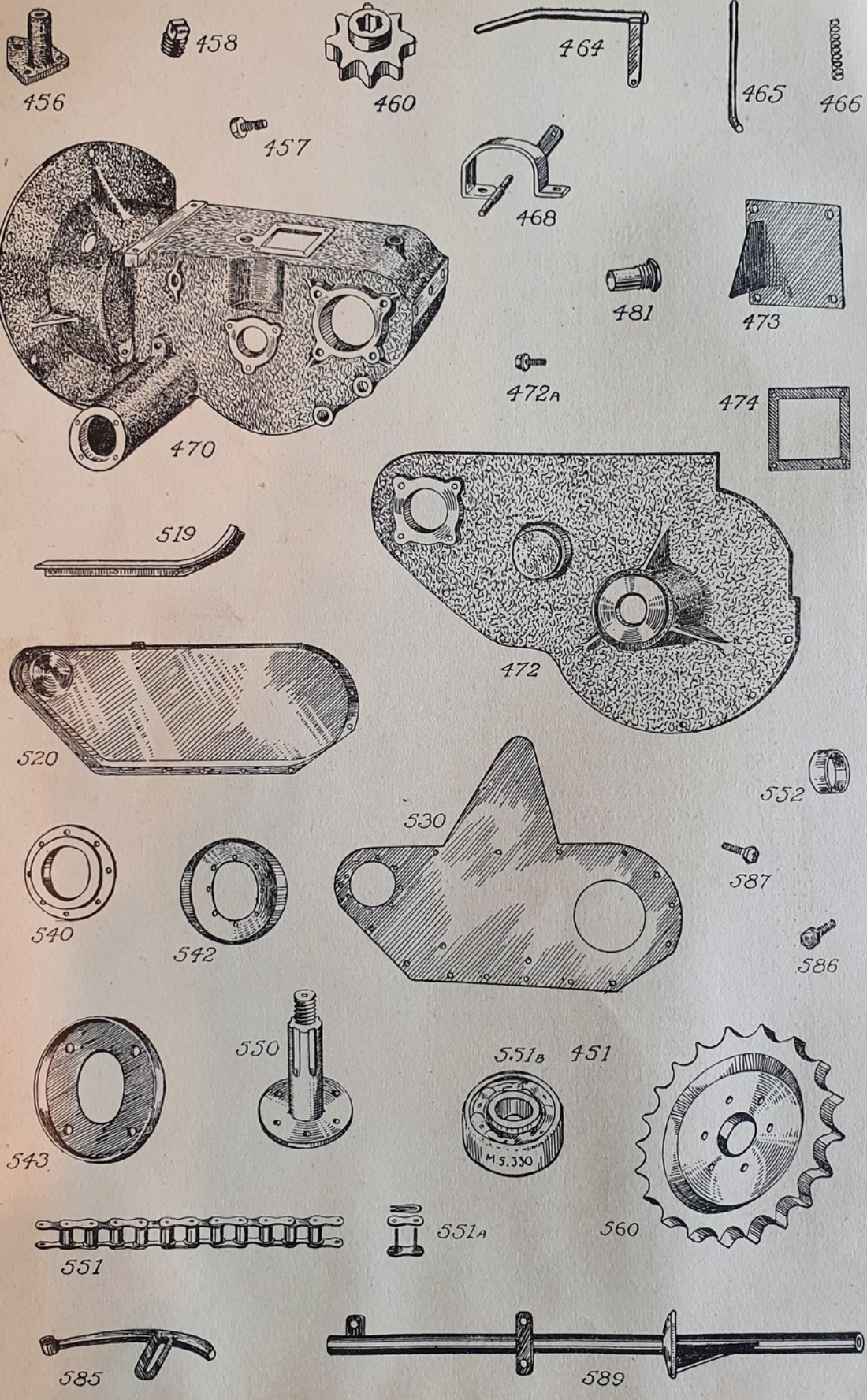
| Part No. | Description of Part. |
|---|---|
| T. 308a | Wheel Hub Nut. |
| T. 309 | Wheel Hub Dust Cover. |
| T. 310 | Wheel Hub Dust Cover Screws (3). |
| T. 311 | Axle Washer. |
| T. 312 | Axle Nut. |
| T. 313 | Differential Lock. |
| T. 314 | Differential Lock Ring. |
| T. 315 | Differential Lock Pins (3). |
| T. 316 | Differential Lock Pin Spacers (3). |
| T. 317 | Differential Lock Ring Set Screws (3). |
| T. 318 | Differential Lock Fork. |
| T. 319 | Differential Lock Fork Trunnion. |
| T. 320 | Fixed Hub Gear Rivets (6). |
| T. 321 | Differential Lock Rod. |
| T. 322 | Differential Quadrant. |
| T. 323 | Differential Lock Quadrant Pin. |
| T. 334 | Layshaft Gear Small. |
| T. 339 | Layshaft Gear Large. |
| T. 341 | Bull Pinion. |
| T. 349 | Layshaft Nut. |
| T. 350 | Layshaft. |
| T. 351 | Layshaft Bearing, Right Hand LS 10. |
| T. 351a | Layshaft Bearing, Left Hand LS 8. |
| T. 352 | Change Speed Pinions. |
| T. 363 | Bevel Pinion. |
| T. 366 | Bevel Crown Wheel. |
| T. 371 | Low Gear Wheel. |
| T. 373 | Starting Dog Loose. |
| T. 374 | Starting Dog Bearing Housing. |
| T. 375 | Starting Dog Bearing Housing Bolts (4). |
| T. 380 | Starting Handle. |
| T. 381 | Starting Handle Support Bracket. |
| T. 437 | Starting Dog and Bearing. |
| T. 437a | Starting Dog and Bearing Circlip. |
| T. 438 | Jackshaft. |
| T. 439 | Rotor Sliding Dog. |
| T. 439a | Rotor Fixed Dog. |
| T. 451 | Jackshaft Bearing MS 330. |
| T. 451a | Jackshaft Oil Seal Disc. |
| T. 452 | Jackshaft Extension. |
| T. 453 | Jackshaft Extension Housing. |
