

STURMEY ARCHER SPEED 3 GEAR

TYPE III. 1931
FOR MOTOR CYCLES

Size 350 c.c. O.H.V.
and up to 1,000 c.c.

STURMEY ARCHER GEARS LTD.
LENTON, NOTTINGHAM, ENGLAND

Telegrams
Telephone

"TRIPLE, NOTTINGHAM"

75354

STURMEY-ARCHER 3-SPEED COUNTERSHAFT GEAR (TYPE III).

SUITABLE FOR ENGINES FROM 350 c.c. to 1,000 c.c.

IMPROVEMENTS FOR 1931.

- 1.—The most up-to-date method of gear-cutting for the teeth is used, and all gears are specially burnished to ensure silence.
 - 2.—The various gear positions are indexed internally as well as by the outside quadrants.
 - 3.—A self-contained ball bearing is fitted on the main sleeve gear.
 - 4.—A phosphor bronze bush is fitted in the Main Gear Wheel.
 - 5.—The kickstarter axle and pawl have both been re-designed, and are now stronger than before.
 - 6.—The kickstarter crank is fixed to the axle by serrations, and can be placed in any desired position.
-

Three speeds and a kickstarter are provided by using only three pairs of pinions. The kickstarter drive is taken through the low gear pinions, thus dispensing with the extension on the box, and reducing weight appreciably. The kickstarter mechanism is entirely enclosed, and the box presents a particularly neat and pleasing appearance.

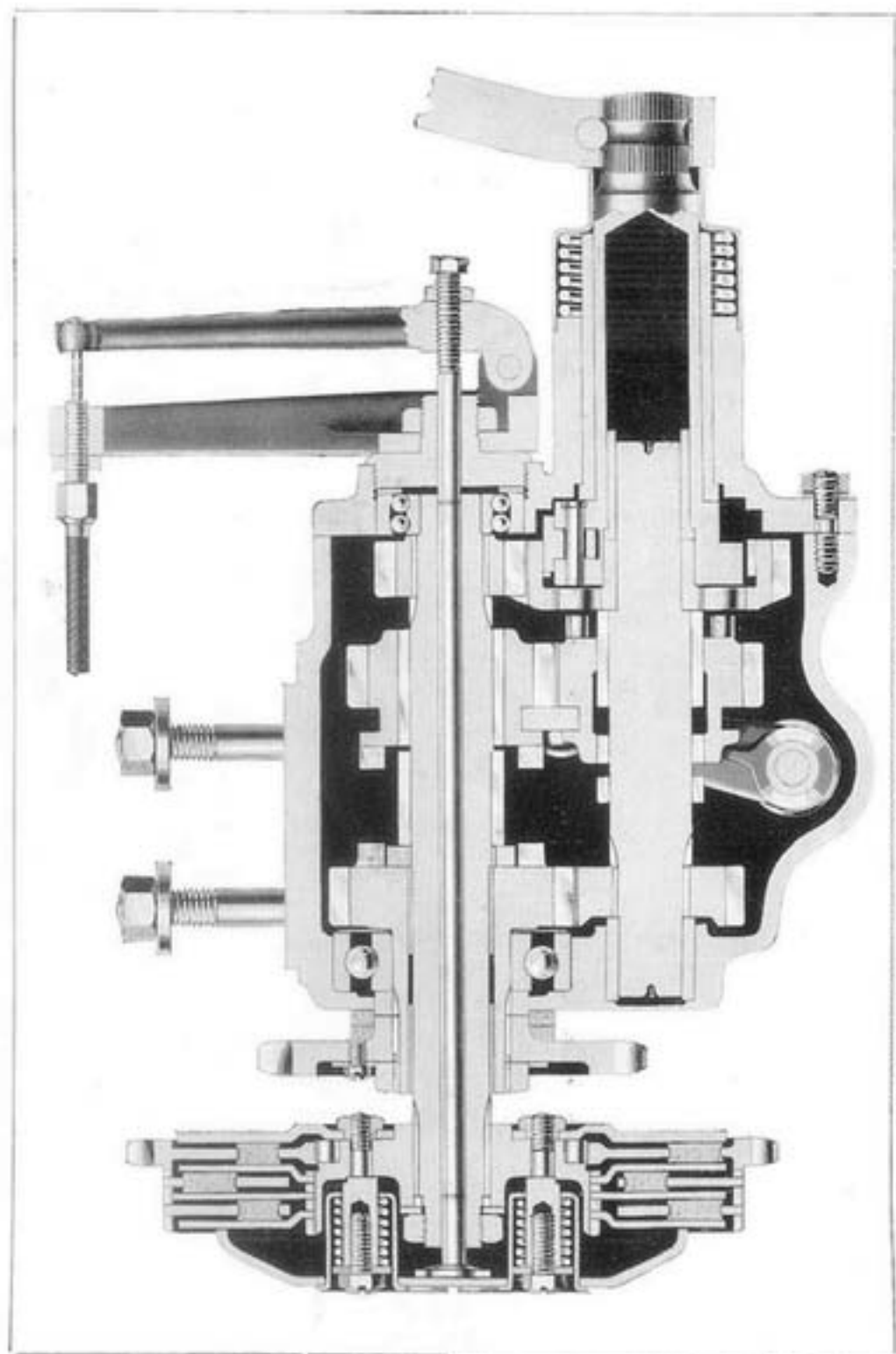
This box is fitted with constant mesh pinions, thereby preventing any possibility of damage to gears when changing.

TYPES OF CLUTCHES.

- 2 Plate Multi Spring Plain or Shock Absorber Clutch.
- 3 Plate Multi Spring Plain or Shock Absorber Clutch.
- 4 Plate Multi Spring Plain or Shock Absorber Clutch.

Shock Absorber Multi-Spring Clutch.

A Multi-Spring Shock Absorber is made in 2, 3 or 4 plate sizes. The Sprocket is mounted on a roller bearing, and is securely held in position laterally to eliminate side play and also prevent any variation in chain line. The six springs are equally spaced round the face, and are arranged to bring the pressure as close to the driving surface as possible.



SECTIONAL ARRANGEMENT OF HEAVYWEIGHT 3-SPEED GEAR.

The advantage secured by the Multi-Spring Clutch is a more equal distribution of the spring pressure round the driving surfaces, while the plates are less liable to tilt when the clutch is released, and the clutch is altogether more efficient.

SLIPPING CLUTCH.

Worm operated type :—

The clutch worm lever should be examined immediately any sign of slipping is suspected, to ensure that it has $\frac{3}{16}$ " idle movement when the clutch is fully engaged.

In the case of the clutch nut, L.S.25, it may be found that the shoulder on the worm is bearing on the face of the felt washer. As a temporary measure release the steel cap, L.S.26, but to effectually cure the trouble, it will be necessary to shorten the clutch rod by $\frac{1}{16}$ " or thereabout.

Direct Pull type :—

When the direct pull operating lever is fitted, it is important to ensure that there is $\frac{1}{32}$ " clearance between the end of the rod and the ball-ended adjusting screw when the clutch is fully engaged.

When fitting up the clutch control cable, ease off the bends as much as possible, otherwise the clutch will be difficult to operate.

TO DISMANTLE CLUTCHES.

Multi Spring Clutches.

The six screws which hold the Clutch Springs should be unscrewed first, afterwards lifting out the Springs and Spring Boxes. The Spring Box Plate and the other Clutch Plates are then lifted apart, noting particularly the direction in which the dished centre portions of these face, as they vary, and it is essential that they are replaced exactly as they were found originally.

With these points carefully noted there should be no difficulty in re-assembling. No adjustment of the spring tension is provided, but extra strong springs are available in case of need. We do not recommend fitting these unless absolutely essential, as they are inclined to make the Clutch more difficult to release.

