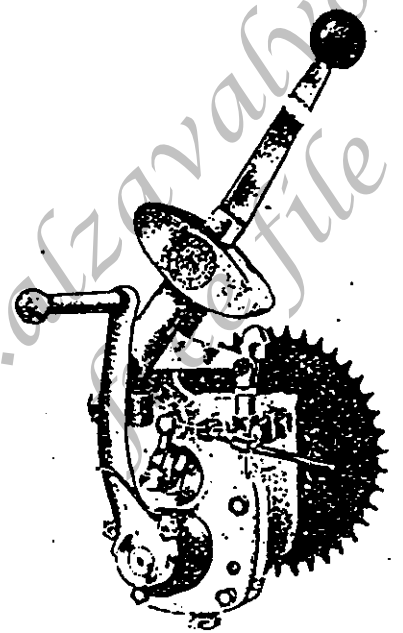
April, 1930.

STURMEY ARCHER
COUNTERSHAFT GEAR

B.S. AND B.W. TYPES.



B.S. TYPE.

3-SPEED FOR CHAIN-CUM-BELT
OR ALL-CHAIN DRIVE.

STURMEY-ARCHER GEARS, Ltd.

LENTON——NOTTINGHAM——ENGLAND

Telegrams:—"Triple, Nottingham." *Telephone*: 75134.

Three-Speed Light-weight Gears,

B.S. & B.W. TYPES.

These gear boxes have been designed and put on the market to meet the demand of manufacturers of Motor Cycles of the Light Weight Class.

With the increasing popularity of this machine, it is essential that it should be provided with a suitable gear box.

The object has been to combine efficiency with simplicity, and to keep the weight down as far as strength and durability would allow.

APPLICABLE TO BOTH B.S. AND B.W. GEARBOXES

GEARS.

Only six pinions are used to provide three speeds and a kickstarter, the kickstarter drive being taken through the low gear members.

The gears are constantly in mesh at all times, the changes being effected by sliding dogs, consequently there is no danger of stripping the teeth when changing gear.

CLUTCH.

This is of the cork insert type, large in diameter giving a maximum frictional area, and also securing strength and durability.

A shock absorber clutch is also supplied in which the drive is taken through a series of rubber buffers. This device has proved very efficient in action, and effectively damps out the shocks imposed on the transmission in the case of the all-chain drive.

CHANGING GEAR.

When starting from rest, with engine running and gear in neutral, release clutch and pull 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.

LUBRICATION.

Use Gargoyle Mobilgrease which is used by us and is specially prepared for Sturmey-Archer Gearboxes. This lubricant is marketed in 1-lb. collapsible tubes the use of which facilitates filling. A ½lb. is sufficient for a charge; re-charge with half this amount every 1,000 miles. All gears are carefully charged before being sent out, but we advise adding a little more lubricant after the first 500 miles. It is 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. The various joints in the gear changing mechanism should be kept oiled regularly to ensure freedom of action.

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

APPLICABLE TO B.S. BOX ONLY.

GEAR CONTROL.

A gate or disc pattern control can be supplied for this gear. In the case of the latter it is fixed directly on the box. The chief advantage of this is that any adjustments made to the chains do not interfere with the setting of the control. Another valuable feature is also secured in that the gear is correctly adjusted before leaving our works. The hand lever is adjustable and can be set to the most convenient operating position. The gate control can be supplied with a one-piece bracket to fix directly under the tank, or with a sleeve type fixing which is also carried on the tank tube but is adjustable to suit the width of the tank.

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 the nut on the lever side of the rocking shaft is thoroughly tight. The adjustment of the gear is effected by removing the pin from the top connection and giving the connection one turn or half a turn on 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 the middle or low gear; finally check by pin in top connection being just free to slide when in high gear.

CLUTCH CONTROL ADJUSTMENT.

The clutch worm lever should be examined immediately any sign of clutch slip is suspected, to ensure that it has 3/16in. idle movement when the clutch is fully engaged. It may be found that the inner cable is too tight, and if so, adjust the wire stop-screw to overcome this. In some cases it will be found necessary to loosen the lever from the worm and move it forward slightly to get the desired result

In cases where the clutch plates have worn, and permanent slip has developed, we would advise removing the end cap and clutch adjuster nut. Both have right-hand thread. If any washers are found behind this nut these should be removed. Use a hammer and punch to remove the end cap and be sure it is tightened up very securely when replacing. The rest of the clutch plates may now be lifted apart without any tools. As an alternative in obstinate cases, a stronger clutch spring may be fitted, but this will call for slightly more exertion to release the clutch at the lever on the handlebar.

If the clutch is difficult to operate, examine the tongues of the clutch plates and the grooves in which these slide. If any ridges have been worn the part will have to be renewed.

Worn threads on the clutch worm and inside the clutch nut will also produce this effect.

TO TAKE THE GEAR APART.

Disconnect clutch control wire and gear control connection, then remove five 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; the low and middle gear pinions, also layshaft, may now be lifted out. When replacing, take care that the ball bearings are not tilted. No forcing is necessary when replacing the cover plate.

Applicable to B.W. Box only.

This new gear has been added to the Sturmey-Archer range to provide something which could comfortably take a 350 c.c. engine.

The design follows standard Sturmey-Archer practice in that only 6 pinions are used to provide 3 speeds and a kickstarter. The gears are constantly in mesh for the full width of the teeth.

The gears and shafts are made from 3% nickel-chrome case-hardening steel, and carefully tempered to toughen the surface of the dog clutch teeth and thus prevent the edges chipping away. The special feature of this gear consists in the design of the control mechanism. The various gear positions are automatically indexed inside the box and the whole mechanism is entirely enclosed. The gear operating spindle is placed on the front of the cover and a short lever is attached to this by serrations. This lever can be set in any convenient position to suit the angle of the control rod.

An internal stop is provided for arresting the return stroke of the kickstarter crank, thus dispensing with the external stop spring.

GEAR CONTROL.

A gate pattern control is used for this gear and is fixed by a small bracket to the tank tube. A special gate can also be supplied for fixing directly on the side of the tank. An extra long operating lever is used along with this gate, which allows the control rod to work in a vertical position.

GEAR CONTROL ADJUSTMENT.

Place the gate lever and the short lever on the box, both in the middle gear positions. Adjust the length of the control rod to bring the pin holes exactly into line, and finally secure the connections by the lock-nuts provided.

TO TAKE THE GEAR APART.

Disconnect the clutch control wire and unscrew the five cover nuts. A few light taps behind the kickstarter crank will release the cover from the box. Particular care should be taken to see that the ball which fits in the lever on the face of the cover is not lost, but put away carefully. Before removing the gears unscrew the indexing plunger bush half way.

The layshaft and all the gears with the exception of the main sleeve pinion can now be withdrawn.