| T. 454 | Jackshaft Extension Housing Studs (2). |
| T. 454a | Jackshaft Extension Housing Bolts (2). |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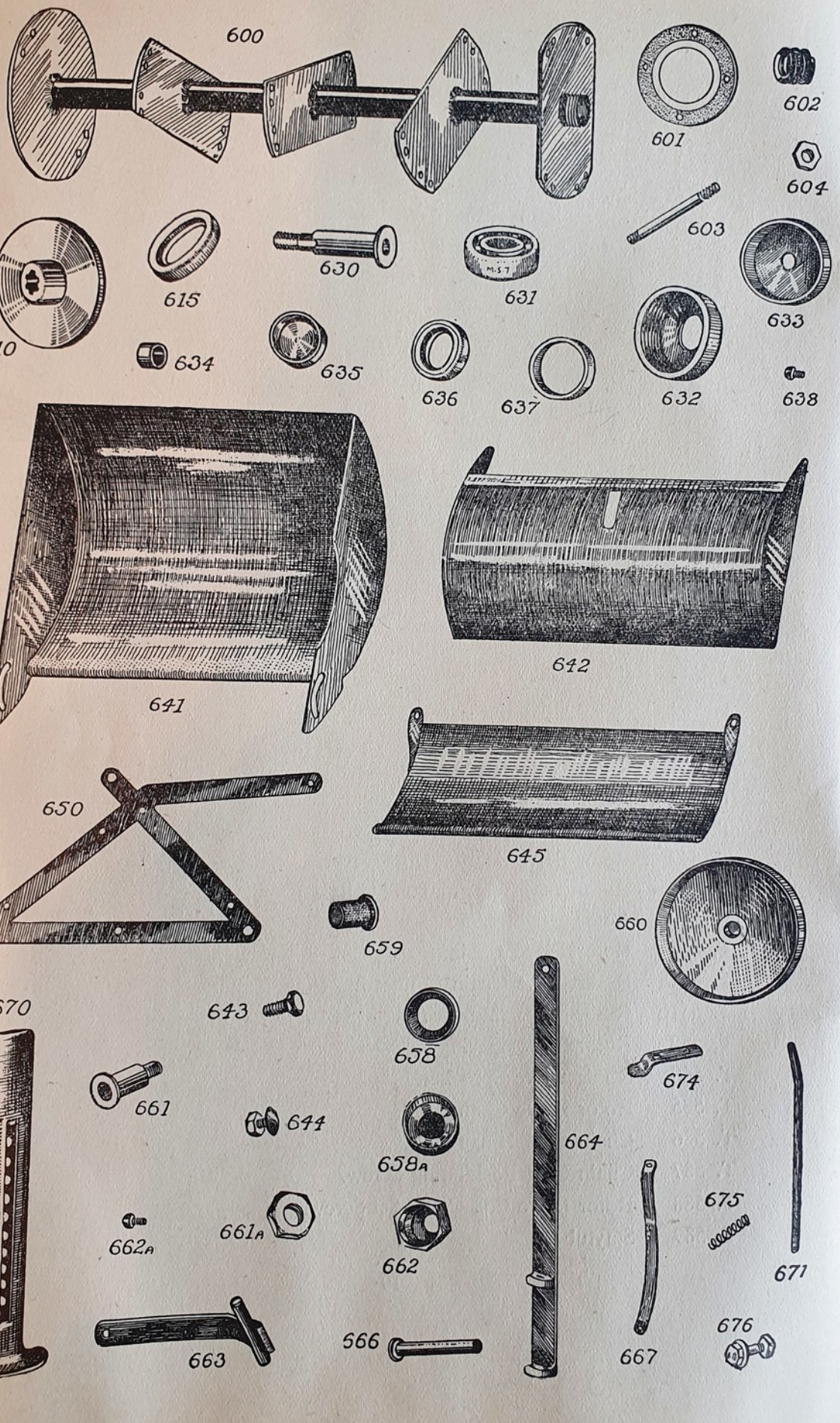
| Part No. | Description of Part. |
|---|---|
| T. 456 | Dog Clutch Housing Cover. |
| T. 457 | Dog Clutch Housing Set Screws (3). |
| T. 458 | Dog Clutch Housing Cover Oiling Screw. |
| T. 459 | Jackshaft Extension Bearing MS 11. |
| T. 460 | Jackshaft Extension Sprocket. |
| T. 463 | Oil Seal Disc for Road Wheel. |
| T. 464 | Handle Bar Positioning Arm. |
| T. 465 | Handle Bar Positioning Pin. |
| T. 466 | Spring. |
| T. 468 | Gear Control Quadrant. |
| T. 470 | Gear Box. |
| T. 470a | Gear Box Gasket. |
| T. 471 | Gear Box Side Plate. |
| T. 472a | Gear Box Side Plate Set Screws. |
| T. 473 | Gear Box Inspection Plate. |
| T. 474 | Gear Box Inspection Plate Gasket. |
| T. 475 | Gear Box Inspection Plate Screws (4). |
| T. 481 | Gear Change Shaft Bush. |
| T. 519 | Rotor Drive Box Wearing Shoe. |
| T. 520 | Rotor Drive Box Cover. |
| T. 520a | Rotor Drive Box Cover Gasket. |
| T. 530 | Rotor Drive Box Back Plate. |
| T. 540 | Rotor Drive Bearing Housing. |
| T. 542 | Rotor Drive Bearing Dust Cover. |
| T. 543 | Rotor Drive Wearing Plate (4 holes). |
| T. 550 | Rotor Drive Shaft. |
| T. 551 | Rotor Drive Chain. |
| T. 551a | Rotor Drive Chain Connecting Link. |
| T. 551b | Rotor Drive Shaft Bearing MS 330. |
| T. 552 | Rotor Drive Spacing Sleeve. |
| T. 560 | Rotor Drive Sprocket. |
| T. 585 | Rotor Drive Chain Skid. |
| T. 586 | Chain Skid Hinge Bolt. |
| T. 587 | Chain Skid Positioning Screw. |
