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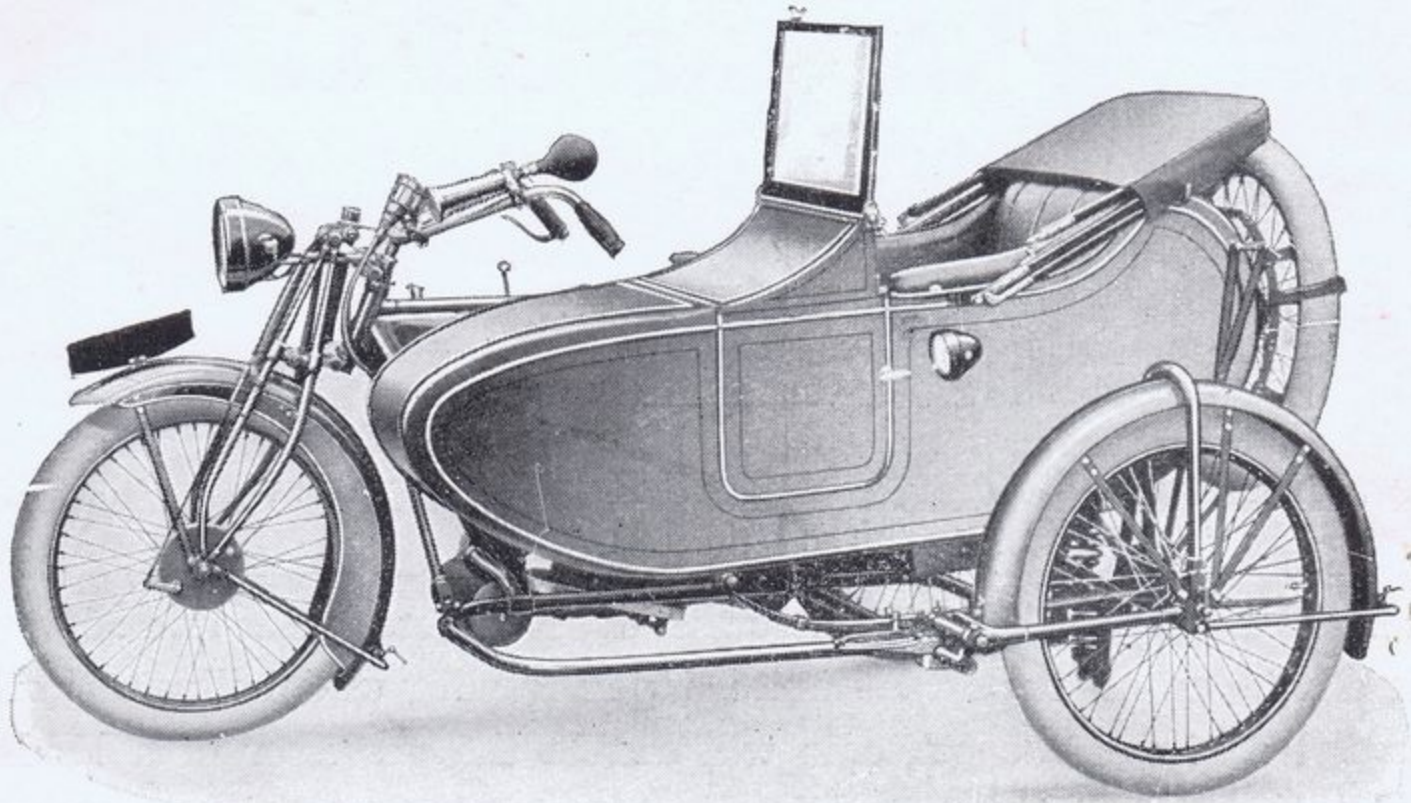


**INSTRUCTION BOOK
AND
SPARE PARTS LIST**

**MODEL
H/2**



DRIVING AND ADJUSTMENT INSTRUCTIONS



“Matchless” Model “H/2.”

H. COLLIER & SONS, LIMITED,

Manufacturers,

Registered Offices and Showrooms:

**44-45, PLUMSTEAD ROAD, PLUMSTEAD,
LONDON, S.E. 18, ENGLAND**

Nearest Station:
WOOLWICH ARSENAL, S.E.C.R.

Factory:
BURRAGE GROVE & MAXEY ROAD,
PLUMSTEAD, S.E.,
and BARTH'S WHARF, WOOLWICH

Telegrams & Cables — “Matchless, Woolwich.”

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INTRODUCTION.

Following our previous practice of endeavouring to obtain good service by making every purchaser thoroughly acquainted with the working of his mount, we issue herewith detailed description and adjustment advice on all important units, together with useful illustrations. A careful study of the contents will enable the possessor of a Model "H/2" to carry out any small adjustments that may be necessary from time to time, and so obtain the best service from his mount, which result is our earnest desire.

The Spares Section has been compiled to enable customers to correctly specify their requirements when renewals of any part are necessary (see Pages 20 and 21 for Instructions re Ordering Parts and particulars of Deposit Account System).

H. COLLIER & SONS, LTD.

General Description.

STARTING.

Before describing the actual method of starting, it is perhaps advisable to explain the various lever positions. Neutral or free engine position of the gear is marked "N" on gear quadrant. Gear changing lever must be in the position marked, thus, for starting. Ignition is advanced or retarded by means of a lever fixed on left side of tank. To advance spark this lever is pushed backward; for starting it should be about two-thirds advanced. The throttle and air levers for carburettor both open inwards, the top lever operating the air, and the lower and longer one the throttle. For starting, throttle should be about one-sixth open and air completely closed. The petrol is turned on when the lever on the tap to which the petrol pipe is attached is parallel to the body of the tap. Assuming that the tank has been filled with petrol and oil of the brand recommended elsewhere, and that all levers and taps have been set as above, to start engine first flood the carburettor by depressing the button on the float chamber until the petrol overflows. With the right foot give the kickstarter a sharp and vigorous push downwards; should the engine fail to start at the first kick allow the crank to go right back against the rubber buffer stop and kick again until the engine starts. This operation should not require at the most more than three or four attempts. On the account of mechanically-operated valve lifter and long kickstarter crank with the small gear up, the starting of the engine of the Model "H/2" will be found a far more simple operation than on any previous model. When the engine is started close the throttle slightly to check the engine speed, and seated on the cycle, depress the clutch pedal by pressing forward with the toe—this disengages the clutch. Then shift the gear lever into first position, after which gently let in the clutch by releasing gently the clutch pedal. When fairly under way smartly depress clutch pedal again, and simultaneously shift gear lever into second gear position, releasing pedal gently but smartly as engine takes up the drive, after which repeat the operation to obtain top gear. When thoroughly accustomed to the gear changing it will be found beneficial to check the engine speed while changing up by closing the throttle slightly. This can quite easily be done by operating the gear lever with the left hand and the throttle with the right. It is possible by this latter method to change gear absolutely without a sound. In all changes of gear it is advisable to make certain that the gear lever is fairly in engagement with the notches in gear quadrant.

DRIVING.

In driving it will be found that the "Matchless" clutch becomes almost indispensable, particularly for slow driving on top gear, rounding very acute corners, riding in traffic, etc., obviating much of the incessant gear changing necessary on most machines. The clutch surfaces being positively lubricated, it is quite safe to use same in such circumstances as suggested above, and, in fact, the clutch may be slipped whenever necessary for comfortable and easy driving without the slightest fear of harmful results, provided always that the lubricating instructions appertaining to same are carefully carried out. The whole machine,

in fact, should be driven like a car. In general driving it is always advisable to advance the ignition as far as possible without knocking. When ascending a steep hill, as the engine slows care should be taken to retard the ignition just sufficiently to prevent knocking, and if a change of gear then be made the ignition should be again advanced, as the speed of the engine is increased by the use of the lower gear. For descending exceptionally steep and dangerous inclines the middle gear should be engaged, enabling the frictional resistance of the engine to assist in retarding the descent. We do not, however, under any circumstances, recommend using the bottom gear for this purpose owing to the enormous strain imposed upon the rear driving chain.

“ DON'TS ” IN DRIVING.

- DO NOT allow the gear dogs to knock when engaging the low gear for starting. Push the clutch farther out of engagement and the knocking will cease.
- DO NOT allow the engine to labour on high gear on a steep gradient. An easier, faster and better ascent can be made on the next lower gear.
- DO NOT make a practice of starting on second speed.
- DO NOT under any circumstances allow the chains to run very slack or very dry. Either will soon cause trouble, and adjustments are easy.
- DO NOT overlook signs of harshness in transmission or fierceness in clutch operation. Both point to need of lubricant.
- DO NOT force engine or drive above a maximum speed of 25 m.p.h. for the first 500 miles. Mention is made of this warning on account of the natural desire of a new owner to ascertain his mount's maximum capabilities. However, until all bearings are well run in, etc., it is advisable to refrain from speed bursts and the accompanying possibility of seized bearing, piston rings, etc. The first 500 miles of an engines existence is far more important than the next 5,000.

LUBRICATION.

It is practically impossible to lay down rules for engine lubrication owing to the varying conditions under which different machines are driven. The amount of oil we recommend for a normal load and at an average speed of 20 m.p.h. is approximately one pumpful to every five miles. This amount must be increased proportionately to all conditions above normal. The quality of oil to be used, however, is of vital importance, and we particularly recommend our patrons to use only the very best brands, a good example being Wakefield's Castrol " C " Winter Grade, which will be found suitable for both winter and summer. Of equal importance to the engine is the lubrication of such parts as clutch, chains, frame joints, fork spindles, etc., which should be dealt with systematically as follows :—

CLUTCH.

Lubricate with special Foliac Graphite grease and oil mixture every 200 miles of ordinary running, i.e., more often if machine is driven mainly in traffic where clutch is used frequently. Want of lubrication of the clutch surfaces will be made apparent by harsh or jerky transmission,

and no such signs should be ignored. Should the oil which is injected into the reservoir on the end of the clutch pedal refuse to run away, a few strokes of special injector with nozzle held in to the hole will drive the oil through the small tube passing into clutch interior. (See sectional drawing of gear box). Under no circumstances must the lubrication of clutch surfaces be ignored. The self-filling oil injector provided renders this operation one of seconds only.

CHAINS.

It will probably be found that the chains will receive sufficient oil from the clutch and gear box if the respective lubricating instructions of these parts are carried out. They should, however, be inspected periodically and oil injected through the inspection holes if necessary.

FRAME JOINTS (12 in number).

These joints should be lubricated every 200 miles with oil injector provided. Special Foliac Grease particularly recommended. (Supplied in 1lb. tins at 2/3).

FORK SPINDLES.

Every 200 miles grease should be forced through the fork spindles by means of the grease pump provided until the grease can be observed exuding from either end of spindle bearings. (Special Foliac Graphite Grease recommended as a lubricant).

GEAR BOX.

Every 500 miles the gear box filling plug should be removed, and the box filled to overflowing when the machine is standing level, with gear oil (preferably).

HUBS.

Every 500 miles (or more frequently in continuous bad weather) the hub grease caps should be removed and grease injected with the grease pump provided, until it is seen exuding from each side of the spindle. (Foliac Graphite Grease specially recommended as a lubricant).

In addition to the foregoing, all parts, such as saddle nose joint, brake and gear-rod joints, etc., should receive a few drops of oil occasionally, particularly in bad weather.

INLET ROCKERS.

The screw lid of the lubricators fitted to the aluminium cap on the inlet domes should be unscrewed about once every 500 miles and a small quantity of engine oil injected by means of the self-filling oil injector provided.

TO LUBRICATE BRAKE DRUM BEARING.

On models prior to 1923, no provision (other than dismantling) has been made for the lubrication of the above, which is of the frictionless double roller type and being packed with grease during assembling, in the ordinary course of events no further lubricant should be required.

It should be explained that the primary object of this grease is to prevent the formation of rust or the entry of water. However, cases

having been brought to our notice of this becoming dried up by heat generated by frictional end thrust on the rollers caused by excessively loose adjustment of the rear wheel bearing, it has been considered advisable to provide some easy means of injecting fresh grease. A small hole is therefore drilled through the inner end of the roller sleeve or spindle (exposed by the removal of rear wheel) through which grease may be forced by means of the injector provided in tool kit. Owners are warned, however, against adding grease to this bearing unless some signs are evident that same is needed, such as squeaking, etc., as an excess of lubricant may find its way into the brake drum interior and render the rear brake inefficient in action. Injector $\frac{1}{3}$ full is ample if and when required (Foliac Grease recommended).

ADJUSTMENTS.

ENGINE.

To Adjust Exhaust Tappet. Hold tappet head (large hexagon) with medium engine spanner provided, and slack off lock nut securing tappet head with small engine spanner. Then screw down or up, as required, tappet head, until correct clearance is obtained, after which securely lock in position with lock nut.

NOTE.—Correct clearance between tappet head and valve stem when valve is on its seating is .005, approximately the thickness of an ordinary visiting card.

Inlet Tappet. Unscrew the top portion of tappet rod protecting tube from inlet dome by means of the large engine spanner provided, and slide down to expose the adjustable end of tappet rod. Then holding top portion of tappet rod with adjustable spanner, slack off with small engine spanner the lock nut securing this part to the screwed end of tappet rod. Then holding tappet rod itself by means of a piece of wire (French nail will do) passed through the hole in same provided for the purpose, screw the top part up or down as required until the correct adjustment has been obtained (see below). Then secure the top part with the locking nut. Before fixing top of protecting tube it is advisable to inject into tube a quantity of engine oil with injector provided.

NOTE.—Correct clearance of inlet tappet when engine is cold is the nearest approach to nil possible without actually touching, *i.e.*, no up and down movement should be obtainable, but tappet should be capable of being revolved freely.

This adjustment, if extreme silence of valve gear is desired, must be most carefully carried out.

TO ADJUST VALVE LIFTER WIRE.

Slack off small lock nut securing valve lifter outer casing stop, and screw the stop out until correct adjustment is obtained.

NOTE.—This adjustment can be made at either end of the outer cable, and care must be taken when adjusting to see that the valve tappets are quite free when valves are down on their seatings.

TO REMOVE INLET VALVES.

First remove sparking plugs and petrol pipe. Then unscrew inlet pipe nuts and remove inlet pipe and carburettor complete.

NOTE.—Care must be exercised to prevent damaging inlet pipe washers. Then remove lubricators in aluminium inlet dome covers and unscrew top portions of inlet tappet rod protecting tubes, after which force the top portion of these tubes down into the lower larger portion to which they are attached. Then remove the four nuts holding down each inlet dome. Then unscrew the tappet rod protecting tubes from the tappet guides, and while, at the same time, raising inlet dome a little, raise the tube and tappet rod together until the bottom end disengages from the socketed end of tappet when both rod and tube can be taken away.

NOTE.—Owing to the inaccessibility of the hexagonal part of bottom protecting tube, when magneto chain case is in position, it will be found quicker to slacken these tubes, or at least the back one, by means of pliers gripping the tube while revolving. Once slackened a trifle these tubes can be unscrewed with the fingers. After these tubes and rods have been taken away the inlet domes can be lifted off, exposing the inlet valves and seatings. These seatings will probably be found somewhat firmly fixed with deposit. To remove, press down the inlet valve stem with a lever underneath tank supporting tube, and suddenly release the pressure by sliding the lever off end of valve stem. The resultant jar, if repeated, will rapidly raise the most stubborn seating. Under no circumstances whatever should the valve seat be prised out of position with a screw driver or other instrument, the inevitable result of which is a damaged edge and consequent airleak, which will seriously affect slow running and carburation generally.