When re-assembling, particular care must be taken to see that the ball is in position on the end of the forked lever. The best way to secure this is to fix the box securely in a vice with the open end upwards, and place the arm of the forked lever, which carries the ball, in a vertical position. The lever can be held in this position by the tension of the spring on the indexing plunger. The ball should then be smeared with a little grease and placed in the recess of the short lever inside the cover. The cover should now be put into position on the long stud—carefully guiding the hole in the ball on to the end of the forked lever inside the box. The cover nuts may now be put on the studs and screwed home, as well as the plunger bush.

CLUTCH CONTROL ADJUSTMENT.

The clutch is operated with a lever having a direct pull, which is very easy to handle and sweet in action. It is essential to see that there is 1/32in. of clearance between the end of the push rod and the ball end of the adjusting screw. A screw, B.S.153, and lock-nut, C.S.106A, are provided so that this necessary clearance may be maintained

STANDARD RATIOS.

1 : 1

1 : 1.51

1 : 2.75

CLOSE RATIOS
LESS KICKSTARTER.

1 : 1

1 : 1.27

1 : 1.7

TOP	MIDDLE	LOW
4	6.16	11
4¼	6.55	11.69
4½	6.93	12.38
4¾	7.32	13.06
5	7.7	13.75
5¼	8.09	14.44
5½	8.47	15.13
5¾	8.86	15.81
6	9.24	16.5
6¼	9.63	17.19
6½	10.01	17.88
6¾	10.4	18.56

TOP	MIDDLE	LOW
4	5.08	6.8
4¼	5.39	7.22
4½	5.71	7.65
4¾	6.03	8.07
5	6.35	8.50
5¼	6.66	8.92
5½	6.98	9.35
5¾	7.30	9.77
6	7.62	10.20
6¼	7.93	10.62
6½	8.25	11.05
6¾	8.57	11.45

NOTE.—An alternative set of Ratios can be supplied with or without Kickstarter—Ratio 1–1.27–2.46.

PARTICULARS OF GEARS.

ALL CHAIN.

Engine chain line ... ... 3*ins.*

Back sprocket 2-3/16

Chain sprockets 40T and 20T or, with shock absorbers—42T and 20T, 3/16*in.* or 5/16*in.* chains.

Weight :—

All-chain ... ... 15 lbs.

Particulars required when ordering gears.

Make and c/c of engine, also whether 2 or 4 stroke.

Type of drive—all-chain.

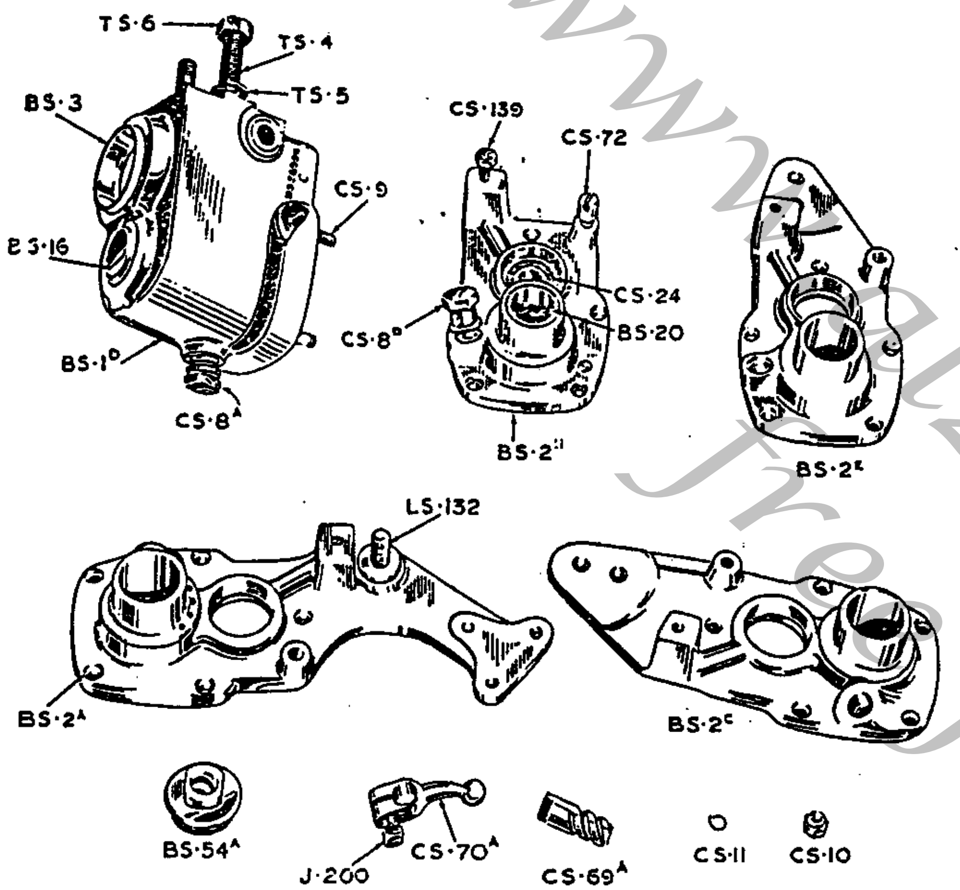
Number of teeth on sprockets with pitch, and width of chains; also whether shock absorber is required.

Type of control.

Disc on box.

Gate on box.

Diameter of handle bars.



B.S. GEARBOX.

		s.	d.
BS 1	Gearbox Shell — — —	25	0
BS 1D	„ „ Coventry Eagle, Montgomery, Raleigh Model 15 (1929); Models MG30, MJ30 and MO30 (1930) — — —	25	0
BS 1E	Gearbox Shell (Matchless Model "A.") — — — —	25	0
BS 2A	Gearbox Cover with Gate Control Bracket — — — —	20	0
BS 2B	Gearbox Cover with Gate Control Bracket and Control Gate —	25	0
BS 2C	Gearbox Cover (Used with Disc Control on Cover, Operated from Rear of Box) — —	10	0
BS 2E	Gearbox Cover (Used with Disc Control on Cover, Operated from Front of Box) — —	10	0
BS 2G	Gearbox Cover (Used with Disc Control on Cover.—Raleigh Models 15 and MG30) — —	10	0
BS 2H	Gearbox Cover (Plain, for Gate Tank, no Extension—(Raleigh MJ30 and MO30) (Montgomery)	10	0
BS 2J	Gearbox Cover (Matchless Model "A.") — — — —	10	0

		s.	d.
BS 3	Outer Ball Race — — —	4	0
BS 4	Inner Ball Race — — —	1	9
BS 5	Ball Race Washers — —	0	1
BS 6	Ball Race Dust Cap — —	0	3
BS 7	Main Axle — — — —	11	0
BS 7A	Main Axle, ¼in Longer than Standard. (1920 Enfield) — —	11	0
BS 7C	Main Axle (Matchless Model "A.")	11	0
BS 8	Main Gear Wheel, 4 Circular Dogs (*obsolete since 1925*) — —	12	6
BS 8A*	Main Gear Wheel, 3 Square-Cut Dogs, 23T — — — —	12	6
BS 9	Axle Sliding Pinion, 4 Circular Dogs (*obsolete since 1925*) — —	7	0
BS 9B*	Axle Sliding Pinion, 3 Square-Cut Dogs, 19T — — — —	7	0
BS 9D	Axle Sliding Pinion, 3 Square-Cut Dogs. 21T C.R. — — —	7	0
	**BS8A, 9B and 9D are the latest type and have been fitted since June, 1925. They may be fitted to earlier boxes if two new parts are used.*		
BS 10	Axle Low Gear Pinion, 13T —	3	6
BS 10B	Axle Low Gear Pinion, 11T. C.R.	3	6
BS 11	Layshaft — — — —	9	0
BS 12	Layshaft Pinion, 18T — —	4	6