| T. 588 | Rotor Drive Box Cover Set Screws. |
| T. 589 | Staytube. |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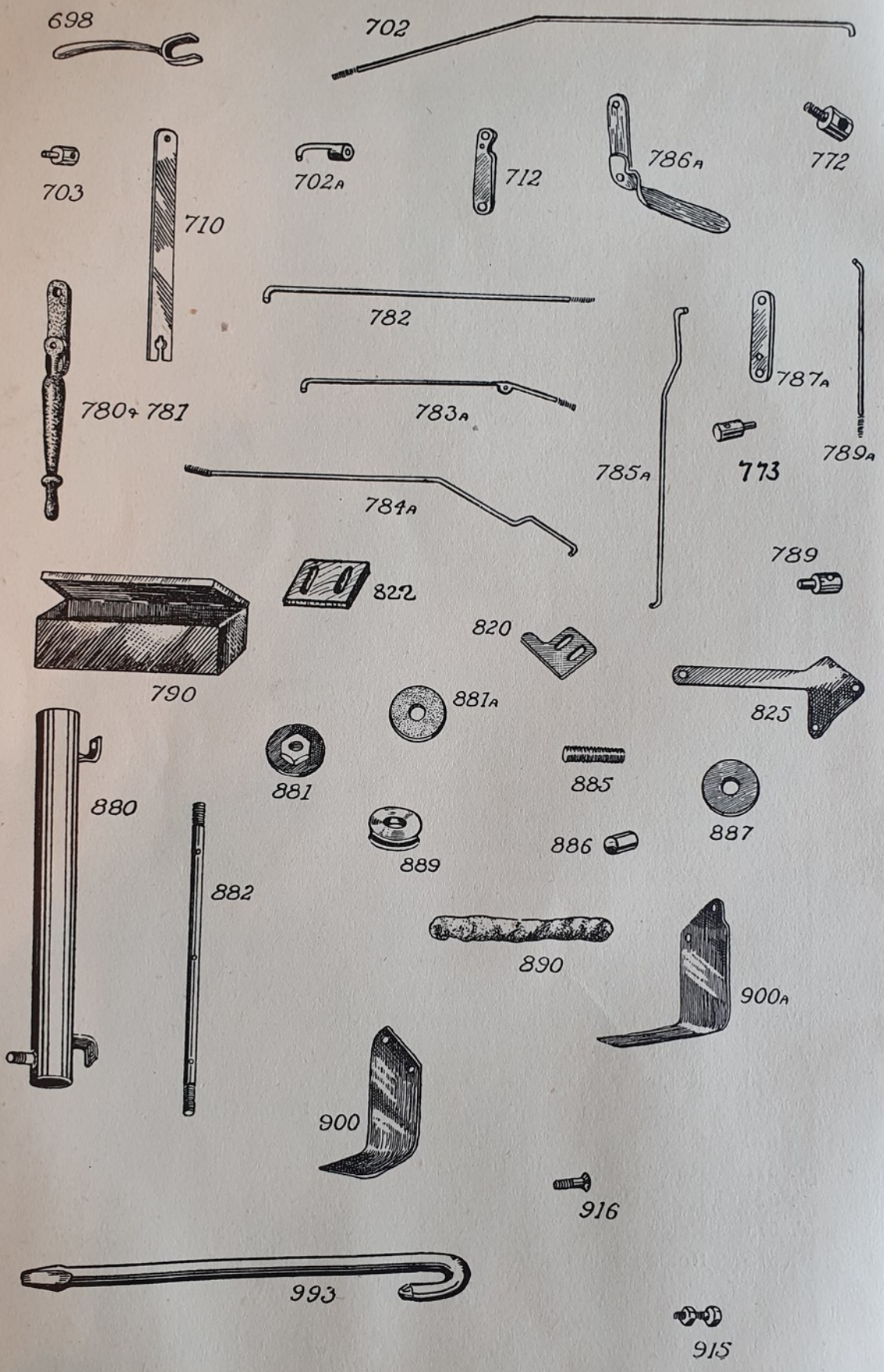
| Part No. | Description of Part. |
|---|---|
| T. 600 | Rotor. |
| T. 601 | Rotor Drive Friction Plate. |
| T. 602 | Rotor Drive Friction Stud Springs (4). |
| T. 603 | Rotor Drive Studs (Friction) (4). |
| T. 604 | Rotor Drive Friction Plate Stud Nuts (4). |
| T. 610 | Rotor Friction Drive Disc. |
| T. 615 | Rotor Drive Shaft Gitseal. |
| T. 630 | Rotor Stub Axle. |
| T. 631 | Rotor Stub Axle Bearing, MS 7. |
| T. 632 | Rotor Stub Axle Bearing Cap. |
| T. 633 | Rotor Stub Axle Dust Cover. |
| T. 634 | Rotor Stub Axle Spacing Sleeve. |
| T. 635 | Rotor Stub Axle Back Plug. |
| T. 636 | Rotor Stub Axle Gitseal. |
| T. 637 | Rotor Stub Axle Gitseal Holder. |
| T. 638 | Rotor Stub Axle Oiling Screw. |
| T. 641 | Rotor Shield Front. |
| T. 642 | Rotor Shield Rear. |
| T. 643 | Rotor Shield Hinge Bolts (2). |
| T. 644 | Rotor Shield Adjusting Clamping Bolt (2). |
| T. 645 | Rotor Shield Trailing Board. |
| T. 650 | Rotor Support Bracket (Stub Axle End). |
| T. 658 | Rotor Depth Control Wheel Outer Dust Cover. |
| T. 658a | Rotor Depth Control Wheel Inner Dust Cover. |
| T. 659 | Rotor Depth Control Wheel Bush. |
| T. 660 | Rotor Depth Control Wheel. |
| T. 661 | Rotor Depth Control Wheel Axle. |
| T. 661a | Rotor Depth Control Wheel Axle Nut. |
| T. 662 | Rotor Depth Control Wheel Bush Cap. |
| T. 662a | Rotor Depth Control Wheel Bush Cap Oiling Screw. |
| T. 663 | Rotor Depth Control Wheel Arm. |