TO REMOVE CYLINDERS.

Proceed as above (To Remove Inlet Valves). Then unscrew exhaust pipe union nuts and remove oil pipe. Then remove all cylinder holding down nuts and slide out of cable connecting U-piece the nipple of valve lifter wire. (To disconnect this nipple it is necessary to raise the valve lifter levers a little to allow the nipple head to come into line with the wide portion of the T slot in connection piece, when it can be forced through this slot with a small screw driver inserted behind). Then lift off cylinder studs the valve lifter column. Then with back piston at the bottom of its stroke draw off rear cylinder, at the same time tilting backwards and towards the right-hand side of machine. Do not attempt to use any force. The removal of front cylinder is carried out in a similar manner, in this case tilting cylinder forwards and again to the right in the act of removing.

NOTE.—It will probably be found advisable to remove exhaust pipes entirely, and also gear operating rod. No difficulty will be experienced in replacing either, but care must be exercised in refitting gear rod to avoid tightening the yoke end bolts sufficiently to cause any excessive binding or friction. These bolts need to be only just tight enough to prevent any rattle.

The re-assembling should be carried out in the reverse order. Before refitting cylinders, the interior, together with the pistons, should be carefully wiped with a clean calico rag, and afterwards smeared with perfectly clean engine oil. Too much care cannot be exercised to prevent

the admission of any dust or foreign matter, and while on this subject we particularly warn owners against the usual practice of using the top of tank as a resting place for nuts and pins, etc., which can at the least jar fall into crankcase interior while cylinders are removed.

The base of cylinders, just prior to refitting, should be smeared with a little seccotine or quick-drying gold size.

It is advisable not to mix up the parts taken from each cylinder, and, in fact, where convenient, we recommend removing and replacing one cylinder before disturbing the other.

After the whole job has been completed and tappets adjusted if necessary (see Instructions), it is advisable to go over all nuts, particularly cylinder nuts, inlet dome holding down nuts and inlet pipe nuts.

It is also advisable, just prior to fixing the top part of tappet rod protecting tube, to inject into the tube about a tablespoonful of engine oil. This will assist the automatic lubrication of the inlet valve and overhead rocker, obtained by suction.

TO EXPOSE VALVE TIMING GEAR.

First remove front of magneto chain case, then remove the small nut securing the front end of chain case, and after removing the nuts securing both magneto chain sprockets, force off by inserting a stout screw-driver or lever **behind magneto chain case**. Then remove the back portion of magneto chain case, after which remove the five counter-sunk timing cover screws with a stout stiff screw-driver. Then screw both magneto chain case fixing nuts on to the remaining stud, and after locking both nuts together tightly, remove stud by turning by means of the back nut. Then carefully draw off the timing cover by hand.

TO REMOVE CAM WHEEL.

When timing gear cover has been removed revolve engine until the small marks on timing gears coincide, then raise the rear exhaust valve by means of a screw-driver or lever under head of exhaust tappet, and insert between the head of the tappet and the end of its guide the magneto sprocket fixing nut. (This nut will be found of suitable width across flats). It will then be possible to gently withdraw the cam wheel.

NOTE.—Do not use the body of release valve as a support for lever owing to danger of damaging this somewhat fragile part.

TO REPLACE CAM WHEEL.

Hold all four levers up with the fingers, and, at the same time, insert cam wheel with mark on same coinciding with the mark on small pinion.

NOTE.—It is most important that these marks coincide, otherwise the whole valve timing will be upset. It is also important that the timing gear cover screws are tightly screwed down. The edge of this cover should be smeared with seccotine or quick-drying gold size just prior to re-assembling.

TO REMOVE MAGNETO.

Remove magneto chain and sprockets, also magneto chain case. (See To Expose Timing Gear). Then detach the sparking plug cables from sparking plugs and all frame clips. Then remove the two small

bolts securing right side magneto platform bracket to engine cradle, and slack off only the two small bolts securing left side. Then slide magneto along engine plates until midway in adjusting slots, when the whole is free to be lifted clear.

TO RE-TIME MAGNETO.

Revolve the engine by hand until the back piston is approximately seven-sixteenths of an inch from the top of the compression stroke (*i.e.*, the stroke upwards immediately after inlet valve has closed).

NOTE.—To ascertain position of piston, remove compression tap and insert a piece of stout wire, preferably of sufficient length to reach piston when at bottom, then with ignition lever in fully-advanced position, and magneto sprocket loose on shaft (the other sprocket having been previously tightened), turn the magneto armature backwards until the points are just about to break on the No. 1 cam (*i.e.*, when fibre block on bell crank lever of contact breaker is approximately at its nearest position to rear cylinder). Holding carefully in this position tighten up the magneto sprocket nut.

NOTE.—The operation of re-timing magneto, although requiring care, does not in any way justify the alarm with which many novices view it. A good test for correct timing after the foregoing instructions have been carried out is as follows:—

Start up the engine and fully retard ignition. With throttle fully open the engine should run at about 1,000 to 1,200 revolutions per minute, *i.e.*, at about the same speed as at 20 to 25 miles per hour. If any considerable variation to this speed is obtained an alteration in the required direction should be made. When satisfied that magneto timing is correct securely tighten the nuts which fix magneto sprockets, commencing first with the one on the cam shaft.

TO DISMANTLE HUB BEARINGS.

After wheel has been removed (see Removing Wheels), slack off the large octagonal nut securing the right side screwed adjusting ball cap (using special spanner provided). Then using the hooked end of same spanner, turn this screwed cup in a left hand direction until no further outward movement is obtainable, indicating that the threaded cup is entirely clear of threaded hub flange. Then by means of a brass punch slightly smaller in diameter than the ends of hollow wheel spindle, drive the spindle from the left side clear of the metal gland cap washer which is merely a force fit on spindle end. When this washer is disengaged the entire spindle, etc., may be withdrawn, after which the spindle may be driven off the washer at the opposite end in like manner. Upon re-assembling, the balls (each side) may be secured in their respective cups by applying thick grease and the correct adjustment of bearing should be obtained before the gland cap washers mentioned above are again driven on the ends of spindle. It is of the greatest importance that the large octagonal locking nut be securely tightened. A few sharp hammer taps applied to the end of the special spanner being advisable. If the felt washers fitted underneath the metal gland washers show signs of dryness or hardness they should be thoroughly soaked in oil before being refitted, after which the metal washers should be lightly driven down until contact with the felt washer is obtained.

NOTE.—The friction set up by these washers will rapidly wear off and under no circumstances should the adjustment of bearings once correctly obtained be slacked off in an endeavour to reduce this initial stiffness which is of no importance and which, as stated, will rapidly disappear.

TO DISMANTLE BRAKE DRUM BEARING.

Remove rear wheel (see Instructions). Then remove rear portion of chain case and detach connecting link of rear chain.

NOTE.—It is advisable to secure the ends of rear chain after removing link to top and bottom of chain case respectively). Then slack off considerably the large nut securing brake drum centre sleeve with large single end box spanner provided, and after disconnecting rear brake twist the whole assembly until the projection on rear fork end is clear of the slotted hole in brake cover plate in which it operates, when the entire assembly can be drawn backwards clear of the slotted fork end. Then with a lever force the hooked end of brake, pull off spring from the lever, when the cover plate (with bands, etc.) may be lifted off. To expose the brake drum bearing the large screwed cap must be removed by means of a suitable punch, when the centre sleeve and rollers may be withdrawn. To re-assemble it will be found convenient to secure the rollers to the centre sleeve by applying grease, when the whole may be gently forced into position after which the covering cap should be screwed down tightly. When fitting on the cover plate, care must be exercised to ensure proper engagement of the small dowell pin fitted near the centre with the corresponding hole in centre sleeve. The object of this pin it might be explained is to prevent the sleeve turning upon tightening the large nut by which the entire assembly is secured to fork end.

NOTE.—It is of the utmost importance that this large nut is kept securely tightened. (See reference on page 15 Periodical Inspection of Nuts).

TO ADJUST MAGNETO CHAIN.

It will be observed that magneto-chain adjustment is obtained by sliding the magneto back upon the engine cradle plates to which it is attached. Correct chain adjustment is such that when the top of chain is lightly pressed up and down a whip of about $\frac{1}{8}$ to $\frac{1}{4}$ inch is obtained.

TO INSPECT GEAR BOX INTERIOR.

To remove gear-box end plate for examination of gears remove the aluminium cap covering kickstarter ratchet pinion, then take off the small nut on the end of driving shaft and remove spring and ratchet pinion. Then unscrew the ratchet nut (screwed right hand thread). This, with constant use, may have become tightly fixed, and some force may be required to loosen. Then remove kickstarter crank and spring, and all nuts securing end plate. Then draw off valve lifter lever, and cable attachment, after which the end plate may be gently forced off, leaving the gears exposed.

NOTE.—While the end plate is being removed a pan or some receptacle must be placed underneath to catch the oil, the bulk of which will run out. When re-assembling, the faces of the end plate and gear box must be thoroughly cleaned, and a new paper washer used if the old one has been damaged. Preferably coat with quick-drying gold size.

GEAR ROD ADJUSTMENT.

Should any tendency develop on the part of top or bottom gears to jump out of engagement, the adjustment of gear rod must be at once inspected. This rod must be adjusted each time an alteration is made to the position of gear box (see Front Chain Adjustment). To test for correct setting of gear rod proceed as follows:—

Put back stand down (see Instructions to Remove Rear Wheel) and remove the bolt from top of gear rod and gently pull the rod upwards, at the same time moving rear wheel to and fro until the top gear is engaged. Then holding the rod in this position move the gear lever into top gear position, and alter the length of rod by screwing same in or out of the cross head on gear-striker lever as the need may be, until the rod is of correct length to allow the bolt at the top end being introduced without any pull on rod being required. Before fixing this bolt, test in low gear in a similar manner and halve any inaccuracy, that is to say, if the rod is found to be long when offered up in low gear position, but correct in top gear, it should be shortened to make the inaccuracy equal in each. Mention is made of this owing to the fact that in order to provide for wear on the numerous joints, the gear lever is given slightly more movement than necessary when new. This excess of movement is taken up by the buffer spring box made integral with the gear rod, and primarily intended to facilitate noiseless gear changing.

CLUTCH ADJUSTMENTS.

When delivered the clutch will be found to possess a comfortable margin of grip. Slight adjustment either way can be effected by tightening or slackening the spring pressure, as may be desired. Should the clutch develop a tendency to slip under full load, the adjustment of the clutch pedal ball thrust races must first be suspected (see Adjustment of Clutch Pedal Bearings). If this adjustment is found O.K. remove the top portion of front chain case, and with the special tubular box key and tommy provided tighten in turn each of the six clutch spring nuts about half of a turn only, after which give another trial. This may be repeated if found necessary, but under no circumstances should these nuts be screwed up sufficiently to prevent the clutch effectively disengaging. Should the clutch on the other hand, develop a tendency to become harsh in action, although properly lubricated (see Oiling Instructions), the clutch spring nuts should be carefully slacked off in turn not more than one complete turn between each re-trial.

NOTE.—It is important that care is exercised in each of these operations to adjust each of the six nuts a similar amount. To re-set after complete dismantling screw each nut up in turn until considerable resistance is felt, indicating that spring is completely compressed, after which slack out four complete revolutions each nut in turn.

CLUTCH PEDAL ADJUSTMENT.

When the clutch pedal thrust races are correctly adjusted there should be a distinct free movement of the pedal portion before the resistance of the spring pressure is felt. Should this free movement not be apparent, remove the screwed end cap (containing oil reservoir and tube), also remove, the outer left-hand threaded nut that the removal of the end

cap will expose (Part No. H.G. 20). Then remove the washer under this nut and carefully slack off the inside left-hand threaded nut not more than half-a-turn before re-trial. Then replace the special washer and outer nut, securely locking the latter in position. Repeat if found necessary, after which replace end cap, leaving oil hole uppermost.

POSITION OF CLUTCH PEDAL.

The clutch pedal should be set to allow the rider to control the movement of same in its entire range with both heel and toe. When delivered it is set suitable for a person of average height but if found inconvenient to operate as described, slack off the top nut on anchoring rod and revolve pedal to the desired position. A much easier and finer clutch manipulation will be obtainable with the clutch pedal set correctly. The anchor rod nut referred to does not need excessive tightening.

TO ADJUST FRONT CHAIN.

Slack off the nuts securing the top ends of gear box straps, and using the kickstarter crank as a lever, revolve the gear box in its housing in the required direction (viz., backwards as in starting the engine for tightening, and the reverse direction for slackening). Care must be taken after adjustment has been made to securely tighten the gear box strap nuts. Correct adjustment of the chain should allow a movement of $\frac{3}{8}$ in. to $\frac{1}{2}$ in. when chain is pressed up and down. This may be ascertained from inspection hole in chain case immediately opposite the top side of chain.

IMPORTANT NOTE.—Owing to the method of obtaining chain adjustment by revolving gear box, the gear operating rod must also at the same time be adjusted to correct length for each such adjustment. (For instructions see Gear Rod Adjustment).

TO ADJUST REAR CHAIN.

Put down rear stand (see Instructions to Remove Rear Wheel) and slack off **large nut only** on the left side of rear wheel, and also the large nut on right side. Then screw up an equal amount each side chain adjuster nut (*i.e.*, small nut at end of fork end) until a whip of $\frac{3}{8}$ in. to $\frac{1}{2}$ in. is obtained by pressing chain up and down. This may be ascertained through inspection hole in side of chain case. In making this test, tension of chain should be tried in a number of places, and the correct adjustment obtained for the tightest place. When correct adjustment has been obtained securely tighten each of the large nuts.

NOTE.—Before tightening rear chain the adjustment of front chain should be inspected, and if attention to each is required the latter should be treated first.

TO ADJUST FRONT FORKS.

Adjustment of Front Fork Spindles for Side Wear. The need for adjustment at this part will be apparent by a creaking noise when steering head is turned abruptly with machine stationary, and such adjustment should be carried out as follows:—

First ascertain which spindle or spindles require adjustment, then slack off grease cap and securing nut of same side slightly, and also slack off large nut on opposite side. Then to tighten turn the spindle itself in a left-hand direction not more than half a turn at one time, and while still holding spindle tighten the small nut and grease cap, after which large lock nut should be secured. Care is necessary in this operation to guard against over tightening when the fork will be stiff in action, and will most likely refuse to function.

TO ADJUST STEERING HEAD.

The steering head should be occasionally tested for adjustment by exerting pressure upwards from the extreme tips of the handlebars. Should any shake be apparent slack off handlebar clip bolt and tighten down the large nut which encircles the handlebar stem until all signs of slackness have disappeared, after which securely tighten clip bolt nut.

NOTE.—Want of adjustment will also make itself felt by a distinct tendency of the front wheel to wobble when the hands are removed from handlebar.

TO REMOVE REAR WHEEL.

Put down rear stand. (The easiest method of lifting rear of cycle on to stand is to hold the cross bar of stand with the left foot and raise the weight of cycle from the lower pair of mudguard stays, which latter are amply strong enough to allow of this treatment. Mention is made of this method owing to the fact that most motorcyclists lift the rear of cycle from the luggage carrier, and on account of the height of this part of the Model "H/2" lifting from same is very difficult). Entirely remove the small nut on left-hand end of spindle and slack off only the right-hand side large nut. Then turn the spindle until the handle on same is in line with the slot in fork end, in which position it can be easily withdrawn and the wheel removed without disturbing transmission in any way. To replace, hold the wheel up until the spindle can be inserted to carry the weight, then turn the wheel slowly, and at the same time force over towards the transmission side until the driving dogs engage, then holding the handle of spindle in line with the slot in fork end, push right home. Then give the spindle a quarter of a turn, when the handle will be across the slotted fork end, and holding in this position replace small nut on left hand side and securely tighten large nut on right hand side.