		s.	d.
BS 13	Layshaft Sliding Pinion, 23T —	7	6
BS 13A	Layshaft Sliding Pinion, 21T C.R.	7	6
BS 14	Layshaft K.S. and Low Gear Wheel, 28T — — —	8	6
BS 14B	Layshaft K.S. and Low Gear Wheel, 27T C.R. — —	8	6
BS 15 / BS 19	Layshaft Bush / Kickstarter Axle } *Assembled together*	11	6
BS 15 / BS 19A	Layshaft Bush / Kickstarter Axle } *1¼ins. extended (Montgomery)*	11	6
BS 15 / BS 19C	Layshaft Bush / Kickstarter Axle } *¾in. extended*	11	6
BS 15 / BS 19G	Layshaft Bush / Kickstarter Axle } *1¼ins. extended (Matchless "A"*	11	6
	If a new Layshaft Bush is required, the axle must be returned to us to have one fitted—charge 4/-		
BS 16	Layshaft Ball Bearing Cup —	0	3
BS 20	Kickstarter Axle Bush — —	1	6
BS 21	„ Pawl — — —	1	3
BS 22	„ Pawl Pin — —	0	3
BS 23	„ „ Spring —	0	1
BS 24	„ „ Plunger —	0	3
BS 25	„ Cam — — —	0	3
BS 26	„ Return Spring —	1	0
BS 26A	„ „ „ 1¼ins. Extended (*Suitable for Matchless Model "A."*) — — —	1	0

		s.	d.
BS 26B	Kickstarter Return Spring, ¾in. Extended — — — —	1	0
BS 27	Kickstarter Return Spring Cover	0	9
BS 27A	„ „ „ „ for Extended Axles — —	0	9
BS 28	Kickstarter Stop-piece — —	0	3
BS 29	„ Crank (*Coventry Eagle*)	11	0
BS 29C	„ Crank, 1¼ins. Offset (*Matchless Model "A"*) (*Montgomery*)	11	0
BS 29F	Kickstarter Crank ¾in. Offset (*Raleigh Models 15 and MG30*) —	11	0
BS 31	Fork Change Lever — —	4	6
BS 32	„ „ „ (*Matchless Model "A."*) — — —	4	6
BS 33	Indexing Plunger Bush (*Matchless Model "A."*)	1	0
BS 34	Sliding Gear Plate — —	2	0
BS 38	Rockingshaft Screw (Front) —	0	4
BS 42A	„ Lever (Straight) —	3	0
BS 42B	„ Lever (Bent) (*Montgomery*) —	3	0
BS 42C	„ Lever (Bent) (*Raleigh Models 15 and MG 30*)	3	0
BS 43	Rockingshaft Lever 3¼ins. Centres (*Enfield* 1929, 350 *c.c.*) — —	3	0
BS 44	Rockingshaft Pin (Rear) — —	0	4

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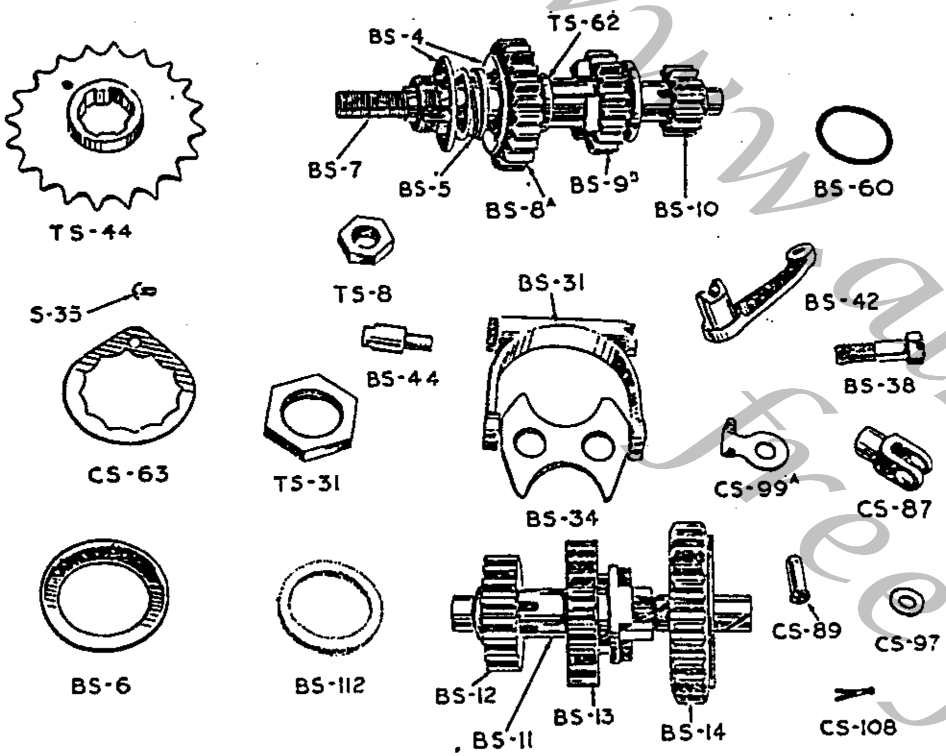
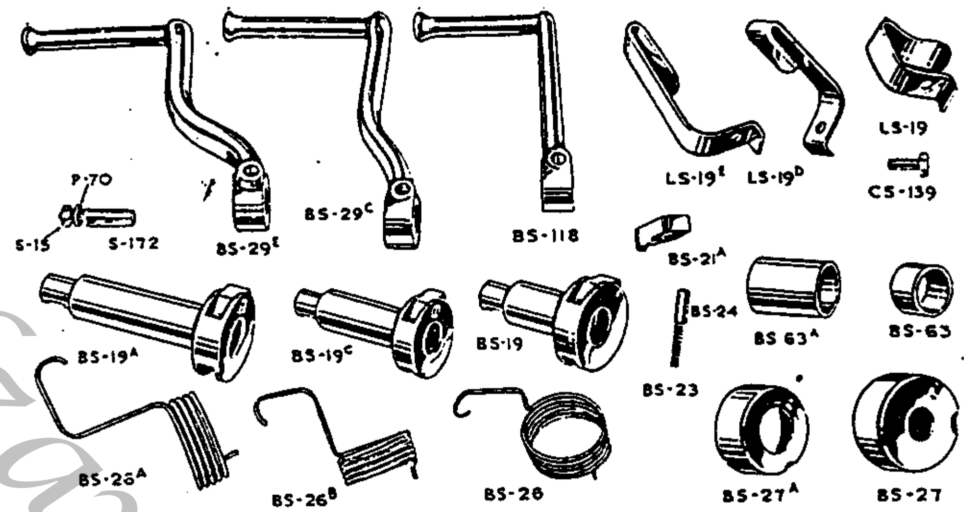


