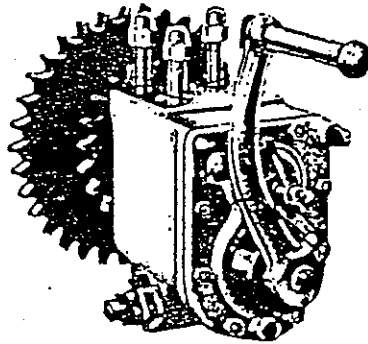


MARCH, 1929

STURMEY ARCHER COUNTERSHAFT GEAR



L.S. TYPE

L.W. & H.W.

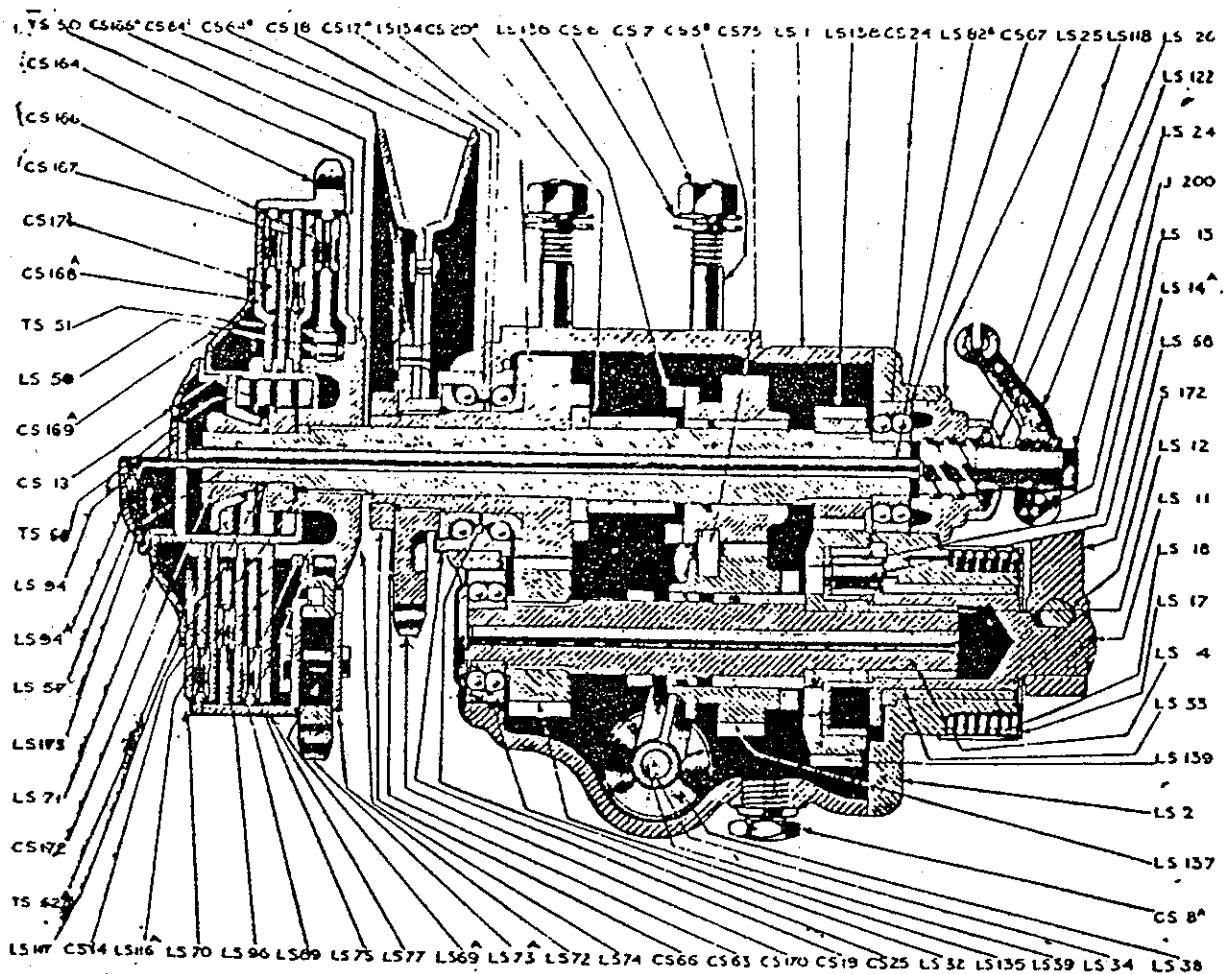
3-SPEED for CHAIN-CUM-BELT
or ALL-CHAIN DRIVE

STURMEY-ARCHER GEARS LTD

LENTON———NOTTINGHAM———ENGLAND

Telegrams: "TRIPLE, NOTTINGHAM."

Tel. 75154.



A SECTIONAL VIEW OF THE STURMEY-ARCHER 3-SPEED COUNTERSHAFT GEAR.

STURMEY-ARCHER 3-SPEED COUNTERSHAFT GEAR L.S. TYPE.

Suitable for Engines from 300 c/c to 1,000 c/c.

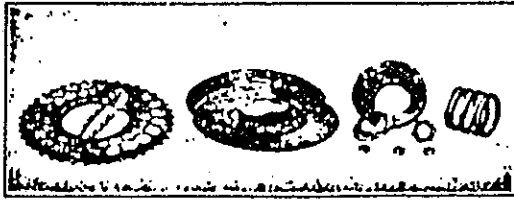
The outstanding feature of this new production is that three speeds and a kick-starter are provided by using only three pairs of pinions. The kick-starter drive is taken through the low gear pinions, thus dispensing with the extension on the box, and reducing weight appreciably. The kick-starter mechanism is entirely enclosed, and the box presents a particularly neat and pleasing appearance.

The pinions of this box are so arranged that, when in high gear, the idle wheels are gearing down, thus reducing friction considerably.

The change gear compensator so well known to users of S.A. Gears is now incorporated in the box, giving this device greater efficiency and perfect lubrication.

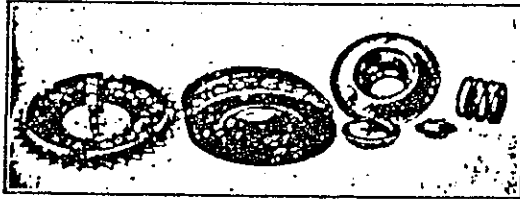
This compensator, together with constant mesh pinions, prevents any possibility of damage to gears when changing.

TYPES OF CLUTCHES.



SINGLE PLATE CLUTCH.

The single Plate Clutch contains cork inserts : very simple and light, for engines not exceeding 250 c/c. (This clutch is not used now on the L.S. Box.)



THE 2 PLATE CLUTCH.

Cork and Ferodo insert type.

Roller bearings in brass cage, for single cylinder engines up to 400 c/c or twins up to 500 c/c.



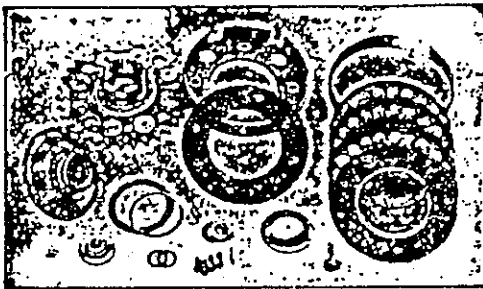
THE 3 PLATE CLUTCH.

Cork and Ferodo insert type.

Roller bearings in brass cage, for engines up to 1,000 c/c.

THE SHOCK ABSORBER CLUTCH.

The drive is taken through a series of rubber buffers in the clutch sprocket, taking up very little space, and light in weight ; in fact it has proved so efficient in action that it is not possible to distinguish between the belt and the all-chain drive when this shock absorber is fitted.



3 PLATE SHOCK ABSORBER CLUTCH.

The 3 Plate (Heavy Weight) shock absorber clutch for engines up to 1,000 c/c.

Ferodo insert type, roller bearings and efficient rubber shock absorbers.

2 PLATE SHOCK ABSORBER CLUTCH.

A 2 plate-shock absorber clutch (not illustrated) is also supplied, suitable for engines up to 400 c/c. or twins up to 500 c/c.

4 PLATE CLUTCH.

A special 4-plate clutch, with or without shock-absorber, is also supplied for 1,000 c/c high efficiency engines of the super-sports variety at extra charge.

The Clutch Drivers and Plates on these single spring Clutches all had six grooves or tongues until 1927 inclusive. These parts may be distinguished by this fact from the corresponding parts belonging to multi-spring clutches, which are all designed with eight grooves or tongues.

During 1928 some single spring clutches were assembled with eight slot clutch drivers and plates with eight driving projections. These will be standard from 1929 onwards.

SHOCK ABSORBER MULTI-SPRING CLUTCH.

A new Multi-spring Shock Absorber Clutch (illustrated on page 16) has been introduced : 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.

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.

The clutch worm lever should be examined immediately any sign of slipping is suspected, to ensure that it has $\frac{1}{8}$ " idle movement when the clutch is fully engaged.

Through wear on the clutch plates, or faulty setting, the lever may be found resting on the top spring. In this case it will be necessary to loosen the lever from the worm, move it forward slightly, and adjust the wire stop screw to suit.

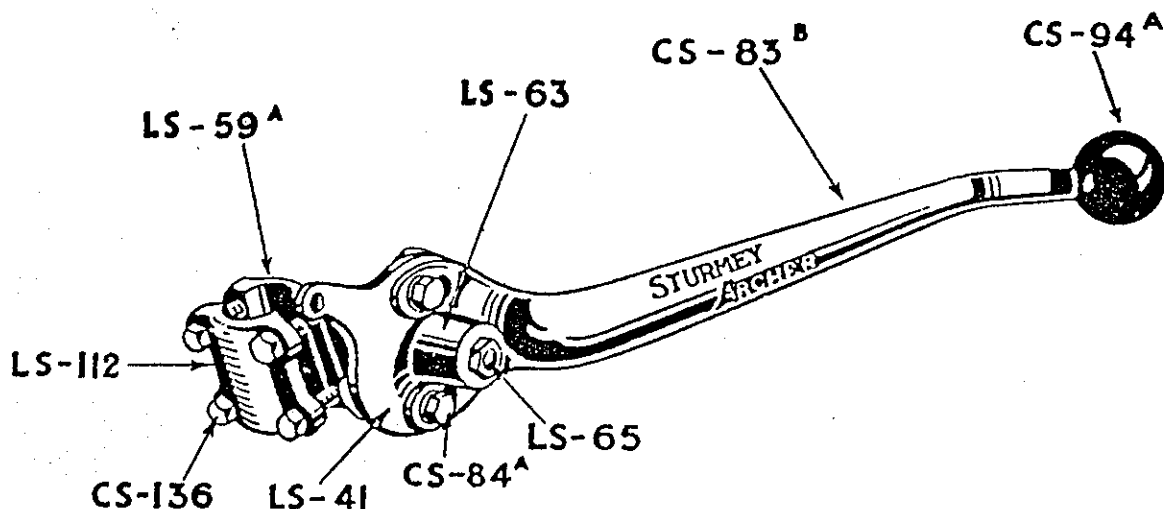
In the case of the new type clutch nut, it may be found that the shoulder on the worm is bearing on the face of the felt washer. (See illustration on page 1.) As a temporary measure release the steel cap LS 26, but to effectually cure the trouble, it will be necessary to shorten the clutch rod by $\frac{1}{8}$ " or thereabout.

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

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; as illustrated.

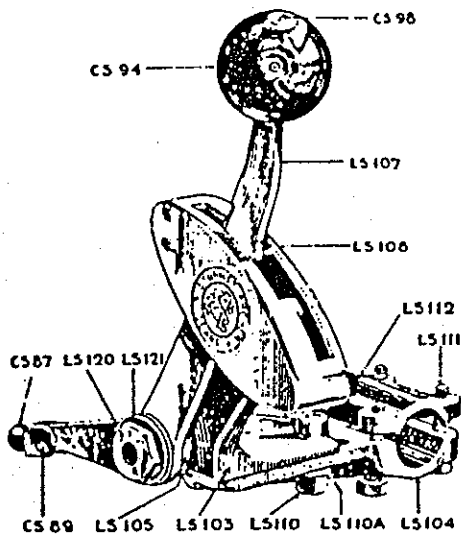


This type of control can be supplied to fix to the Saddle-down tube as illustrated above, or mounted on a bracket bolted to the top of the box, or fitted to an extension of the gearbox cover.

The length of the stem of the Quadrant Stud varies according to the method of fixing, otherwise all "Disc" type controls are identical.