NOTE.—It will be found advisable to hold the right hand side chain adjuster tight against the inside of fork end while the flattened collar on spindle is being passed through.

TO REMOVE FRONT WHEEL.

Put down front stand. Remove the small split pin securing the front brake rod to the lever on front brake drum and withdraw the yoke end pin. Then remove the wheel axle nut, washer and pull out the wheel axle when the wheel is free to fall out of position.

TO REMOVE SIDE WHEEL.

Put down side stand only. Remove nut and washer from spindle end and withdraw, when wheel is free to be removed.

NOTE.—When replacing fix wheel with driving dogs on left side as seen when seated.

TO ADJUST WHEEL BEARINGS.

A periodical examination of wheel bearing adjustment should be made when machine is on the stands, and any wheel requiring attention should be removed (see Removing Wheels). The large octagonal lock nut should then be slacked off with the special spanner provided, and the threaded cup turned with the hooked end of spanner in a right-hand direction, until all shake is taken up, after which the locking nut must be securely tightened after which the adjustment of bearing should be verified.

NOTE.—It is advisable to tap the spanner with a small hammer when tightening this large nut to guard against any possibility of same slacking off in use.

STANDS AND MUDGUARDS.

Owing to the very rapid movements of the spring frame and forks, considerable strains are imposed on the mudguards which must necessarily be attached to unstrung parts, and must always remain radial with the wheels. To obviate any mudguard breakages exceptionally robust guards are fitted in addition to enormously strong stays. As a further precaution all the stands are fixed both to frame ends and mudguards in such a manner as to help support the latter instead of remaining a dead weight on them as is usual. It is, therefore, of great importance that the stands themselves should be kept tight, and also that the stand-clip-screws are carefully tightened down after use (but not excessively). In each case the stand fixing bolt is provided with a locking nut, and we particularly recommend that these bolts and nuts be inspected occasionally and if necessary screwed in until the stand is quite stiff to operate. This care, in addition to having the desired effect as regards mudguard support, will prevent any stand rattle which is common to many machines.

PERIODICAL INSPECTION OF NUTS (IMPORTANT).

It is advisable to periodically run over all important nuts. Much valuable time may be saved by a few minutes so spent at various intervals. The most likely parts to be requiring attention are given below in your own interests.

All wheel axle nuts, large nut securing brake drum centre sleeve, all mudguard nuts, engine bolt nuts, large nuts securing screwed yoke ends on sidecar stays and connections, all stand bolts and nuts.

STEERING PULLS TO THE LEFT.

Occasionally, owing to the settling down of the springs, a slight tendency to draw to the left may be noticed.

NOTE.—This will be evidenced by releasing the handle bars for a second when riding on the crown of the road. Beyond a slight additional front tyre wear, the effect will perhaps not be noticeable. The remedy is, however, simple, and is as follows :

Remove the bolt securing the top yoke end of back and side wheel arch truss to the top of rear wheel vertical arch. Remove also the two bolts securing each side stay at its lower end, *i.e.*, where connected to the sidecar chassis. Then slack off considerably the two large main sidecar connections and slack off also the large nut securing the screwed yoke end

of the top member of truss (bolt of which has already been removed), then strain the cycle away from sidecar until this yoke end is clear of the eye piece to which it is attached, and then unscrew the yoke end itself not more than two complete turns. Then replace the top bolt and securely lock the yoke end with the large nut by which it is secured. The two main connection nuts may then be tightened and adjustment made, if necessary to the length of the two sidecar stays to allow the bolts to pass through the bottom yoke ends without strain. If any adjustment is made to the length of these rods, the screwed yoke ends must be securely locked in position before leaving, with the lock nuts provided.

CLEANING.

If the machine is used to any extent in bad weather, for mud removing a small hose is almost indispensable, but when using same care should be exercised not to direct water on to the engine and magneto or other such parts. If a hose is not available, soak dirt with paraffin before removing. Do not attempt to rub or brush mud off an enamel surface, when dry, or the polish will soon be destroyed. For engine, magneto, etc., a good stiff paint brush and a pot of petrol is preferable. Care should be taken with the sidecar body, which should be treated in the same manner as a carriage. The dirt, whether mud or dust, should be washed off gently with a soft sponge, and when clean wiped off with a wash leather. To improve the polish a little linseed oil should be used occasionally, afterwards polishing with a soft cloth.

EXHAUST VALVE STICKING OR SLUGGISH IN ACTION.

Owing to the common tendency to over oil, it occasionally happens that one or other of the exhaust valve stems will collect sufficient deposit of congealed oil to cause sticking or sluggish action when engine is cold. Generally after a few seconds' running this deposit softens sufficiently owing to the heat, to allow the valve to operate normally. This trouble, although not of much importance, should not be ignored. A simple remedy is to obtain a stiff brush, and while the engine is running, hold the brush soaked with paraffin against valve spring. The paraffin will be carried up the valve guide, and will rapidly soften the congealed deposit. If necessary, this operation should be repeated until no valve sticking is noticeable when starting engine from cold. Any accumulation of oil or deposit on valve springs or valve stems should be washed off occasionally with a stiff brush and a little petrol.

INFLATION OF TYRES—(IMPORTANT).

The front and sidecar tyres should not be blown up too hard, but should be soft enough for the load of machine and passengers to make quite an appreciable flattening of that part of the tyre which bears the load. The back tyres should be harder to prevent the possibility of the tyre creeping, and should be sufficiently hard for the load to make hardly any discernable flattening. Care should be taken to keep the security bolts in all tyres tightened up.

STOPPAGES AND THEIR CAUSES.

ENGINE SUDDENLY STOPS. Probable cause :—

Petrol low in tank.
Dirt in petrol pipe.
Choked jet.
Water in float chamber.
Choked petrol tap.
Air lock in tank.

ENGINE RUNS BADLY. Probable cause :—

Valve sticking.
Weak valve springs.
Plug points too close.
Water on plugs.
Air leakage (due to nuts of inlet pipe or carburettor being loose).
Paraffin in petrol or bad petrol.
Valve seating badly burnt.
Sooty plugs.
Faulty magneto contacts.

ENGINE WILL NOT START. Probable cause :—

Valve or valves stuck up.
Contact breaker arm stuck.
Water on plugs.
Choked jet.
Valves stretched and not seated properly.

LEGAL MATTERS.

To comply with the law relating to motorcycles the owner of a "Matchless" Model "H/2" must :—

1. Hold a driver's licence, which can be obtained from the Chief Constable or Corporation of a County Borough, or from the County Council. The charge for this licence is 5/- yearly, and must be renewed annually from the date of issue. A motor-car driver's licence covers the driving of a motorcycle.
2. Apply to the Taxation Department of the Local Authority of the district in which the vehicle is to be ordinarily kept, for Inland Revenue Licence and Registration Form RF 1/2 (Motorcycles only). The address of the above Taxation Department can be obtained by enquiry at a Post Office.
3. The form RF 1/2 when obtained must be filled in and returned, accompanied by a remittance of £4/0/0, and in some districts evidence that the vehicle to be licensed is new and has not previously been registered may be demanded. Manufacturers' or Agents' invoice will serve.
4. See that his front plate is illuminated at night on both sides. See that his machine, if used with sidecar, is provided with a lamp on the extreme side of same showing a light forward, and is also provided with a lamp which shows a red light to the rear. The law regarding this latter does not state any particular place on which the rear lamp must be fixed.

5. Never drive at a speed which is dangerous to the public.
6. Whenever necessary, give audible and sufficient warning by horn or other instrument of the approach of his motorcycle.

For registration purposes, the following particulars will be required :—

Weight of cycle unladen	... ..	380lbs.
Weight of sidecar (if requested only)	... ..	220lbs.
If sidecar is detachable (if requested only)		Yes.
Description or type of motorcycle	... ..	“ Matchless ” Motor- cycle.
Position of front number plate	... ..	On front mudguard, visible from either side.
Position of rear number plate	... ..	On back end of carrier behind saddle and visible from the rear.

GUARANTEE TERMS AND CONDITIONS.

We give the following guarantee with our motorcycles instead of the Guarantee implied by statute or otherwise as to the quality or fitness of such machines for the purpose of motorcycling, and such implied Guarantee being in all cases excluded. In the case of machines which have been used for “ hiring out ” purposes, or in respect of which our trade mark or manufacturing number has been removed, no Guarantee of any kind is given or is to be implied.

WE GUARANTEE, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship ; but this Guarantee is to extend and be in force for six months only from the date of purchase, and the damages for which we make ourselves responsible under this guarantee are limited to the replacement of any part which may have proved defective.

WE UNDERTAKE, subject to the conditions mentioned below, to make good at any time within six months any defects in these respects. As motorcycles are easily liable to derangement by neglect or misuse, this Guarantee does not apply to defects caused by wear and tear, misuse or neglect.

Any motorcycle sent to us to be plated, enamelled or repaired will be repaired upon the same conditions as if it were a new motorcycle, *i.e.* We Guarantee that all precautions which are usual and reasonable, have been taken by us to secure excellence of material and workmanship, such Guarantee to extend and be in force for three months only from the time such work shall have been executed, and this Guarantee is in lieu, and in exclusion, of any common law or statute warranty, and the damages recoverable are limited to the cost of any further work which may be necessary to amend and make good the work found to be defective.

CONDITIONS.

If the defective part should be found in our motorcycles it must be sent to us, carriage paid, and accompanied by an intimation from the sender that he desires to have it repaired free of charge under our

Guarantee, and he must also furnish us at the same time with the number of the machine, the name of the Agent from whom he purchased, and the date of purchase.

Failing compliance with the above no notice will be taken of anything which may arrive, but such articles will lie here at the risk of the senders ; and this Guarantee, or any implied Guarantee, shall not be enforceable.

We Guarantee only those machines which are bought either direct from us or from one of our duly authorised agents, and under no other conditions.

We do not guarantee the specialities of other firms, such as tyres, saddles, chains, lamps, etc., or of any component part supplied to the order of the purchaser differing from our standard specification supplied with our motorcycles or otherwise.

THE TERM "AGENT."

is used in a complimentary sense only, and those firms whom we style our agents are not authorised to advertise, incur any debts or transact any business whatsoever on our account other than the sale of goods which they may have purchased from us ; nor are they authorised to give any warranty or make any representation on our behalf other than those contained in the above Guarantee.

MACHINE NUMBERS.

The frame number will be found on the right hand side of the seat lug of the frame.

The engine number is stamped on the left side of the crank case immediately under the foot of the front cylinder.

The sidecar frame number will be found stamped on the front spring pad lug.

INTRODUCTION.

We have pleasure in presenting this Spares List for the " Matchless " " H/2 " Combination 1920-1924 Models.

Every part likely to be required can readily be found by reference to illustrations contained herein.

Every part has a distinctive number, and care should be taken to order correct part, calling same by the name specified, and giving the part number.

Read carefully rules on pages 20 and 21.

We are at all times willing to give estimates for parts or repairs and also give to all customers the benefit of our advice regarding any query.

H. COLLIER & SONS, LIMITED.

TERMS OF BUSINESS.

Our invariable rule in this department is nett cash with order. Remittance to £1 in value may be sent by Postal Order, but over this amount it is advisable to remit by cheque. Cheques to be made payable to H. Collier & Sons, Ltd., and crossed. When making remittance by Telegraph Money, the name and address of sender should be included, as unless this is done, the Post Office do not give this information in the telegram. We frequently receive Telegraph Money Orders without sender's name with the result that we cannot trace from whom the amount is sent, and we have to wait until customer writes complaining about delay before the matter can receive any attention. If remittance is not sufficient to pay for postage or carriage, goods will be sent "carriage forward" (Goods train).

All repair accounts are strictly cash before delivery.

The Prices in this list are subject to alteration without notice.

DEPOSIT ACCOUNT.

We strongly advise all owners of "Matchless" motorcycles to take advantage of our "Deposit Account System." It often occurs that parts are required by return, but customer not having a current account, there is the inevitable delay of "pro forma" invoice being sent, and we have to wait receipt of his remittance before the goods can be despatched. This delay causes considerable inconvenience to the party concerned, and can be avoided by opening a Deposit Account.

A remittance of not less than £4, entitles a customer to this form of account, and when goods are ordered by 'phone, telegram or letter they will be despatched at the earliest possible moment by the quickest route. Invoices will be sent for all goods supplied, and a statement will be rendered showing amount of deposit in hand when required, and all customers will be notified immediately their deposit becomes exhausted, so that they may renew same. We are at all times prepared to return balance of deposit upon request.

Kindly note, when ordering, to mention "Deposit" or quote reference as shown on monthly statements.

REPAIRS.

In case of extensive structural repairs being required, we strongly advise all owners to send machines to our works for attention. It is obvious that manufacturers can do this kind of work better than any general repairer.

OVERHAULING.

When sending us a complete motorcycle, engine, gear box or other part with the request that we overhaul same, we understand by the term "overhaul" that it is to be entirely dismantled, thoroughly renovated, any worn part renewed and put in perfect working order. In case a customer desires only certain parts attended to, explicit instructions should be given us to that effect, otherwise cost may be far in excess of what is anticipated.

ESTIMATES.

It is becoming a general practice for customers when sending their engines or complete motorcycles to us for repairs, to request a detailed estimate for the necessary repairs before proceeding with the work.

We are always pleased to furnish these estimates, but it must be distinctly understood that only approximate quotations can be given, as, when re-erecting, it is often found that other repairs or new part are necessary, which it was impossible to locate when dismantling.

In some instances, when an estimate has been submitted, several of the items quoted for are questioned as being unnecessary or not required. We may say that we only include in our quotation new parts and repairs that we consider essential to make the machine suitable and satisfactory for the road.

We much prefer not to undertake a repair (neither do we accept any responsibility) when the estimate for same has been curtailed by the owner, as the parts he may delete are probably the most important to obtain good results.

If an estimate is not accepted, *i.e.*, the parts returned to the owner in their original condition, a nominal charge is made for taking down and re-assembling.

All repair accounts are strictly cash before delivery.

RULES TO BE OBSERVED.

1. Parts sent to us for repair, replacement, or as pattern must bear distinctly sender's full name and address. Instructions regarding same must be sent under separate cover, otherwise goods may lie at our works and not be unpacked until instructions regarding same are received.

2. All goods must be consigned to us carriage paid.

3. Do not enclose cash (whether in the form of coin or paper) with goods. Remittance should be sent by letter post for your own protection.

4. Customers having no account with us should not fail to remit at the time of order and also to include postage.

5. When customer has no account, a Telegraph Money Order will ensure immediate attention.

6. When making enquiries respecting any part on order or repair it is advisable to quote date of order.

7. In case of doubt regarding correct name of part required it is advisable to send old part as pattern.

DAMAGE IN TRANSIT.

Our responsibility ceases when goods leave our works, and claims must be made on carriers in the event of damage occurring in transit. All goods easily damaged by rough handling are consigned (when by rail) at Railway Company's Risk, and all complete combinations consigned by rail, whether crated or otherwise, are, until present conditions of transport improve, insured against damage in transit. Any such damage should be immediately reported.

NOTE.—By Railway Companies special regulations, unless damage in transit is reported within three days from receipt of goods, no claim can be entertained.

ENGINE PARTS.

A.