		s.	d.
BS 52	Clutch Rod, 6¾ins. long	0	9
BS 52A	Clutch Rod, 6 5/16ins. long	0	9
BS 52B	Clutch Rod, 6¼ins. long	0	9
BS 52C	Clutch Rod 6-3/16ins. long	0	9
BS 54A	Clutch Nut	3	0
BS 55	Clutch Worm Lever	2	6
BS 58	Paper Washer for Gearbox Cover	0	2
BS 60	Clutch Nut Washer	0	1
BS 60A	Oil-retaining Washer for Clutch	0	1
	Nut	0	1
BS 63	Kick-starter Axle Distance Sleeve (¾in. extended axle)	0	3
BS 63A	Kick-starter Axle Distance Sleeve (1½in. extended axle)	0	3
BS 63B	Kick-starter Axle Distance Sleeve (1¾in. extended axle Matchless Model "A")	0	3
BS 71	Fork Change Lever Bush	0	4
BS 72	Fork Change Lever Stud	0	6
BS 73	Oil-retaining Rubber Sleeve (fits over CS 69B) Matchless Model 'A'	0	2
BS212A	Gear Indexing Plunger (Matchless Model 'A')	0	2
CS 8A	Gearbox Oil Plug	0	9
CS 8E	Gearbox Oil Filler Plug (Matchless Model 'A')	0	9

		s.	d.
CS 9	Gearbox Cover Stud	0	3
CS 10	Gearbox Cover Nut	0	2
CS 11	Gear Box Spring Washer (set of 5)	0	3
CS 33	R.L.4 Skefko Bearing	4	2
CS 63	Pulley Locking Plate	0	4
CS 69A	Clutch Worm	1	9
CS 69B	Clutch Worm (Matchless Model 'A')	1	9
CS 72	Wire Stop Stud	0	9
CS 78	Rocking Shaft Bush	0	4
CS 79	Rocking Shaft Lever Bush	0	4
CS 90A	Rocking Shaft Lock Washer	0	2
CS106	Bowden Wire Stop	0	6
CS143	Locking Plate Screw	0	1
TS 4	Fixing Stud	0	5
TS 5	Gearbox Spring Washer	0	2
TS 6	Gearbox Nut	0	2
TS 6A	Gearbox Nut (domed and plated)	0	8
TS 8	Axle Nut	0	5
TS 30	Belt Pulley ⅞in. Belt	13	6
TS 30B	Belt Pulley 1in. Belt	13	6
TS 31	Axle Sprocket Lock-nut	0	8
TS 44	Axle Sprocket 20T ½in. x 3/16in.	7	6
TS 44B	Axle Sprocket 20T ½ x 5/16in.	7	0



		s.	d.
TS 44H	Axle Sprocket 17T ½in. x 5/16in. (Matchless Model 'A')	7	6
TS 62	Main Axle Thrust Washer	0	8
TS 71	Peg for Axle	0	0½
LS 10	K.S. Stop Spring	0	7
LS 10B	K.S. Stop Spring (for ¾in. ext. K.S. axle (Raleigh MG 30)	0	7
LS 10E	K.S. Stop Spring, for extended axle (Raleigh MJ 30 and MO30)	0	7
LS 10G	K.S. Stop Spring (Montgomery BS)	0	7

		s.	d.
LS 85	Rivet for K.S. Cam	0	1
I 200	Clutch Worm Lever Bolt	0	1
E 880	Plunger Spring for Gear Indexing Plunger BS 212A (Matchless Model 'A')	0	2
S 172	Cotter Pin for K.S. Crank	0	2
S 15	Cotter Pin Nut	0	1
P 70	Cotter Pin Washer per doz.	0	4
ML184D	Grease Nipple for CS 8E	0	3
	"Gargoyle Mobilgrease" Lubricant, 1lb. tube	1	9

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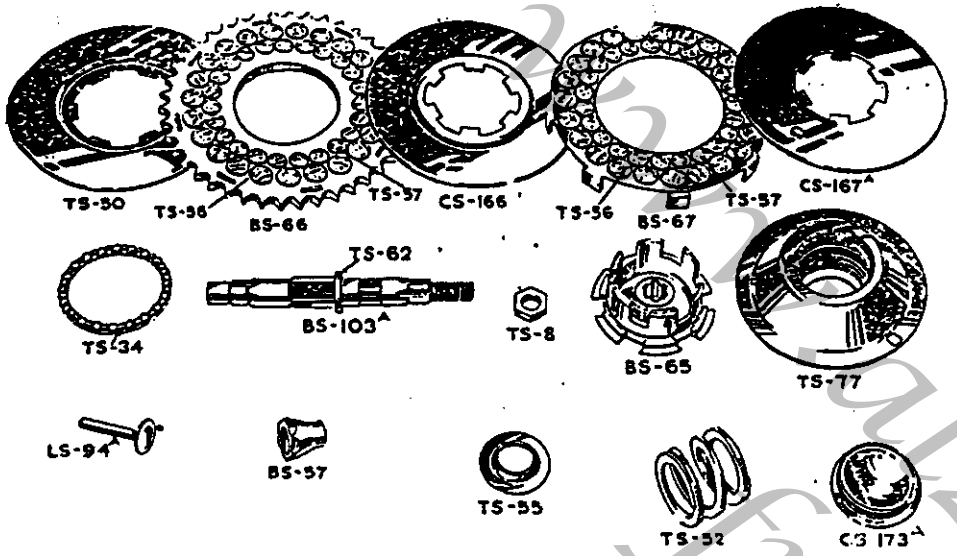