2. GATE PATTERN.

Can be supplied to fix to the tube underneath the tank, or to the saddle-down tube, or to bolt to top of the gearbox:—

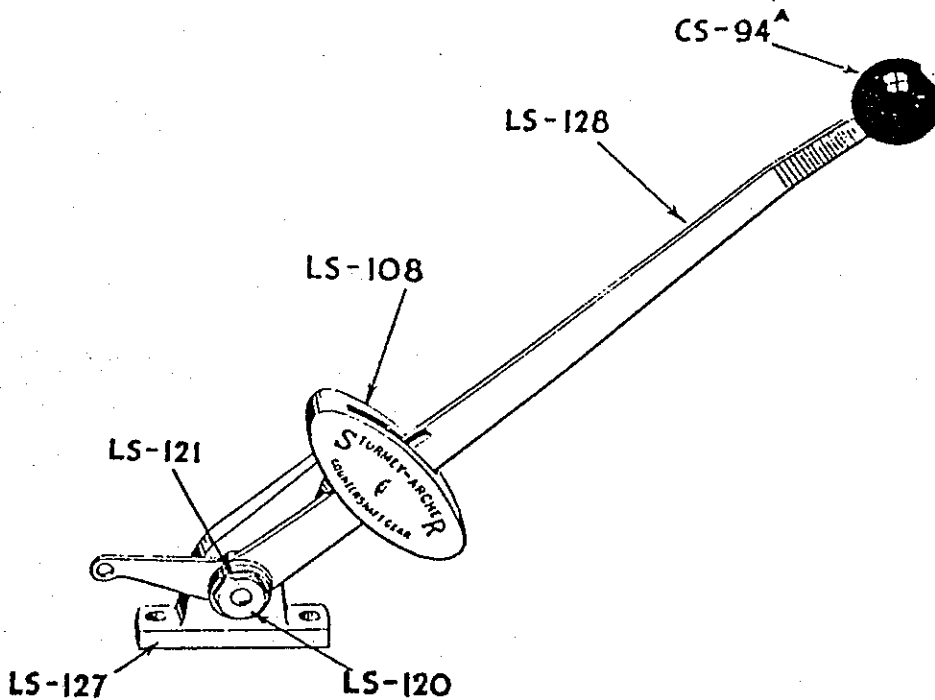
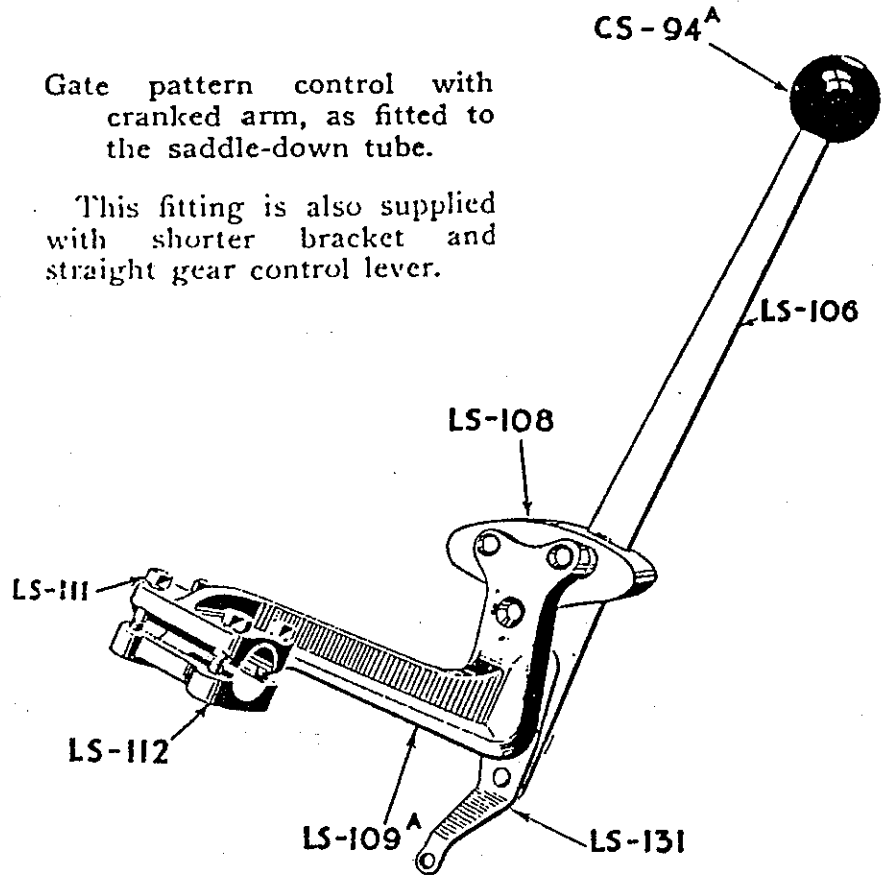


Gate pattern control for the tube underneath the tank.

Supplied either with adjustable fittings shown, to suit any width tank up to 10½ inches, or with fixed brackets to suit 8½in., 10in., and 11½in. tanks.

Gate pattern control with cranked arm, as fitted to the saddle-down tube.

This fitting is also supplied with shorter bracket and straight gear control lever.



Gate pattern control as fitted to top of the gearbox.

It is to be noted that the top of the gearbox has to be specially grooved and two fixing studs fitted to take this control, so that conversions from any other type except Disc on Box, is not possible.

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 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 emphasize that gear boxes are meant to be used. Sturmey-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 the control, see that compensator spring nut on lever side of rocking shaft 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.

In the case of gears which are automatically indexed inside the box, place the lever on box in the neutral position and adjust the length of the control rod so that the lever in the gate synchronises with the position of that on the box.

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 reassembled. If the plate sticks, one or two light blows inside the kick-starter crank will loosen it. This will expose the complete interior to view. By disconnecting gear control rod the low and middle gear pinions, also lay-shaft, 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 Speedwell "Crimsangere Light," or "Wakefield Castrolcase Light," specially prepared for Sturmev-Archer Gearboxes. These facilitate gear changing and do not leak. Both are supplied in 1lb. tubes. Charge with $\frac{1}{2}$ lb., and recharge with $\frac{1}{2}$ lb. about every 1,000 to 1,500 miles. Add about 3 tablespoonfuls of engine oil to the "Crimsangere."

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 attributed 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 kick starter pawl.

The various joints in the gear changing lever mechanism should be kept oiled regularly to ensure freedom of action. Inject a little vascline or grease between the index and quadrant plate LS 60 and LS 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.

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

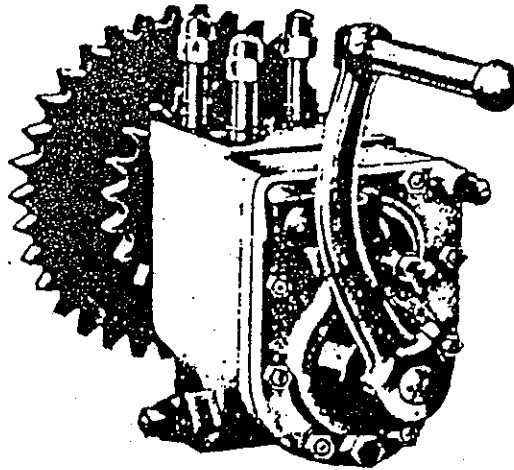
Example $\frac{4\frac{1}{2}}{1} \times \frac{5\frac{1}{2}}{1} = \frac{2}{1} \times \frac{11}{4} = \frac{22}{4} = 5\frac{1}{2}$ to 1 Top Gear.

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 UP TO 1928 INCLUSIVE.					LIST OF AVAILABLE GEAR RATIOS.			
GEARS 10 PITCH.					1929			
Standard Ratio ... 1 ... 1.47 ... 2.94					Standard Ratio ... 1 ... 1.46 ... 2.66			
Close Ratio ... 1 ... 1.33 ... 2.33					Close Ratio ... 1 ... 1.33 ... 2.40			
Top	Standard Ratios		Close Ratios		Standard Ratios		Close Ratios	
	Middle	Low	Middle	Low	Middle	Low	Middle	Low
3	4.41	8.82	3.99	6.99	4.38	7.98	3.99	7.20
3 $\frac{1}{2}$	4.78	9.56	4.32	7.57	4.74	8.64	4.32	7.80
3 $\frac{3}{4}$	5.15	10.29	4.66	8.15	5.11	9.31	4.66	8.40
3 $\frac{1}{2}$	5.51	11.03	4.99	8.73	5.47	9.97	4.99	9.00
4	5.88	11.76	5.32	9.32	5.84	10.64	5.32	9.60
4 $\frac{1}{4}$	6.25	12.50	5.65	9.90	6.20	11.30	5.65	10.20
4 $\frac{1}{2}$	6.62	13.23	5.99	10.48	6.57	11.97	5.99	10.80
4 $\frac{3}{4}$	6.98	13.97	6.32	11.06	6.93	12.63	6.32	11.40
5	7.35	14.70	6.65	11.65	7.30	13.30	6.65	12.00
5 $\frac{1}{4}$	7.72	15.44	6.98	12.23	7.66	13.96	6.98	12.60
5 $\frac{1}{2}$	8.09	16.17	7.32	12.81	8.03	14.63	7.32	13.20
5 $\frac{3}{4}$	8.45	16.91	7.65	13.39	8.39	15.29	7.65	13.80
6	8.82	17.64	7.98	13.98	8.76	15.96	7.98	14.40
6 $\frac{1}{4}$	9.19	18.38	8.31	14.56	9.12	16.62	8.31	15.00
6 $\frac{1}{2}$	9.56	19.11	8.65	15.14	9.49	17.29	8.65	15.60

STURMEY-ARCHER 3-SPEED HEAVYWEIGHT.

SUITABLE FOR MACHINES FROM 400 to 1,200 c/c.

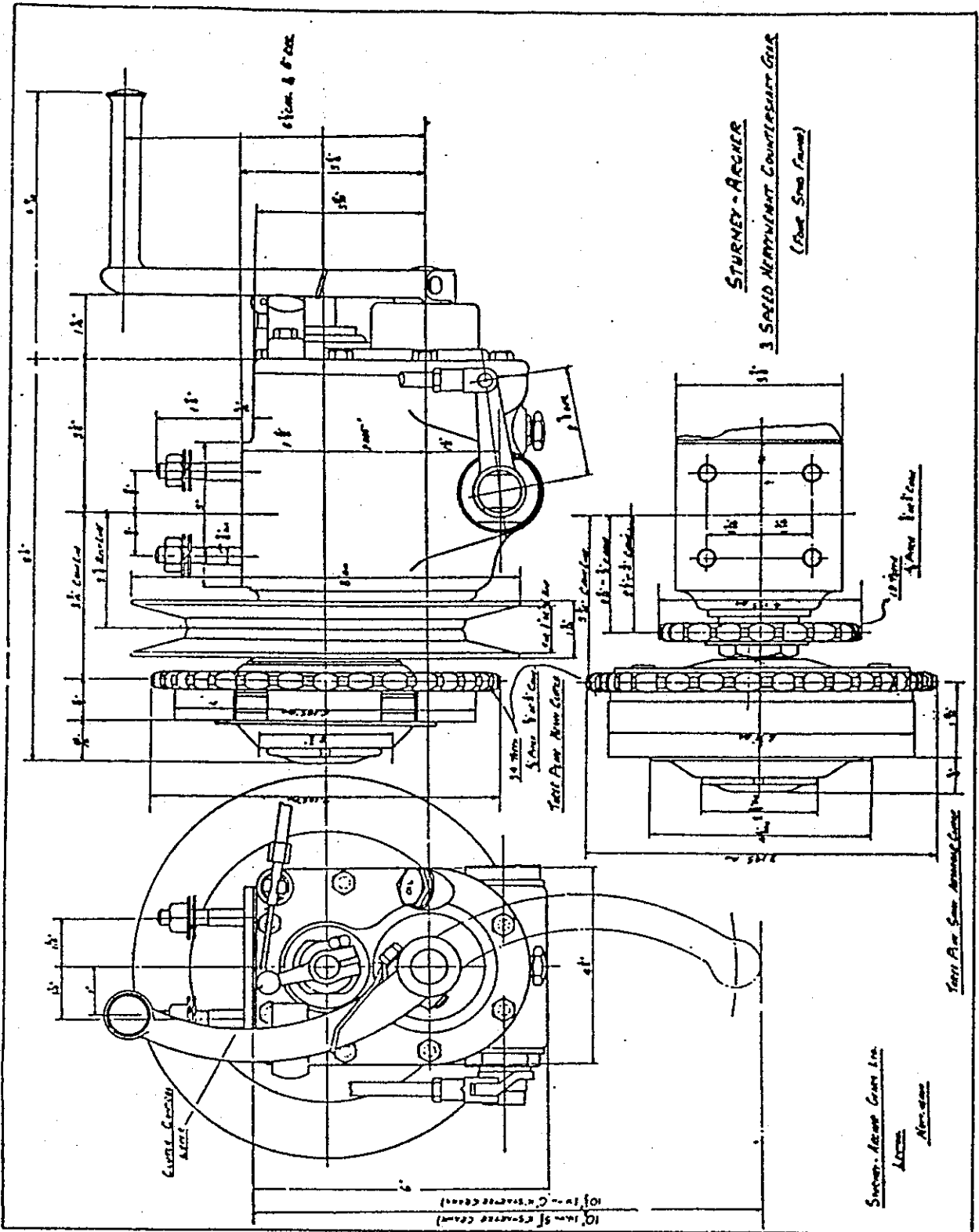


The gear illustrated has a 4 stud fixing with heavy internal pinions, and is interchangeable with our C.S. type gear.

For engines over 400 c/c a 3 or 4 plate heavy clutch is fitted.

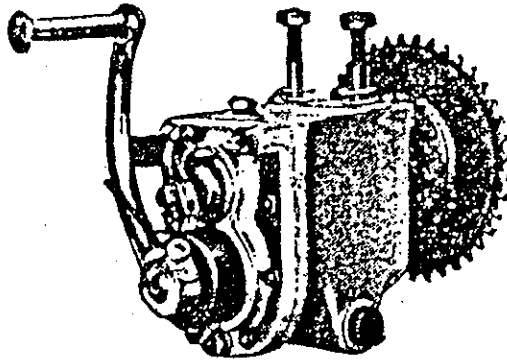
PARTICULARS OF GEARS.	Particulars required when ordering Gears.
<p>Chain-cum-belt. Engine Chain line $3\frac{7}{16}$" Belt line, $2\frac{1}{8}$". Belt Pulley 8" dia. for 1" belt. All Chain. Engine Chain line $3\frac{7}{16}$" Rear Chain line, $2\frac{7}{16}$" Rear Chain line, $2\frac{1}{2}$" for $\frac{1}{4}$" chain. Clutch sprocket, 34T, $\frac{5}{8}$" pitch, x $\frac{3}{8}$" or $\frac{1}{4}$" wide. Back sprocket, 19T, $\frac{5}{8}$" pitch, x $\frac{3}{8}$" or $\frac{1}{4}$" wide. Back sprockets can also be supplied with 15-16-17-18-22 and 24T.</p>	<p>Make and C/C of engine. Also whether 2 or 4 stroke. Type of drive :— All chain. " " Chain-cum-belt. Number of teeth on sprockets with pitch and width of chains, also if shock absorber is required. Type of control (see page 3). Disc on seat tube (dia. of tube). Disc on box. Gate on tube under tank (dia. of tube). Gate on down tube (dia. of tube). Gate on box. Dia. of handlebar</p>

When customer requires a certain top gear, it is necessary to give particulars as to the number of teeth on the engine and Road Wheel Sprockets.