Shock Absorber Clutches.

The Clutch portion can be dismantled as described for the plain type. The Shock Absorber may present some difficulty, as the screws holding the parts together are burred over, to prevent the lock nuts from working loose.

After the four screws have been removed, the Driver can be withdrawn, and the rubbers taken out of the slots in the body of the Sprocket.

The positions of the rubbers should be carefully noted. The solid rubbers are fitted in the driving side, and those with the small hole on the opposite side.

To remove the Sprocket from the bearing, it is necessary to unscrew the six nuts on the Clutch Spring Studs; the small plate and the Sprocket can then be removed.

The Sprocket bearing is composed of loose $\frac{1}{4}$ " dia. Balls and Rollers placed alternately. These should be assembled with grease.

GEAR CONTROLS.

Two types of change gear control are supplied, and each type is available for the different positions given below :—

1. Disc Pattern with "V" Notches.
2. Gate Pattern.

This type of control is arranged to be bolted or rivetted to the side of the petrol tank.

Two types of Lever are available, one working in a vertical position, and the other in a horizontal position. The latter is used almost universally, and this type only has been illustrated in this booklet.

CHANGING GEAR.

When starting from rest, with engine running and gear in neutral, release clutch and push gear control lever **sharply** into first or low position, when the throttle may be opened to the required amount, and clutch engaged gradually. As sufficient momentum is obtained, clutch and gear control may again be manipulated for second and finally high gear as above.

We would emphasise that gearboxes are meant to be used. Sturmev-Archer gears are particularly easy to change, therefore never allow the engine to labour, or resort to slipping the clutch on a hill. Change down to a lower gear; keep the engine revving freely, and you will find that a much faster climb can be made without punishing the engine.

GEAR CONTROL ADJUSTMENT.

It is important to see that the Gear Control is kept properly adjusted, and this should be tested occasionally to see that it is correct.

Before proceeding to adjust Control, see that the Nut on the Rockingshaft Spindle is thoroughly tight.

The adjustment of the gear is effected by removing the pin from the top connection on the end of the Control Rod, and giving the connection one turn, or half a turn, to the thread, up or down, to lengthen or shorten the Control Rod as required. When the gear is properly adjusted, the Control Lever should move an equal amount either side of the neutral notch without engaging either the middle or low gear; finally check by pin in top connection, being just free to slide with the pressure of the thumb and finger when in high gear.

As the gears are automatically indexed inside the box independent of the lever in the gate, it is important to see that the positions of the gate lever harmonise with the indexing mechanism inside the box.

To check this, place the Rockingshaft Lever in middle position and remove the pin from the top connection. If the holes in the two pieces do not coincide, give the connection one turn or half a turn up or down until the pin engages both freely without being forced.

If the Control is not mounted directly on the box, any adjustments made to the chains will interfere with the setting of the control.

TO TAKE GEAR APART.

Disconnect Clutch Control Wire, then remove seven Cover Nuts and gently pull off the Cover Plate. Do not use a screwdriver or similar tool to part the joint or the latter will fail to retain oil when re-assembled. If the plate sticks, one or two light blows inside the Kickstarter Crank will loosen it. This will expose the complete interior to view. By disconnecting the Gear Control Rod, the Low and Middle Gear Pinions, also Layshaft, may be lifted out.

When replacing, take care that the ball bearings are not tilted. No forcing is necessary when replacing the Cover Plate.

LUBRICATION.

Use Gargoyle Mobilgrease, which is used by us and specially prepared for Sturmey-Archer Gearboxes. Charge with $\frac{1}{2}$ lb. and re-charge with $\frac{1}{4}$ lb. about every 1,000 to 1,500 miles. Gargoyle Mobilgrease is a thick oil and not ordinary grease, but it does not leak. It is marketed in 1lb. collapsible tubes, the use of which facilitates filling.

It is very important to see that these instructions are carefully observed. No harm is done by an additional charge, but on the other hand we find that a large percentage of gear trouble can be directly attributable to insufficient lubrication or by using a lubricant which is not suitable.

It is not advisable to use thick grease, as it may prevent the free operation of the kickstarter pawl.

The various joints in the gear changing lever mechanism should be kept oiled regularly to ensure freedom of action. Inject a little vaseline or grease between the Index and Quadrant Plate, L.S.60 and L.S.41 on the Disc pattern Control.

DO NOT lubricate the Clutch, as this is designed to run dry.

Formula for Finding the Top Gear Ratio.

$$\frac{\text{No. of teeth on Clutch Sprocket.}}{\text{No. of teeth on Engine Sprocket.}} \times \frac{\text{No. of teeth on Rear Sprocket.}}{\text{No. of teeth on Gear Sprocket.}} = \text{Top Gear Ratio.}$$

$$\text{Example : } \frac{42}{21} \times \frac{55}{20} = \frac{2}{1} \times \frac{11}{4} = \frac{22}{4} = 5\frac{1}{2} \text{ to 1 Top Gear.}$$

A variation of the top gear ratio can be secured by altering the number of teeth on the Engine, or small Gear Sprockets.

List of Available Gear Ratios.

Standard Gears 1 : 1.47 : 2.97
 Close Ratio..... 1 : 1.33 : 2.57

Note that Top Gear is controlled by the sizes of the chain sprockets on Engine, Gearbox and Rear Wheel, and cannot be altered by changing the internal gear wheels.

Top.	Standard Ratio.		Close Ratio.	
	Middle.	Low.	Middle.	Low.
3	4.41	8.91	4	7.71
3.25	4.78	9.65	4.33	8.35
3.5	5.15	10.39	4.66	8.99
3.75	5.52	11.13	5	9.63
4	5.88	11.88	5.33	10.28
4.25	6.25	12.62	5.66	10.92
4.5	6.62	13.36	6	11.56
4.75	6.99	14.10	6.33	12.20
5	7.35	14.85	6.66	12.85
5.25	7.72	15.59	7	13.49
5.5	8.09	16.33	7.33	14.13
5.75	8.46	17.07	7.66	14.77
6	8.82	17.82	8	15.42

NOTES AND RULES FOR ORDERING SPARES.

- 1.—All prices refer to one only unless otherwise stated.
- 2.—Prices do not include cost of postage or carriage, but goods value £5 or more will be sent carriage paid.
- 3.—All prices of spares and replacement parts are subject to revision or modification, at our discretion, without notice.
- 4.—Our Three-speed gearboxes are stamped with a letter followed by the Roman numerals III preceding the box number. This lettering indicates to us the details of such fittings as the Kickstarter extension, sprocket sizes, type of clutch and chain lines, and it is often essential that we should be advised this lettering, in order to know which part to send. It is therefore **always** advisable to **quote these symbol letters** from the box when ordering spares. The number need only be quoted in the case of claims for replacement under guarantee.
- 5.—We have endeavoured to provide such dimensions as will enable customers to identify any parts which they may be requiring, but there are some parts, notably gear control rods, where the shapes required to suit some machines are quite impossible to describe in everyday terms. We strongly recommend customers to return the original parts if renewals are necessary in these cases.

6.—If in doubt regarding correct names of parts, it is advisable to send old part as pattern. (See Notes 7 and 8). However, we recommend giving some description if at all possible, such as shaft, gear-wheel, bearing, washer, screw, etc., as we might sometimes receive several such orders from the same town on the same day, and difficulty might arise in identifying all the owners.

7.—All parts sent as patterns should be clearly marked with sender's name and address so that they may readily be identified.

8.—Patterns are not returned unless specially requested at time of ordering, as this avoids considerable postage expenses. We cannot in any case return parts for which replacements are supplied under the terms of our guarantee.

9.—Do not enclose cash with goods. Remittance should be sent by letter post for your own protection.