2 PLATE SHOCK ABSORBER CLUTCH.

			s.	d.
BS 52B	Clutch Rod 6 *ins. long*	— —	0	9
BS 57	Clutch Adjuster Nut	— —	0	8
BS 61	Clutch Centre	— —	12	0
BS 61A	Clutch Centre (*Raleigh*)	— —	12	0
BS151C	Clutch Rod, 7 *ins. long* (*A.J.S. Models* R 5/R 12)	— —	0	9
LS 50B	Roller	— —	0	2
	Balls ¼*in. diam.* (*set of* 16)	— —	0	6
TS 72A	Clutch Sprocket Back Plate	— —	2	2
LS 86	Clutch Sprocket 42T ½*in.* x 5/16*in.*	20	0	
LS 86A	Clutch Sprocket 42T ½*in.* x 3/16*in.*	20	0	
LS 88	Sprocket Securing Ring	— —	0	5
LS 89	Sprocket Split Ring	— —	0	4
LS 91	Clutch Driver Screw	— —	0	1
LS 93A	Shock-absorber Rubbers, ½*in. hole*		0	2
LS 93B	Shock-absorber Rubbers, *solid*		0	2
LS 91B	Thrust Pin ½*in. long*	— —	0	9
LS 95	Clutch Driver 6 *slots*	— —	8	0
LS 97	Clutch Back Plate	— —	2	3
LS116	Fibre Plug ½*in.*	— *per doz.*	1	0
LS116A	Fibre Plug ¼*in.*	— *per doz.*	1	0
LS142	Clutch Sprocket 34T	½ x ¼ *chain*	20	0
LS183	Clutch Friction Ring with Fibres 8 *lugs*	— — —	6	0
LS183A	Clutch Friction Ring with Corks 8 *lugs*	— — —	2	6
LS 184A	Clutch Driver 8 *slots*	— —	8	0
LS 190	Clutch Friction Rubber (*A.J.S. Models* R.5/R.12.)	— —	0	2
LS118	Clutch Adj. Nut Packing Washer		0	1
CS107	Clutch Centre Plate Flat	— —	2	3
CS108A	Clutch Outer Plate	— —	2	3
CS109A	Clutch Spring Cup	— —	3	0
CS171	Clutch Friction Ring with Fibres, 6 *slots*	— — —	5	0
CS171A	Clutch Friction Ring with Corks 6 *slots*	— — —	2	6
CS173A	Clutch End Cap	— — —	1	6
TS 8	Axle Nut	— — —	0	5
TS 36	Clutch Adjuster Nut	— — —	0	8
TS52A	Heavy Clutch Spring	— — —	1	8
TS 55	Clutch Spring Collar	— — —	0	6
TS 56	Cork Inserts ½*in. diam.*	*per doz.*	0	4
TS 57	Cork Inserts ¼*in. diam.*	*per doz.*	0	4
MC503	Nut for Clutch Driver Screw	—	0	1

SINGLE PLATE (B.S.) PLAIN CLUTCH.

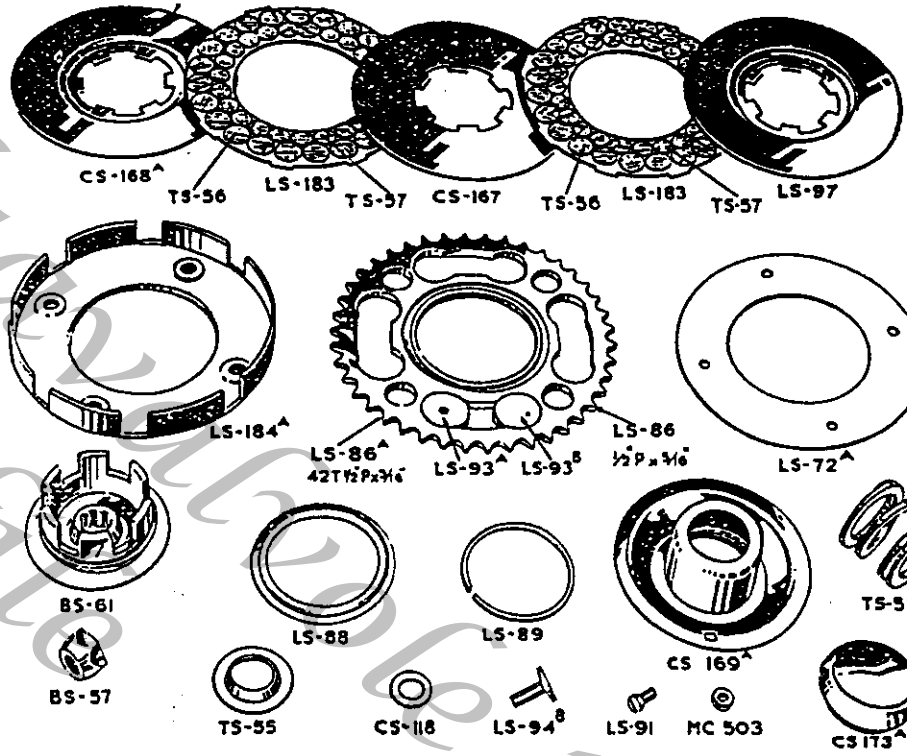
LS 91	Thrust Pin ½*in. long*	— —	0	9
BS 61	Clutch Centre (*Standard*)	— —	12	0
BS 52A	Clutch Rod 6-5/16*ins. long*	— —	0	9
CS173A	Clutch End Cap	— — —	1	6
CS118	Clutch Centre and Adjuster Nut Packing Washer	— —	0	1
TS 8	Axle Nut	— — —	0	5
TS 34	Clutch Ball Retainer, Complete		0	10
TS 35E	Clutch Sprocket 40T ½*in.* x 5/16*in.*	16	0	
TS 35F	Clutch Sprocket 40T ½*in.* x 5/16*in.*	16	0	
TS 36	Clutch Adjuster Nut	— —	0	8
TS 40A	Clutch Outer Plate	— —	2	3
TS 50	Clutch Back Plate	— —	2	3
TS 52B	Clutch Spring	— —	1	8
TS 55	Clutch Spring Collar	— —	0	6
TS 56	Clutch Cork Inserts ½*in. per doz.*		0	4
TS 57	Clutch Cork Inserts ¼*in. per doz.*		0	4
TS 77	Clutch Spring Cup	— —	3	0

SINGLE PLATE SHOCK ABSORBER CLUTCH.

LS 50B	Roller Bearing (16 *in set*) *each*		0	2
	Ball Bearing ¼*in.* (16 *in set*) *set*		0	6
LS 91	Thrust Pin ½*in. long*	— —	0	9
BS 50	Clutch Centre (*Shock absorber*)		12	0
BS 52	Clutch Rod 6 *ins long*	— —	0	9
CS108A	Clutch Outer Plate	— —	2	3
CS109A	Clutch Spring Cup	— —	3	0
CS171A	Clutch Friction Ring (corks) 6 *lugs*		2	6
CS173A	Clutch End Cap	— — —	1	6
CS118	Clutch Centre and Adjuster Nut Packing Washer	— —	0	1
TS 8	Axle Nut	— — —	0	5
TS 36	Clutch Adjuster Nut	— — —	0	8
TS 52B	Clutch Spring	— — —	1	8
TS 55	Clutch Spring Collar	— — —	0	6
TS 56	Clutch Cork Inserts ½*in.*	*per doz.*	0	4
TS 57	Clutch Cork Inserts ¼*in.*	*per doz.*	0	4
LS 72A	Clutch Sprocket Back Plate	— —	2	2
LS 86	Clutch Sprocket 42T ½*in.* x 5/16*in.*	20	0	
LS 86A	Clutch Sprocket 42T ½*in.* x 3/16*in.*	20	0	
LS 88	Sprocket Securing Ring	— —	0	5
LS 89	Sprocket Split Ring	— —	0	4
LS 90	Clutch Driver (for 42 Clutch T Sprocket) 6 *slots*	— —	7	0
LS 90A	Clutch Driver (for 42T Clutch Sprocket) 8 *slots*	— —	7	0
LS 91	Clutch Driver Screw	— —	0	1
LS 93A	Shock Absorber Rubber ½*in. hole*		0	2
LS 93B	Shock Absorber Rubber, *solid*		0	2
LS 97	Clutch Back Plate	— —	2	3
LS183A	Clutch Friction Ring with corks, 8 *lugs*	— — —	2	6
MC503	Nut for Clutch Driver Screw	—	0	1

STRAIGHT-PULL CLUTCH CONTROL.