STURMEY-ARCHER 3-SPEED LIGHTWEIGHT.

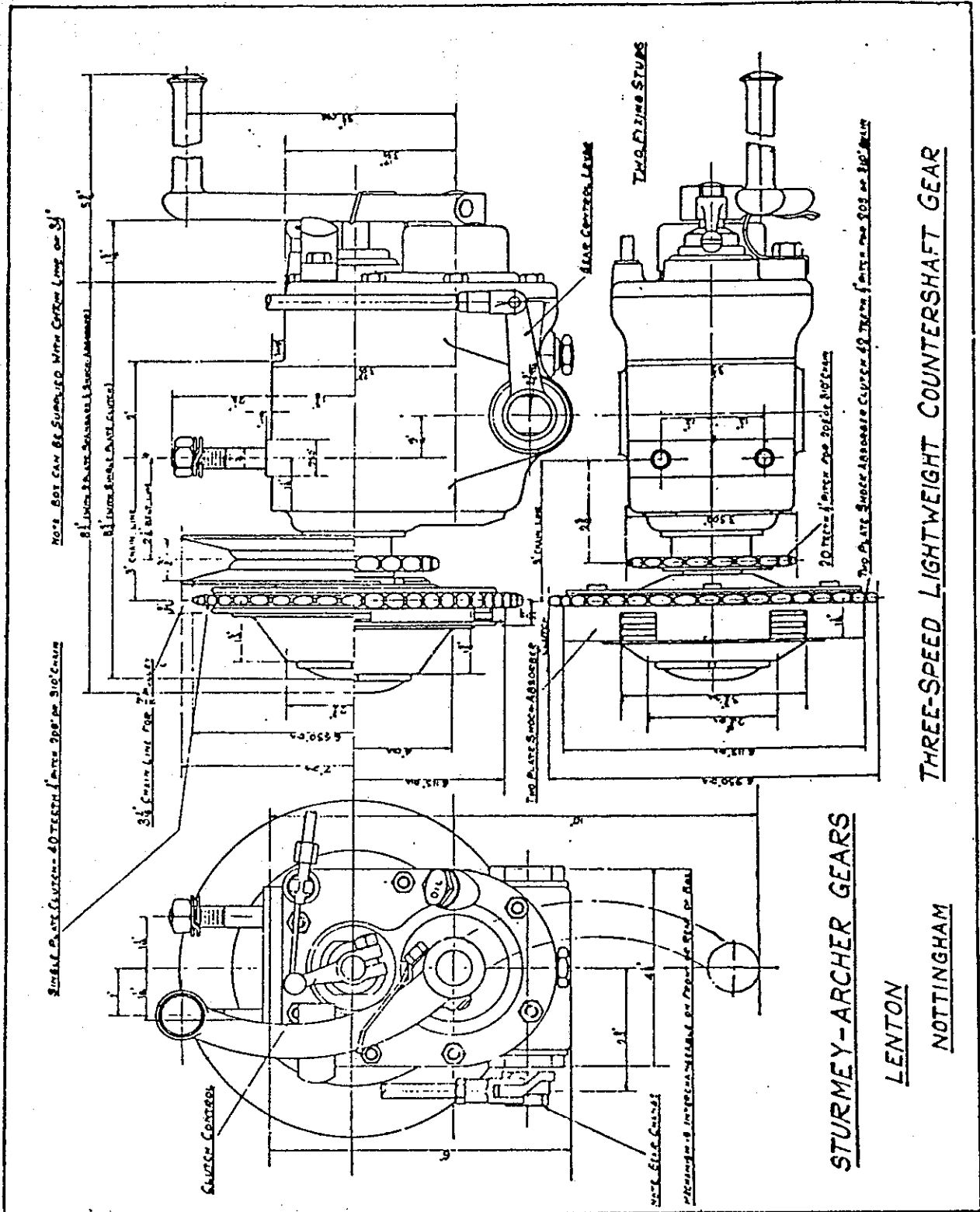
SUITABLE FOR MACHINES UP TO 400 c/c.



The gear illustrated has a 2 stud fixing, and is fitted with a two-plate clutch as standard.

PARTICULARS OF GEARS.	Particulars required when ordering Gears.
<p>Chain-cum-belt. Engine Chain line, 3" or 3½" Engine Chain line, 3⅛" with ⅞" belt pulley and ⅝" chain. Belt line 2⅛" for ¾" or ⅞" belt. Belt pulleys 7" dia. All chain drive. Engine Chain line 3" and 3½" Rear Chain line, 2⅝" and 2⅞" Clutch Sprocket, 42T, ½" pitch, ⅜" or ⅝" wide. Rear Sprockets, 20T, ½" pitch, ⅜" or ⅝" wide.</p>	<p>Make and C/C of engine. Also whether 2 or 4 stroke. Type of drive :— All chain. " " Chain-cum-belt. Number of teeth on sprockets with pitch and width of chains, also whether shock absorber is required. Type of control (see page 3). Disc on seat tube (dia. of tube). Disc on box. Gate on tube under tank (dia. of tube). Gate on down tube (dia. of tube). Gate on box. Dia. of handlebars.</p>

When customer requires a certain top gear, it is necessary to give particulars as to the number of teeth on the Engine and Road Wheel Sprockets.



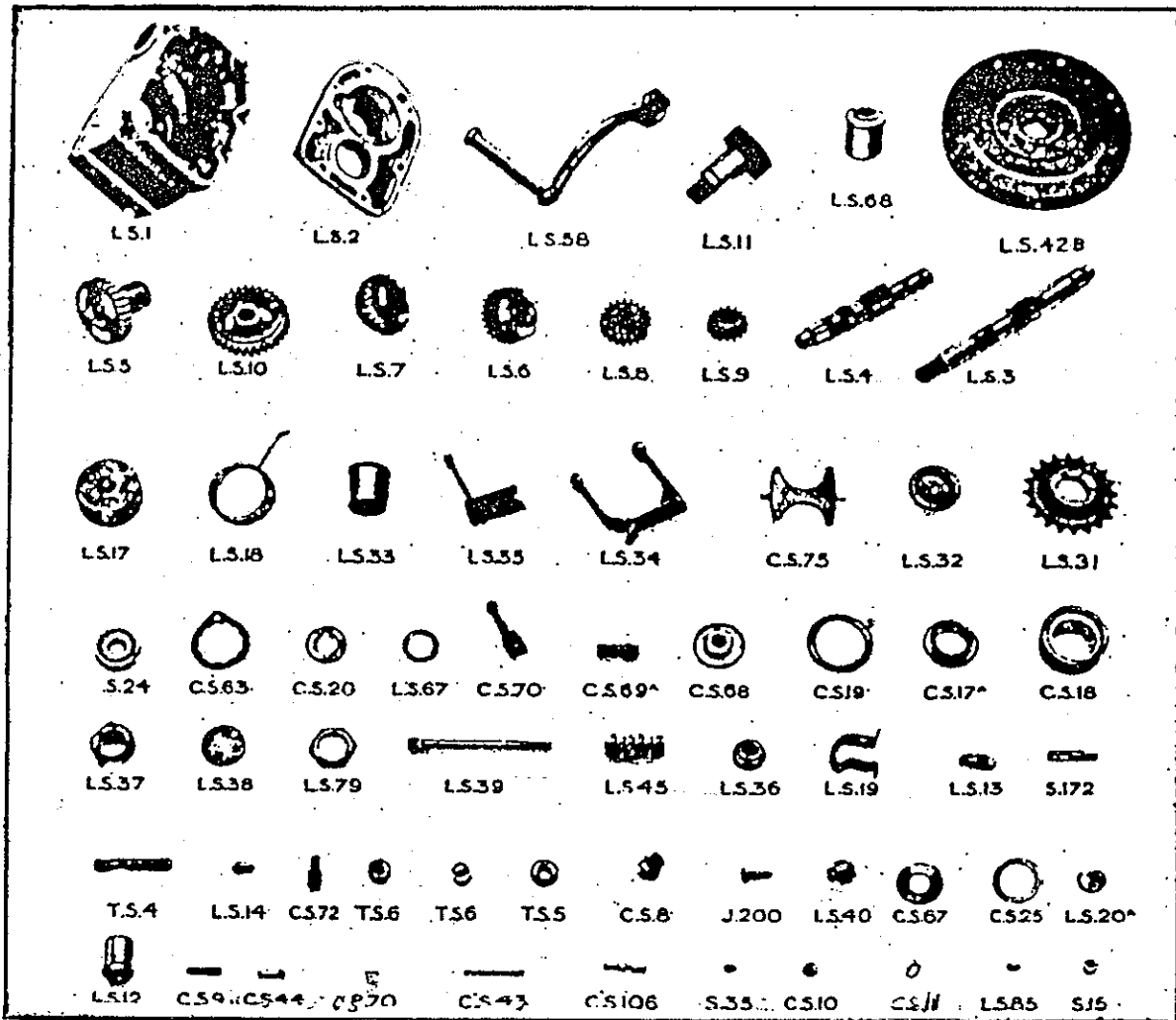
STURMEY-ARCHER GEARS

LENTON

NOTTINGHAM

THREE-SPEED LIGHTWEIGHT COUNTERSHAFT GEAR

3-SPEED LIGHTWEIGHT SPARES.



TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.	GEARBOX SHELLS.	£	s.	d.
L.S. 1	4 Stud Gearbox Shell, Standard Chain Line ...	1	16	0
" 1a	2 Stud Gearbox Shell, Standard Chain Line, for Control on Box ...	1	15	0
" 1b	2 Stud Gearbox Shell, Standard Chain Line ...	1	15	0
" 1c	2 Stud Gearbox Shell, 3 1/4 in. Chain Line ...	1	15	0
" 1d	4 Stud Gearbox Shell, Standard Chain Line for Control on Box ...	1	16	0
" 1e	4 Stud Gearbox Shell, 5/16 in. extra Chain Line ...	1	16	0
" 1f	2 Stud Gearbox Shell, 3 1/4 in. Chain Line for Control on Box ...	1	15	0
" 1g	4 Stud Gearbox Shell, 3 9/16 in. Chain Line (Chater Lea) ...	1	16	0
" 1h	2 Stud Gearbox Shell, Standard Chain Line with Oil Plug on top of box ...	1	15	0
" 1j	4 Stud Gearbox Shell, Standard Chain Line Internal Index ...	1	16	0
" 1k	4 Stud Gearbox Shell, 3 in. Chain Line ...	1	16	0
" 1n	2 Stud Gearbox Shell, Standard Chain Line Internal Index ...	1	15	0
" 1p	4 Stud Gearbox Shell with Speedo facing (Coventry Eagle, Enfield and Matchless V & X) ...	1	16	0
" 1r	4 Stud Gearbox Shell with Speedo facing (Montgomery & Dot) ...	1	16	0
" 230a	Gearbox Shell with Speedo facing for Norton C.S. 1 and E.S.2 ...	1	16	0
" 230b	Gearbox Shell with Speedo facing for Norton 2 1/2 h.p. ...	1	16	0
" 311a	Gearbox Shell with Speedo facing for Matchless Models T. (4 Stud) ...	1	16	0
" 311b	Gearbox Shell with Speedo facing for Chater Lea 4 Stud ...	1	16	0
" 309	Gearbox Shell with Speedo facing for Horizontal Box, Coventry-Eagle 4 Stud ...	1	16	0
" 312	Gearbox Shell with Speedo facing for Horizontal Box, Dunell ...	1	16	0
" 200c	Gearbox Shell, Horizontal with Speedo facing, Raleigh ...	1	16	0