				£	s.	d.
Axles (see flywheels)			

B. BUSHES.

201W.	Bush for timing gear side	...	...	9	2	
202V.	Bush for transmission side	...	...	9	2	
732I	Bush for big end (connecting rod)	...	...	9	2	
728E.	Bush for camshaft (cover side)	...	...	3	4	
729E.	Bush for camshaft (crankcase side)	...	...	3	1	
732H.	Bush for gudgeon pin	...	...	3	2	
9032H.	Breather or release valve (see P. 27)	...	...	

C.

205/0	Cylinder (rear)	...	...	3	12	0
205/0A.	Cylinder (front)	...	...	3	12	0
210E.	Cylinder holding down stud (short)	...	...			6
210F.	Cylinder holding down stud (long)	...	...			6
208B.	Nut for ditto	...	...			4
193A.	Cylinder screwed plug (opposite sparking plug)	...	...	1	5	
S.P.1A.	Cylinder screwed under plug C. and A. washer	...	...			2
295H.	Cylinder union nut for exhaust pipe	...	...	2	4	
295Q.	Cylinder union nut for inlet pipe	...	...	2	4	
4I	Cylinder dome (see inlet P. 26)	...	...	
H.E. 48	Cylinder compression tap (washer for tap 2d.)	...	...	2	6	
196P.	Crankcase complete fitted with bushes 202V, 201W and 729E. per pair	...	...	9	10	9
246	Crankcase bolt (small short)	...	...			7
246A.	Crankcase bolt (small long)	...	...			7
208	Nut for ditto (each)	...	...			4
191P.	Connecting rod (middle) less bush	...	...	1	4	8
191P.	Connecting rod (forked) less bush	...	...	1	7	0
9045D.	Connecting rods complete with bushes 732H and 732I	...	...	3	10	10
717G.	Camshaft (see timing gear P. 31)	...	...	

D.

222D.	Dome for inlet valve (see inlet P. 26)	...	...	
	Drain plug for crankcase	...	...			7

E.

	Engine bolts (see engine plates P. 31)	...	...	
	Exhaust valves (see valves P. 30)	...	...	
	Exhaust pipes (see silencer P. 27)	...	...	
	Exhaust tappets (see tappets P. 27 & 30)	...	...	

F.

FLYWHEELS AND AXLES, ETC.

258L.	Flywheel (either side)	I	7	10
187M.	Flywheel axle (timing gear side)		9	2
188X.	Flywheel axle (transmission side)	10		8
198E.	Key for flywheel axles (each)			4
186E.	Flywheel crank pin	8	11	
209I	Flywheel axle or crank pin nut (R.H. thread)		1	0
209H.	Flywheel axle or crank pin nut (L.H. thread)	1		0
250A.	Locking screw			2

G.

189L.	Gudgeon pin (only)	3	4	
9044C.	Gudgeon pin complete with caps	4	2	
698C.	Gudgeon pin cap only (each)			5
732H.	Gudgeon pin bushes (see bushes P. 25)			
214G.	Guide for inlet tappet	3	10	
214H.	Guide for exhaust tappet	3	10	

I.

4I	Inlet dome	18	3	
957	Inlet dome aluminium cover	3	2	
958	Inlet dome aluminium cover fixing screw (each)			3
9059	Inlet dome aluminium cover lubricator			9
955E.	Inlet dome holding down stud (each)			5
675A.	Nuts for same (each)			3
893	Inlet dome overhead rocker	5	9	
894	Inlet dome overhead rocker axle	1	9	
895	Locking screw for same			2
242/0	Inlet valve, etc. (see valves P. 30)	5	6	
896M.	Inlet tappet rod (long bottom portion)	3	0	
244R.	Inlet tappet rod (top short portion)	2	7	
675A.	Locking nut for top short portion			4
896M.R.	Inlet tappet rod complete (assembled)	5	9	
244S.	Inlet tappet	2	7	
9064C.	Inlet tappet rod protecting tube complete	8	1	
897E.	Inlet tappet rod protecting tube (bottom part only)	3	5	
897H.	Inlet tappet rod protecting tube (top part only)	4	8	
510A.	Inlet tappet rod protecting fibre washer (each)			2
H/2E.	83 Inlet pipe with union nuts	10	1	
H/2E.	84 Inlet pipe tubular nipple (each)	1	0	
H/2E.	103 Inlet pipe Hallite washer (each)			2
295Q.	Inlet pipe union nut (each)	2	4	
H/2E.	85 Inlet pipe clip bolt (each)			3

K.

198A.	Key for small timing wheel	...	...	...	4
198E.	Key for big end bush	...	...	...	4
198F.	Key for flywheel axle	4

M.

Magneto parts (see magneto P. 46)

O.

222D.	Oil drain plug for crankcase	7
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P.

220/2	Piston only (front)	15	8	
220/A.	Piston only (rear)	15	8	
220/0 E.	Piston complete with gudgeon pin and rings	1	3	0
240E.	Piston ring (each)	...	...	...	1	7
189L.	Gudgeon pin (see P. 26)	...	...	...	3	7
9044C.	Gudgeon pin complete with caps (see P. 26)	...	...	...	4	2

R.

9023H.	Release valve (complete with pipe)	...	...	...	13	0
9066A.	Release valve body only	...	...	...	5	9
151F.	Release valve cap only	...	...	...	1	3
693A.	Release valve spring only	...	...	...		3
694D.	Release valve diaphragm	...	...	...		3
9047A.	Release valve pipe with top	...	...	...	5	3

S.

S.P.1	Sparking plug with washer	...	...	...	5	0
S.P.1A.	Washer only	...	...	...		2
223H.	Spring for inlet valve	...	...	...		7
223I	Spring for exhaust valve	...	...	...		9
693A.	Spring for release valve or breather	...	...	...		3
445H.	Spring for valve lifter lever (front cylinder)	...	...	...		5
445I	Spring for valve lifter (rear cylinder)	...	...	...		5
H.E.	14 Sprocket for transmission (21 teeth)	...	...	...	7	0
968A.	Sprocket fixing nut	...	...	...	1	0
S.T.D.	15 Lock screw for same	...	...	...		2
H/2E.	89 Silencer case and straps only	...	...	...	5	4
H.E.	7 Silencer end cap (each)	...	...	...	2	0
H.E.	8 Silencer central long bolt	...	...	...	1	1
S.T.D.	4 Nut for same (each)	...	...	...		2
S.T.D.	14 Split pin for securing nuts	...	...	...		1
H/2E.	104 Silencer complete	...	...	...	10	0
H/2E.	86 Silencer exhaust pipe (front cylinder)	...	...	...	2	6
H/2E.	87 Silencer exhaust pipe (rear cylinder)	...	...	...	4	0
295H.	Silencer exhaust pipe union nut (each)	...	...	...	2	4
H.E.	37 Silencer exhaust pipe union nut collar	...	...	...		7
H/2E.	82 Silencer tail pipe	...	...	...	5	10
H.E.	13 Silencer tail pipe clip lug	...	...	...	2	9
H.E.	31 Silencer tail pipe support bolt	...	...	...		10

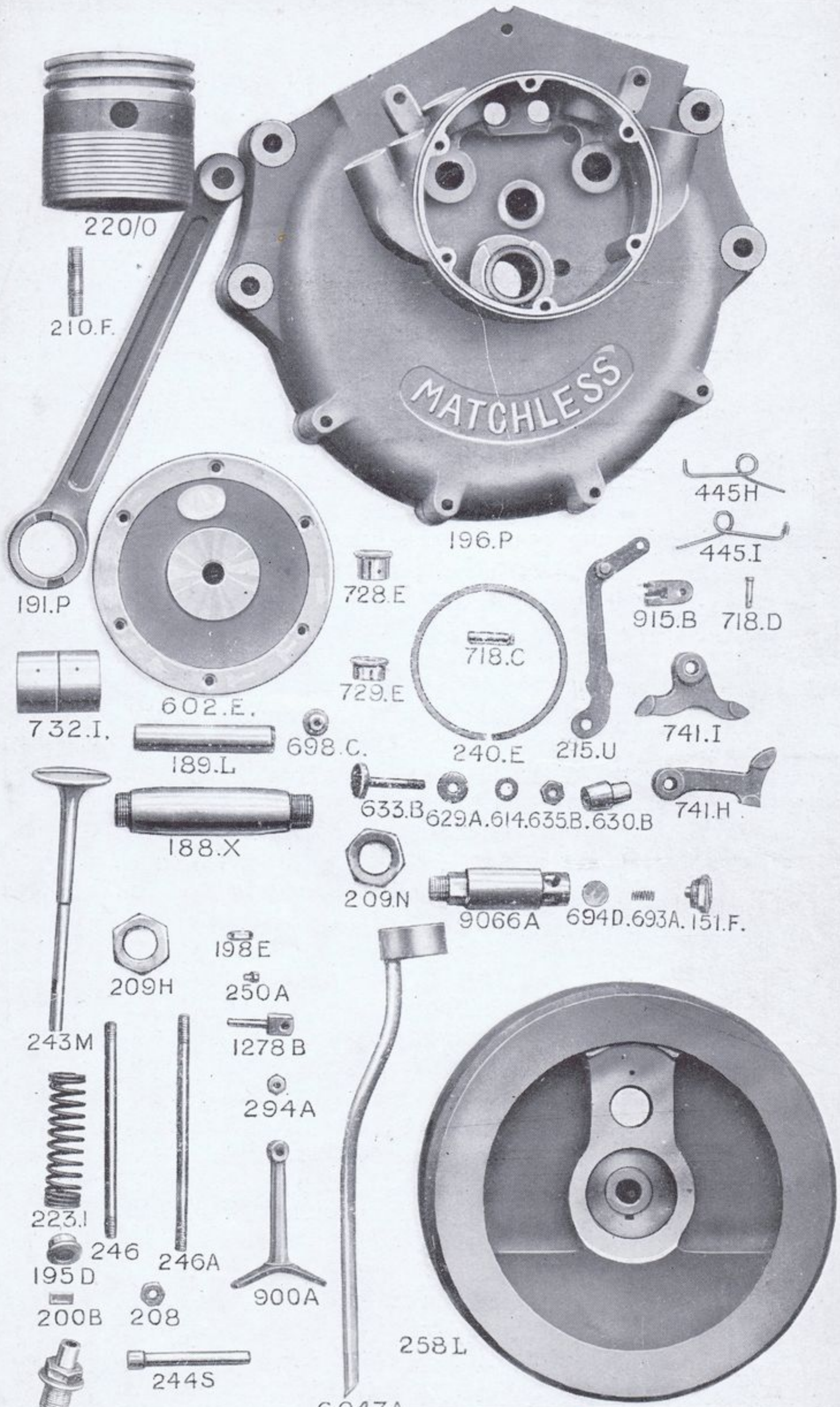
			£	s.	d.
H.E.	22	Silencer tail pipe support bolt long distance piece			10
H.E.	23	Silencer tail pipe support bolt short distance piece			7
S.T.D.	3	Nuts for bolt (each)			3

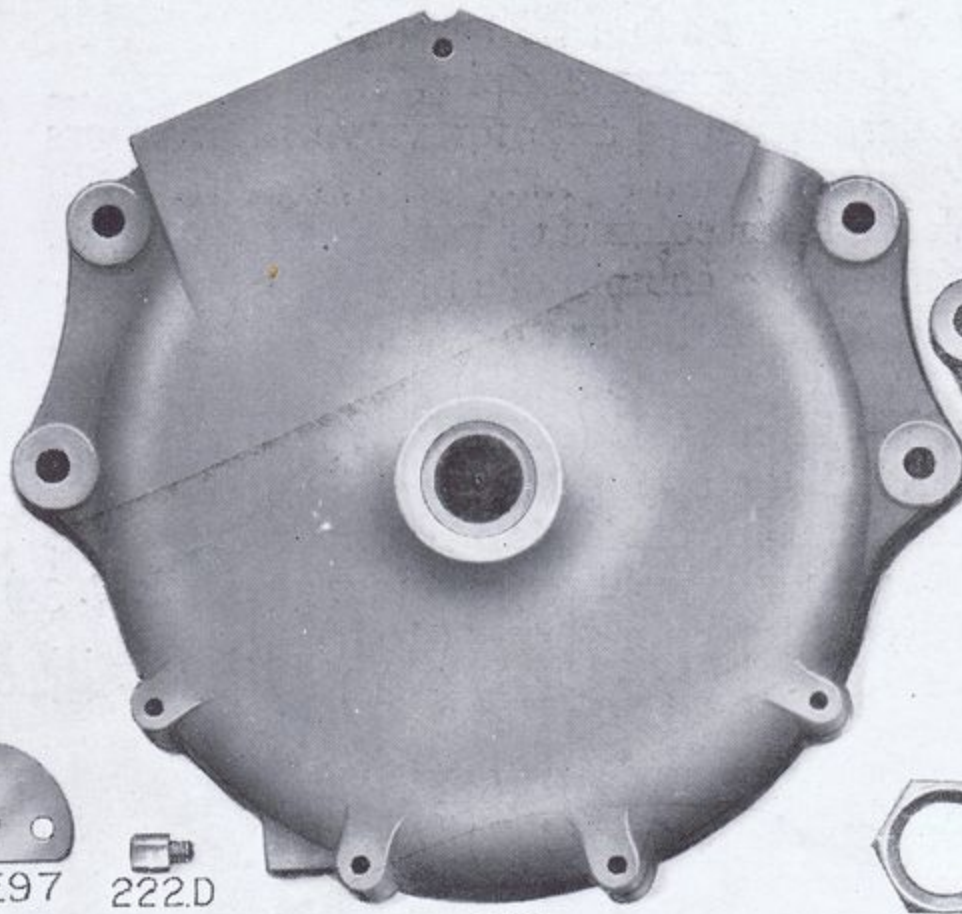
T.

2I4G.		Tappet guide (inlet)	3	10	
2I4H.		Tappet guide (exhaust)	3	10	
244S.		Tappet (inlet)	2	7	
244/M.L.		Tappet (exhaust) complete	4	8	
244M.		Tappet (exhaust) head only	1	1	
675B.		Lock nut for head only			5
244L.		Tappet (exhaust) less head and nut	3	2	
602E.		Timing gear cover	11	0	
728E.		Timing gear cover bush for camshaft (see bushes P. 25)	3	4	
6I7B.		Timing gear cover screws countersunk head, 5 off (each)			3
H/2M.D.	4I	Timing gear cover stud screw (supporting magneto chain case)			7
606B.		Timing pinion (small)	5	10	
256B.		Bolt for securing L.H.			9
198A.		Timing pinion key			3
7I7G.		Timing gear camshaft	1	12	1
294F.		Nut for securing magneto chain sprocket			4
74IH.		Cam lever or rocker (exhaust)	7	5	
74IL.		Cam lever or rocker (inlet)	7	5	
630B.		Cam lever axle only	2	1	
633B.		Cam lever axle fixing bolt	1	1	
635B.		Nut for same			4
629A.		Washer			2
6I4		Spring washer for same			2

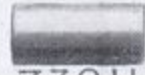
V.