CS 73	Nipple for Clutch Wire (*Worm Lever end*) — *per doz.*		0	6
CS 73B	Nipple for Handle-bar Lever *doz.*		0	6
CS100F	Handlebar Lever only	— —	3	6
CS101E	Fulcrum ½*in.* Bar	— —	3	0
CS101G	Fulcrum ¼*in.* Bar	— —	3	0
CS102A	Half-clip, ½*in.* Bar	— —	0	9
CS102B	Half-clip, ¼*in.* Bar	— —	0	9
CS104A	Fulcrum Pin	— —	0	1
CS106A	Fulcrum Pin Nut	— —	0	1
CS106	Bowden Wire Stop	— —	0	6
CS106A	Bowden Wire Stop Lock Nut	—	0	1
CS198	Thimble	— — —	0	1
CS199	Swivel for Handle-bar Lever	— —	0	4
X 90	Fixing Screw	— — —	0	1
X 111	Clip Nut	— — —	0	2
CS 45	Bowden Wire Stop Spring	—	0	1
	6/*ft.* Clutch Inner Wire	—	0	8
	5/*ft.* 8*ins.* Outer Bowden Cable	—	2	8
	Straight-pull Clutch-control, complete with Wires	—	11	0
	Straight-pull Clutch-control, complete, *less* Wires	—	7	0



GATE TANK GEAR CONTROL, B.S. BOX

(For Matchless Model 'A')

BS136U	Gear Control Lever with Knob		5	0
BS135	Control Gate	— — —	5	0
LS120	Sleeve Nut for Gate Control	—	0	6
LS121	Spring Washer for Gate Control		0	4
LS194M	Gear Control Rod (*top*)	— —	1	0
LS194L	Gear Control Rod (*bottom*)	— —	1	0
CS 87	Change Gear Rod Connection	— —	0	10
CS 89	Gear Connection Pin	— —	0	2
CS 97	Gear Connection Washer	— —	0	1
CS108	Split Pin — — *per doz.*		0	6
CS137	Gear Connection Lock Nut	—	0	1

The bracket is made by Messrs. Matchless Motor Cycles (Colliers), Limited, Plumstead Road, Plumstead, S.E.18.

SPEEDOMETER DRIVE ARTS FOR MATCHLESS MODEL "A."

LS410B	"Speedo" Pinion Casing	— —	2	6
LS411	"Speedo" Pinion 23T	— —	2	6
LS412	"Speedo" Pinion Spindle	— —	1	3
LS413	"Speedo" Intermediate Pinion	—	1	0
LS414	"Speedo" Final Pinion	— —	1	0
LS415	"Speedo" Final Pinion Spindle		1	3
MC255	"Speedo" Casing Fixing Screw		0	2
LS323	"Speedo" Connection Bush	—	1	6
LS326	Grub Screw for Fixing Bush	—	0	1
LS328	"Speedo" Coupling Pin *per doz.*		0	6
LS329A	Cover Plate (*used when drive is not fitted*)	— — —	0	3
LS331	"Speedo" Casing Stud Washer		0	1

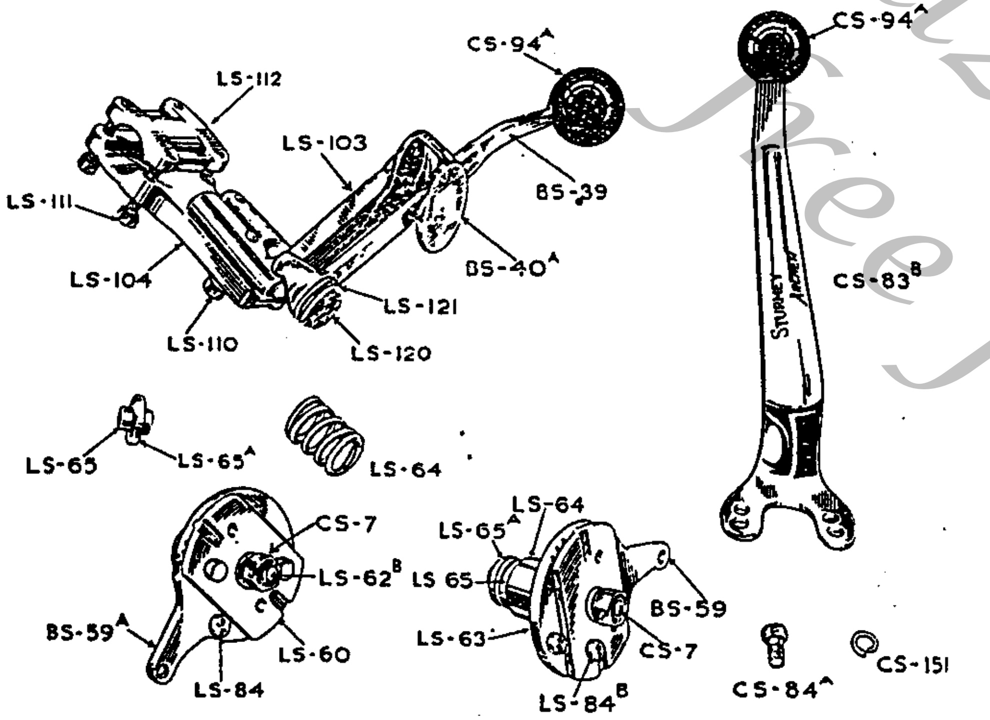
GATE TANK CONTROL (for Montgomery, B.S. Box)

CS 87	Gear Connection	0	10
CS 89	Gear Connection Pin	0	2
CS 97	Gear Connection Washer	0	1
CS108	Split Pin *per doz.*	0	6
CS 94A	Gear Control Knob	0	9
CS 95A	Gear Control Knob Washer	0	1
CS 98	Collar for Knob	0	2
CS182	Gear Control Gate	3	6
CS183	Gear Control Fulcrum Screw	0	10
CS184C	Gear Control Lever (3in. centres), *Mark "C"*	8	0
CS186	Spring Washer	0	2
CC 18	Nut for Fulcrum Screw	0	2
LS129A	Gear Control Rod (17¾ins. long)	1	0

The other parts of this control are made and supplied by Messrs. W. Montgomery & Co., Leicester Causeway, Coventry.