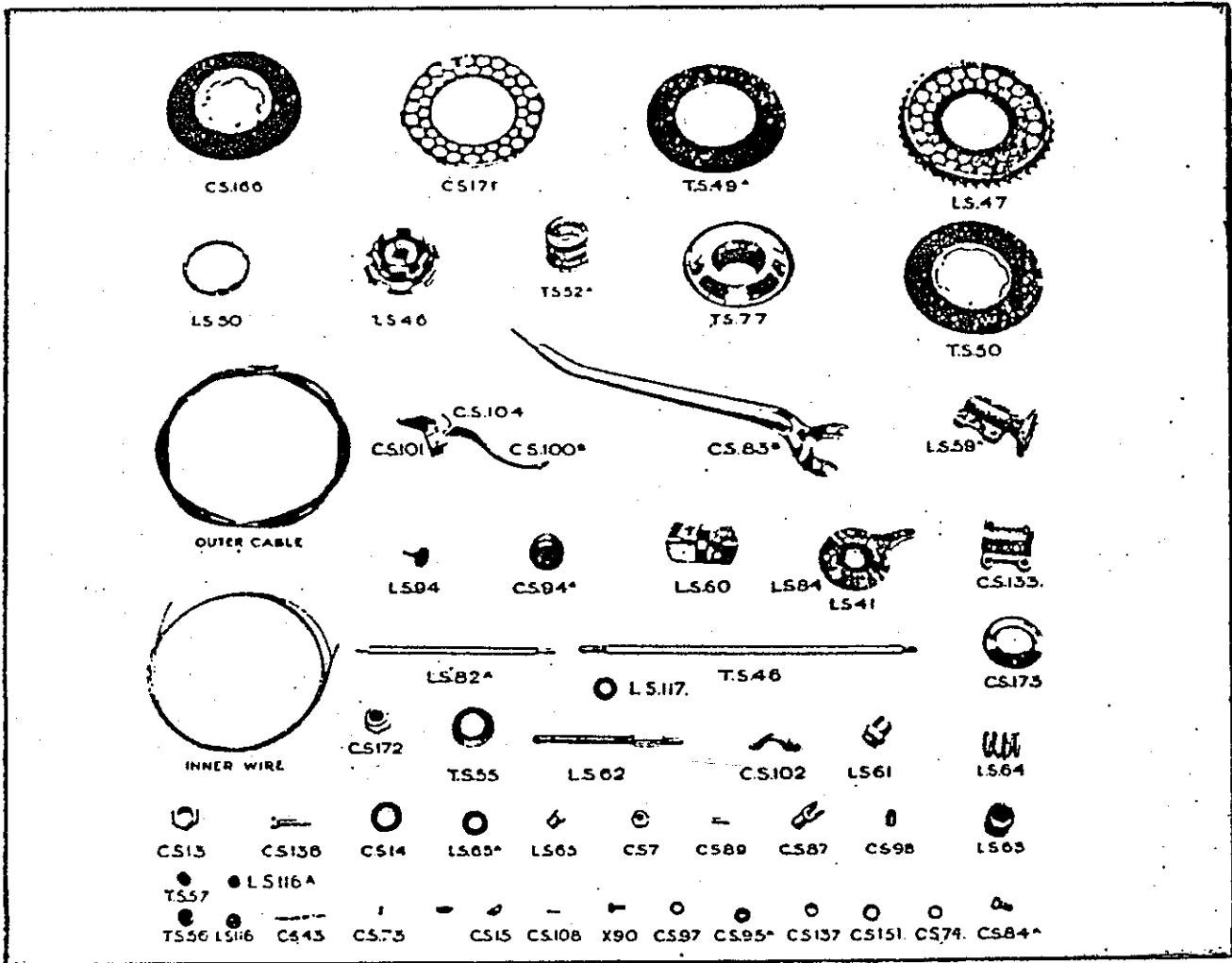
Symbol No.	GEARBOX COVERS.	£	s.	d.
L.S. 2	Gearbox Covers (Replaced by L.S. 2c since 1927 inclusive) ...	0	15	0
" 2a	Gearbox Covers minus Kick Starter (Ball Bearing type) ...	0	15	0
" 2c	Gearbox Cover (Used since 1927 inclusive) ...	0	15	0
" 2f	Gearbox Cover Disc Control on Cover (Brough Superior) ...	0	17	0
" 2g	Gearbox Cover for Internal Index ...	0	15	0
" 2h	Gearbox Cover Disc Control on Cover (Matchless from 1927 T/S, T/R, T/3 and T/4) ...	0	17	0
" 15	Oil Proof Washer for Gearbox Cover joint ...	0	0	2

Symbol No.	GEARBOX PARTS.	£	s.	d.
L.S. 3	Axle (for single plate Clutch only) ...	0	13	0
" 57	Axle for 2 and 3 plate single-spring plain Clutch. Tapered end ...	0	13	0
" 57a	Axle for 3 and 4 plate single-spring Clutch. Splined end ...	0	13	0
" 57b	Axle for 2, 3 and 4 plate Shock Absorber single-spring Clutch, Tapered End ...	0	13	0
" 57c	Axle for 3 and 4 plate Shock Absorber single-spring Clutch, Splined end ...	0	13	0
" 57d	Axle for 3 and 4 plate plain single-spring Clutch Splined end for Roller Bearing Main Gear Wheel ...	0	13	0
" 57e	Axle for 2 and 3 plate Plain single-spring Clutch, Tapered end to give 1/4 in. extra Chain Line ...	0	13	0
" 57f	Axle for 4 plate Shock Absorber single-spring Clutch, Splined end, to give 1/4 in. extra Chain Line ...	0	13	0
" 57g	Axle for 2 plate Shock Absorber Clutch to give 1/16 in. less Chain Line ...	0	13	0
" 192	Axle for 2 plate Multi Spring Clutch ...	0	13	0
" 192a	Axle for 2 plate Multi Spring Clutch to give 1/4 in. extra Chain Line ...	0	13	0
" 193	Axle for 3 and 4 plate Multi Spring Clutch ...	0	13	0

CLUTCH CONTROL.

GEAR CONTROL.

2-PLATE CLUTCH.

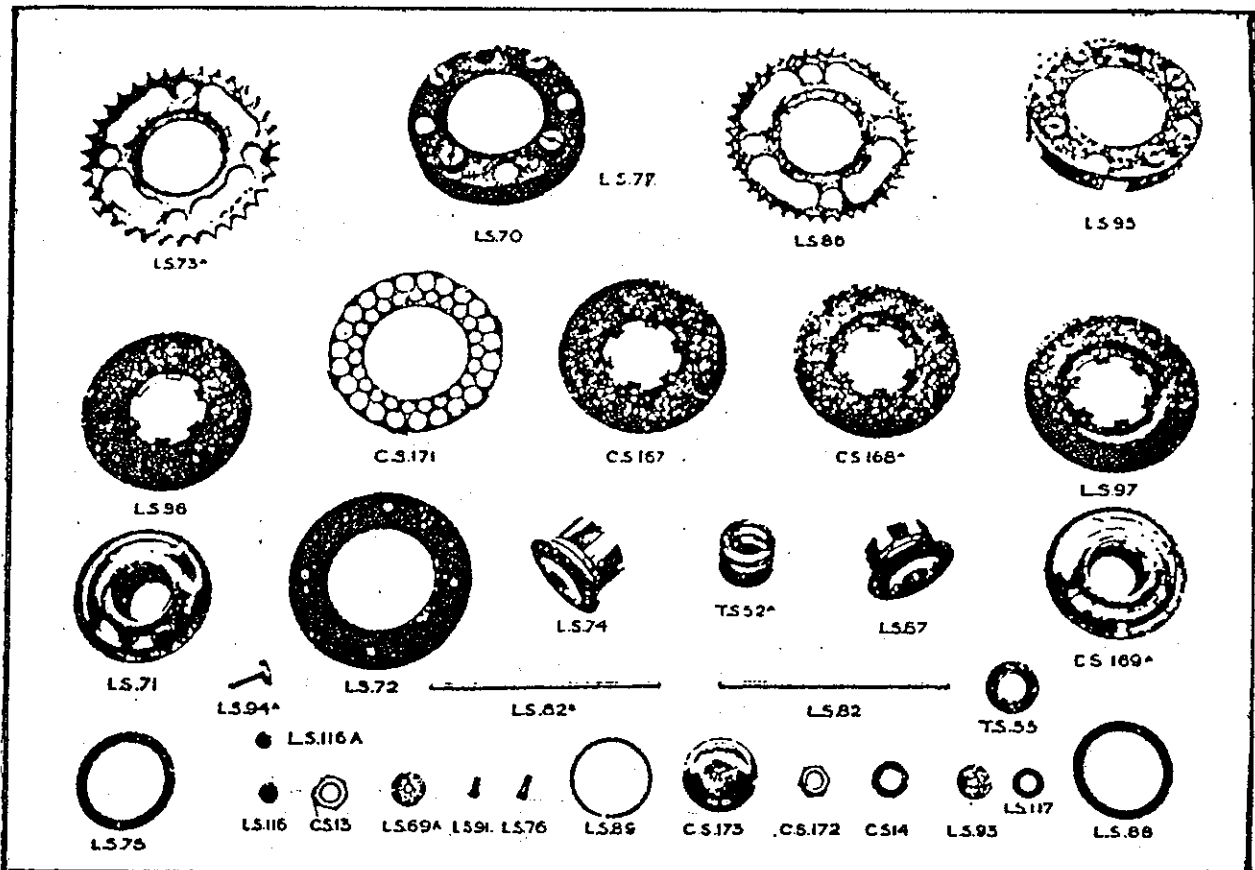


TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.	Description	£	s.	d.
L.S.193a	Axle for 3 and 4 plate Multi Spring Clutch to give 1/2 in. extra Chain Line	0	13	0
" 4	Layshaft	0	12	6
" 5	Main Axle Gear Wheel, 29T	0	16	0
" 6	Main Axle Sliding Pinion, 24T.	0	8	6
" 7	Layshaft Sliding Pinion, 26T	0	10	0
" 8	Layshaft Pinion, 21T	0	5	0
" 9	Main Axle Pinion, 16T	0	4	0
" 10	Low Gear and Kick Starter Wheel, 34T	0	10	0
These Symbol numbers should only be quoted for 12-14 pitch gears.				
L.S.134	Main Gear Wheel 25T 10 Pitch	0	16	0
" 134a	Main Gear Wheel 23T, 10 Pitch	0	16	0
" 134f	Main Gear Wheel, 24T, 10 Pitch	0	16	0
" 135	Layshaft Pinion, 17T, 10 Pitch	0	5	0
" 135a	Layshaft Pinion, 19T, 10 Pitch	0	5	0
" 135c	Layshaft Pinion, 18T, 10 Pitch	0	5	0
" 136	Axle Sliding Pinion, 21T, 10 Pitch	0	8	6
" 136a	Axle Sliding Pinion, 20T, 10 Pitch	0	8	6
" 137	Layshaft Sliding Pinion, 21T, 10 Pitch	0	10	0
" 137a	Layshaft Sliding Pinion, 22T, 10 Pitch	0	10	0
" 138	Main Axle Pinion 14T., 10 Pitch	0	4	0
" 138b	Main Axle Pinion, 18T., 10 Pitch	0	4	0
" 139	Low Gear and K.S. Wheel, 28T., 10 Pitch	0	10	0
" 139b	Low Gear and K.S. Wheel, 27T., 10 Pitch	0	10	0
" 139c	Low Gear and K.S. Wheel, 24T., 10 Pitch	0	10	0
" 24	Clutch Worm (Present Pattern)	0	1	9
" 122	Clutch Worm, Lever 1-5/16in. Centres (Present Pattern)	0	2	6
" 122a	Ditto, 1-9/16in. Centres (Present Pattern)	0	2	6
" 25	Clutch Nut (Present Pattern)	0	4	0
" 26	Oil Retaining Cap for Clutch Nut	0	6	9
" 118	Felt Washer for above	0	0	2
FROM 1925 ONWARDS THE ABOVE GEARS (10-12 PITCH), HAVE BEEN FITTED TO ALL L.S. GEARS.				
L.S. 11	Kick Starter Axle & Layshaft Bush assembled together	0	12	6
" 12	Layshaft Bush			
If a new Layshaft Bush is required, the Axle must be returned to us to have one fitted, charge, 4/-. NOTE—L.S.11 has not been used since 1925.				

Symbol No.	Description	£	s.	d.
L.S. 145	Distance piece for 1/2 in. extended K.S. Axle 13/16in. long	0	0	3
" 145a	Distance piece for 1/2 in. extended K.S. Axle 1 5/16in. long	0	0	3
" 13	Kick Starter Pawl with lip	0	1	3
" 14a	Kick Starter Pawl Pin	0	0	3
" 7	Kick Starter Return Spring Cover	0	0	9
" 17a	Ditto, for Extended K.S. Axles	0	0	9
" 18	Kick Starter Return Spring	0	1	0
" 18a	Return Spring for 1/2 in. Extended K.S. Axle	0	1	0
" 18b	Ditto, for 1/2 in. Extended K.S. Axle	0	1	0
" 18c	Ditto, for 2in. Extended K.S. Axle	0	0	7
" 19	Kick Starter Stop Spring	0	0	7
" 19b	Stop Spring for 1/2 in. Extended K.S. Axle	0	0	7
" 19c	Ditto, for 1/2 in. Extended K.S. Axle	0	0	7
" 19d	Ditto, for 2in. Extended K.S. Axle	0	0	7
" 20a	Kick Starter Relief Cam	0	0	3
" 32	Ball Bearing Cup	0	0	3
" 33	Kick Starter Axle Bush	0	1	6
" 34	Sliding Gear Fork	0	6	6
" 35	Rocking Shaft Lever (for Rear of Box)	0	6	0
" 35a	Rocking Shaft Lever (for Front of Box)	0	6	0
It is best to return the whole of this part, as slight variations are found necessary to suit some makes of motor cycles				
" 26	Oil Retainer Cap	0	0	2
" 37	Rocking Shaft Lever Bush	0	2	0
" 38	Rocking Shaft End Bush	0	1	6
" 39	Rocking Shaft	0	1	3
" 40	Rocking Shaft Nut	0	0	6
" 42a	Pulley, 7in. 1/2 in.	0	13	6
" 42b	Pulley, 7in., 1/2 in.	0	13	6
" 45	Compensator Spring	0	0	5
" 58	Kickstarter Crank, 5 1/2 in.	0	11	0
" 58a	Kickstarter Crank 7-5/16in centres	0	11	0
" 58b	Kickstarter Crank 6 5/16in. centres, 1/2 in offset	0	11	0
" 58c	Kickstarter Crank 6 5/16in centres	0	11	0
" 58d	Kickstarter Crank 6 5/16in centres, 1/2 in. offset	0	11	0
" 58e	Kickstarter Crank 6 5/16in centres, 1/2 in. offset	0	11	0
" 58f	Kickstarter Crank 6 5/16in centres, 13/16in. offset	0	11	0

3-SPEED HEAVYWEIGHT AND 3-PLATE CLUTCH.