| T. 664 | Rotor Depth Control Wheel Pedestal. |
| T. 666 | Rotor Depth Control Wheel Pedestal Pin. |
| T. 667 | Rotor Depth Control Socket Support to Frame (2). |
| T. 670 | Rotor Depth Control Socket. |
| T. 671 | Rotor Depth Control Lever |
| T. 674 | Rotor Depth Control Socket Clip. |
| T. 675 | Rotor Depth Control Lever Socket Clip Spring. |
| T. 676 | Rotor Depth Control Lever Socket Clip Bolt. |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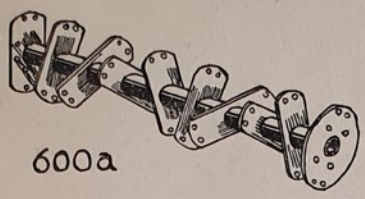
| Part No. | Description of Part. |
|---|---|
| T. 698 | Handle Bar Clutch Hand Lever. |
| T. 702 | Clutch Hand Lever to Clutch Rod. |
| T. 702a | Clutch Hand Lever Adjusting Link. |
| T. 703 | Clutch Adjustment Trunnion Nut. |
| T. 710 | Clutch Fulcrum. |
| T. 712 | Handle Bar Clutch Arm. |
| T. 772 | Change Speed Arm Eye Bolt. |
| T. 773 | Rotor End Diff. Arm Eyebolt. |
| T. 780 | Travel Gear Lever. |
| T. 781 | Rotor Gear Lever. |
| T. 782 | Travel Gear Control Rod. |
| T. 783a | Rotor Gear Control Rod. |
| T. 784a | Throttle Hand Lever to Throttle Arm Rod. |
| T. 785a | Throttle Arm to Carburettor Arm Rod. |
| T. 786a | Throttle Hand Control Lever. |
| T. 787a | Throttle Arm. |
| T. 789 | Throttle Rod Trunnion. |
| T. 789a | Clutch Arm to Clutch Fulcrum Rod. |
| T. 790 | Tool Box. |
| T. 820 | Weed Cutter Blade,Left Hand. |
| T. 822 | Weed Cutter Blade Right Hand. |
| T. 825 | Weed Cutter Blade Bracket. |
| T. 880 | Oil Filter Tube. |
| T. 881 | Oil Filter End Caps (2). |
| T. 881a | Oil Filter Fibre Discs (2). |
| T. 882 | Oil Filter Centre Tube. |
| T. 885 | Oil Filter Tube Nipple. |