B.S. DISC CONTROL ON BOX

BS 2B	Gear Box Cover	16	0
BS 2C	Gear Box Cover (*Raleigh Model* MG30)	16	0
BS 41A	Control Rod	0	4
BS 39	Disc Quadrant Plate	5	0
LS 60	Control Index Plate	3	0
LS 61	Control Bush	1	0
LS 62B	Control Quadrant Stud	1	0
LS 63	Control Spring Box	0	3
LS 64	Control Spring	0	3
LS 65	Control Spring Nut	0	6
LS 65A	Control Spring Washer	0	1
CS 7	Nut for Quadrant Stud	0	2
CS 74	Spring Washer for Gear Lever Screw	0	1
CS 83B	Long Gear Lever, with Knob	6	0
CS 83D	Long Gear Lever with Knob (*shallow set, Raleigh* MG.30)	6	0
CS 84A	Long Gear Lever Bolt	0	2
CS151	Grover Spring Washer for Quad. Stud	0	1

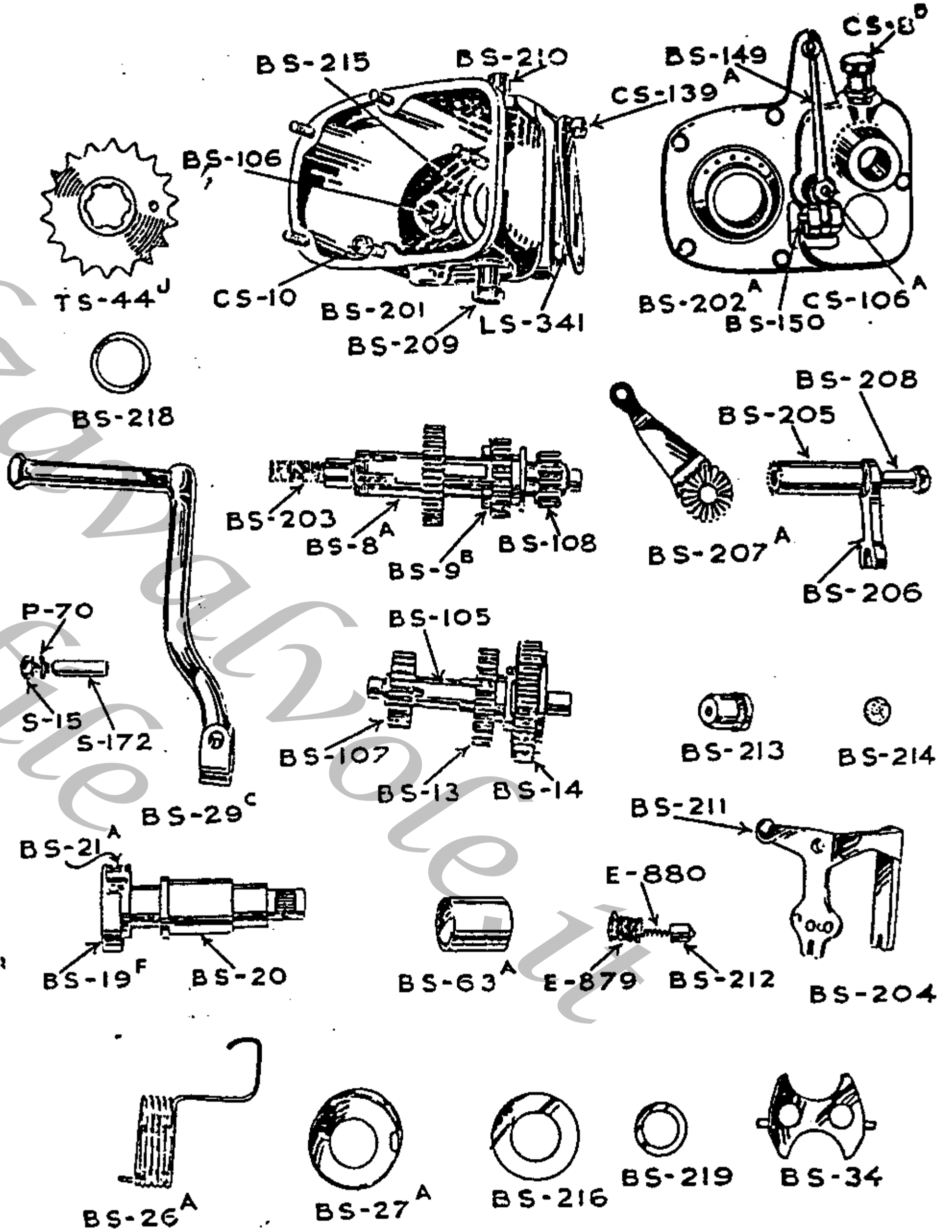


SPECIAL GATE TANK GEAR CONTROL (NO BRACKET). (B.S. BOX.) (For Raleigh Models M.J.30 and M.O.30).

BS190	Gear Control Gate, Riveted to MS.521 Gate Back Plate	6	6
BS 75	Gear Control Lever	3	0
BS 76	Gear Control Rod	1	0
CS 87	Gear Connection	0	10
CS 89	Gear Connection Pin	0	2
CS 97	Gear Connection Washer	0	1
CS137	Gear Connection Lock Nut	0	1
CS108	Split Pin *per doz.*	0	6
CS 94A	Gear Lever Knob	0	9
CS 95	Gear Lever Knob Washer	0	1
CS 98	Collar for Quadrant Knob	0	2

B.S. GATE CONTROL ON BOX.

BS 2A	Gear Box Cover with Gate Control Bracket	20	0
BS 35	Long Gear Lever with Arm & Knob	6	0
BS 40	Control Gate	6	0
CS 87	Gear Connection (*female*)	0	10
CS 88A	Gear Connection (*male*)	0	10
CS 89	Gear Connection Pin	0	2
CS 94A	Gear Lever Knob	0	9
CS 95A	Gear Lever Knob Washer	0	1
CS 97	Gear Connection Washer	0	1
CS 98A	Collar for Lever Knob	0	2
CS108	Split Pin *per doz.*	0	0
CS137	Gear Connection Lock Nut	0	1
LS113	Rivet for Control Gate	0	1
LS121	Spring Washer for Control Lever	0	4
LS132	Fulcrum Stud for Control Lever	0	10
LS133	Sleeve Nut for Control Lever	0	6



B.W. GEARBOX.

GEARBOX SHELL

		s.	d.
BS201A	Gearbox Casing (*Dunelt Model 'T'*)	25	0
BS202A	Gearbox Cover (*Dunelt Model 'T'*)	16	0
BS202C	Gearbox Cover (*A.J.S. Models* R5/R12) — — —	16	0
	Paper Washer for Cover — —	0	3
BS217	Gearbox Cover Stud (1 only used with 4 CS9) — — —	0	3
BS230	Gearbox Casing (*A.J.S. Models* R5/R12) — — —	25	0
BS231	Gearbox Stud — — —	0	5
TS 4	Gearbox Stud (2¼*in. out of Box*) (2) each	0	5
TS 5	Spring Washer — — (2) each	0	2
TS 6	Gearbox Stud Nut — (2) each	0	2
TS 6A	Gearbox Stud Nut (Domed and plated) — — — —	0	8
CS 7A	Gearbox Fixing Stud (Domed and plated) — — — —	0	8
CS 8A	Gearbox Oil Filler Plug —	0	8
CS 8F	Gearbox Oil Filler Plug (*A.J.S. Models*, R5/R12) — —	0	8
CS 9	Gearbox Cover Stud (4 used along with 1 BS217) — — each	0	2
CS 9E	Gearbox Cover Stud (*A.J.S. Models* R5/R12) — — —	0	2
CS 10	Gearbox Cover Nut — (5) each	0	2
CS 11	Spring Washer (5 used) per doz.	0	2