10.—Customers having no account with us should not fail to remit at the time of the order, and also include postage. If the remittance exceeds the cost of the parts, the balance will always be refunded with our invoice and receipt.

11.—If goods are urgently needed a Telegraph Money Order will ensure immediate attention. But customers must send their name and address as part of the message. The name and address written on the back of the form is not transmitted to us.

12.—Goods will be sent by C.O.D. post if desired, but we do not use this service unless requested, as we find some customers object. We would point out here that we have to register all letter packets for this method of despatch, so that extra postage will be caused for small orders (under 1 lb. in weight), and the Post Office charge for collecting small amounts is also relatively heavy. These extra expenses (minimum 7d.) are, of course, charged to customers.

13.—We do not despatch goods or gear boxes by Passenger Train C.O.D. If a repair is required urgently we will, if requested, wire the cost immediately after examining the gears, and customers can then remit by post or by Telegraph Money Order to avoid delay. As an alternative a blank cheque could be sent with letter of advice. Invoice would then be posted when box is returned showing the amount for which the cheque is filled in.

14.—We are willing at all times to give customers the benefit of our advice regarding any queries or difficulties which may be experienced. We therefore invite all owners to write us for any information required which cannot be found in this booklet.

THREE-SPEED H.W. GEARBOX PARTS.

GEARBOX SHELL.

			£	s.	d.
LS	230C	Gearbox Shell (Norton, standard ratio, Stamped E.111)	1	16	0
LS	230C	Gearbox Shell (Norton, Close Ratio, Stamped F.111)	1	16	0
LS	280B	Gearbox Shell (Enfield Models J & JA, Stamped B.111)	1	16	0
LS	280B	Gearbox Shell (Enfield Models H & HA, Stamped C.111)	1	16	0
LS	280B	Gearbox Shell (Enfield Model K, Stamped N.111)	1	16	0
LS	280B	Gearbox Shell (Enfield Model MK, Stamped O.111)	1	16	0
LS	383A	Gearbox Shell (A.J.S. Model S2, Stamped H.111)	1	16	0
LS	451	Gearbox Shell (Phelon & Moore, Stamped G.111)	1	16	0
LS	450A	Gearbox Cover (used when Gate Tank Control is fitted) (Flat on left base). Norton		15	0
LS	450C	Gearbox Cover (used when Disc Control is fitted) (As LS.450A, but with extension on top). Norton		15	0
LS	450D	Gearbox Cover (Cable Stop extension at left base). A.J.S. Model S2		15	0
LS	450E	Gearbox Cover, Horizontal (used when Disc Control is fitted) (Cable Stop boss at right base and extension on top for Disc Control). Phelon & Moore		15	0
LS	450F	Gearbox Cover, Horizontal (used when Gate Tank Control is fitted. As LS.450E, but less extension on top). Phelon & Moore		15	0
LS	450H	Gearbox Cover (Oil Filler level with K.S. Axle centre, and 1 boss at each top corner for Cable Stops). Enfield Models J, JA, H, HA, K & MK		15	0
LS	15A	Paper Washer			2
CS	8G	Oil Filler Plug, $\frac{1}{2}$ " long			8
CS	9	Gearbox Cover Stud, $1\frac{1}{2}$ " long, $\frac{3}{16}$ " out of box			3
S	15	Gearbox Cover Stud Nut			1
LS	331	Gearbox Cover Stud Spring Washer			1

BEARINGS.

			£	s.	d.
LS	400	Main Gear Wheel Bearing complete, $2\frac{1}{2}$ " outside dia. \times $1\frac{1}{4}$ " dia. bore \times $\frac{5}{8}$ " wide	7	6	
LS	409	Oil Retaining Washer (steel), used between Main Bearing and Main Gear Wheel ...		1	
LS	409A	Oil Retaining Washer (steel), used between Shell and Main Bearing		1	
E.IV	52	Felt Oil Retaining Washer		2	
E.IV	53	Leather Oil Retaining Washer		2	
CS	24	Mainshaft R.H. Bearing, $1\frac{9}{16}$ " outside dia. \times $\frac{5}{8}$ " dia. bore \times $\frac{7}{16}$ " wide	4	7	
LS	300A	Layshaft L.H. Bronze Bearing, $\frac{15}{16}$ " outside dia. \times $\frac{11}{16}$ " dia. bore \times $\frac{7}{8}$ " long	1	0	

GEARS AND SHAFTS.

LS	426C	Main Axle, $8\frac{3}{8}$ " long (Enfield Models J, JA, H, HA, K & MK)... ..	13	0	
LS	426E	Main Axle, $7\frac{11}{16}$ " long (A.J.S. Model S2, Norton, Phelon & Moore)	13	0	
LS	444	Layshaft, $5\frac{13}{16}$ " long	12	6	
LS	401	Main Gear Wheel, 24T, with Bronze Bush LS.408 fitted	16	0	
LS	401A	Main Gear Wheel, 22T (Norton Close Ratio Model)	16	0	
LS	443	Main Axle Thrust Washer	1	6	
LS	403	Main Axle Sliding Pinion, 20T	8	6	
LS	403A	Main Axle Sliding Pinion, 19T (Norton Close Ratio Model)	8	6	
LS	403B	Main Axle Sliding Pinion, 21T (Enfield Models J & JA. Close Ratio)	8	6	
LS	445	Main Axle Pinion, 14T	4	0	
LS	445A	Main Axle Pinion, 13T (A.J.S. Model S2, Enfield Models H, HA, K & MK, Norton)	4	0	
LS	445B	Main Axle Pinion, 15T (Enfield Models J and JA. Close Ratio)	4	0	
LS	405	Layshaft Pinion, 18T	5	0	
LS	405A	Layshaft Pinion, 20T (Norton Close Ratio Model)	5	0	
LS	405B	Layshaft Pinion, 15T (Enfield Models J and JA. Close Ratio)... ..	5	0	
LS	404A	Layshaft Sliding Pinion, 22T	10	0	
LS	404B	Layshaft Sliding Pinion, 21T (Enfield Models J & JA only, Close Ratio)	10	0	
LS	407B	Low Gear and K.S. Wheel, 28T, with Bronze Bush E.IV.35 fitted	10	0	
LS	407C	Low Gear and K.S. Wheel, 29T (A.J.S. Model S2, Enfield Models H, HA, K and MK, Norton)	10	0	
LS	407D	Low Gear and K.S. Wheel, 27T. (Enfield Models J & JA only. Close Ratio)	10	0	

GEAR OPERATING PARTS.

			£	s.	d.
LS	234D	Rockingshaft Lever (Phelon & Moore). $1\frac{5}{8}$ " centres with body $2\frac{3}{8}$ " long		3	6
LS	234E	Rockingshaft Lever, $3\frac{1}{2}$ " centres, flat but curved (Norton)		3	6
LS	255C	Rockingshaft Lever, 4" centres with "V" notches at an angle		3	6
LS	255D	Rockingshaft Lever, $3\frac{7}{8}$ " centres both bent and curved (Enfield Models J, JA, H, HA, K & MK)		3	6
LS	163	Rockingshaft Lever Bush		2	0
LS	164	Rockingshaft End Bush		1	6
LS	165	Rockingshaft, $4\frac{7}{8}$ " long		1	3
LS	165C	Rockingshaft, $5\frac{1}{8}$ " long (Phelon & Moore)		1	3
LS	166	Sliding Gear Fork Index Plate (see note regarding Fork LS.162 below)		2	0
LS	167	Sliding Gear Fork Index Plate Rivet, per doz.		6	
LS	168	Sliding Gear Fork Index Plate Plunger ...		8	
LS	362	Sliding Gear Fork Index Plate Plunger (Norton, A.J.S. Model S2)		8	
LS	308	Swivel for Rockingshaft Lever (Phelon and Moore)		6	
LS	170	Sliding Gear Fork Index Plate Spring ...		2	
LS	169	Sliding Gear Fork Index Plate Screw ...		3	
CC	18	Rockingshaft Nut		2	
CS	75	Sliding Gear Plate		2	6
CS	99B	Rockingshaft Locking Washer		2	
LS	162	Sliding Gear Fork with Index Plate fitted (Vertical, at same side as Index Plate) ...		8	0
LS	162A	Sliding Gear Fork, with Index Plate fitted (Vertical at opposite side to Index Plate)		8	0

ALWAYS state make, year and model of machine, as there are four different arrangements.