242/0		Valve (inlet) stem only	5	6	
223H.		Valve (inlet) spring only			7
195D.		Valve (inlet) spring cap only			9
200B.		Valve (inlet) cotter only			3
24ID.		Valve (inlet) seating only	7	6	
9038N.		Valve (inlet) complete with seating	14	6	
242/0B.		Valve (inlet) with spring cap and cotter	7	0	
243M.		Valve (exhaust) stem only	6	7	
223I		Valve (exhaust) spring only			9
195D.		Valve (exhaust) spring cap only			9
200B.		Valve (exhaust) cotter only			3
9039		Valve (exhaust) complete with spring, cap and cotter	8	3	
244L.		Valve exhaust tappet (see tappet P. 27)	3	2	
2I5U.		Valve exhaust lifter lever (front) (with link)	2	9	
2I5U.		Valve exhaust lifter lever (rear) (attached)	2	9	





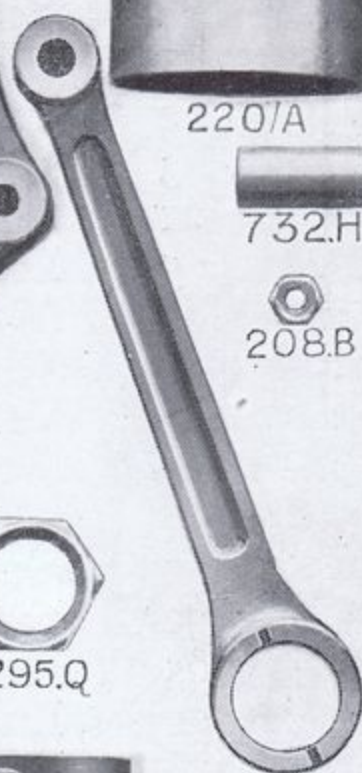
220/A



732.H



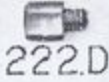
208.B



191.Q



H/2E97



222.D

197.M



295.Q



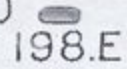
209.0



187.M



893



198.E



209.H



186.E



209.I.



241.D



202.V



201.W



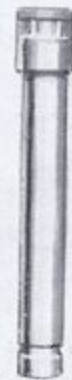
193A



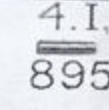
242/0



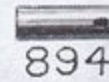
244R



897.H



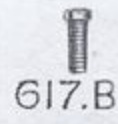
895



894



957



617.B



9059



958



223.H



675A

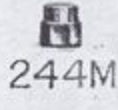


195D

200B



717.G



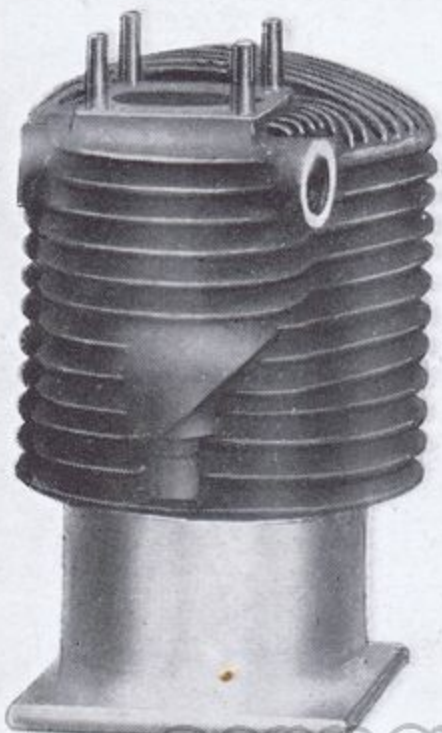
244M



606.B



675B



205.0



214.G



295.H

675A



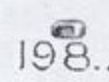
896.M.



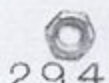
897.E.



256.B



198.A



294.F



244.L



H/2E93

			£	s.	d.
915B.		Valve lifter cable connection U-piece	...		8
718D.		Axle pin for same	...		5
S.T.D.		Split pin for securing pin	...		1
718C.		Fulcrum pin or axle for valve lifter levers			
		(each)	...		10
900A.		Valve lifter column or post	...	3	2
1278B.		Valve lifter column eye bolt	...		9
294A.		Nut for securing same	...		2
H.G.	92	Valve lifter cable (inner)	...		9
H.G.	93	Valve lifter cable (outer)	...	3	3
H.G.	91	Adjusting stop for same	...		8
S.T.D.	5	Lock nut for cable stop	...		2
		(For other valve lifter parts see gear box P. 34)			
445E.		Valve lifter lever spring (front)	...		5
455D.		Valve lifter lever spring (rear)	...		5

ENGINE PLATE.

H/2E.	92	Engine plate (front left)	...	5	6
	92A	Engine plate (front right)	...	5	6
	95	Engine plate (back left)	...	10	4
	90	Engine plate (back right)	...	10	4
H.E.	16	Engine lug bolt, back ($\frac{1}{2}$ in. diameter)	...		8
S.T.D.	1	Nut for same (each)	...		5
H.E.	15	Engine lug bolt, front ($\frac{1}{2}$ in. diameter)	...		8
S.T.D.	1	Nut to same (each)	...		5
H.E.	4	Crankcase bolt for engine plate, back			
		($\frac{3}{8}$ in. dia.)	...		8
S.T.D.	3	Nut for same (each)	...		4
H.E.	20	Spacing collar for same (each)	...		7
H.E.	3	Crankcase bolt for engine plate front $\frac{3}{8}$ in.			8
S.T.D.	3	Nut for same (each)	...		4
H.E.	19	Spacing collar for same (each)	...		7
H.F.B.	4	Spacing tube between silencer supports	...		10

GEAR BOX.

SECTION	H.G.				
H.G.	58	Gear box shell	...	1	10 10
H.G.	59	Gear box end plate	...	18	9
H.G.	34	Gear box end plate stud (short)	...		5
H.G.	35	Gear box end plate stud (long)	...		5
H.G.	37	Gear box end plate paper joint washer	...		1
S.T.D.	5	Gear box end plate stud nuts	...		2
H.G.	43	Special end plate stud nut for anchoring			
		K.S. spring	...		8
H.G.	40	Filling oil plug	...		11
H.G.	41	Drain oil plug	...		8
H.G.	47	Gear striker	...	5	4
H.G.	53	Gear striker lever	...	3	9
H.G.	48	Gear striker key	...		3
S.T.D.	3	Nut securing gear striker lever	...		4
H.G.	51	Gear striker sleeve or bush	...	1	11
H.G.	46	Gear striker gland nut	...	1	11

				£	s.	d.
H.G.	49	Gear striker gland nut lock nut	...			9
H.G.	50	Gear striker felt washer	... ..			1
H.G.	52	Gear striker shoe	... ..		2	11
H.G.	5	Layshaft (complete with bushes)	...	I	9	2
H.G.	6	Layshaft bush only	... ..		2	11
H.G.	7	Layshaft spindle	... ..		5	3
S.T.D.	I	Layshaft spindle fixing nut	... ..			4
H.G.	9	Main driving shaft	... ..	I	1	6
H.G.	2	High speed sleeve pinion	... ..		15	0
H.G.	17	Sleeve pinion sprocket 17 teeth	... ..		9	5
H.G.	17A	Sleeve pinion sprocket 15 teeth for 2-seater	...		9	0
H.G.	I	Sleeve pinion sprocket fixing nut	... ..			10
S.T.D.	15	Lock screw for securing nut	... ..			1
H.G.	70	Large sleeve pinion journal bearing	...		15	0
H.G.	76	Sleeve pinion sprocket key (3 off) each	...			3
H.G.	15	Sleeve pinion oil retaining felt washer	...			6
H.G.	69	Driving shaft journal bearing K.S. end	...		13	3
H.G.	3	Middle sliding pinion	... ..		12	5
H.G.	4	Low speed loose pinion	... ..		7	8
H.G.	48	Driving shaft key	... ..			3

CLUTCH PARTS.

H.G.	95	Clutch driving sprocket (with rings)	...	I	19	8
H.G.	42	Clutch plate front (assembled)	...		18	3
H.G.	98	Clutch plate back (assembled)	... ..		16	8
H.G.	23	Clutch rings (renewed at works only 2 rings)	...	I	5	0
H.G.	36	Nut for securing back clutch plate	...			5
H.G.	28	Clutch spring	... ..			5
H.G.	27	Clutch spring thimble	... ..			9
H.G.	29	Clutch spring stud	... ..			5
H.G.	30	Clutch spring stud nut	... ..			4
S.T.D.	15	Lock screw	... ..			1
H.G.	26	Clutch drawpin nuts (L.H. thread)	...			5
H.G.	25	Clutch drawpin peg washer	... ..			3
H.G.	24	Clutch drawpin (with rivets)	... ..		3	0
H.G.	99	Clutch pedal complete	... ..	I	15	0
H.G.	33	Clutch pedal portion only	... ..		11	5
H.G.	23	Clutch pedal opening sleeve only	... ..		6	6
H.G.	60	Clutch pedal opening sleeve clip	... ..		2	9
H.G.	6I	Clutch pedal anchoring rod (new pattern)	...		4	9
H.G.	109	Anchor rod	... ..		1	0
H.G.	110	Anchor rod eye bolt	... ..		1	0
H.G.	111	Anchor rod yoke end	... ..		1	4
H.G.	112	Anchor rod yoke end bolt	... ..			3
S.T.D.	5	Anchor rod yoke end bolt nut	... ..			2
S.T.D.	4	Clutch pedal anchoring rod nuts	... ..			2
H.G.	74	Clutch pedal end cap (with oil tube)	...		6	10
H.G.	73	Clutch pedal end cap lock nut	... ..		3	4
H.G.	75	Clutch pedal end cap oil hole cover	...			2
H.G.	22	Clutch pedal ball thrust race	... ..		2	4
H.G.	100	Sets of balls (26 in all)	... ..		1	6
		Special Graphite Clutch Lubricant (tin)	...		2	3

KICKSTARTER PARTS.

H.G.	55	Kickstarter crank	17	0
H.G.	57	Kickstarter crank pedal pin	3	8
H.G.	56	Kickstarter crank pedal pin nut		7
H.G.	38	Kickstarter crank fulcrum pin	2	1
S.T.D.	3	Kickstarter crank fulcrum pin nut		3
S.T.D.	10	Kickstarter crank fulcrum pin washer		1
H.G.	45	Kickstarter crank return spring		5
H.G.	39	Kickstarter crank stop stud		10
H.G.	44	Kickstarter crank stop stud rubber buffer		8
S.T.D.	5	Kickstarter crank stop stud nut		2
S.T.D.	12	Kickstarter crank stop stud washer		1
H.G.	11	Kickstarter ratchet pinion	6	4
H.G.	12	Kickstarter ratchet pinion spring		1
H.G.	18	Kickstarter ratchet pinion spring nut		5
H.G.	10	Kickstarter ratchet nut	4	5
H.G.	13	Kickstarter ratchet nut felt washer		5
H.G.	14	Kickstarter ratchet gland nut	1	2
H.G.	54	Kickstarter aluminium cap	2	9
S.T.D.	16	Kickstarter aluminium cap screws		2

KICKSTARTER PARTS VALVE LIFTER.

H.G.	79	Valve lifter lever with stop pin only	3	4
H.G.	82	Valve lifter lever pawl		9
H.G.	85	Valve lifter lever pawl spring		1
H.G.	83	Valve lifter lever pawl stud and bolt		9
S.T.D.	4	Nut for same		2
H.G.	80	Spigot washer for bearing of valve lifter lever		4
H.G.	81	Thick washer for bearing of valve lifter lever		2
H.G.	86	Valve lifter cable yoke end or U-piece		9
H.G.	87	Pin or axle for same		5
S.T.D.	14	Split pin for securing		1
H.G.	88	Valve lifter cable support	1	8
H.G.	91	Cable adjuster attached to same		9
S.T.D.	5	Cable adjuster lock nut		2

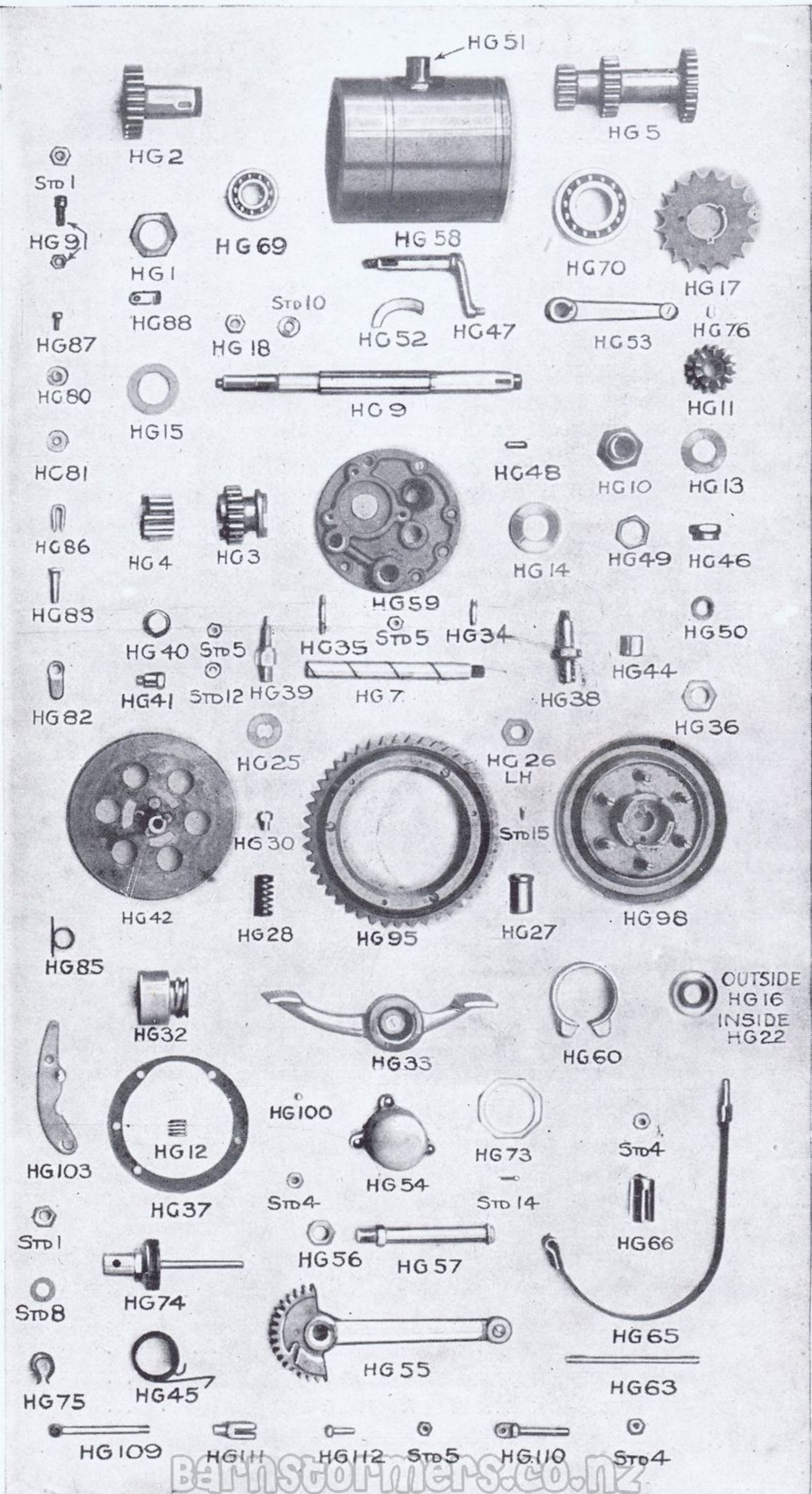
(For valve lifter cable, inner and outer see
Valve lifter parts, page 32).

GEAR BOX FIXING STRAPS.