| T. 886 | Oil Filter Connecting Union. |
| T. 887 | Oil Filter Locating Washer. |
| T. 889 | Oil Filter Bag Securing Discs (2). |
| T. 890 | Oil Filter Bag. |
| T. 900 | Rotor Hoe Blade, Right. |
| T. 900a | Rotor Hoe Blade, Left. |
| T. 915 | Rotor Hoe Blade Bolts and Washers. |
| T. 916 | Rotor Hoe Blade Drive End Flange Bolts. |
| T. 993 | Blade Setting Bar. |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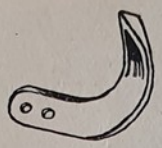
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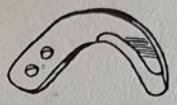
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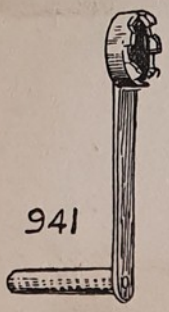
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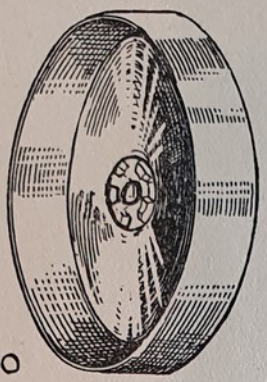
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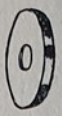
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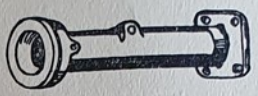
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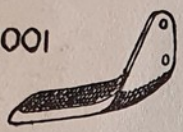
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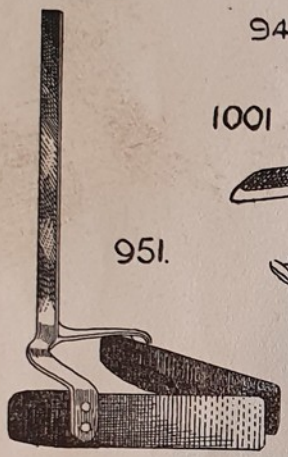
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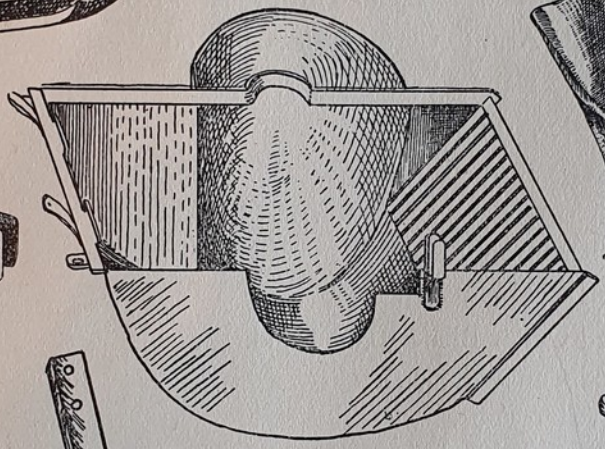
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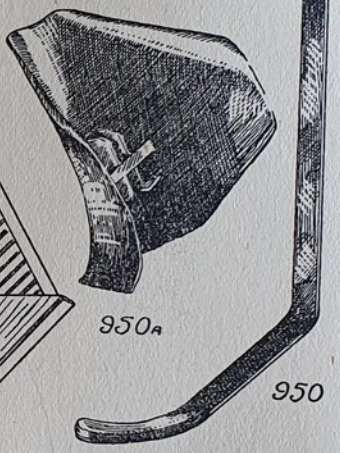
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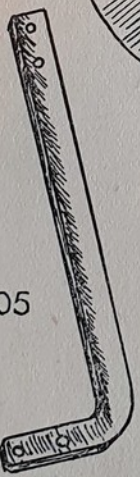
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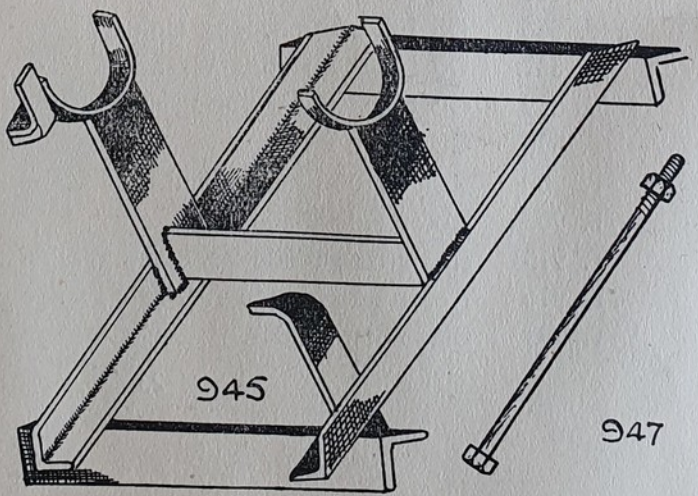
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| PART NO. | DESCRIPTION OF PART. |
|---|---|