Note that the Index Plate is reversible, and make sure that it is fitted the correct way round.

KICK STARTER MECHANISM.

LS	437A	Kick Starter Axle with Bronze Bush LS.12B fitted, $5\frac{7}{16}$ " overall (A.J.S. Model S2, Phelon & Moore and Norton)		12	6
LS	437B	Kick Starter Axle with Bronze Bush LS.12B fitted, $4\frac{1}{2}$ " overall. (Alternative Axle for Norton Models)		12	6
LS	438	Kick Starter Pawl		1	3
LS	439	Kick Starter Pawl Pin			3



LS 401



LS 403



LS 445



LS 426



LS 444



LS 404



LS 407

LS 405



LS 162A



CS 75



LS 162

LS 166
PLATE.

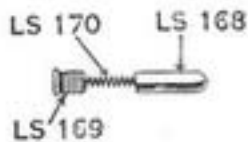
LS 167
RIVET



LS 165



LS 164



LS 169



CS 99B



CC 18



LS 163



LS 234E



LS 234D



LS 161D



LS 255A



LS 255E

GEARS AND SHAFTS.

GEAR OPERATING PARTS.

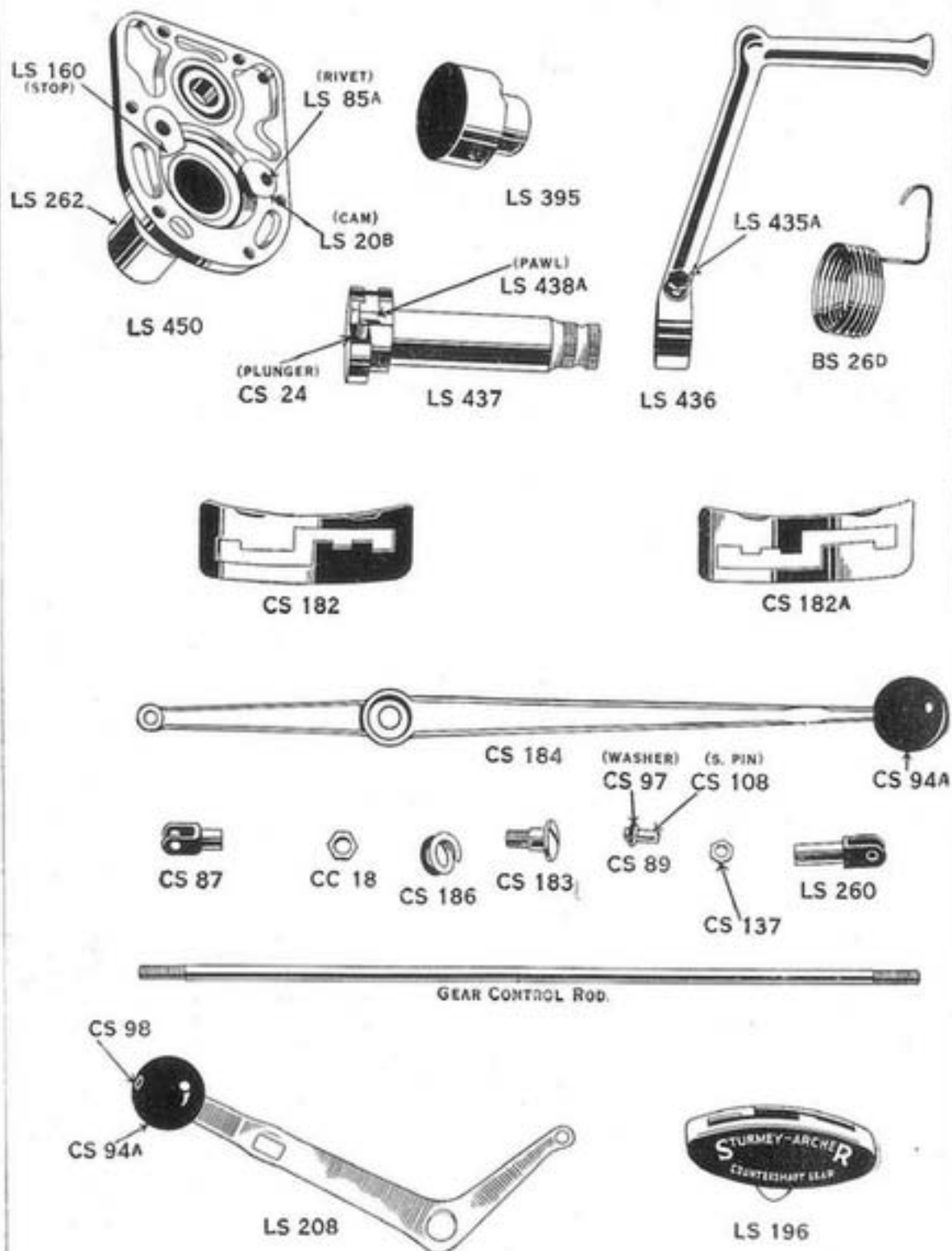
			£	s.	d.
LS	395C	Kick Starter Return Spring Cover, to suit Kick Starter Axle, LS.437A, $1\frac{15}{16}$ " long, $1\frac{1}{8}$ " hole		1	0
LS	395D	Kick Starter Return Spring Cover, to suit Kick Starter Axle, LS.437B, $1\frac{1}{16}$ " long, with $\frac{11}{16}$ " dia. hole		1	0
LS	395F	Kick Starter Return Spring Cover, to suit Kick Starter Axle, LS.437C, $1\frac{15}{16}$ " overall, $1\frac{1}{8}$ " dia. hole		1	0
LS	20B	Kick Starter Cam			3
LS	85A	Kick Starter Cam Rivet			1
LS	160	Kick Starter Stop Piece			4
LS	435	Kick Starter Crank Bolt, $1\frac{3}{16}$ " overall			3
LS	435A	Kick Starter Crank Bolt, $1\frac{13}{16}$ " overall			3
LS	436	Kick Start Crank	11	0	
LS	262	Kick Starter Bush	2	0	
BS	26D	Kick Starter Return Spring with arm, $1\frac{11}{16}$ " long, suits LS.395C		1	0
BS	26E	Kick Starter Return Spring with arm $\frac{11}{16}$ " long, suits LS.395D		1	0
BS	100	Kick Starter Return Spring, double peg fitting (Enfield Models J, JA, H, HA, K, and MK)		1	0
BS	23	Kick Starter Pawl Spring			1
BS	24	Kick Starter Pawl Spring Plunger			3
CS	74	Kick Starter Clamp Bolt Spring Washer			1

FINAL DRIVE.