H.G.	65	Gear box strap only	3	8
H.G.	66	Gear box strap thimble or cap	2	5
S.T.D.	4	Gear box strap nut		2
H.G.	63	Gear box strap securing pin		8
S.T.D.	14	Gear box strap securing pin split pin		1

GEAR LEVER QUADRANT AND ROD.**SECTION H.G.L.**

H.G.L.	1	Top portion gear quadrant (gate)	4	0
H.G.L.	2	Bottom portion gear quadrant	4	0
H.G.L.	3	Gear lever	9	3



					£	s.	d.
H.G.L.	4	Gear lever ball screw	...	...			3
H.G.L.	5	Gear lever ball	...	...		I	3
H.G.L.	6	Gear lever spring washer	...	...			I
H.G.L.	7	Gear lever spring washer cap	...	...			5
H.G.L.	8	Gear lever bush	...	...			II
H.G.L.	13	Gear quadrant bolt	...	...			6
S.T.D.	5	Gear quadrant bolt nut	...	...			2
H.G.L.	14	Gear quadrant fixing stud	...	...			4
H.G.L.	15	Gear quadrant fixing stud nut	...	...			6
H.G.L.	23	Gear rod complete	...	...	II	IO	
H.G.L.	10	Gear rod top portion	...	...			9
H.G.L.	18	Gear rod top yoke end	...	...	I	IO	
H.G.L.	19	Gear rod top yoke end bolt	...	...			4
S.T.D.	5	Gear rod top yoke end bolt nut	...	...			2
H.G.L.	11	Gear rod spring box or thimble	...	...	I	8	
H.G.L.	12	Gear rod spring box cap	...	...			9
H.G.L.	20	Gear rod springs	...	...			2
H.G.L.	21	Gear rod bottom portion	...	...	3	IO	
H.G.L.	16	Gear rod bottom portion cross head	...	...			9
S.T.D.	5	Gear rod bottom portion cross head nut	...	...			2
S.T.D.	12	Gear rod bottom portion cross head washer	...	...			I
H.G.L.	17	Gear rod bottom portion joint link	...	...	I	0	
H.G.L.	19	Gear rod bottom portion joint link yoke end bolt	...	...			4
S.T.D.	5	Gear rod bottom portion joint link yoke end nut	...	...			2
S.T.D.	4	Nut for securing both portions of rod	...	...			2

FRAME AND PARTS.

SECTION	H.F.						
H.F.	28	Cycle main frame	...	...	7	12	6
H.F.	34	Bottom back wheel fork	...	...	2	9	10
H.F.	11	Bottom back wheel fork hinge spindle	...	...		2	I
S.T.D.	I	Hinge spindle nut (each)	...	...			5
S.T.D.	8	Hinge spindle washer (each)	...	...			2
H.F.	9	Bottom back wheel fork bronze bush	...	...		2	8
H.F.	37	Back wheel vertical arch	...	...	2	19	8
H.F.	19	Back wheel vertical arch yoke end bolt	...	...		I	6
H.F.	120	Yoke end bolt bush	...	...			9
S.T.D.	3	Yoke end bolt nut	...	...			3
S.T.D.	10	Yoke end bolt washer	...	...			I
H.F.	139	Back wheel vertical arch grease plug	...	...			7
H.F.	32	Top back wheel fork...	...	...	I	15	3
H.F.	81	Top back wheel fork hinge spindle	...	...		2	4
S.T.D.	I	Hinge spindle nut (each)	...	...			5
S.T.D.	8	Hinge spindle washer (each)	...	...			2
H.F.	2	Hinge spindle bronze bush	...	...		2	8
H.F.	19	Top back wheel fork yoke end bolt	...	...		I	6
S.T.D.	3	Yoke end bolt nut	...	...			3
S.T.D.	8	Yoke end bolt washer	...	...			2
H.F.	120	Yoke end bolt bush	...	...			9
H.F.	139	Top back fork grease plug	...	...			7

			£	s.	a.
H.F.	74	Main frame triangular extension, right side	17	4	
H.F.	75	Main frame triangular extension, left side	17	4	
H.F.	54	Rear frame springs	4	9	
H.F.	21	Rear frame spring fixing bolt			8
S.T.D.	3	Spring fixing bolt nut			3

SIDECAR FRAME.

H.F.	80	Main side frame	8	15	6
H.F.	104	Side frame attachment nuts (each) ...			11
H.F.	105	Attachment nut spring washer			2
H.F.	116	Side frame front stay complete	14	4	
H.F.	117	Side frame rear stay complete	13	8	
H.F.	141	Side frame front stay, bare	7	0	
H.F.	142	Side frame rear stay, bare	6	3	
H.F.	62	Side frame stay adjusting yoke end ...	3	3	
H.F.	61	Side frame stay yoke end lock nut ...			9
H.F.	63	Side stay yoke end bolt			8
S.T.D.	1	Yoke end bolt nut			5
H.F.	64	Side frame stay eye bolt	1	7	
H.F.	63	Bolt securing eye bolt to side stay top yoke end			8
S.T.D.	5	Nut for same... ..			2
S.T.D.	2	Nut for side stay eye bolt (each) ...			5
H.F.	83	Side wheel fork	2	10	0
H.F.	82	Side wheel fork hinge spindle	2	1	
S.T.D.	1	Hinge spindle nut (each)			5
S.T.D.	8	Hinge spindle washer			2
S.T.D.	9	Hinge spindle bronze bush	2	8	
H.F.	139	Side wheel fork grease plug			7
H.F.	89	Side wheel vertical arch	1	9	4
H.F.	19	Vertical arch yoke end bolt... ..	1	6	
H.F.	120	Yoke end bush			9
S.T.D.	3	Yoke end bolt nut			3
S.T.D.	10	Yoke end bolt washer			1
H.F.	140	Side wheel vertical arch grease conductor No. 3			8
H.F.	84	Rear and side wheel arch truss complete ...	3	0	3
H.F.	143	Rear and side wheel arch truss less all fittings	2	9	2
H.F.	62	Rear and side wheel arch truss adjusting yoke end (each)	3	3	
H.F.	61	Lock nut securing adjusting yoke end ...			9
H.F.	63	Yoke end bolt (each)			8
S.T.D.	1	Yoke end bolt nut			5
H.F.	163	Side frame spring	4	9	
H.F.	21	Side frame spring lower bolt			8
S.T.D.	3	Nut for same			3

1920.

SIDECAR BODY AND FITTINGS.

SECTION	H.B.D.		£	s.	d.
H.B.D.	20	Sidecar body complete with screen and bearer bars	14	17	6
H.B.D.	12	Sidecar body front bearer bar		3	5
H.B.D.	25	Sidecar body front bearer bar coach bolt			1
H.B.D.	24	Sidecar body front bearer bar coach bolt nut			2
H.B.D.	3	Sidecar body front bearer bar strap and body bracket		1	9
S.T.D.	3	Sidecar body front bearer bar end nut ...			3
H.B.D.	14	Sidecar body front bearer bar end spring washer			3
S.T.D.	10	Sidecar body front bearer bar end plain washer			1
H.B.D.	1	Upper body stud		1	0
H.B.D.	2	Lower body stud		1	3
H.B.D.	11	Sidecar body rear bearer bar		2	9
H.B.D.	9	Sidecar body rear bearer bar coach bolt ...			2
H.B.D.	24	Sidecar body rear bearer bar coach bolt nut			2
H.B.D.	13	Sidecar body rear bearer bar coach bolt washer			4
H.B.D.	7	Sidecar body front spring		5	9
H.F.	87	Sidecar body front spring pad lug bolt ...			5
S.T.D.	4	Sidecar body front spring pad lug bolt nut			2
H.F.	85	Sidecar body front spring pad lug plate		1	1
H.B.D.	8	Sidecar body rear spring		3	3
H.B.D.	10	Sidecar body rear spring top bolt ...			9
S.T.D.	3	Sidecar body rear spring top bolt nut ...			9
H.F.	47	Sidecar body rear spring bottom bolt (left)			6
S.T.D.	3	Sidecar body rear spring bottom bolt nut			3
H.F.	21	Sidecar body rear spring bottom bolt (right)			8
S.T.D.	3	Sidecar body rear spring top bolt nut ...			3
H.B.D.	16	Sidecar body luggage grid only	1	2	6
H.B.D.	19	Sidecar body luggage grid folding stay ...			9
H.B.D.	18	Sidecar body luggage grid fixing link (left)		1	9
H.B.D.	26	Sidecar body luggage grid fixing link (right)		1	9
S.T.D.	5	Sidecar body luggage grid fixing nuts (lower)			2
S.T.D.	12	Sidecar body luggage grid fixing nut washer			1
H.B.D.	28	Sidecar body luggage grid top fly nut ...		1	5
H.B.D.	15	Sidecar body luggage grid spare wheel strap		1	1
S.T.D.	3	Sidecar body luggage grid spare wheel fixing nut			3
		Sidecar body wind screen complete (apron 7/6)	1	10	0
H.B.D.	29	Hood complete (single seater)	3	12	6
H.B.D.	53	Hood bracket (right)		4	0
H.B.D.	54	Hood bracket (left)		4	0

			£	s.	d.
H.B.D.	55	Hood fixing nut			4
H.B.D.	56	Hood fixing nut spring washer			1½
H.B.D.	57	Sidecar body door handle	3	0	
H.B.D.	58	Turn button for hood fabric			5
		Eyelet for hood fabric			2
		Press button complete			6

1922—3 and 4.

SIDECAR BODY AND FITTINGS.

(All parts of sidecar body 1921 to 1924 not in this List are the same as 1920).

H.B.D.	20	Sidecar body complete with screen and side wing and bearer bars only ...	15	1	6
H.B.D.	16/28	Sidecar body luggage grid complete with all fittings	1	8	6
H.B.D.	46	Sidecar body wind screen complete with all fittings (and side wing)	3	1	6
H.B.D.	63	Metal flap only (with hinges)	1	6	0
H.B.D.	39	Wind screen glass with frame only	1	6	0
H.B.D.	42	Wind screen side bracket (right)	3	11	
H.B.D.	43	Wind screen side bracket (left)	3	11	
H.B.D.	40	Wind screen side bracket wing nuts, each			9
H.B.D.	38	Hood rest bracket	2	6	

SIDECAR BODY LUGGAGE GRID.

H.B.D.	16/28	Sidecar body luggage grid complete with all fittings	1	8	6
H.B.D.	16	Sidecar body luggage grid only	1	2	6
H.B.D.	19	Luggage grid stay (hinged) (each)			9
H.B.D.	18	Luggage grid fixing link (left side)	1	9	
H.B.D.	26	Luggage grid fixing link (right side)	1	9	
S.T.D.	5	Luggage grid fixing nuts (lower)			2
S.T.D.	12	Washer for same			1
H.B.D.	28	Luggage grid top fly nut	1	5	
H.B.D.	15	Luggage grid spare wheel leather strap (each)	1	1	
S.T.D.	3	Luggage grid spare wheel fixing nut			3
S.T.D.	10	Washer for same			1

LUGGAGE CARRIER (CYCLE).

H.F.	72	Luggage carrier only	1	1	9
H.F.	21	Luggage carrier fixing nut (saddle end)			8
S.T.D.	3	Luggage carrier fixing bolt nut			3
S.T.D.	3	Luggage carrier fixing bolt nut (rear end)			3
H.F.	73	Luggage carrier rear number plate, acetylene	1	2	
H.F.	157	Luggage carrier rear number plate, electric	1	2	
H.M.	7	Rear number plate fixing bolt			3
S.T.D.	5	Nut for same			2

FRONT FORK.

SECTION H.F.F.

1920-21	{	H.F.F.47	Front fork girder (right side), standard...	I	16	9
1922-23	{	H.F.F.48	Front fork girder (left side), standard...	I	17	0
H.F.F.		47/BB.	Fork girder (right side) special for front band brake	I	17	0
H.F.F.		48/BB.	Fork girder (left side) special for front band brake	2	2	6
H.F.F.		32	Fork crown and head stem	16	11	
H.F.F.		30	Fork crown ball race	3	2	
H.F.F.		42	Fork head clip only	11	2	
H.F.F.		8	Fork head clip pinch bolt			10
S.T.D.		3	Fork head clip pinch bolt nut			3
H.F.F.		16	Fork head clip sleeve (with race)	5	11	
H.F.F.		7	Fork head clip sleeve (less race)	3	6	
H.F.F.		31	Frame ball race	2	5	
H.F.F.		55	Fork spring box (assembled)	I	14	8
H.F.F.		33	Fork spring box only	15	0	
H.F.F.		27	Fork spring box top cap	3	4	
H.F.F.		18	Fork spring box bottom cap	3	4	
H.F.F.		20	Fork spring plunger rod	4	2	
H.F.F.		21	Fork spring plunger rod washer			2
S.T.D.		2	Fork spring plunger rod nuts (each)			5
H.F.F.		25	Fork main spring	3	3	
H.F.F.		26	Fork auxiliary or buffer spring	1	5	
H.F.F.		28	Fork recoil spring			8
H.F.F.		13	Plunger rod bolt			6
S.T.D.		3	Plunger rod bolt nut			3
H.F.F.		34	Bottom fork link (right side)	3	0	
H.F.F.		34A	Bottom fork link (left side)	3	2	
H.F.F.		22	Top fork link (right side)	3	2	
H.F.F.		22A	Top fork link (left side)	3	5	
H.F.F.		19	Long fork spindle	7	2	
H.F.F.		36	Short fork spindle	6	1	
H.F.F.		15	Left side fork spindle lock nut			5
S.T.D.		3	Spindle nut (right side)			3
S.T.D.		10	Spindle washer			1
H.F.F.		14	Spindle grease cap			5
H.F.F.		44	Fork link sleeve	4	9	
H.F.F.		45	Fork link sleeve nuts (each)			9
S.T.D.		14	Split pin for securing			1
H.F.F.		35	Fork complete (not including stand and mudguard)	10	5	6
H.F.F.		4	Head adjusting nut	2	0	
			Set of balls $\frac{1}{4}$ in. dia. for steering head	1	3	

MUDGUARD AND MUDSHIELD.

SECTION H.M.

H.M.		9	Front mudguard	I	10	6
H.M.		10	Back mudguard	I	3	10
H.M.		12	Side mudguard	I	5	10
H.M.		4	Front mudguard stay			11
H.B.		71	Mudguard stay and brake band stay combined (see also front brake)	2	6	

			£	s.	d.
H.B.	7	Front mudguard stay bolt (top)			3
S.T.D.	5	Front mudguard stay bolt nut			2
H.M.	7	Front mudguard side wing bolt			3
S.T.D.	5	Front mudguard side wing bolt nut			2
H.M.	3	Front mudguard stay bolt (bottom)			4
S.T.D.	11	Front mudguard stay bolt washer			1
H.M.	6	Front number plate (unlettered)	1		2
H.F.	73	Back number plate (unlettered), acetylene or electric	1		2
S.T.D.	16	Front number plate bolt			2
S.T.D.	24	Front number plate bolt nut			2
H.M.	17	Back mudguard left side 1st stay	1		2
H.M.	18	Back mudguard right side 1st and 2nd stay	1		1
H.M.	18	Side mudguard left and right 1st and 2nd stay	1		1
H.M.	19	Back mudguard left side 3rd stay	1		0
H.M.	20	Back mudguard left side 2nd stay	1		0
H.M.	21	Back mudguard right side 3rd stay	1		0
H.M.	21	Side mudguard left and right side 3rd stay	1		0
H.M.	7	Back and side mudguard stay bolt (top)			3
S.T.D.	5	Back and side mudguard stay bolt nut			2
H.M.	3	Back and side mudguard stay bolt (bottom)			4
S.T.D.	11	Back and side mudguard stay bolt washer			1
H.M.	3	Back and side mudguard fixing bolt			4
S.T.D.	4	Back and side mudguard fixing bolt nut			2
H.M.	15	Stand fixing wing screw	1		8
H.M.	25	Mudshield (complete with fittings)	12		6
H.M.	22	Mudshield only (right side only, 5/3, left side only, 5/3)	10		6
H.M.	26	Mudshield rod	1		4
S.T.D.	4	Mudshield rod end nuts (each)			2
S.T.D.	11	Mudshield rod end washer			1
H.M.	7	Mudshield fixing bolts (each)			4
S.T.D.	5	Mudshield fixing bolt nut			2

TANKS AND FITTINGS.