## PARTS FOR PICK TYNE ROTOR.

| | |
|---|---|
| T. 600a | Picktyne Rotor. |
| T. 996 | Picktyne Rotor Blade. |
| T. 997 | Lucerne Blade. |

## PARTS FOR POWER TAKE OFF.

| | |
|---|---|
| T. 932 | Power Take Off Spacing Collar. |
| T. 933 | Power Take Off Housing. |
| T. 934 | Power Take Off Bearing Oil Screw. |
| T. 935 | Power Take Off Bearing Dust Cover. |
| T. 936 | Power Take Off Shaft Bearing LS 9. |
| T. 937 | Power Take Off Shaft. |
| T. 938 | Power Take Off Shaft Nut. |
| T. 939 | Power Take Off Pulley Key. |
| T. 940 | Power Take Off Pulley. |
| T. 941 | Power Take Off Starting Handle. |

## PARTS FOR MACHINE STAND.

| | |
|---|---|
| T. 945 | Machine Stand. |
| T. 946 | Machine Clamping Bar. |
| T. 947 | Machine Clamping Studs. |
| T. 948 | Machine Adjusting Screw. |

## FURROWING AND COVERING ATTACHMENT.

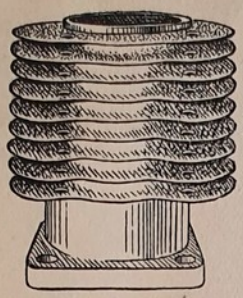
| | |
|---|---|
| T. 950 | Mouldboard Stem and Skid. |
| T. 950a | Mouldboard. |
| T. 951 | Furrow Covering Tool. |

## SOIL SHREADER.

| | |
|---|---|
| T.1000 | Soil Shreader. |
| T.1001 | Feeder Blade. |
| T.1002 | Soil Screen. |

## PARTS FOR ROLLER ATTACHMENT.

| | |
|---|---|
| T.1005 | Roller. |
| T.1006 | Roller Axle. |
| T.1007 | Roller Axle Nut (2). |
| T.1008 | Roller Axle Bush (2). |
| T.1009 | Roller Side Frames Right and Left Hand. |
| T.1010 | Roller Pedestal. |
| T.1011 | Roller Pedestal Bolts (2). |



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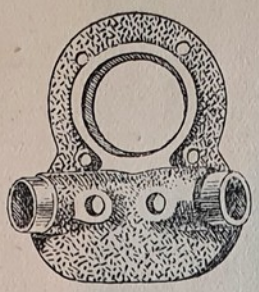

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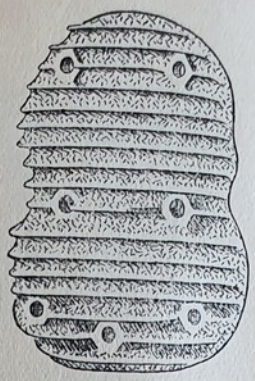

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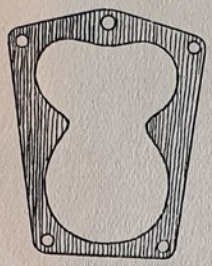

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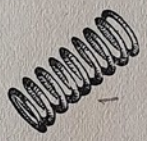

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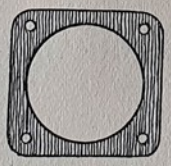