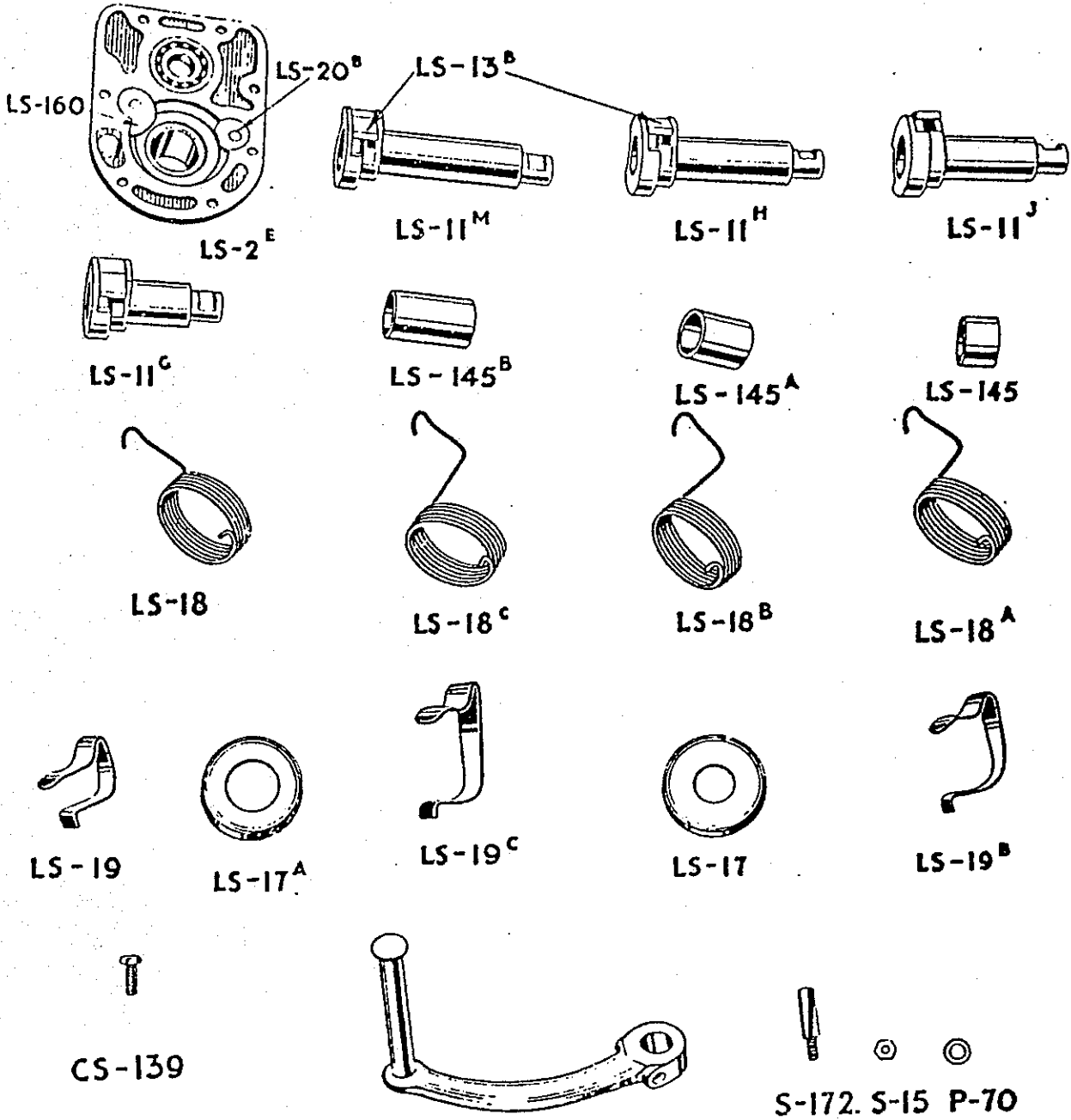


TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.	Description	£	s.	d.
L.S. 58b	Kickstarter Crank 7-5/16in. centres, lin. offset	0	11	0
.. 58i	Kickstarter Crank 6-5/16in. centres, lin. offset	0	11	0
.. 67	Oil Retaining Washer	0	0	2
.. 79	Axle Sprocket Lock Nut (L.H. Thread)	0	0	8
.. 85a	Rivet for Kickstarter Cam	0	0	1
.. 152	Felt Washer for Main Bearing	0	0	2
T.S. 4	Fixing Stud, for 2 stud box	0	0	5
.. 5	Gearbox Spring Washer for 2 stud box	0	0	2
.. 6	Gearbox Nut for 2 stud box	0	0	3
.. 6a	Gearbox Nut (Domed and Plated) for 2 stud box	0	0	8
C.S. 5b	Gearbox Stud for 4 stud box	0	0	5
.. 6	Gearbox Spring Washer for 4 stud box	0	0	2
.. 7	Gearbox Nut for 4 stud box	2	0	2
.. 7a	Gearbox Nut (Domed and Plated) for 4 stud box	0	0	8
.. 8a	Gearbox Oil Plug (Drain)	0	0	9
.. 8d	Gearbox Oil Plug (Filler)	0	0	9
.. 9	Gearbox Cover Stud	0	0	3
.. 10	Gearbox Cover Nut	0	0	2
.. 11	Gearbox Cover Spring Washer (set of 7)	0	0	4
.. 17a	L.H. or R.H. Cone for Main Gear Wheel	0	2	6
.. 18	Ball Cup	0	5	0
.. 19	Dust Cap	0	0	3
.. 20a	Main Axle Thrust Washer	0	1	6
.. 24	Skefko Bearing R.L. 5	0	8	9
.. 25	L.H. Ball Cup Adjusting Washer	0	0	1
.. 43	Kickstarter Pawl Spring	0	0	1
.. 44	Kickstarter Pawl Spring Plunger	0	0	3
.. 63	Pulley Locking plate	0	0	4
.. 64b	Belt Pulley lin.	0	15	0
.. 67	R.H. Adjusting Washer	0	0	1
.. 68	Clutch Nut	0	4	0
.. 69a	Clutch Worm	0	1	9
.. 70a	Clutch Worm Lever	0	2	6
.. 72	Clutch Wire Stop Stud	0	0	9
.. 75	Sliding Gear Plate	0	2	0
.. 106	Bowden Wire Stop Screw	0	0	6
.. 139a	Kickstarter Stop Spring Screw	0	0	1
S. 172	Cotter Pin for Kickstarter Crank	0	0	2
.. 15	Cotter Pin Nut	0	0	1
P. 70	Cotter Pin Washer	per doz.	0	4
S. 35	Pulley Locking Plate Screw	0	0	1
J. 200	Clutch Worm Lever Screw	0	0	1
L.S. 68	Layshaft Bush with Brass Bush fitted (Only used when there is no kickstarter fitted)	0	5	0
AXLE SPROCKETS.				
L.S. 31	Axle Sprocket (in. pitch, 5/16in. or 3/16in. width	0	7	6

Symbol No.	Description	£	s.	d.
L.S. 44	Axle Sprocket (2in. x lin. 171.)	0	7	6
C.S. 65a	Axle Sprocket 15T or 17T (lin. x lin. Cham)	0	7	6
.. 170	Axle Sprocket (lin. x lin. Cham) 19T	0	7	6
NOTE:—When ordering an Axle Sprocket, please give number of teeth and width and pitch of cham. An extra charge is made for Sprockets with more than 19 teeth—lin. pitch.				
CLUTCH CONTROL (Handle Bar).				
C.S. 73	Wire Nipple (per doz.)	0	0	6
.. 100	Clutch Control Lever	0	4	0
.. 101	Fulcrum	0	2	6
.. 102	Half Clip	0	1	0
.. 104	Fulcrum Pin	0	0	1
.. 106a	Fulcrum Pin Nut	0	0	1
X 90	Fixing Screw	0	0	1
X 111	Clip Nut	0	0	2
6 feet of Clutch Inner Wire				
5 feet Bins. Clutch Outer Bowden Cable				
C.S. 100a	Clutch Control Complete with Wires and Stop	0	12	0
.. 100b	Clutch Control Complete less Wires and Stop	0	8	0
STRAIGHT PULL CLUTCH CONTROL.				
C.S. 73b	Nipple for Lever	per doz.	0	6
.. 100f	Handle Bar Lever only	0	4	0
.. 101c	Fulcrum lin. Bar	0	2	6
.. 101d	Fulcrum lin. Bar	0	2	6
.. 102c	Half Clip lin. Bar	0	1	0
.. 102d	Half Clip lin. Bar	0	1	0
.. 104	Fulcrum Pin	0	0	1
.. 106a	Fulcrum Nut	0	0	1
X 90	Fixing Screw	0	0	1
X 111	Clip Nut	0	0	2
C.S. 198	Thimble	0	0	1
.. 199	Swivel for Handle Bar Lever	0	0	4
Straight Pull Clutch Control complete with Wires				
Straight Pull Clutch Control complete less Wires				
GEAR CONTROL (See illustration on page 4).				
L.S. 41	Quadrant	0	5	0
.. 50a	Support Bracket	0	5	0
.. 60	Index Plate	0	3	0
.. 61	Quadrant Bush	0	1	0
.. 62	Quadrant Stud	0	1	6
.. 63	Spring Box	0	0	3

INTERNAL AND EXTERNAL K.S. PARTS.

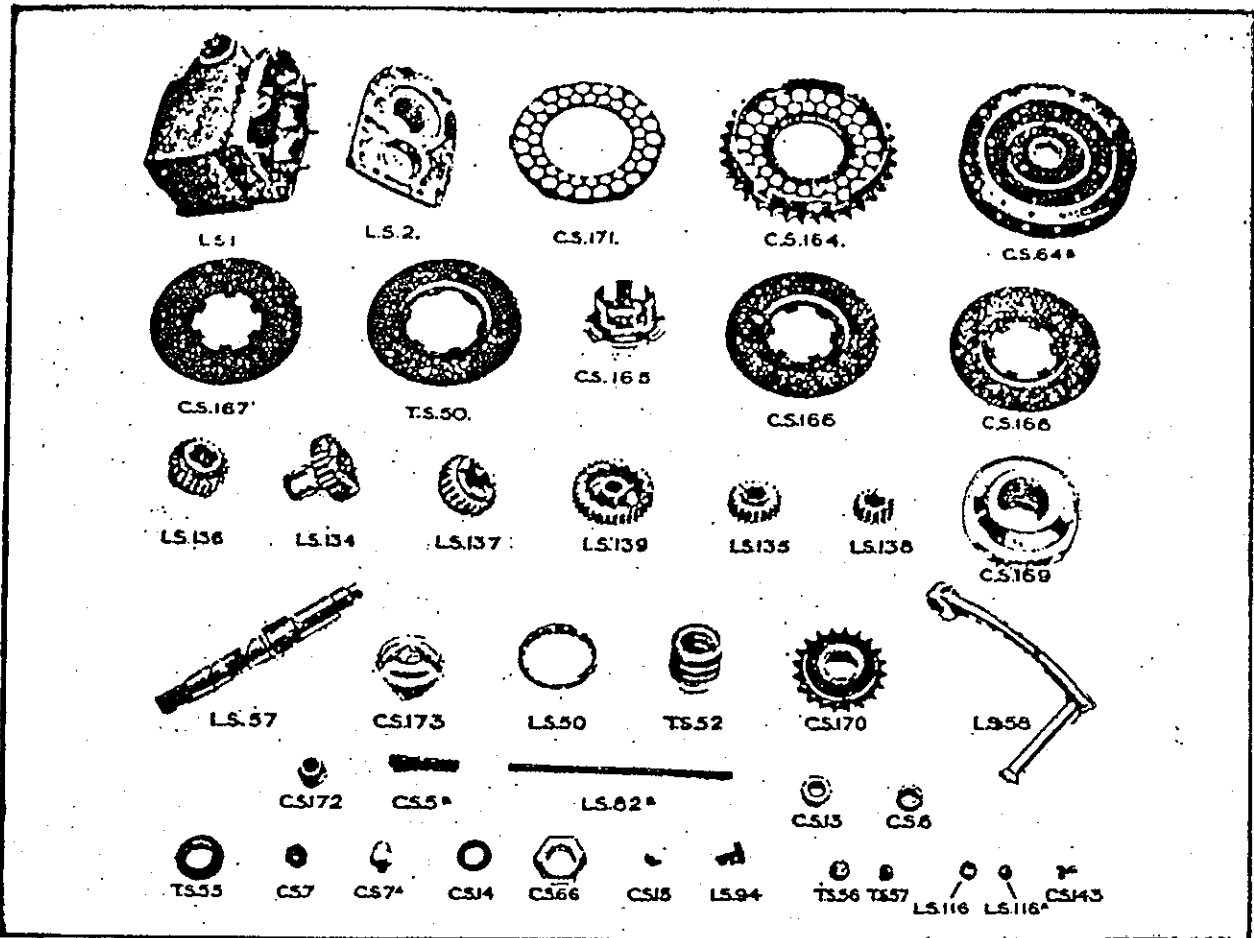


TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No		£	s.	d.
L.S. 64	Spring	0	0	3
65	Spring Nut	0	0	6
65a	Spring Nut Washer	0	0	1
84	Stop Peg for Gear Control	0	0	1
84b	Securing Peg for Gear Control	0	0	1
L.S. 7	Quadrant Stud Nut	0	0	2
74	Spring Washer	0	0	1
83b	Gear Lever with Knob complete	0	6	0
84a	Gear Lever Bolt	0	0	2
87	Gear Connection	0	0	10
89	Gear Connection Pin	0	0	2
94a	Lever Knob	0	0	9
95a	Gear Lever Knob Washer	0	0	1
97	Gear Connection Washer	0	0	1
98	Gear Lever Knob Plug	0	0	2
108	Split Pin	0	0	1
133	Support Bracket Clip	0	2	6
136	Fixing Screw	0	0	4
137	Gear Connection Lock Nut	0	1	1
T.S. 46	Gear Control Rod (See Note on page 20)	0	1	0
	Gear Control (complete)	1	7	6

Symbol No.		£	s.	d.
PARTS USED ONLY ON BOXES WITH INTERNAL STOP FOR KICK STARTER.				
L.S. 2F	Gearbox Cover	0	15	0
11G	Kickstarter Axle (Standard)	0	12	6
11H	Kickstarter Axle 1 1/2 in. extended	0	12	6
11J	Kickstarter Axle 1 in. extended	0	12	6
11M	Kickstarter Axle 2 in. Extended	0	12	6
13B	Kickstarter Pawl	0	1	3
14B	Kickstarter Pawl Pin	0	0	3
20B	Kickstarter Cam	0	0	3
160	Kickstarter Stop Piece	0	0	4
INTERNAL INDEXING PARTS.				
L.S. 161b	Rockingshaft Lever for top of box	0	3	6
162a	Sliding Gear Fork with Index Plate L.S. 166...	0	8	0
163	Rocking shaft Lever Bush	0	2	0
164	Rockingshaft End Bush	0	1	6
165	Rockingshaft	0	1	3
168	Index Plate Plunger	0	0	8
169	Plunger Spring Screw	0	0	3
170	Plunger Spring	0	0	2

2 and 3 PLATE SHOCK ABSORBER CLUTCHES.



TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.		£	s.	d.
L.S. 2g	Box Cover	0	16	0
C.C. 18	Rocking Shaft Nut	0	0	3
C.S. 99b	Lock Washer for Rocking Shaft Nut	0	0	2
SPECIAL FOR HORIZONTAL BOX.				
L.S. 200	Shell (horizontal)	1	16	0
" 199	Cover	0	15	0
" 198	Gear Control Rod	0	1	0
" 197	Gear Control Lever (Gate)	0	5	0
" 196	Gear Control Gate	0	5	0
" 161b	Rockingshaft Lever	0	3	6
" 11k	Kick Starter Axle, 1/2 in. extended	0	12	6
" 11L	Kickstarter Axle, 1/2 in. extended	0	12	6
C.S. 37e	Kick Starter Crank	0	11	0

THE FOLLOWING SPECIAL PARTS ARE FITTED TO THE 1929 N.L. (NEW LIGHT WEIGHT) GEARBOX.

L.S.311a	Gearbox Casing (with Speedo Facing)	1	15	0
" 293	Layshaft	0	13	6
" 296	Layshaft Pinion, 18T	0	5	0
" 297	Sliding Gear Fork, with Distance Tube, L.S. 298	0	4	0
" 300	Bronze Layshaft Left Hand Bush	0	2	6
" 301	Axle Sprocket 20T, 1/2 in. and 3/16th.	0	7	6
" 161c	Rockingshaft Lever	0	3	6
" 58d	Kick Starter Crank	0	11	0
" 11j	Kick Starter Axle 1/2 in. ext.	0	12	6
" 12	and Layshaft Bush			

SPEEDOMETER DRIVE PARTS.

L.S.321a	Casing for Speedo Pinion	0	2	6
" 322	Spindle for	0	1	3
" 323	Speedometer Connection Bush	0	1	6
" 324	End Bush	0	0	8
" 325	End Washer	0	0	1
" 326	Bush Fixing Screw	0	0	1
" 327	Pinion	0	2	6
" 328	Pin for Coupling Pinion to Speedo Spindle (per dozen)	0	0	6
" 329a	Cover Plate. (Used when Speedo is left off)	0	0	3
" 330	Speedo Casine stud	0	0	3
" 331	Washer	0	0	1
C.S.106a	Nut	0	0	1

When Casing or Pinion is required, please send pattern, or mention make of machine and type of box.

SPECIAL PARTS FOR ARIEL MACHINES.

L.S.250a	Gearbox Shell Speedo facing	2	0	0
" 251a	Gearbox Cover	0	15	0
" 253	1/2 in. Extended (Special Cotter Slot) Kick Starter Axle	0	12	6

Symbol No.		£	s.	d.
L.S. 254	1/2 in. offset Kick Starter Crank	0	11	0
" 255c	4in. Centre Rockingshaft Lever	0	3	6
" 286	1/2 in. out of box. Gearbox Stud	0	0	4
" 258	44 x 1/2 x 5/16in. Clutch Sprocket	1	0	0
" 259	1/2 in. Long Gearbox Stud Nut	0	0	6
" 260	1/2 in. Long Gear Connection	0	1	0
" 261a	Plated Gear Control Rod, 2 1/2 in.	0	1	0
" 262	Kick Starter Bush 2-13/16in.	0	2	0
" 263	Kick Starter Distance Sleeve, 1/2 in. diam.	0	0	3
" 264	Kick Starter Return Spring Cover	0	0	9
" 265	5/16in. dia., Gear Connection Pin	0	0	2
" 69b	Solid Shock Absorber Rubber	0	0	2
" 162a	Rockingshaft Fork with Index Plate fitted	0	8	6
C.S. 87a	Narrow Slot Gear Connection	0	0	10

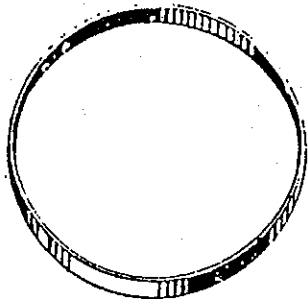
ARIEL SPEEDOMETER DRIVE PARTS.

L.S. 250a	Gearbox with Facing for Speedo (Special for Ariel)	2	0	0
" 320	Housing for Speedo Drive (Special for Ariel)	0	2	6
" 322	Speedo Pinion Spindle	0	1	3
" 323	Connection Bush	0	1	6
" 324	Spindle End Bush	0	0	8
" 325	Washer	0	0	1
" 326	Bush Fixing Screw	0	0	1
" 328	Coupling Pin	per doz.	0	6
" 331	Spring Washer	0	0	1
" 334	Speedo Pinion (Special for Ariel)	0	2	6
" 335	Intermediate Pinion (Special for Ariel)	0	2	6
" 336	Pinion Pin (Special for Ariel)	0	0	4
" 837	Cover Plate (used when Speedo is left off)	0	0	3
C.S.136	Fixing Screw	0	0	3

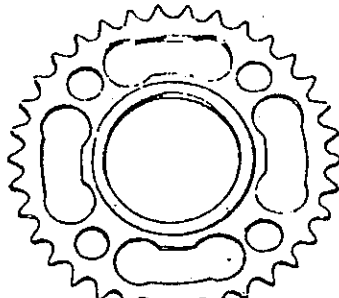
SPECIAL PARTS FOR HORIZONTAL BOX FOR DUNELT MODEL M.

L.S. 312	Gearbox Casing	1	16	0
" 199	Gearbox Cover	0	15	0
" 316	Gearbox Stud	0	0	5
" 300	Layshaft L.H. Bronze Bush	0	2	6
" 57b	Main Axle	0	13	0
" 293	Layshaft	0	13	6
" 296	Layshaft Pinion 18T	0	5	0
" 11N/12	Kickstarter Axle and Layshaft Bush	0	12	6
" 264	Kickstarter Return Spring Cover	0	0	9
" 247	Kickstarter Crank	0	11	0
" 262	Kickstarter Axle Bush	0	1	6
" 263a	Kickstarter Axle Distance Sleeve	0	0	3

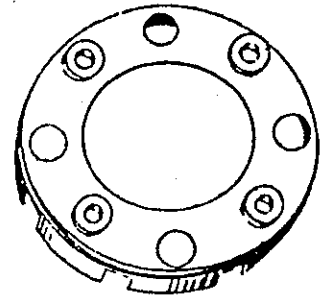
MULTI-SPRING SHOCK ABSORBER CLUTCHES



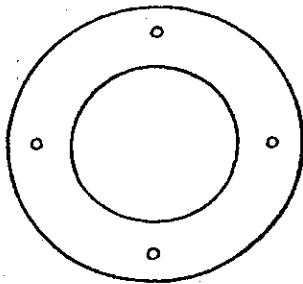
LS-77



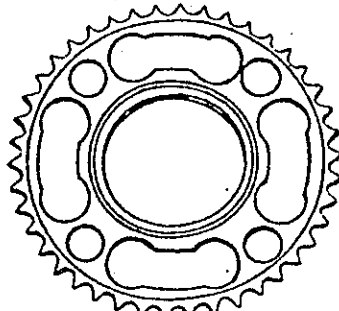
LS-188



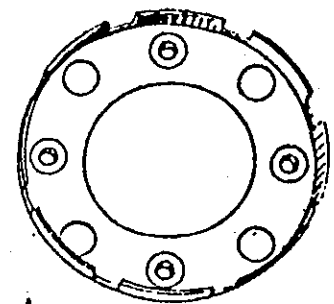
LS-185



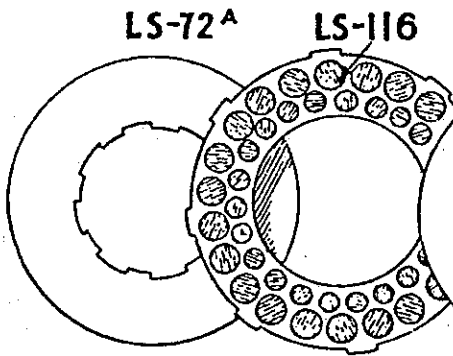
LS-72^A



LS-187^A

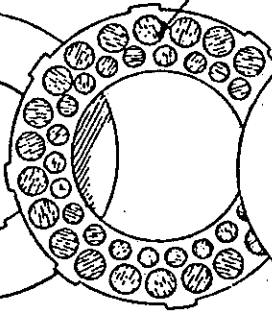


LS-184

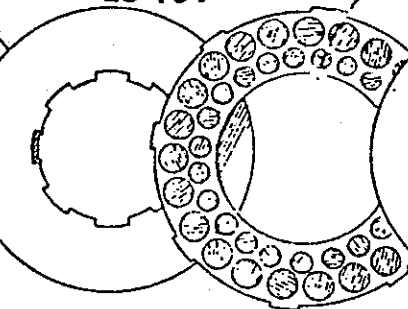


LS-179

LS-116

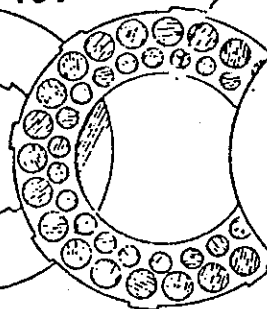


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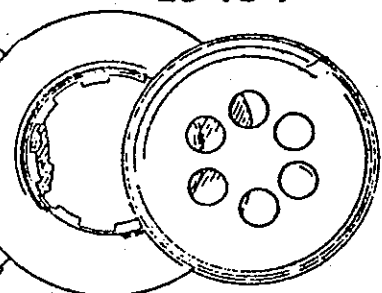


LS-180

LS-116^A

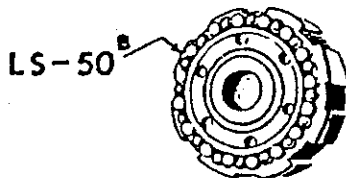


LS-183



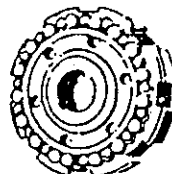
LS-181

LS-182

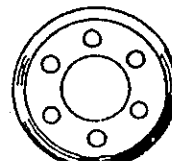


LS-50^B

LS-173



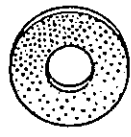
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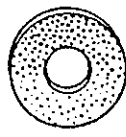
LS-175



LS-94^A



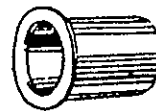
LS-93



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

TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.	Part Description	£	s.	d.
GATE TANK GEAR CONTROL FOR MODEL M.				
B.S. 170b	Gear Control Gate	0	5	0
.. 171c	Gear Control Lever	0	5	0
L.S. 313	Gear Control Shaft	0	2	0
.. 314	Gear Control Shaft Collar	0	1	0
.. 315	Short Control Lever	0	2	6
.. 317a	Gear Control Rod	0	1	0
.. 318	Gear Control Shaft Sleeve	0	0	4
.. 260	Gear Connection	0	1	0
.. 120	Sleeve Nut	0	0	5
.. 121a	Sleeve Nut Spring Washer	0	0	4
C.S. 89	Gear Connection Pin	0	0	2
.. 97	Gear Connection Washer	0	0	1
.. 108	Split Pin	per doz.	0	6
.. 137	Gear Connection Lock Nut	0	0	1
.. 94a	Gear Lever Knob	0	0	9
.. 85a	Gear Lever Knob Washer	0	0	1
.. 88	Collar for Gear Lever Knob	0	0	2

All other Control parts are supplied by Messrs. Dunford & Elliott (Sheffield) Ltd., of Bath Street, Birmingham.

SPECIAL PARTS FOR ENFIELD MACHINES.

L.S. 11H	Kick Starter Axle, 1 1/2 in. ext.	0	12	6
L.S. 18B	Kick Starter Return Spring	0	1	0
C.S. 65A	Axle Sprocket, 17T. 1/2 x 1/2	0	7	6
L.S. 57E	Main Axle 1/2 in. extd.	0	13	0
.. 254A	Kick Starter Crank, 1 1/2 in. offset	0	11	0
.. 255A	Rockingshaft Lever 3 1/2 in. crs. 1/2 in. offset	0	3	6
.. 262	Kick Starter Bush	0	2	0
.. 263	Kick Starter Axle Distance Sleeve	0	0	3
.. 264	Kick Starter Return Spring Cover	0	0	9
.. 280	Gearbox Shell to give 2 1/2 in. Rear Chain Line (Speedo Facing)	1	16	0
.. 280a	Gearbox Shell to give 2 1/2 in. Chain Line for (Speedo Drive)	1	16	0

SPECIAL PARTS FOR MATCHLESS MODELS T/3, T/4, T/8, and T/R. (L.W. BOX).

L.S. 1b	Gearbox Shell (2 Stud)	1	15	0
.. 194g	Short Gear Control Rod	0	1	0
.. 194c	Long Gear Control Rod	0	1	0
.. 195	Gear Control Lever	0	5	0
.. 11b	Kick Starter Axle	0	12	6
.. 58k	Crank	0	11	0
T.S. 4h	Fixing Studs (2) 1-13/16ths. out of box	0	0	5
L.S. 2h	Gearbox Cover	0	17	0
.. 93a	Shock Absorber Rubber 1/2 in.	0	0	2
.. 93b	Shock Absorber Rubber Solid	0	0	2
.. 190	Clutch Friction Rubber	0	0	2
.. 31	Axle Sprocket 20T. 1/2 in. x 5/16ths.	0	7	6
.. 86	Clutch Sprocket Single Spring 42T. 1/2 in. x 5/16ths	1	0	0
.. 187a	Clutch Sprocket Multi Spring 42T. 1/2 in. x 5/16ths	1	0	0

(Both L.S. 86 and L.S. 187a, take Two Plate Rubber Shock Absorbers L.S. 93a and L.S. 93b).