SECTION H.T.

H.T.	1	Tank (less all fittings)	3	4	0
H.T.	26	Tank (complete with all fittings)	4	16	6
H.T.	19	Tank (with housing for electric switch, and less all fittings)	3	7	0
H.T.	3	Ignition lever	3		2
H.T.	6	Ignition lever spring washer			1
H.T.	7	Ignition spring lever washer cap			4
H.T.	8	Ignition lever spring washer cap nut			5
H.T.	4	Ignition rod (standard)	1		4
H.T.	27	Ignition rod (for magdyno)	1		4
H.T.	9	Petrol tap and filter	4		2
H.T.	10	Drain tap	1		9
H.T.	11	Gauze strainer	1		9
H.T.	12	Glass top filler cap (petrol compartment)	2		0
H.T.	12A	Glass only for above			9

			£.	s.	d.
H.T.	13	Plain top filler cap (oil compartment) ...		1	7
H.T.	15	Tank fixing bolts (each)			6
H.T.	16	Tank fixing bolt rubber pad ...			5
H.T.	17	Tank fixing bolt rubber pad washer ...			2
H.T.	25	Semi-automatic oil pump complete ...	1	3	6
S.T.D.	15	Fixing screws for oil pump complete			2
H.T.	29	Oil pump glass barrel		1	0
1177		Regulating screw complete with gland nut and N.P.		2	0
H.T.	30	Oil pump plunger knob			9
1179		Spindle	1		3

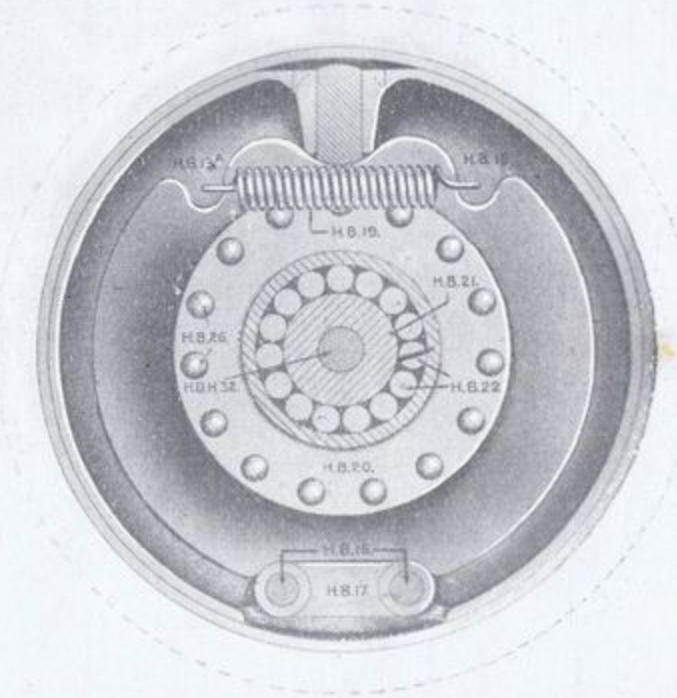
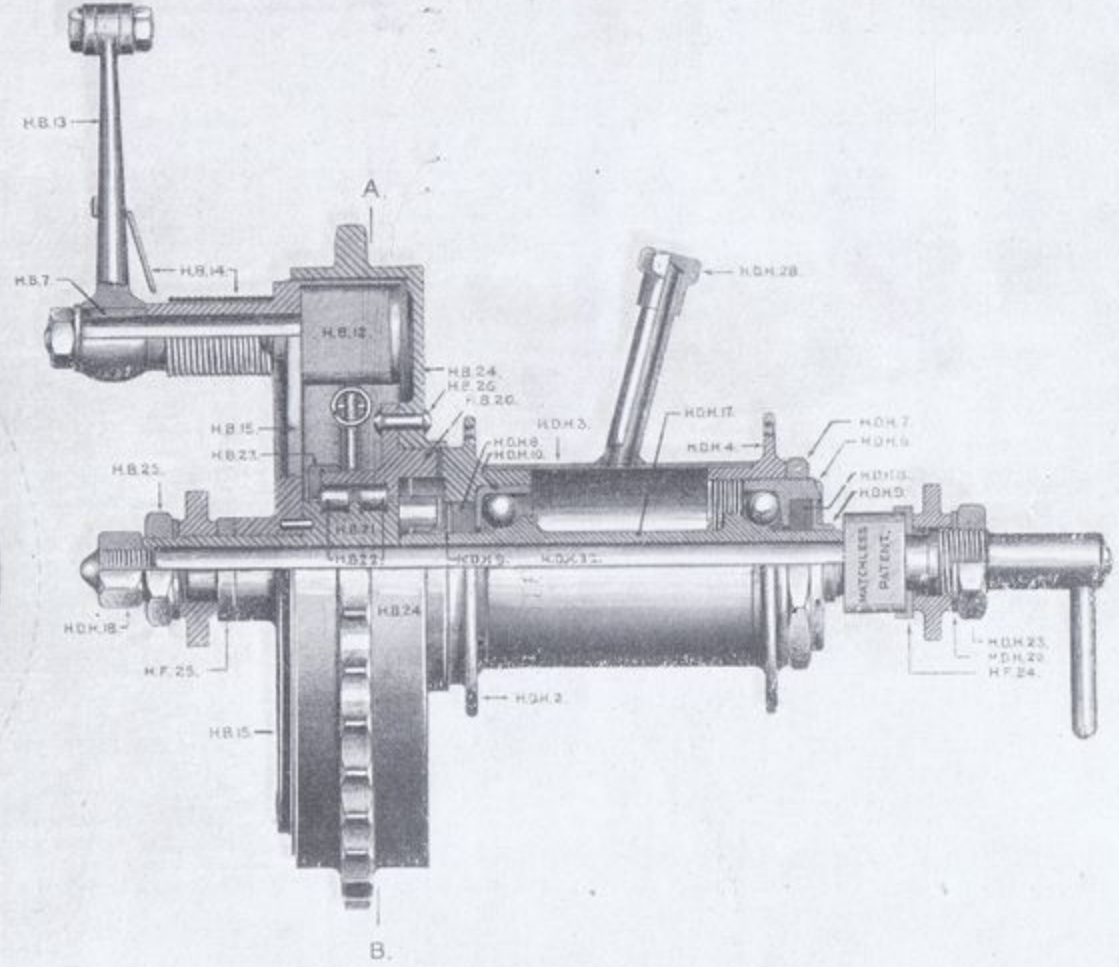
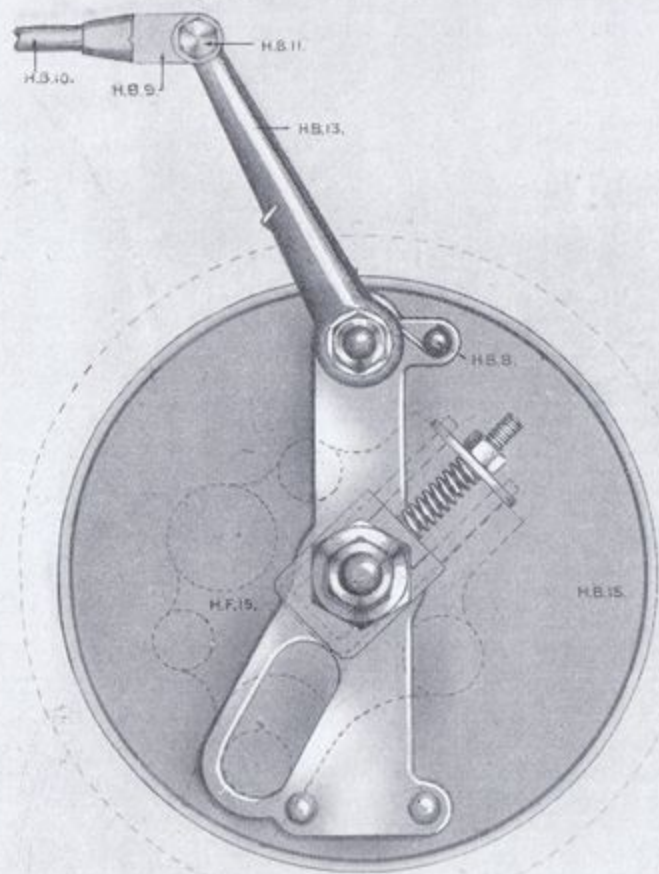
STANDS.

H.F.	106	Back wheel stand only	1	5	0
H.F.	59	Back wheel stand bolt (each)			8
S.T.D.	3	Back wheel stand bolt nut			3
H.M.	15	Stand fixing wing screw (see also mud- guards)		1	8
H.F.	118	Side wheel stand only	11		9
H.F.	96	Side wheel stand bolt			4
S.T.D.	4	Side wheel stand bolt nut			2
H.F.	54	Front wheel stand	11		6
H.F.	96	Front wheel stand bolt			4
S.T.D.	4	Front wheel stand bolt nut			2

REAR BRAKE.

SECTION H.B.

H.B.	36	Brake drum (less sleeve)	1	18	3
H.B.	47	Brake drum assembled with bearing ...	2	14	6
H.B.	53	Brake drum cover plate (with shoes, etc.)	1	6	8
H.B.	48	Brake drum cover plate (bare)		8	6
H.B.	18/18A	Brake shoes (per pair)	15		3
H.B.	12	Brake shoe expander		5	9
H.B.	13	Brake shoe expander lever		5	0
S.T.D.	3	Brake shoe expander end nut			4
H.B.	7	Brake shoe expander key			6
H.B.	52	Brake shoe expander grease cap only ...			5
H.B.	14	Brake lever pull-off spring			5
H.B.	19	Brake shoe internal spring			3
H.B.	17	Brake shoe stud connecting link			3
H.B.	21	Brake drum centre sleeve	8	11	
H.B.	22	Brake drum rollers (each)			2
H.B.	23	Brake drum bearing cap	2		9
H.B.	25	Brake drum centre sleeve nut			9
H.B.	35	Brake drum centre sleeve washer			3
H.B.	4	Brake lever (right side)	7		0
H.B.	6	Brake lever (left side)	7		6
H.B.	5	Brake lever (left side) cross head	1		4
S.T.D.	4	Brake lever (left side) cross head nut ...			2
S.T.D.	11	Brake lever (left side) cross head washer ...			1
H.B.	3	Brake pedal shaft	4		4
S.T.D.	3	Brake pedal shaft end nut			3



			£	s.	d.
H.B.	7	Brake pedal shaft key			6
H.B.	28	Brake pedal shaft sleeve, assembled with anchor plate		8	2
H.B.	1	Brake pedal shaft sleeve nut			9
H.B.	46	Brake rod complete	4		0
H.B.	10	Brake rod only	3		4
J.B.	9	Brake rod yoke end	1		5
H.B.	11	Brake rod yoke end bolt			4
S.T.D.	5	Brake rod yoke end bolt nut			2
S.T.D.	4	Brake rod nut			2
FRONT BRAKE STIRRUP TYRE.					
H.B.	37	Complete front rim brake	1	5	6
H.B.	74	Front brake pad only			7
H.B.	75	Front brake pad and holder (left side) ...	3		0
H.B.	76	Front brake pad and holder (right side) ...	3		0
H.B.	77	Front brake pad and clip	1		5
H.B.	78	Front brake pad nut			6
H.B.	79	Front brake arch	6		0
H.B.	80	Front brake adjusting rod pinch bolt ...			4
H.B.	81	Front brake adjusting rod pinch bolt nut			2
H.B.	82	Front brake adjusting rod pinch bolt washer			1
H.B.	83	Front brake adjusting rod only	1		2
H.B.	84	Front brake cable and spring box (assembled)	5		0
H.B.	85	Front brake cable only (inner and outer)	2		6
H.B.	50	Front brake handlebar lever	8		9
H.B.	86	Front brake handlebar lever fulcrum bolt			6
H.B.	87	Front brake handlebar lever fulcrum bolt nut			3
H.B.	88	Front brake handlebar lever body fixing screw			1
Special type external contracting band front brake					
H.B.	59	Band with lining	16		2
H.B.	61	Ferodo lining only	11		1
S.T.D.	33	Aluminium rivets for fixing (per doz.) ...			6
H.B.	63	Bush for large end of band			4
H.B.	65	Pin for small end of band			6
S.T.D.	14	Split pin securing same			1
H.B.	66	Bolt securing brake band			6
S.T.D.	3	Nut for same			3
S.T.D.	10	Washer for same			1
H.B.	64	Brake operation crank lever	2		2
H.B.	70	Brake lever pull off spring	1		6
H.B.	72	Brake lever cable connecting U-piece ...			9
H.B.	73	Pin for same			5
S.T.D.	14	Split pin securing			1
H.B.	71	Brake band stay and mudguard stay combined		2	6
H.B.	69	Brake drum only	1	17	6
H.B.	89	Brake operating cable complete with nipples	5		2
H.B.	90	Inner wire only			10
H.B.	91	Outer casing only	3		10
H.B.	92	Nipples only			6
H.G.	91	Cable adjusting stop			8
S.T.D.	5	Lock nut for same			2

Special type internal contracting band front brake, 1924 pattern

			£	s.	d.
H.B.	112	Front brake cover plate with shoes, expander, etc.	1	1	0
H.B.	105	Front hub brake drum		5	0
H.B.	121	Front brake shoes (per pair)	11		6
H.B.	122	Front brake linings only	3		0
H.B.	123	Aluminium rivets for brake linings (per set)			4
H.B.	19	Front brake shoe springs (each)			3
H.B.	120	Front brake shoe fulcrum pin			5
S.T.D.	3	Nut for same			3
H.B.	114	Tubular collar or sleeve			11
H.B.	110	Front brake shoe expander	6		0
H.B.	108	Front brake shoe expander lever	1		2
S.T.D.	3	Nut for expander end			3
H.B.	115	Washer for above			1
H.B.	52	Expander grease cap			5
H.B.	117	Front brake rod only			8
H.B.	118	Front brake rod yoke end	1		1
H.B.	119	Front brake rod yoke end pin			5
S.T.D.	14	Split pin for above			1
S.T.D.	79	Lock nut for yoke end			1
H.B.	124	Front brake rod adapter (top end)			6
H.B.	125	Front brake cable and spring box assembled	3		4
H.B.	126	Front brake cable and nipples only	2		4
H.B.	127	Front brake spring box	1		0
H.B.	128	Front brake spring			3
H.B.	129	Front brake cable outer only	1		7
H.B.	130	Adjuster stop and lock nut for front brake cable			7

WHEELS AND HUB PARTS.

SECTION H.D.H.