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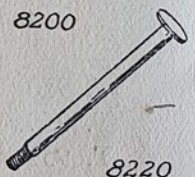

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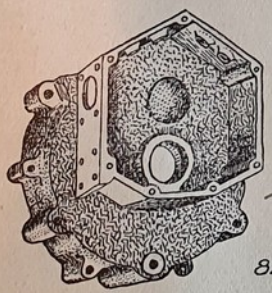

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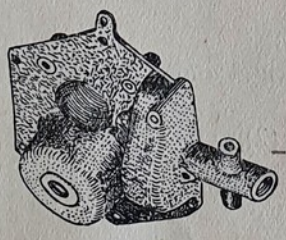

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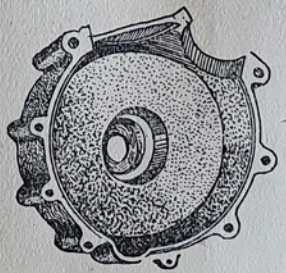

8270

| Part No. | Description of Part. |
|---|---|
| BE.8010 | Cylinder Barrel Right Hand. |
| BE.8011 | Cylinder Barrel Left Hand. |
| BE.8020 | Valve Chamber Right Hand. |
| BE.8030 | Valve Chamber Left Hand. |
| BE.8035 | Spark Plug KLG (2). |
| BE.8040 | Cylinder Head Left Hand. |
| BE.8041 | Cylinder Head Right Hand. |
| BE.8045 | Cylinder Head Engine Timing Plug. |
| BE.8050 | Cylinder Head Gasket (2). |
| BE.8060 | Valve Chamber Gasket (2). |
| BE.8070 | Cylinder Head Holding Down Bolts (8). |
| BE.8080 | Cylinder Head Bolts. |
| BE.8090 | Induction Pipe. |
| BE.8100 | Induction Pipe Nut (2). |
| BE.8110 | Induction Pipe Clamping Cone (2). |
| BE.8120 | Exhaust Valve (2). |
| BE.8125 | Inlet Valve (2). |
| BE.8130 | Valve Guide (4). |
| BE.8140 | Valve Springs (4). |
| BE.8160 | Valve Spring Collets (4). |
| BE.8150 | Valve Spring Cups (4). |
| BE.8170 | Valve Spring Upper Cover (4). |
| BE.8180 | Valve Spring Bottom Cover (4). |
| BE.8181 | Valve Spring Locking Nut (4). |
| BE.8182 | Valve Cover Centring Ring (4). |
| BE.8200 | Tappet Caps (4). |
| BE.8210 | Tappet Cap Lock Nut (4). |
| BE.8220 | Tappet (Inlet Long) (2). |
| BE.8230 | Tappet (Exhaust Short) (2). |
| BE.8240 | Tappet Guide (Inlet Long) (2). |
| BE.8250 | Tappet Guide (Exhaust Short) (2). |
| BE.8260 | Cylinder Base Stud (8). |
| BE.8261 | Cylinder Base Stud Nut (8). |
| BE.8265 | Cylinder Base Gasket (2). |
| BE.8270 | Crankcase Drive Side. |
| BE.8280 | Crankcase Timing Side. |
| BE.8290 | Crankcase Flanging Bolts (2). |
| BE.8310 | Timing Cover and Oil Pump Body. |
| BE.8311 | Timing Cover and Oil Pump Body Gasket. |
| BE.8320 | Timing Cover and Oil Pump Body Screws. |