LS	441B	Axle Sprocket, 18T, $\frac{5}{8}$ " x $\frac{3}{8}$ " (A.J.S. Model S.2, and Enfield Models H, HA, J, JA, and MK) $\frac{5}{8}$ " thick overall		7	6
LS	441C	Axle Sprocket, 19T., $\frac{5}{8}$ " x $\frac{3}{8}$ " (Enfield Model "K")		7	6
LS	441G	Axle Sprocket, 19T, $\frac{5}{8}$ " x $\frac{1}{4}$ " (Norton), $\frac{3}{4}$ " thick overall		7	6
LS	441H	Axle Sprocket, 18T, $\frac{5}{8}$ " x $\frac{3}{8}$ " (Phelon and Moore), $\frac{11}{16}$ " thick overall		7	6
LS	442	Axle Sprocket Distance Washer			6
SB	23	Axle Sprocket Lock Nut			8
SB	25	Axle Sprocket Locking Plate			4
S	35	Axle Sprocket Locking Plate Screw			1

CLUTCH OPERATING MECHANISM.

LS	24	Clutch Worm		1	9
LS	25	Clutch Nut		4	0
LS	26	Oil Retaining Cap for Clutch Nut			9
LS	118	Felt Washer for Clutch Nut			2
LS	122A	Clutch Worm Lever, $1\frac{9}{16}$ " centres, to suit J.200 (Phelon & Moore)		2	6



KICK STARTER PARTS. GATE CONTROL.

LS	122B	Clutch Worm Lever, $1\frac{9}{16}$ " centre, to suit LS.126 (Norton and Enfield Models K and MK)	£	s.	d.
				2	6
J	200	Clutch Worm Lever Bolt, $\frac{1}{4}$ " dia. thread, to suit LS.122A			1
LS	126	Clutch Worm Lever Bolt, $\frac{5}{16}$ " dia. thread, to suit LS.122B			1

N.B.—These parts are not used on A.J.S. Models or on Enfield Models J, JA, H, HA. See list of special parts for these makes of machines.

STRAIGHT PULL CLUTCH CONTROL.

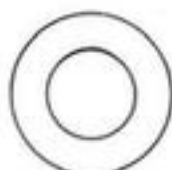
CS	43	Bowden Wire Stop Spring			1
CS	73	Nipple for Clutch Wire (Worm Lever end) per doz.			6
CS	73B	Nipple for Handlebar Lever			6
CS	100F	Handlebar Lever only	3	6	
CS	101E	Fulcrum, 1" Bar	2	0	
CS	101G	Fulcrum, $\frac{7}{8}$ " Bar	2	0	
CS	102A	Half Clip, 1" Bar		9	
CS	102B	Half Clip, $\frac{7}{8}$ " Bar		9	
CS	104A	Fulcrum Pin		1	
CS	106A	Fulcrum Pin Nut		1	
CS	106	Bowden Wire Stop and Nut, CS.106A		6	
CS	106A	Bowden Wire Stop Lock Nut		1	
CS	198	Thimble		1	
CS	199	Swivel for Handlebar Lever... ..		4	
X	90	Fixing Screw		1	
X	111	Clip Nut		2	
		6ft. Clutch Inner Wire		8	
		5ft. 8in. Outer Bowden Cable	2	8	
		Straight Pull Clutch Control, complete with wires	11	0	
		Straight Pull Clutch Control complete, less wires	7	0	

2-PLATE MULTI SPRING PLAIN CLUTCH.

LS	176	Clutch Spring Stud, $1\frac{5}{8}$ " long			6
LS	178	Clutch Spring Stud Nut			2
LS	181	Clutch Centre Plate, dished... ..	2	3	
LS	180	Clutch Outer Plate, flat	2	3	
LS	183A	Clutch Friction Plate with Corks	2	6	
LS	210A	Clutch Centre, splined	15	0	
LS	213	Clutch Back Plate	2	3	
LS	214A	Clutch Sprocket, 42T, $\frac{1}{2}$ " \times $\frac{5}{16}$ " (with Corks) with slots $\frac{1}{12}$ " deep	1	2	6
LS	217	Clutch Spring Box Plate, $\frac{1}{10}$ " overall depth	2	3	
LS	16	Axle Lock Washer			1



LS 400



LS 409



Eiv 52



Eiv 53



LS 300A



CS 24



SB 25



LS 442



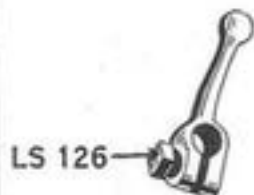
LS 441B
(10T)



SB 23



S 35



LS 126

LS 122B



LS 24



LS 118



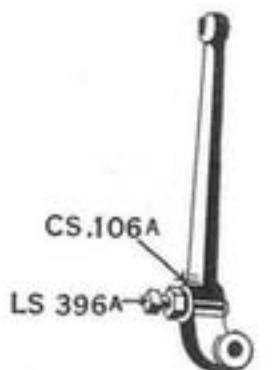
LS 26



LS 25



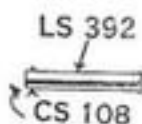
LS 397



CS.106A

LS 396A

LS 388



LS 392

CS 108



LS 267



LS 268

BEARINGS.

FINAL DRIVE PARTS.

CLUTCH OPERATING PARTS.

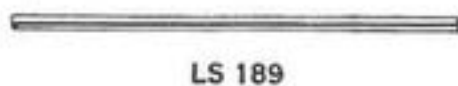
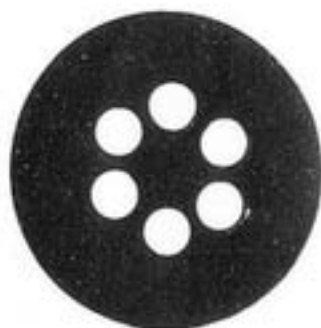
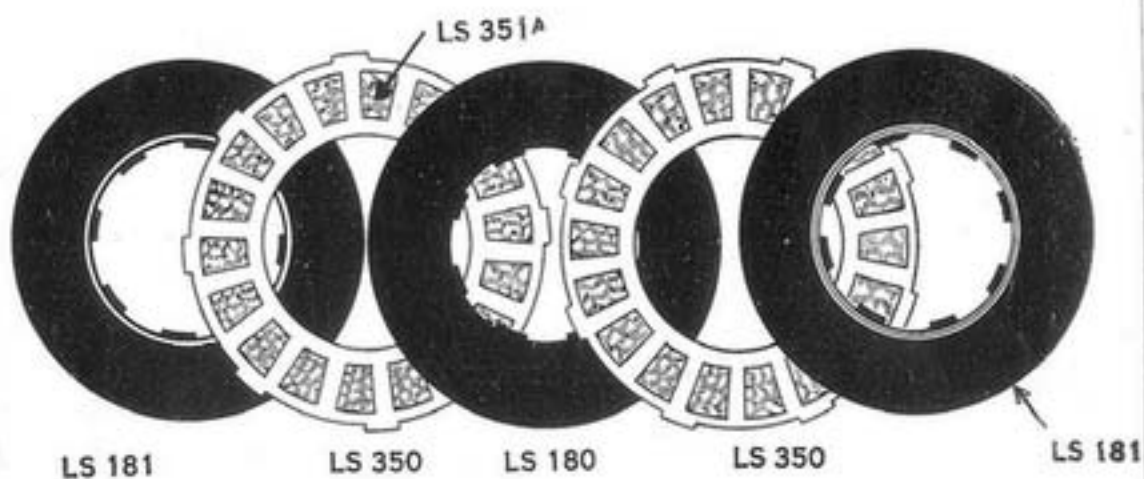
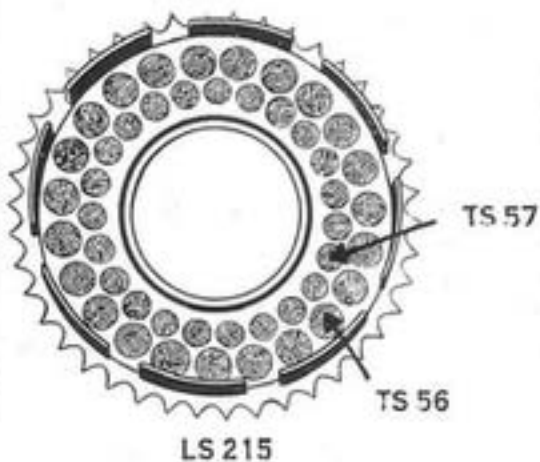
						£	s.	d.
CS	15A	Axle Key	...	...	...			3
CS	13	Axle Nut	...	...	...			5
CS	59	Clutch Spring Box, $1\frac{1}{16}$ " overall	...	...	...			4
CS	60	Clutch Spring	...	...	...			2
CS	61B	Clutch Spring Screw	...	...	...			2
LS	50B	$\frac{1}{4}$ " Roller (17 used)	...	...	...			2
		1 set $\frac{1}{4}$ " Balls	...	...	...			6
TS	56	Cork Inserts, $\frac{5}{8}$ " dia.	...	...	Per doz.			4
TS	57	Cork Inserts, $\frac{1}{2}$ " dia.	...	...	Per doz.			4