H.D.H.	5	Wheel complete (with tyre). Dunlop	6	12	9
H.D.H.	13	Wheel complete (less tyre)	2	16	6
H.D.H.	12	Wheel only (less hub parts)... ..	2	0	0
H.D.H.	17	Hollow wheel spindle	10		2
H.D.H.	6	Screwed adjusting cup	7		6
H.D.H.	7	Screwed adjusting cup lock nut	3		2
H.D.H.	8	Hub felt gland washer			2
H.D.H.	9	Hub gland cup washer			3
H.D.H.	10	Hub fixed cup (ground)	2		10
S.T.D.	7	Set of balls	1		1
H.D.H.	16	Tyre (cover only 28in. × 3in.) Dunlop rubber studded, heavy	3	5	9
H.D.H.	14	Tyre inner tube, Dunlop	10		6
H.D.H.	15	Security bolt			9
H.D.H.	31	Front wheel axle	3		5
H.D.H.	31	Side wheel axle	3		5
H.D.H.	32	Rear wheel axle with large nut and washer	5		7

						£	s.	d.
H.D.H.	28	Hub lubricator grease cap	...	...	...			6
H.D.H.	1	Rim only (unenameled)	...	...	...		8	0
H.D.H.	29	Spoke only	...	...	...			1
H.D.H.		Nipple only	...	...	...			2

1921 and 1924.

WHEELS AND HUB PARTS.

(All parts of 1921 and 1922 hubs not in this List are the same as 1920).

H.D.H.	46	Wheel, complete with tyre, Dunlop	...	...	...	7	6	3
H.D.H.	49	Wheel complete less tyre	...	...	...	3	10	0
H.D.H.	48	Wheel only less hub parts	...	...	...	2	5	0
H.D.H.	42	Hollow wheel spindle assembled with 2 cones	...	...	...		10	8
H.D.H.	35	Screwed adjusting cup	...	...	...		9	0
H.D.H.	40	Screwed adjusting cup lock nut	...	...	...		3	1
H.D.H.	41	Hub fixed cup	...	...	...		4	6
H.D.H.	47	Set of balls	...	...	...		3	6
H.D.H.	18	$\frac{1}{2}$ in. side front or rear wheel axle nut	...	...	...			5
S.T.D.	8	$\frac{1}{2}$ in. washer for same...	...	...	...			1
H.D.H.	53	Front Spindle Assembled	...	...	...		3	5

CHAIN CASES AND CHAINS.

H.C.C.	1	Rear chain case complete	...	...	...	2	17	3
	1A	Top portion only	...	...	...	1	2	0
	1B	Bottom portion only	...	...	...	1	2	0
	1C	Rear portion only	...	...	...		16	6
H/2 C.C.	41	Front chain case complete	...	...	...	1	15	3
	41A	Top portion only	...	...	...		16	6
	41B	Bottom portion only	...	...	...	1	2	0
S.T.D.	16	Chain case screws	...	...	...			2
H.C.C.	11	Rear chain case bolt	...	...	...			9
S.T.D.	4	Rear chain case bolt nut	...	...	...			2
H.C.C.	17	Special chain case bolt (for speedometer drive)	...	...	...			9
H.C.C.	13	Slide for covering hole for clutch pedal	...	...	...			6
H.C.C.	12	Slide for covering hole for brake expander	...	...	...			6
H.C.C.	7	Front driving chain	...	...	...		19	6
H.C.C.	14	Front driving chain connecting pin only	...	...	...			3
H.C.C.	8	Rear driving chain	...	...	...		18	6
H.C.C.	15	Connecting link only (detachable) per doz.	...	...	...		5	7
H.C.C.	16	Cranked connecting link only per doz.	...	...	...		7	10
H.F.	25	Rear chain adjuster complete (left side)	...	...	...		2	3
H.F.	24	Rear chain adjuster complete (right side)...	...	...	...		3	0
H.F.	25	Left side chain adjuster bare	...	...	...		1	3
H.F.	24	Right side chain adjuster (bare)	...	...	...		2	0
H.F.	26	Adjuster end plate only	...	...	...			9
S.T.D.	5	Adjuster nut only	...	...	...			2
H.F.	27	Adjuster spring	...	...	...			1

FOOTBOARDS AND PARTS. (All Models Except 1924).

SECTION H.F.B.			£	s.	d.
H.F.B.	1	Footboard only	...	9	0
H.F.B.	3	Footboard rod	...	1	7
H.F.B.	8	Footboard cross tube	...		6
H.F.B.	2	Footboard rod (rear) link	...		11
H.F.B.	6	Footboard right front distance tube	...		11
H.F.B.	7	Footboard left front distance tube...	...	1	1
H.F.B.	9	Footboard left rear (inside and outside) distance tube	...		9
H.F.B.	10	Footboard right rear distance tube	...		8
H.F.B.	4	Footboard centre front packing piece	...	1	9
H.F.B.	5	Footboard centre rear packing piece	...		9
S.T.D.	1	Footboard rod end nut	...		5
S.T.D.	8	Footboard rod end washer	...		2

1924. FOOTBOARDS AND PARTS.

H.F.B.	13	Footboard with base strap (each)	...	12	6
H.F.B.	17	Footboard rod	...	1	7
H.F.B.	20	Left side front distance tube	...		8
H.F.B.	5	Footboard rear packing piece	...		9
H/2 F.B.	33	Footboard left rear inside distance piece	...		4
H/2 F.B.	36	Right back footboard tube	...		8
H.F.B.	18	Footboard right front distance piece	...		9
H.F.B.	15	Footboard bracket distance piece	...		4
S.T.D.	1	Footboard rod end nut	...		5
S.T.D.	8	Footboard rod end washer	...		1

SADDLE AND PARTS.

SECTION H.F.					
H.F.	137	Saddle top and hinge complete	...	1	9 2
H.F.	53	Saddle spring	...	2	1
H.F.	21	Saddle spring bottom bolt	...		8
S.T.D.	3	Saddle spring bottom bolt nut	...		3
H.F.	134	Saddle nose steel bush	...		9
H.F.	135	Saddle nose steel bush bolt	...		6
S.T.D.	4	Saddle nose steel bush bolt nut	...		2

HANDLEBAR.

H.F.	71	Handlebar bare	...	1	7 6
H.F.	183	Handlebar with grips only	...	1	11 2
H.F.	184	Handlebar with grips and brake lever, cable, etc.	...	2	3 10
H.F.	131	Handlebar grip only (open end)	...	1	9
H.F.	132	Handlebar grip only (closed end)	...	1	10

TOOL KIT.

SECTION H.T.K.					
H.T.K.	1	Oil injector	...	2	4
H.T.K.	2	6-in. combination pliers	...	4	10
H.T.K.	3	6-in. wire screwdriver	...	1	7
H.T.K.	4	Double-box spanner to suit $\frac{1}{8}$ in. and $\frac{1}{2}$ in. nuts	...	1	10

			£	s.	d.
H.T.K.	5	Double-box spanner to suit $\frac{1}{4}$ in. and $\frac{5}{16}$ in. nuts		1	10
H.T.K.	6	Single-box spanner 1.101 hex.		2	1
H.T.K.	7	Tubular key and tommy for clutch nuts			9
H.T.K.	8	Grease gun		7	3
H.T.K.	9	Tyre lever		1	1
H.T.K.	10	Tyre pump		11	0
H.T.K.	11	6-in. adjustable spanner		7	6
H.T.K.	18	Hub adjusting spanner (1920 type 1/1), 1921 and 1922		3	0
H.T.K.	14	Tool roll		3	4
H.T.K.	15	Tool roll and kit complete	2	5	9
H.T.K.	20	Large engine spanner (double end) ...		2	0
H.T.K.	21	Small engine spanner for tappets		1	10
H.T.K.	22	Medium engine spanner for cylinder nuts		1	10

MAGNETO AND PARTS.

SECTION H.M.D.

H.M.D.	5	Magneto driving sprocket (each)		2	2
294F.		Nut for securing above to camshaft			2
H.M.D.	20	Nut for securing above to magneto			2
H.M.D.	8	Magneto chain		3	0
H/2M.D.	49	Magneto chain case complete		13	11
H/2M.D.	42	Magneto chain case front only		5	9
H/2M.D.	44	Magneto chain case back only		8	2
H/2M.D.	45	Bolt for securing case to engine plate ..			6
S.T.D.	5	Nuts for bolt (each)			2
H/2M.D.	48	Spacing collar behind chain case			5
H/2M.D.	46	Magneto platform bracket (short right side)		3	8
H/2M.D.	47	Magneto platform bracket (long left side)		3	9
H.M.D.	14	Bolt for securing bracket to engine plate (each)			3
S.T.D.	12	Washer for same (each)			1
H.M.D.	6	Magneto case bolt (square head)			7
H.M.D.	21	Magneto complete (Lucas)	4	7	6
H.M.D.	5	Magneto sprocket		3	4
H.M.D.	18	Magneto cable (for front cylinder)		1	4
H.M.D.	17	Magneto cable (for rear cylinder)		1	0
H.M.D.	22	Carbon brush holder with brush		6	0
H.M.D.	23	Carbon brush only			6
H.M.D.	24	Contact breaker complete*			
H.M.D.	30	Contact screws only (each)*			
H.M.D.	28	Carbon brush only		2	0
H.M.D.	17	Carbon brush holder and brush		6	0
H.M.D.	29	Contact breaker complete*			
H.M.D.	30	Contact screws only (each)*			

NOTE.—When ordering Magneto parts always state make of Magneto.

* Price on application.

EQUIPMENT.

SECTION H.E.Q.

H.E.Q.	87	Sidecar step complete (aluminium) ...	8	6	
H.E.Q.	88	Sidecar step clip only	2	3	
H.E.Q.	89	Sidecar stepboard bolt		5	
S.T.D.	4	Sidecar stepboard bolt nut		2	
H.E.Q.	90	Sidecar stepboard packing piece, per two halves		4	
H.E.Q.	33	Speedometer complete	4	15	0
H.E.Q.	34	Speedometer instrument only (with bracket 10/- extra).	2	10	0
H.E.Q.	35	Speedometer shaft only (inner and outer)	18	0	
H.E.Q.	36	Speedometer drive box only (driving box and drive bracket)	17	0	
H.E.Q.	24	Speedometer crown wheel only	10	0	
H.E.Q.	1	Speedometer drive bracket (driving box and drive bracket)	1	6	
H.E.Q.	2	Speedometer drive bracket bolt		6	
H.E.Q.	37	Acetylene lamp set complete, comprising head, side and tail lamps and all fittings, brackets, etc. (fitted)	4	12	6
H.E.Q.	38	Head lamp only	1	18	0
H.E.Q.	15	Head lamp bracket (right side) (bare) ...	6	0	
H.E.Q.	16	Head lamp bracket (left side) (bare) ...	6	0	
S.T.D.	1	Nut for bracket (each)		5	
		Ear piece for bracket (each)		6	
H.E.Q.	39	Head lamp glass only	1	4	
H.E.Q.	40	Head lamp mangin mirror	10	6	
H.E.Q.	41	Head lamp burner only	2	1	
H.E.Q.	42	Head lamp moulded end tube	1	6	
H.E.Q.	43	Head lamp generator only	17	6	
H.E.Q.	44	Head lamp generator bracket	3	6	
H.E.Q.	45	Side lamp	12	0	
H.E.Q.	46	Side lamp glass		6	
H.E.Q.	47	Side lamp burner	1	2	
H.E.Q.	12	Side lamp bracket with coach bolts, nuts and plate	2	6	
H.E.Q.	14	Side lamp bracket coach bolt		1	
H.E.Q.	48	Side lamp rubber tubing (per foot) ...		8	
H.E.Q.	49	Side and tail lamp generator	17	6	
H.E.Q.	50	Side and tail lamp generator bracket ...	3	6	
H.E.Q.	51	Tail lamp only	3	6	
H.E.Q.	52	Tail lamp burner only		6	
H.E.Q.	53	Tail lamp, burner dust cap		1	
H.E.Q.	54	Tail lamp rubber tubing (per foot) ...		3	
H.E.Q.	5	Tail lamp rubber tubing $\frac{1}{2}$ -in. clip ...		3	
H.E.Q.	4	Tail lamp rubber tubing $\frac{7}{8}$ in. clip ...		3	
H.E.Q.	7	Brass tubing (side and tail lamp)	5	9	
H.E.Q.	6	Brass tubing saddle clip (each)		2	
H.E.Q.	20	Electric head lamp bracket (right) (bare)	7	0	
H.E.Q.	21	Electric head lamp bracket (left) (bare) ...	7	0	

			£	s.	d.
S.T.D.	I	Nut for bracket (each)			5
		Ear piece for bracket (each)			6
H.E.Q.	56	Electric head lamp	I	15	0
H.E.Q.	55	Electric head lamp bulb only (3c.p. & 18c.p.)		3	6
H.E.Q.	57	Electric head lamp glass		2	6
H.E.Q.	58	Electric head lamp reflector		17	6
H.E.Q.	59	Electric side lamp		12	6
H.E.Q.	63	Electric side lamp bulb		I	6
H.E.Q.	61	Electric side lamp glass and frame ...		2	6
H.E.Q.	62	Electric rear lamp		8	6
H.E.Q.	63	Electric rear lamp bulb		I	6
H.E.Q.	64	Spare bulbs in wooden case (I of each, head and side)		6	6
H.E.Q.	65	Head lamp cable		10	6
H.E.Q.	66	Side lamp cable		9	0
H.E.Q.	67	Rear lamp cable		9	0
H.E.Q.	68	Cable (dynamo to switch box)		10	6
H.E.Q.	69	Cable (sidecar junction box to switch box)		13	0
H.E.Q.	70	Sidecar junction box only		5	6
H.E.Q.	71	Battery in case	2	12	0
H.E.Q.	72	Battery only	2	2	0
H.E.Q.	73	Battery case only		10	0
H.E.Q.	31	Cable clip $1\frac{1}{8}$ in.			3
H.E.Q.	4	Cable clip $\frac{7}{8}$ in.			3
H.E.Q.	5	Cable clip $\frac{1}{2}$ in. (three parts)... ..			5
H.E.Q.	74	Switch box complete	I	15	0
H.E.Q.	98	Switch box turn button and screw ...		I	0
HORN.					
H.E.Q.	75	Lucas No. 60 bulb horn, ebony and N.P. finish		15	6
		Autokrat electric horn		12	6
H.E.Q.	76	Lucas electric horn for electrical equipment only (fitted)	I	3	6

CARBURETTOR AND PARTS B. & B.

B. & B.	I	Complete carburettor	2	10	0
B. & B.	2	Float chamber (body only)		8	6
B. & B.	3	Float chamber cap and tickler		7	8
B. & B.	4	Taper needle		I	9
B. & B.	5	Needle holder with screw			8
B. & B.	6	Float needle and collar		I	2
B. & B.	7	Float		2	6
B. & B.	8	Jet size 40, 45 or 50		I	0
B. & B.	9	Fibre washer for jet			I
B. & B.	10	Small stop screw and fibre washer ...			6
B. & B.	11	Ticklers only			5
B. & B.	12	Spraying chamber only		8	6
B. & B.	13	Spraying chamber cap with bushes ...		3	7
B. & B.	14	Cap ring for securing		I	3
B. & B.	15	Clip and bolt for inlet port		I	8
B. & B.	16	Gauze screen and cap for air inlet ...		I	8
B. & B.	17	Valves (per pair)		6	9

						£	s.	d.
B. & B.	18	Valve spring (per pair)	...	...	...		1	2
B. & B.	19	Control levers complete	...	...	...		7	0
B. & B.	20	Throttle lever only	...	...	...		2	11
B. & B.	21	Air lever only	...	...	...		2	11
B. & B.	22	Control cables (outer) per pair)	...	...	...		3	5
B. & B.	23	Control cables (inner) per pair	...	...	...		2	4