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| Part No. | Description of Part. |
|---|---|
| BE.8330 | Timing Cover Countersunk Screw. |
| BE.8340 | Exhaust Valve Lifting Spindle (2). |
| BE.8350 | Exhaust Valve Lifting Arm (2). |
| BE.8360 | Exhaust Valve Lifting Lever Disc. |
| BE.8370 | Exhaust Valve Lift Arm Conn. Rod (2). |
| BE.8380 | Breather Core. |
| BE.8390 | Breather and Crankcase Suction Body Core Plugs. |
| BE.8400 | Breather Pipe. |
| BE.8411 | Breather Ball Valve. |
| BE.8420 | Breather Valve Spring. |
| BE.8430 | Crankshaft Oil Feed Screw Valve Body. |
| BE.8431 | Crankshaft Oil Feed Screw Valve Body Plug. |
| BE.8432 | Crankshaft Oil Feed Screw. |
| BE.8433 | Crankshaft Oil Feed Screw Locknut. |
| BE.8434 | Crankshaft Oil Feed Screw Ball Valve. |
| BE.8435 | Crankshaft Oil Feed Screw Ball Valve Spring. |
| BE.8450 | Oil Pump Plunger. |
| BE.8451 | Oil Pump Drive Gear. |
| BE.8455 | Oil Pump Plunger Set Screw. |
| BE.8460 | Oil Pump Drive Pinion. |
| BE.8461 | Oil Pump Intermediate Gears. |
| BE.8470 | Oil Pump Body Plug. |
| BE.8465 | Oil Pump Intermediate Gear Spindle. |
| BE.8500 | Camshaft. |
| BE.8501 | Camshaft Thrust Ball. |
| BE.8502 | Camshaft Thrust Ball Spring. |
| BE.8510 | Camshaft Key. |
| BE.8520 | Camshaft Bearing. |
| BE.8530 | Camshaft Magneto Bearing. |
| BE.8540 | Camshaft Oilseal. |
| BE.8545 | Camshaft Oilseal Holder. |
| BE.8550 | Camshaft Bearing Set Screws (8). |
| BE.8556 | Oil Pump Plunger Screw Fibre Washer. |
| BE.8562 | Magneto Control Hand Lever. |
| BE.8563 | Magneto Control Hand Lever Bracket. |
| BE.8568 | Magneto Control Hand Lever Connecting Rod. |
| BE.8570 | Magneto Platform. |
| BE.8575 | Magneto Platform Screws (4). |
| BE.8591 | Magneto Coupling Body Camshaft Half. |
| BE.8592 | Magneto Coupling Flange Locking Plate. |
| BE.8593 | Magneto Coupling Flange Drive. |
| BE.8594 | Magneto Coupling Flange Screws. |
| BE.8601 | Magneto Flange. |
| BE.8611 | Magneto Laminated Coupling. |
| BE.8640 | Crankcase Oil Suction Pipe Body. |
| BE.8650 | Crankcase Oil Suction Pipe to Pump. |
| BE.8670 | Oil Pressure Pipe to Crankshaft. |
| BE.8675 | Oil Feed Pipe for Cylinder Wall Screw. |
| BE.8680 | Oil Feed Cylinder Wall Screw. |


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| Part No. | Description of Part. |
|---|---|
| BE.8700 | Piston (2). |
| BE.8710 | Piston Ring (8). |
| BE.8720 | Gudgeon Pin (2). |
| BE.8725 | Gudgeon Pin Circlip (4). |
| BE.8730 | Connecting Rod (2). |
| BE.8740 | Connecting Rod Top End Bush (2). |
| BE.8750 | Connecting Rod Bottom End Bearing (2). |
| BE.8760 | Flywheel Timing Side |
| BE.8770 | Flywheel Drive Side. |
| BE.8775 | Flywheel Scraper (2). |
| BE.8780 | Crankshaft Timing Side. |
| BE.8790 | Crankshaft Timing Side Key. |
| BE.8800 | Crankshaft Timing Side Nut. |
| BE.8810 | Crankshaft Timing Gear. |
| BE.8820 | Crankshaft Timing Gear Cone. |
| BE.8830 | Crankshaft Timing Gear Cone Key. |
| BE.8840 | Crankshaft Timing Gear Cone Nut. |
| BE.8850 | Crankshaft Timing Side Ballbearing. |
| BE.8860 | Crankshaft Timing Side Oilseal Disc (Large). |
| BE.8861 | Crankshaft Timing Side Oilseal Disc (Small). |
| BE.8870 | Crankpin. |
| BE.8880 | Crankpin Key. |
| BE.8890 | Crankpin Flywheel Cone. |
| BE.8900 | Crankpin Flywheel Cone Key. |
| BE.8910 | Crankpin Nut. |
| BE.8915 | Crankpin Nut Locking Screw. |
| BE.8920 | Crankshaft Drive Side. |
| BE.8930 | Crankshaft Drive Side Nut. |
| BE.8940 | Crankshaft Drive Side Key. |
| BE.8950 | Crankshaft Drive Side Ballbearing. |
| BE.8960 | Crankshaft Drive Side Oilseal. |
| BE.8980 | Magneto. |
| BE.8984 | Governor Control Fork. |
| BE.8985 | Governor Control Fork Spindle. |
| BE.8985a | Governor Control Fork Spindle Washer. |
| BE.8986 | Governor Control Fork Arm. |
| BE.8987 | Governor Spring. |
| BE.8988 | Governor Spring Connecting Sliding Collar. |
| BE.8988a | Governor Spring Control Sliding Collar Ballbearing. |
| BE.8988b | Governor Spring Control Sliding Collar Ballbearing Wearing Plate. |
| BE.8989 | Governor Control Rod to Fulcrum Arm . |
| BE.8991 | Governor Control Rod Trunnion Nut. |
| BE.8992 | Governor Control Carburettor Spring. |
| BE.8993 | Governor Induction Pipe Fulcrum to Carburettor Rod. |
| BE.8999 | Governor Induction Pipe Fulcrum. |
| BE.8999a | Governor Induction Pipe Fulcrum Set Screw. |
| BE.9000 | Governor Throttle Slide. |
| BE.9010 | Governor Weights (2). |
| BE.9020 | Governor Weights Pin (2). |
| BE.9030 | Carburettor Elbow. |