3-PLATE MULTI SPRING PLAIN CLUTCH.

LS	351	Clutch Friction Plug	...	Per doz.				2 0
LS	350	Clutch Friction Plate with 18 Oblong Fibre inserts	...	...	...			4 0
LS	183A	Clutch Friction Plate, with corks	...	...	...			2 6
LS	176	Clutch Spring Stud, $1\frac{5}{8}$ " long	...	...	...			6
LS	178	Clutch Spring Stud Nut	...	...	...			2
LS	180	Clutch Centre Plate, flat	...	...	...			2 3
LS	181	Clutch Centre Plate (Also used reversed as Outer Plate)	...	...	...			2 3
LS	181	Clutch Outer Plate (Also used reversed as Dished Centre Plate)	...	...	...			2 3
LS	211	Clutch Centre, with clutch plate grooves $\frac{11}{16}$ " long	...	...	...			15 0
LS	213	Clutch Back Plate	...	...	...			2 3
NS	36A	Clutch Sprocket, with corks, 42T, $\frac{1}{2}$ " \times $\frac{5}{16}$ " with slots $\frac{3}{16}$ " deep	...	...	...			1 5 0
NS	36A	Clutch Sprocket, with fibres, 42T, $\frac{1}{2}$ " \times $\frac{5}{16}$"	...	...	...			1 7 6
LS	218	Clutch Spring Box Plate, $\frac{5}{8}$ " deep overall	...	...	...			2 3
LS	16	Axle Lock Washer	...	...	...			1
CS	13	Axle Nut	...	...	...			5
CS	59	Clutch Spring Box, $1\frac{1}{16}$ " overall	...	...	...			4
CS	60	Clutch Spring	...	...	...			2
CS	61B	Clutch Spring Screw	...	...	...			2
TS	56	Cork Inserts, $\frac{5}{8}$"	...	...	Per doz.			4
TS	57	Cork Inserts, $\frac{1}{2}$"	...	...	Per doz.			4
LS	50B	$\frac{1}{4}$ " Rollers (17 used)	...	...	Each			2
		$\frac{1}{4}$ " dia. Balls (16 in set)	...	...	Per set			6

4-PLATE MULTI SPRING PLAIN CLUTCH.

LS	351	Fibre Oblong Insert	...	Per doz.				2 0
LS	176	Clutch Spring Stud, $1\frac{5}{8}$ " long	...	...	...			6
LS	178	Clutch Spring Stud Nut	...	...	...			2
LS	180	Clutch Centre Plate, flat	...	...	...			2 3
LS	181	Clutch Centre Plate (also used reversed as Outer Plate)	...	...	...			2 3
LS	181	Clutch Outer Plate (also used reversed as Dished Centre Plate)	...	...	...			2 3
LS	182A	Clutch Spring Box Plate	...	...	...			2 3



MULTI-SPRING PLAIN CLUTCH.

			£	s.	d.
LS	350	Clutch Friction Plate, fitted with oblong fibre inserts		4	0
LS	212	Clutch Centre	15	0	
LS	213	Clutch Back Plate	2	3	
NS	36A	Clutch Sprocket with fibres, 42T $\frac{1}{2} \times \frac{5}{16}$ " with slots $\frac{3}{16}$ " deep	1	7	6
LS	16	Axle Lock Washer			1
CS	13	Axle Nut			5
CS	59	Clutch Spring Box, $1\frac{1}{16}$ " overall			4
CS	60	Clutch Spring			2
CS	61B	Clutch Spring Screw			2
LS	50B	$\frac{1}{4}$ " Roller (17 used)			2
		$\frac{1}{4}$ " dia. Balls (16 in set)			6

SPECIAL PARTS FOR A.J.S. MODEL S2.

LS	383A	Gearbox Shell (Stamped H.111)	1	16	0
LS	450D	Gearbox Cover (Cable Stop Extension on left base)	15	0	
LS	255C	Rockingshaft Lever. 4" centres with "V" notches at an angle	3	6	
LS	362	Sliding Gear Fork Index Plate Plunger			8
LS	395C	Kick Starter Return Spring Cover, $1\frac{15}{16}$ " long, $1\frac{1}{8}$ " hole	1	0	
LS	407C	Low Gear and Kick Starter Wheel, 29T	10	0	
LS	426E	Main Axles, $7\frac{11}{16}$ " long	13	0	
LS	437A	Kick Starter Axle with Bronze Bush LS.12B fitted, $5\frac{7}{16}$ " overall	12	6	
LS	441B	Axle Sprocket, 18T, $\frac{5}{8} \times \frac{3}{8}$ ", $\frac{3}{8}$ " thick overall	7	6	
LS	445A	Main Axle Pinion, 13T	4	0	
BS	26D	Kick Starter Return Spring, $1\frac{11}{16}$ " long	1	0	
LS	82	Clutch Rod, $7\frac{1}{2}$ " long			10
LS	94B	Thrust Pin, $1\frac{3}{8}$ " long			9

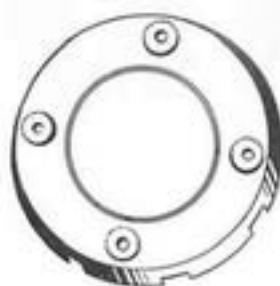
Fitted with 3-Plate Multi Spring Plain Clutch.

CLUTCH OPERATING MECHANISM FOR ENFIELD MODELS J, JA, H & HA AND A.J.S.

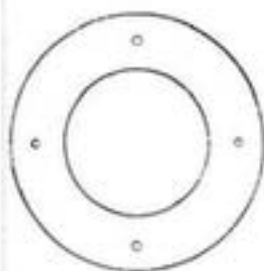
LS	267	Clutch Nut	3	6	
LS	268	Clutch Operating Fulcrum Lock Nut			1
LS	387	Clutch Operating Lever Bracket	3	6	
LS	388	Clutch Operating Lever, $4\frac{9}{16}$ " from fulcrum to wire	4	0	
LS	392	Fulcrum Pin			3
LS	396A	Clutch Operating Lever Adj. Screw, $1\frac{7}{16}$ " overall			3
CS	106A	Lock Nut for Clutch Adj. Screw, LS.396A			1
CS	108	Split Pin			6