A Two Plate SINGLE SPRING Shock Absorber Clutch is fitted to the Gearbox supplied for the above 1929 Models.

SPECIAL PARTS FOR MATCHLESS MODELS V2, V5, X and XR. (H.W. BOX).

L.S. 1	Gearbox Shell (without Speedo Facing)	1	16	0
.. 1p	Gearbox Shell (with Speedo Facing)	1	16	0
.. 2c	Cover	0	15	0
.. 194d	Long Gear Control Rod for V2 and V5	0	1	0
.. 194f	Long Gear Control Rod for X and XR	0	1	0
.. 194i	Short Gear Control Rod, 5/16 in. for V2 and V5	0	1	0
.. 195	Gear Control Lever	0	5	0
.. 11b	Kick Starter Axle	0	12	6
.. 58l	Crank	0	11	0
.. 69c	Shock Absorber Rubber, 1/2 in.	0	0	2
.. 69t	Shock Absorber Rubber Solid	0	0	2
.. 190a	Clutch Friction Rubber	0	0	2
C.S. 5c	Fixing Studs (4) 3/4 in. out of box	0	0	5
.. 65c	Axle Sprocket 15T. 1/2 in. x 1/2 in. for V2 and V5	0	7	6
.. 65a	Axle Sprocket 17T. 1/2 in. x 1/2 in. for X and XR	0	7	6
L.S. 73c	Clutch Sprocket Single Spring 42T. 1/2 in. x 5/16ths	1	0	0
.. 188b	Clutch Sprocket Multi Spring 42T. 1/2 in. x 5/16ths	1	0	0

(Both L.S. 73c and L.S. 188b) take Three Plate Shock Absorber Rubbers L.S. 69b and L.S. 69c).

A Three Plate SINGLE SPRING Shock Absorber Clutch is fitted to the Gearbox supplied for Models (1929) V2, and V5.

A Four Plate SINGLE SPRING Shock Absorber Clutch is fitted to the Gearbox supplied for Models (1929) X and XR).

Gloss Ratio Gears are fitted to the V2 and XR Models and Standard Ratios to V5 and X Models.

Symbol No.	Part Description	£	s.	d.
The following parts are also supplied by Sturtevant-Archer Gears, for the Tank Gate Control for all the above Matchless Models:—				
L.S. 120	Sleeve Nuts (2)	0	0	5
.. 121	Spring Washers (2)	0	0	4
C.S. 87	Gear Connection	0	0	10
.. 89	" " Pin	0	0	2
.. 97	" " Washer	0	0	1
.. 108	Split Pin	dozen	0	6
.. 137	Lock Nut	0	0	1
L.S. 108	Gate Control Gate	0	5	0

All other Control Parts are supplied by Messrs. Matchless Motor Cycles (Colliers) Ltd.

SPECIAL PARTS FOR NORTON MODELS C.S.1. and E.S.2.

L.S. 11j	Kickstarter Axle 1/2 in. extended	0	12	6
.. 57d	Main Axle	0	13	0
.. 162a	Sliding Gear Fork	0	6	6
.. 222	Clutch Centre 3-11/16 in. chain line (only used when Dynamo Lighting set is fitted)	0	12	0
.. 225	Clutch Wire Stop Stud	0	0	9
.. 226a	Cable Stop	0	0	3
.. 228a	Clutch Worm Lever	0	2	6
.. 229	Top Gear Connection Washer	0	0	1
.. 230	Gearbox Shell	1	16	0
.. 230a	Gearbox Shell with Speedo facing	1	16	0
.. 231	Gearbox Cover (Disc Control on Cover)	0	17	0
.. 232	Control Rod	0	1	0
.. 233	Control Quadrant (back of box)	0	5	0
.. 234	Rockingshaft Lever for Rear of box	0	6	0
.. 235	Top Gear Connection Stud	0	0	10
.. 238	Top Gear Connection	0	0	10
C.S. 37k	Kickstarter Crank, 6 1/2 in.	0	11	0
.. 170j	Axle Sprocket, 1/2 in. x 1/2 in.	0	7	6

SPECIAL FOR P. & M. BOX.

L.S. 240c	Shell (3 stud Horizontal) Speedo facing	1	16	0
.. 241	Fixing Stud	0	0	5
.. 242	Tank Tube Gate Control Bracket	0	5	0
.. 243	Tank Tube Gate Control Stud	0	1	0
.. 244	Tank Tube Gate Control Collar	0	0	6
.. 245	Gear Control Rod (Bright Plate)	0	1	0
.. 246	Rockingshaft End Bush	0	1	6
.. 247	Kickstarter Crank, 6 1/2 in. centres 1 1/2 in. offset	0	11	0
.. 199	Box Cover	0	15	0
C.S. 87	Gear Connection (Bright Plate)	0	0	10

SINGLE PLATE CLUTCH (Not Illustrated).

(We have not used this Clutch since 1924).

T.S. 49a	Clutch Outer Plate	0	2	3
L.S. 80	Axle Nut	0	0	5
.. 81	Clutch Adjuster Nut	0	0	8
.. 82	Clutch Rod 7/16 in.	0	0	10
.. 94	Thrust Pin, 1/2 in.	0	0	9
T.S. 34	Clutch Ball Retainer	0	0	10
.. 35	Clutch Sprocket 3/16 in. or 5/16 in. wide Chain	0	16	0
.. 50	Clutch Back Plate	0	2	3
.. 52a	Clutch Spring	0	1	8
.. 55	Clutch Spring Collar (fits over L.S. 81)	0	0	6
.. 56	Cork Insert, 1/2 in. dia. per dozen	0	0	4
.. 57	Cork Insert, 1/2 in. dia., per dozen	0	0	4
.. 77	Clutch Spring Cup	0	0	1
C.S. 14	Clutch Body Locking Washer	0	0	1
.. 15a	Axle Key, 3/16 in.	0	0	3
.. 27	Clutch Centre	0	12	0
.. 173	Clutch End Cap	0	1	6
L.S. 43	Clutch Centre 1/2 in. Balls (Set of 20)	0	0	8
.. 43	Clutch Centre (Only used where 3/4 in. Chain Line is required)	0	12	0

TWO PLATE CLUTCH.

L.S. 46	Clutch Centre	0	12	0
.. 47	Clutch Sprocket 1/2 in. P x 3/16 in. W. (Cork Inserts) 6 slots 42T	1	2	6
.. 47c	Clutch Sprocket with Corks 1/2 x 3/16 in. 8 slots 42T	1	2	6
.. 47a	Clutch Sprocket 1/2 in. P x 5/16 in. W. (Cork Inserts) 6 slots 42T	1	2	6
.. 219	Clutch Sprocket with Corks 1/2 x 5/16 in. 8 slots 42T	1	2	6
.. 50	Roller Cage (less Rollers)	0	2	0
.. 47	Clutch Sprocket with Fibre Inserts 1/2 x 3/16 in. 6 slots 42T	1	5	0
.. 47a	Clutch Sprocket with Fibre Inserts 1/2 x 5/16 in. 6 slots 42T	1	5	0
.. 47c	Clutch Sprocket with Fibre Inserts 1/2 x 3/16 in. 8 slots 42T	1	5	0
.. 219	Clutch Sprocket with Fibre Inserts 1/2 x 5/16 in. 8 slots 42T	1	5	0
.. 50a	Roller Cage Plate	0	0	3
.. 50b	Roller	0	0	2
.. 50c	Rivet (set of 8)	0	0	2
.. 82	Roller Cage (complete)	0	4	9
.. 94	Clutch Rod 7/16 in.	0	0	10
.. 94	Thrust Pin 1/2 in.	0	0	9
C.S. 172	Adjuster Nut	0	0	8
L.S. 117	Adjuster Nut Packing Washer	0	0	1
.. 183	Clutch Friction Plate with Fibre Plugs 8 lugs	0	5	0
.. 183a	Clutch Friction Plate with Cork Plugs, 8 lugs	0	2	6

TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.	Description	f	s.	d.
T.S. 55	Clutch Spring Collar (fits over C.S. 172)	0	0	8
C.S. 13	Axle Nut	0	0	5
" 14	Axle Nut Lock Washer	0	0	1
" 15	Axle Key 3/16in.	0	0	3
" 166	Centre Plate	0	2	3
" 171	Friction Ring with Fibre Plugs, 6 lugs	0	5	0
" 171a	Friction Ring with Cork Plugs, 6 lugs	0	2	6
" 173	End Cap	0	1	6
T.S. 49a	Clutch Outer Plate	0	2	3
" 50	Clutch Back Plate	0	2	3
" 52a	Clutch Spring	0	1	8
" 56	Friction Cork Plug 1/2in. dia. per doz.	0	0	4
" 57	Friction Cork Plug 1/2in. dia. per doz.	0	0	4
" 77	Clutch Spring Cup	0	3	0
" 82	Spring Cup Securing Peg (rivetted to T.S. 49a)	0	0	1

THREE PLATE CLUTCH.

L.S. 47d	Clutch Sprocket 1/2 x 5/16in. (Cork Inserts), 8 slots, 42T.	1	5	0
" 47d	Clutch Sprocket 1/2 x 5/16in. (Fibre Inserts), 8 slots 42T.	1	7	6
" 50	Roller Cage (less Rollers)	0	2	0
" 50a	Roller Cage Plate	0	0	3
" 50b	Roller	0	0	2
" 50c	Rivet (set of 8)	0	0	8
" 82	Roller Cage (complete)	0	4	9
" 82	Clutch Rod 7/16in.	0	0	10
" 94	Thrust Pin 1/2in.	0	0	9
" 116	Fibre Friction Plug 1/2in. dia. (per doz.)	0	1	0
" 116a	Fibre Friction Plug 1/2in. dia. (per doz.)	0	1	0
" 117	Adjuster Nut Packing Washer	0	1	0
" 183	Clutch Friction Plate with Fibre Plugs, 8 lugs	0	5	0
" 183a	Clutch Friction Plate with Cork Inserts, 8 lugs	0	2	6
T.S. 55	Clutch Spring Collar (fits over C.S. 172)	0	0	6
C.S. 13	Axle Nut	0	0	5
" 14	Axle Nut Lock Washer	0	0	1
" 15a	Axle Key 3/16in.	0	0	3
" 164	Clutch Sprocket (Cork Inserts) 34T, 6 slots	1	5	0
" 164	Clutch Sprocket (Fibre Inserts) 34T, 6 slots	1	7	6
" 164d	Clutch Sprocket (Cork Inserts) 34T, 8 slots	1	5	0
" 164d	Clutch Sprocket (Fibre Inserts) 34T, 8 slots	1	7	6
" 165a	Clutch Centre	0	12	0
" 166	Clutch Centre Plate (Dished)	0	2	3
" 167	Clutch Centre Plate (Flat)	0	2	3
" 168a	Clutch Outer Plate	0	2	3
" 169a	Clutch Spring Cup	0	3	0
" 171	Clutch Friction Ring with Fibre Plugs, 6 lugs	0	5	0
" 171a	Clutch Friction Ring with Cork Inserts, 6 lugs	0	2	6
" 172	Clutch Adjuster Nut	0	0	8
" 173	Clutch End Cap	0	1	6
T.S. 50	Back Plate	0	2	3
" 52a	Clutch Spring	0	1	8
" 56	Friction Plug 1/2in. dia. (per doz.) Cork	0	0	4
" 57	Friction Plug 1/2in. dia. (per doz.) Cork	0	0	4

SPECIFICATION OF 2 PLATE SHOCK ABSORBER CLUTCH.

L.S. 50b	1/2in. Roller	0	0	2
" 72a	1/2in. dia. Balls (Set of 16)	0	0	6
" 82	Clutch Sprocket Back Plate	0	2	3
" 86	Clutch Rod, 7/16in.	0	0	10
" 142	Clutch Sprocket 5/16in. or 3/16in. W.	1	0	0
" 87	Clutch Sprocket for 1/2in. x 1/2in. Chain	1	0	0
" 88	Clutch Centre	0	12	0
" 89	Sprocket Securing Ring	0	0	5
" 91	Sprocket Split Ring	0	0	4
" 93a	Clutch Driver Screw	0	0	1
" 93a	Rubber Shock Absorber, 1/2in. dia. hole	0	0	2
" 93b	Rubber Shock Absorber solid	0	0	2
" 94a	Thrust Pin, 1/2in.	0	0	9
" 95	Clutch Driver, 6 slots	0	8	0
" 97	Clutch Back Plate	0	2	3
" 116	Fibre Plug 1/2in. dia. (per doz.)	0	1	0
" 116a	Fibre Plug, 1/2in. dia. (per doz.)	0	1	0
C.S. 13	Axle Nut	0	0	5
" 14	Axle Nut Lock Washer	0	0	1
" 167	Clutch Centre Plate (flat)	0	2	3
" 168a	Clutch Outer Plate	0	2	3
" 169a	Clutch Spring Cup	0	3	0
" 171	Clutch Friction Ring with Fibre Plugs, 6 lugs	0	5	0
" 171a	Clutch Friction Ring with Cork Inserts, 6 lugs	0	2	6
" 172	Clutch Adjuster Nut	0	0	8
" 173	Clutch End Cap	0	1	6
L.S. 183	Clutch Friction Plate with Fibre Plugs, 8 lugs	0	5	0
" 183a	Clutch Friction Plate with Cork Plugs, 8 lugs	0	2	6
" 184a	Clutch Driver, 8 slots	0	8	0
T.S. 52a	Heavy Clutch Spring	0	1	8
" 55	Clutch Spring Collar (Fits over C.S. 172)	0	0	6

SPECIFICATION OF 3 PLATE SHOCK ABSORBER CLUTCH.