LS-188



LS-185^A



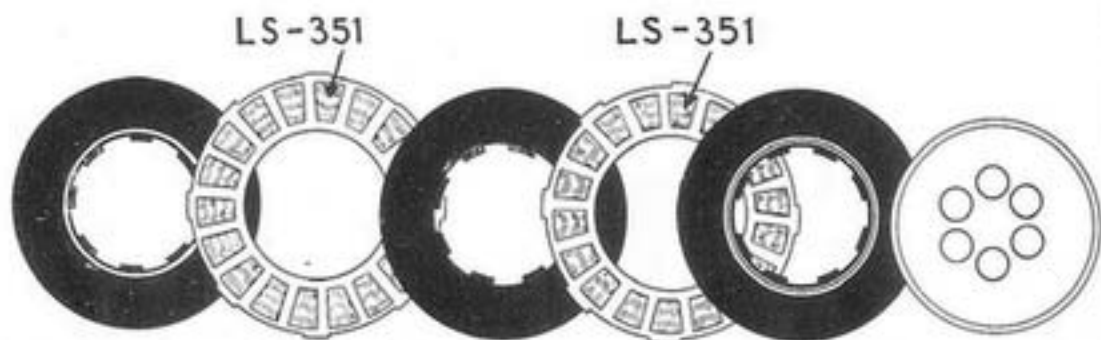
LS-72^A



LS-187^A



LS-184^A



LS-179

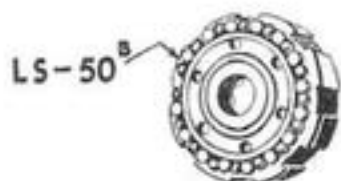
LS-350

LS-180

LS-350

LS-181

LS-182



LS-50^B

LS-173



LS-172



LS-175



LS-94^A



LS-93



LS-69^A



CS-60



CS-59



LS-94



LS-91



MC-503



LS-177



LS-176



CS-61^B



CS-140



LS-178



LS-76

MULTI-SPRING SHOCK ABSORBER CLUTCH.

**SPECIAL PARTS FOR ENFIELD MODELS J, JA,
H, HA, K & MK.**

				£	s.	d.
LS	280B	Gearbox Shell (stamped B.111). Fitted to Models J & JA	...	1	16	0
LS	280B	Gearbox Shell (stamped C.111). Fitted to Models H & HA	...	1	16	0
LS	280B	Gearbox Shell (stamped N.111). Fitted to Model K only	...	1	16	0
LS	280B	Gearbox Shell (stamped O.111). Fitted to Model MK	...	1	16	0
LS	450H	Gearbox Cover (Oil filler level with K.S. Axle centre and 1 boss at each top corner for Cable Stops)	...		15	0
LS	122B	Clutch Worm Lever, $1\frac{9}{16}$ " centres, to suit LS.126. Fitted to Models K and MK	...		2	6
LS	126	Clutch Worm Lever Bolt, $\frac{5}{16}$ " dia. thread. Suits LS.122B	...			1
LS	168	Sliding Gear Fork Index Plate Plunger	...			8
LS	222	Clutch Centre. Fitted to Model MK only (4-plate single spring clutch)	...		12	0
LS	255D	Rockingshaft Lever. $3\frac{1}{2}$ " centres, bent and curved	...		3	6
LS	395F	Kick Starter Return Spring Cover. $1\frac{15}{16}$ " overall. $1\frac{1}{8}$ " dia. hole	...		1	0
LS	403B	Main Axle Sliding Pinion, 21T. Fitted to Models J & JA (Close Ratio)	...		8	6
LS	404B	Layshaft Sliding Pinion, 21T. Fitted to Models J & JA. (Close Ratio)	...		10	0
LS	405B	Layshaft Pinion, 15T. Fitted to Models J & JA. (Close Ratio)	...		5	0
LS	407C	Low Gear and Kick Starter Wheel, 29T. Fitted to Models H, HA, K & MK	...		10	0
LS	407D	Low Gear and Kick Starter Wheel, 27T. Fitted to Models J & JA. (Close Ratio)	...		10	0
LS	426C	Main Axle, $8\frac{3}{8}$ " long	...		13	0
LS	437C	Kick Starter Axle with Bronze Bush LS.12B fitted. $5\frac{11}{16}$ " overall	...		12	6
LS	441B	Axle Sprocket, 18T, $\frac{5}{8}" \times \frac{3}{8}"$, $\frac{5}{8}"$ thick overall	...		7	6
LS	441C	Axle Sprocket, 19T, $\frac{5}{8}" \times \frac{3}{8}"$. Fitted to Model K only	...		7	6
LS	445A	Main Axle Pinion, 13T. Fitted to Models H, HA, K & MK	...		4	0
LS	445B	Main Axle Pinion, 15T. Fitted to Models J & JA. (Close Ratio)	...		4	0
BS	100	Kick Starter Return Spring (double peg fitting)	...		1	0
CS	164G	Clutch Sprocket, 42T, $\frac{1}{2}" \times \frac{5}{16}"$. Fitted to Model MK only (4-plate single spring plain clutch)	...		1	7 6
LS	82C	Clutch Rod, $7\frac{5}{8}"$ long	...			10
LS	94A	Thrust Pin, $1\frac{3}{4}"$ long	...			9

SPECIAL PARTS FOR NORTON MODELS

(Standard & Close Ratio).

			£	s.	d.
LS	230C	Gearbox Shell (stamped E.111). Fitted to Standard Ratio Model	1	16	0
LS	230C	Gearbox Shell (stamped F.111). Fitted to Close Ratio Model	1	16	0
LS	450A	Gearbox Cover (when Gate Tank Control is fitted). Flat on left base		15	0
LS	450C	Gearbox Cover (used when Disc Control is fitted). As LS.450A with extension on top		15	0
LS	122B	Clutch Worm Lever, $1\frac{9}{16}$ " centres to suit LS.126		2	6
LS	126	Clutch Worm Lever Bolt, $\frac{5}{16}$ " dia. thread... ..			1
LS	234E	Rockingshaft Lever, $3\frac{1}{2}$ " centres, flat but curved		3	6
LS	362	Sliding Gear Fork Index Plate Plunger			8
LS	395C	Kick Starter Return Spring Cover, to suit LS.437A		1	0
LS	395D	Kick Starter Return Spring Cover, to suit LS.437B		1	0
LS	401A	Main Gear Wheel, 22T (fitted to Close Ratio Model)		16	0
LS	403A	Main Axle Sliding Pinion, 19T (fitted to Close Ratio Model)		8	6
LS	405A	Layshaft Pinion, 20T (fitted to Close Ratio Model)		5	0
LS	407C	Low Gear and Kick Starter Wheel, 29T (fitted to Close Ratio Model)		10	0
LS	426E	Main Axle, $7\frac{11}{16}$ " long		13	0
LS	437A	Kick Starter Axle with Bronze Bush LS.12B fitted. $5\frac{7}{16}$ " overall		12	6
LS	437B	Kick Starter Axle with Bronze Bush LS.12B fitted. $4\frac{11}{16}$ " overall (alternative Axle)		12	6
LS	441G	Axle Sprocket, 19T, $\frac{5}{8}$ " \times $\frac{1}{4}$ ", $\frac{3}{4}$ " thick overall		7	6
LS	445A	Main Axle Pinion, 13T		4	0
BS	26D	Kick Starter Return Spring, to suit LS.437A $1\frac{11}{16}$ " long		1	0
BS	26E	Kick Starter Return Spring to suit LS.437B Arm $\frac{11}{16}$ " long		1	0
LS	189B	Clutch Rod, $7\frac{1}{8}$ " long			10
LS	94B	Thrust Pin, $1\frac{3}{8}$ " long			9

Fitted with 3-Plate Multi Spring Plain Clutch.

SPECIAL PARTS FOR PHELON & MOORE.

LS	451	Gearbox Shell (stamped G.111)	1	16	0
LS	450E	Gearbox Cover (used when Disc Control is fitted). Horizontal. (Cable Stop boss at right base and extension on top for Disc Control)		15	0

			£	s.	d.
LS	450F	Gearbox Cover (used when Gate Tank Control is fitted). Horizontal. (As LS. 450E, but less extension on top) ...	15	0	
LS	122A	Clutch Worm Lever, $1\frac{9}{16}$ " centres ...	2	6	
LS	165C	Rockingshaft, $5\frac{15}{16}$ " long ...	1	3	
LS	168	Sliding Gear Fork Index Plate Plunger ...		8	
LS	234D	Rockingshaft Lever, $1\frac{5}{8}$ " centres with body $2\frac{3}{8}$ " long ...	3	6	
LS	395C	Kick Starter Return Spring Cover, $1\frac{15}{16}$ " long, $1\frac{1}{8}$ " hole ...	1	0	
LS	426E	Main Axle, $7\frac{1}{2}$ " long ...	13	0	
LS	437A	Kick Starter Axle with bronze bush LS.12B fitted. $5\frac{7}{16}$ " overall ...	12	6	
LS	441H	Axle Sprocket, 18T, $\frac{5}{8}$ " \times $\frac{3}{8}$ ", $\frac{11}{16}$ " thick overall ...	7	6	
BS	26D	Kick Starter Return Spring with arm $1\frac{1}{2}$ " long ...	1	0	
J	200	Clutch Worm Lever Bolt ...		1	
LS	189B	Clutch Rod, $7\frac{1}{8}$ " long ...		10	
LS	94B	Thrust Pin, $1\frac{3}{8}$ " long ...		9	
Fitted with 3-Plate Multi Spring Plain Clutch.					

GATE TANK CONTROL FOR NORTON MODELS.

CS	184E	Gear Control Lever, $5\frac{1}{8}$ " centres from short arm ...	8	0	
CS	182C	Gear Control Gate ...	3	6	
CS	183	Gear Control Fulcrum Screw ...		10	
CS	186	Gear Control Spring Screw ...		2	
CS	94A	Gear Control Knob ...		9	
CS	95A	Gear Control Knob Washer ...		1	
CS	98	Collar for Quadrant Knob ...		2	
CS	87	Gear Connection ...		10	
CS	89	Gear Connection Pin ...		2	
CS	97	Gear Connection Washer ...		1	
CS	108	Split Pin ... doz.		6	
		Gear Control Rod ...	1	0	

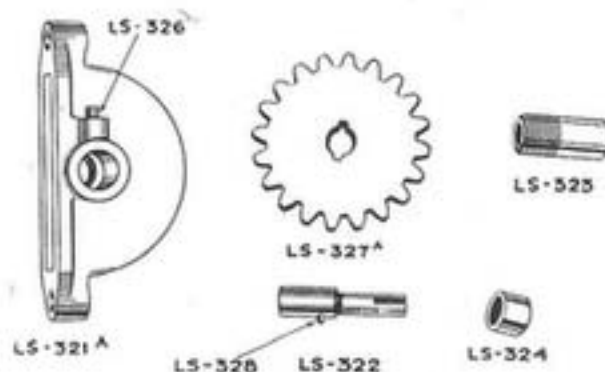
DISC CONTROL ON COVER FOR NORTON MODELS.

LS	60	Control Index Plate ...	3	0	
LS	61	Control Bush ...	1	0	
LS	62B	Control Quadrant Stud ...	1	0	
LS	63	Control Quadrant Spring Box ...		3	
LS	64	Control Quadrant Spring ...		3	
LS	65	Control Quadrant Spring Nut ...		6	
LS	65A	Control Quadrant Spring Washer ...		1	
LS	84	Control Quadrant Stop Peg ...		1	
LS	84B	Control Quadrant Securing Peg ...		1	

			£	s.	d.
LS	232	Gear Control Rod, $5\frac{9}{16}$ " long (Bent one end)		1	0
LS	229	Gear Connection Washer			1
LS	233	Control Quadrant		5	0
LS	235	Gear Connection Stud		1	0
LS	238	Gear Connection			10
CS	7	Axle Nut (for Quadrant Stud)			2
CS	74	Spring Washer			1
CS	83B	Long Gear Lever complete with Knob ...		6	0
CS	87	Gear Connection			10
CS	89	Gear Connection Pin			2
CS	94A	Gear Lever Knob			9
CS	95A	Gear Lever Knob Washer			1
CS	98	Collar for Quadrant Knob			2
CS	108	Split Pin Doz.			6
CS	137	Gear Connection Lock Nut			1
CS	151	Spring Washer for Quadrant Stud			1
CS	84A	Long Gear Lever Bolt			2
CS	97	Gear Connection Washer			1

SPEEDOMETER DRIVE PARTS FOR A.J.S. Model S2.
(Smith type, 2,240 Revs. per mile).

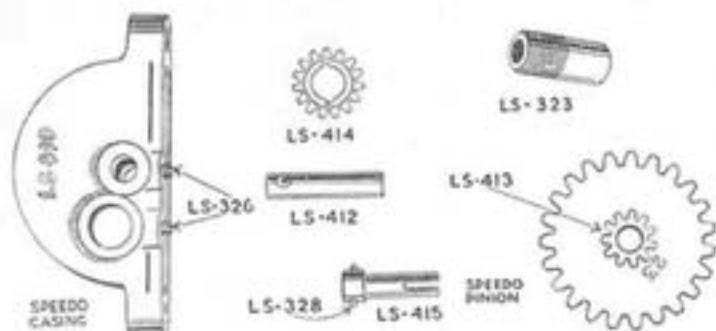
LS	321A	Pinion Casing... ..		2	6
LS	322	Pinion Spindle		1	3
LS	323	Connection Bush		1	6
LS	324	Spindle End Bush			8
LS	325	Spindle End Washer			1
LS	326	End Bush Fixing Screw Washer			1
LS	328	Pin for Coupling Spindle to Speedo Pinion doz.			6
LS	331	Casing Fixing Screw			1
LS	463B	Pinion, 20T		2	0
MC	255	Casing Fixing Screw			2
		Speedometer Drive complete		7	6



SPEEDOMETER DRIVE PARTS FOR A.J.S. MODEL S.2.

(Jaeger type, 1,690 Revs. per mile).

						£	s.	d.
LS	410	Pinion Casing...	...	...	...		2	6
LS	412	Pinion Spindle	...	...	...		1	3
LS	413	Intermediate Pinion	...	...	...		1	0
LS	414	Final Pinion	...	...	...		1	0
LS	415	Final Pinion Spindle	...	...	...		1	3
LS	462B	Pinion, 20T	...	...	...		2	0



LS	323	Connection Bush	...	...	...		1	6
LS	328	Pin for Coupling Spindle to Speedo Pinion	...	...	...			6
								doz.
LS	331	Casing Fixing Screw Washer	...	...	...		1	
LS	326	Grub Screw for Fixing Bush	...	...	...		1	
MC	255	Casing Fixing Screw	...	...	...		2	
		Speedometer Drive complete	...	...	...		9	0

SPEEDOMETER DRIVE PARTS FOR ENFIELD MODELS

J, JA, H, HA, K & MK.

ALSO PHELON & MOORE.

LS	321A	Pinion Casing...	...	...	...		2	6
LS	322	Pinion Spindle	...	...	...		1	3
LS	323	Connection Bush	...	...	...		1	6
LS	324	Spindle End Bush	...	...	...			8
LS	325	Spindle End Bush Washer	...	...	...		1	
LS	326	End Bush Fixing Screw	...	...	...		1	
LS	328	Pin for Coupling Spindle to Speedo Pinion	...	...	...			6
								doz.
LS	331	Casing Fixing Screw Washer	...	...	...		1	
LS	436A	Pinion, 21T	...	...	...		2	0
MC	255	Casing Fixing Screw	...	...	...			2