L.S. 50b	1/2in. Roller	0	0	2
" 69b	1/2in. dia. Balls (set of 16)	0	0	6
" 69b	Rubber Shock Absorber Solid	0	0	2
" 69c	Rubber Shock Absorber, 1/2in. dia. hole	0	0	2

Symbol No.	Description	f	s.	d.
L.S. 70	Clutch Driver, 6 slots	0	8	0
" 71	Clutch Spring Cup	0	2	3
" 72a	Clutch Sprocket Back Plate	0	2	3
" 73a	Clutch Sprocket 1/2in. x 1/2in. and 1/2in. x 1/2in.	1	0	0
" 74	Clutch Centre	0	12	0
" 75	Sprocket Securing Ring	0	0	5
" 76	Clutch Driver Screw	0	0	1
" 77	Clutch Outer Cover	0	0	10
" 82	Clutch Rod, 7/16in.	0	0	14
" 89	Sprocket Split Ring	0	0	4
" 94	Thrust Pin, 1/2in.	0	0	9
" 96	Clutch Back Plate	0	2	3
" 116	Fibre Plug, 1/2in. dia. (per doz.)	0	1	0
" 116a	Fibre Plug, 1/2in. dia. (per doz.)	0	1	0
" 183	Clutch Friction Plate with Fibre Plugs, 8 lugs	0	5	0
" 183a	Clutch Friction Plate with Cork Plugs, 8 lugs	0	2	6
" 185a	Clutch Driver, 8 slots	0	8	0
C.S. 13	Axle Nut	0	0	5
" 14	Axle Nut Lock Washer	0	0	1
" 167	Clutch Centre Plate (Flat)	0	2	3
" 168a	Clutch Outer Plate	0	2	3
" 171	Clutch Friction Ring with Fibre Plugs, 6 lugs	0	5	0
" 171a	Clutch Friction Rings with Cork Plugs, 6 lugs	0	2	6
" 172	Clutch Adjuster Nut	0	0	8
" 173	Clutch End Cap	0	1	6
T.S. 52a	Heavy Clutch Spring	0	1	8
" 55	Clutch Spring Collar (fits over C.S. 172)	0	0	6

SPECIFICATION OF 2 PLATE MULTI-SPRING SHOCK ABSORBER CLUTCH.

L.S. 172	Clutch Centre	0	17	6
" 175	Sprocket Locking Plate	0	1	6
" 176	Clutch Spring Stud	0	0	6
" 178	Clutch Spring Nut	0	0	2
" 179	Clutch Back Plate	0	2	3
" 180	Clutch Centre Plate	0	2	3
" 181	Clutch Outer Plate	0	2	3
" 182	Clutch Spring Box Plate	0	2	3
" 183	Clutch Friction Plate with Fibre Plugs	0	5	0
" 183a	Ditto, with Cork Plugs	0	2	6
" 184a	Clutch Driver, 8 slots	0	8	0
" 187	Clutch Sprocket (42T 1/2in. x 3/16ths in.)	1	0	0
" 187a	Clutch Sprocket (42T 1/2in. x 5/16ths in.)	1	0	6
" 189	Clutch Rod, 7/16in.	0	0	10
" 192	Main Axle	0	13	0
" 72a	Clutch Sprocket Back Plate	0	2	3
" 91	Clutch Driver Screw	0	0	1
" 94	Thrust Pin, 1/2in.	0	0	9
" 116	Fibre Plugs, 1/2in. diameter	0	0	1
" 116a	Fibre Plugs, 1/2in. diameter	0	0	5
C.S. 13	Axle Nut	0	0	1
" 14a	Axle Nut Lock Washer	0	0	1
" 59	Clutch Spring Box	0	0	4
" 60	Clutch Spring	0	0	2
" 61b	Clutch Spring Screw	0	0	2
M.C. 503	Nut for Clutch Driver Screw	0	0	1
T.S. 56	Cork Plug, 1/2in. diam. per doz.	0	0	4
" 57	Cork Plug, 1/2in. diam. per doz.	0	0	4

3 PLATE MULTI-SPRING SHOCK ABSORBER CLUTCH.

L.S. 72a	Clutch Sprocket Back Plate	0	2	3
" 76	Clutch Driver Screw	0	0	1
" 69b	Shock Absorber Rubber, solid	0	0	2
" 69c	Shock Absorber Rubber, 1/2in. hole	0	0	2
" 94	Thrust Pin 1/2in.	0	0	9
" 116	Fibre Friction Plug, 1/2in. diam.	0	0	1
" 116a	Fibre Friction Plug, 1/2in. diam.	0	0	5
" 171	Clutch Centre	0	17	6
" 175	Sprocket Locking Ring	0	1	6
" 177	Clutch Spring Stud	0	0	6
" 178	Clutch Spring Stud Nut	0	0	2
" 179	Clutch Back Plate	0	2	3
" 180	Clutch Centre Plate	0	2	3
" 181	Clutch Outer Plate	0	2	3
" 182	Clutch Spring Box Plate	0	0	3
" 183	Clutch Friction Plate with Fibre Plugs	0	5	0
" 183a	Ditto, with Cork Plugs	0	2	6
" 185a	Clutch Driver, 8 slots	0	8	0
" 188	Clutch Sprocket (1/2in. x 1/2in. x 34T)	1	0	0
" 188a	Clutch Sprocket (1/2in. x 1/2in. x 34T)	1	0	6
" 189a	Clutch Rod, 6.5-1.1in.	0	0	10
" 192	Main Axle	0	13	0
C.S. 13	Axle Nut	0	0	5
" 14a	Axle Lock Washer	0	0	1
" 59	Clutch Spring Box	0	0	4
" 60	Clutch Spring	0	0	2
" 61b	Clutch Spring Screw	0	0	2
M.C. 503	Nut for Clutch Driver Screw	0	0	1
T.S. 56	Cork Plug, 1/2in. diam. per doz.	0	0	4
" 57	Cork Plug, 1/2in. diam. per doz.	0	0	4

TO AVOID MISTAKES WHEN ORDERING SPARE PARTS QUOTE THE GEARBOX NUMBER AND PRECEDING LETTERS.

Symbol No.		L	S.	d.
4 PLATE MULTI-SPRING SHOCK ABSORBER CLUTCH.				
L.S. 72a	Clutch Sprocket Back Plate	...	...	0 2 3
" 78	Clutch Driver Screw	...	...	0 0 1
" 69b	Shock Absorber Rubber, solid	...	...	0 0 2
" 69c	" " " " 1/2 in. diam. hole	...	...	0 0 2
" 94z	Thrust Pin, 1 1/2 in.	...	...	0 0 9
" 116	Fibre Friction Plug, 1/2 in. diam.	...	...	0 0 1
" 116a	Fibre Friction Plug, 1/2 in. diam.	...	...	0 0 1
" 174	Clutch Centre	...	...	0 17- 6
" 175	Sprocket Locking Plate	...	...	0 1 0
" 177	Clutch Spring Stud	...	...	0 0 6
" 178	Clutch Spring Stud Nut	...	...	0 0 2
" 179	Clutch Back Plate	...	...	0 2 3
" 180	Clutch Centre Plate	...	...	0 2 3
" 181	Clutch Outer Plate	...	...	0 2 3
" 182a	Clutch Spring Box Plate	...	...	0 2 3
" 183	Clutch Friction Plate Fibre Plugs	...	...	0 5 0
" 183a	Clutch Friction Plate Cork Plugs	...	...	0 2 6
" 188	Clutch Driver, 8 slots	...	...	0 8 0
" 188	Clutch Sprocket (1/2 in. x 1/2 in. x 34T)	...	...	1 0 0
" 188a	Clutch Sprocket (1/2 in. x 1/2 in. x 34T)	...	...	1 0 0
" 189b	Clutch Rod, 7/16 in.	...	...	0 0 10
" 193	Main Axle	...	...	0 13 0
C.S. 13	Axle Nut	...	...	0 0 5
" 14a	Axle Lock Washer	...	...	0 0 1
" 59a	Clutch Spring Box	...	...	0 0 4
" 60	Clutch Spring	...	...	0 0 2
" 61b	Clutch Spring Screw	...	...	0 0 2
M.C. 503	Nut for Clutch Driver Screw	...	...	0 0 1
T.S. 56	Cork Plug, 1/2 in. diam.	...	per doz.	0 0 4
" 57	Cork Plug, 1/2 in. diam.	...	per doz.	0 0 4

L.S. GATE CHANGE CONTROL FITTED UNDER TANK.
(See page 5).

L.S. 103	Gate Support Bracket (adjustable Pattern)	...	...	0 5 0
" 105	Control Fulcrum Stud	...	...	0 0 9
" 104	Lower Clip Bracket (adjustable Pattern)	...	...	0 5 0
" 107	Gear Lever with Knob C.S. 94a Fitted	...	...	0 5 0
" 108	Control Gate	...	...	0 5 0
" 110	Support Bracket Securing Screw	...	...	0 0 3
" 110a	Support Bracket Securing Washer	...	...	0 0 1
" 111	Bolt for Gate Control Clip	...	...	0 0 3
" 112	Clip for Gate Control	...	...	0 2 6
" 112a	Rivets for Gate Control (per dozen)	...	...	0 0 6
" 12c	Sleeve Nut for Gate Control	...	...	0 0 5
" 121	Spring Washer for Control	...	...	0 0 4
" 129a	Gear Control Rod (see Note page 20)	...	...	0 1 0
C.S. 87	Gear Connection	...	...	0 0 10
" 89	Gear Connection Pin	...	...	0 0 2
" 97	Gear Connection Washer	...	...	0 0 1
" 108	Split Pin (per dozen)	...	...	0 0 6
" 137	Gear Connection Lock Nut	...	...	0 0 1

GATE CHANGE CONTROL COMPLETE ... 1 5 0
When ordering Gate Control parts it is absolutely essential that an explanation is given as to the make of Motor Cycle for which it is required, and whether the control is fitted to the Saddle Down Tube or under the Tank.

L.S. 140	Gate Support and Lower Clip Bracket in one piece for 8 1/2 in., 10 in. and 11 1/2 in. wide Tank	...	...	0 7 6
" 140	Ditto, with Control Gate fitted...	...	...	0 12 6

GATE CONTROL FITTED TO SADDLE DOWN TUBE.

L.S. 100a	Gate Support and Clip Bracket for Gate Seat Tube Control, overall length 4 1/2 in.	...	...	0 7 6
" 109	Ditto, Overall length 3 in.	...	...	0 7 6

NOTE.—Overall length referred to above is measured from centre of Saddle Down Tube to inside of Control Gate.

L.S. 106	Gate Seat Tube Control Lever with Cranked Arm	...	...	0 5 0
" 106a	Ditto, with Straight Arm	...	...	0 5 0

L.S. GATE CONTROL FITTED ON BOX (See page 5).

L.S. 105	Control Fulcrum Stud	...	...	0 0 9
" 108	Gear Control Gate	...	...	0 5 0
" 113	Rivet for Control Gate	...	per dozen	0 0 6
" 120	Sleeve Nut	...	...	0 0 5
" 121	Spring Washer	...	...	0 0 4
" 124	Stud for Control Bracket	...	...	0 0 3
" 127	Control Bracket	...	...	0 4 6
" 128	Long Gear Lever with Knob fitted	...	...	0 5 0
" 129	Control Rod (Gate on Box Type)	...	...	0 1 0
C.S. 7	Nut for Control Bracket	...	...	0 0 2
" 7a	Nut for Control Bracket (domed and plated)	...	...	0 0 3
" 87	Gear Connection	...	...	0 0 10
" 89	Gear Connection Pin	...	...	0 0 2
" 97	Gear Connection Washer	...	...	0 0 1
" 108	Split Pin (per dozen)	...	...	0 0 6
" 137	Gear Connection Lock Nut	...	...	0 0 1
" 151	Grover Washer for Stud L.S. 124	...	...	0 0 1
" 145	Rivet for Control Gate	...	per doz.	0 0 6

L.S. DISC CONTROL FITTED ON BOX (See page 4).

L.S. 41	Control Quadrant (Back of Box)	...	...	0 5 0
" 41a	Control Quadrant (Front of Box)	...	...	0 5 0
" 60	Index Plate	...	...	0 3 0
" 61	Quadrant Bush	...	...	0 1 0
" 62b	Quadrant Stud	...	...	0 1 0
" 63	Spring Box	...	...	0 0 9
" 64	Spring	...	...	0 0 3
" 65	Spring Nut	...	...	0 0 6
" 65a	Spring Nut Washer	...	...	0 0 1
" 84b	Stop Peg	...	...	0 0 1
" 102	Control Bracket	...	...	0 3 0
" 124	Control Bracket Stud	...	...	0 0 3
" 130	Control Rod (See Note below)	...	...	0 1 0
C.S. 7	Nut for Control Bracket Stud	...	...	0 0 2
" 83d	Long Gear Lever with Knob, shallow set	...	...	0 6 0
" 83b	Long Gear Lever with Knob, Standard set	...	...	0 6 0
" 74	Spring Washer for C.S. 84a	...	...	0 0 1
" 84a	Long Gear Lever Bolt	...	...	0 0 2
" 87	Gear Connection	...	...	0 0 10
" 89	Gear Connection Pin	...	...	0 0 2
" 97	Gear Connection Washer	...	...	0 0 1
" 108	Split Pin	...	per doz.	0 0 6
" 137	Gear Connection Lock Nut	...	...	0 0 1
" 151	Grover Washer for Quad Stud	...	...	0 0 1

SPEEDWELL "CRIMSANGERE LIGHT" LUBRICANT in 1lb. tubes at 1/10 each (see page 6).

GEAR CONTROL ROD. TS46 and LS 129/130. This Rod is supplied in various lengths so as to allow the position of the Control to be adjusted to suit individual requirements. When ordering, it is therefore essential to give the length of rod required, and also explain whether the measurement is taken from the Rod only or includes the Gear Connection at each end. If the old Rod is cranked to miss the Carburetter or any other fitting, the old Rod should be sent as a sample.

STURMEY-ARCHER GEARS Ltd.
LENTON — NOTTINGHAM — ENGLAND

Telegrams: "Triple, Nottingham."

Telephone 75154