BEARINGS

		s.	d.
BS106	Layshaft L.H. Bronze Bush —	2	0
BS109A	Main Axle R.H. Bronze Bush	2	0
BS110B	Washer for Adjuster Screw *per doz.*	0	6
BS110C	Main Axle Adjuster Screw *with locknut.*	0	3
BS215	Main Gear Wheel Ball Bearing	6	0
BS210	L.H. Distance Washer — —	0	1

GEARS AND SHAFTS

		s.	d.
BW 8A	Main Gear Wheel 23T — —	10	0
BS 9D	Main Axle Sliding Pinion 19T —	7	0
BS 13	Layshaft Sliding Pinion 23T —	7	6
BS 14	Low Gear Wheel 28T — —	8	6
BS105	Layshaft — — — —	9	0
BS107	Layshaft Pinion 18T — —	4	6
BS108	Main Axle Pinion 15T — —	8	0
BS203	Main Axle — — — —	11	0
BS203A	Main Axle (*Dunelt Model 'T'*) —	11	0
TS 62	Main Axle Thrust Washer —	0	8
TS 71	Locking Pin for Thrust Washer	0	0½

GEAR OPERATING PARTS

		s.	d.
BS 34	Sliding Gear Plate — —	2	0
BS204	Forked Change Lever — —	4	6
BS204A	Forked Change Lever (*to suit close Ratio*) (*Dunelt Model 'T'*) —	4	6
BS205	Gear Control Spindle — —	2	0
BS206	Gear Control Spindle Arm —	1	3
BS207	Short Gear Lever — — —	2	0
BS207A	Short Gear Lever (*A.J.S. Models* R5/R12 — — —	2	6
BS208	Gear Control Spindle Bolt —	0	9
BS209	Forked Change Lever Stud —	0	6
BS209A	Forked Change Lever Stud (*Dunelt 'T'*)	0	6
BS210	Forked Change Lever Pin —	0	4
BS211	Ball for Gear Control Ball Joint	0	2
BS212	Gear Indexing Plunger — —	0	3
BS212A	Gear Indexing Plunger (*Dunelt Model 'T'*)	0	3
BS219	Gear Control Spindle Washer —	0	0½
CS151	Gear Control Lock Washer —	0	1
CC 18	Gear Control Lock Nut — —	0	2
EA 79	Plunger Bush — — —	1	0
BS 33	Plunger Bush (*Dunelt Model 'T'*)	1	0
ES80	Plunger Spring — — —	0	2

KICK-STARTER MECHANISM

		s.	d.
BS 15	Kick-starter Axle Bush } 1¼*in ext.*	11	6
BS 19F	Kick-starter Axle }		
BS 20	Kick-starter Bush — —	1	6
BS 21A	Kick-starter Pawl — —	1	3
BS 22	Kick-starter Pawl Pin — —	0	3
BS 23	Kick-starter Pawl Spring —	0	1
BS 24	Kick-starter Pawl Spring Plunger	0	2
BS 25	Kick-starter Cam — — —	0	3
BS 26A	Kick-starter Return Spring (*for 1¼in. extended axle*)	1	0
BS 27A	Kick-starter Return Spring Cover	0	9
BS 28	Kick-starter Stop Piece — —	0	4
BS 29C	Kick-starter Crank (1¼*in. offset*)	11	0
BS 63A	Kick-starter Axle Distance Sleeve	0	3
LS 65	Kick-starter Cam Rivet (2) each	0	1
S 172	Cotter Pin for K.S. Crank —	0	2
S 15	Cotter Pin Nut — — —	0	1
P 70	Cotter Pin Washer — *per doz.*	0	4

FINAL DRIVE

		s.	d.
BS218	Axle Sprocket Adjusting Washer	0	2
TS 31	Lock Nut for Axle Sprocket —	0	8
TS 44B	Axle Sprocket 20T ⅝in. x 5/16in.	7	6
TS 44J	Axle Sprocket 18T ⅝in. x 5/16in. (*A.J.S. Models* R5/R12 *and Dunelt Model 'T'*) — —	7	6
CS 63	Axle Sprocket Locking Plate —	0	4
CS 63A	Axle Sprocket Locking Plate, Dished (*A.J.S. Models* R5/R12)	0	4
S 35	Locking Plate Screw — —	0	1

CLUTCH OPERATING MECHANISM

		s.	d.
BS149	Clutch Operating Lever —	3	6
BS150	Fulcrum Pin — — —	0	3
BS153	Clutch Operating Lever Adj. Screw	0	1
CS106A	Lock Nut for Adj. Screw BS153	0	1
CS108	Split Pin — — *per doz.*	0	6

D.E. TWO PLATE CLUTCH

		s.	d.
BS 52	Clutch Rod, 6¾*ins. long* — —	0	8
BS 57	Clutch Adjuster Nut — —	0	9
BS 65	Clutch Centre — — —	12	0
BS 66	Clutch Sprocket 42T, ½in. x 3/16in.	16	0
BS 66A	Clutch Sprocket, 42T ½in. x 5/16in.	16	0
BS 66B	Clutch Sprocket 50T, 7/16in. x ¼in. with corks (*Matchless Model 'A'*)	16	0
BS 67	Clutch Friction Plate, with corks	4	0
BS 67A	Clutch Friction Plate with Ferodos	8	0
BS 67B	Clutch Friction Plate, with Ferodos (*Matchless Model 'A'*) —	8	0
BS 68	Clutch Back Plate, (*used with* BS66A *Clutch Sprocket*, ½ x 5/16 *only*)	2	3
BS103A	Main Axle (*for* 2-plate clutch only)	11	0
LS 94A	Thrust Pin 11¼*ins. long* — —	0	9
CS118	Clutch Centre and Adjuster Nut Packing Washer — —	0	1
CS166	Clutch Centre Plate, dished —	2	3
CS167A	Clutch Outer Plate — —	2	3
CS167B	Clutch Outer Plate (*Matchless Models A and R6*) —	2	3
CS173A	Clutch End Cap — — —	1	6
TS 8	Axle Nut — — — —	0	6
TS 34	Clutch Ball Retainer with Balls	0	10
TS 50	Back Plate (*used with* BS66 ½ x 3/16 *Clutch Sprocket only*) —	2	8
TS 52B	Clutch Spring — — —	1	8
TS 55	Clutch Spring Collar (*fits over* BS57)		6
TS 56	Clutch Cork Inserts ⅝in. *per doz.*	0	4
TS 57	Clutch Cork Inserts ½in. *per doz.*	0	4
TS 77	Clutch Spring Cup — —	3	0
TS 77A	Clutch Spring Cup (*Matchless Mod.* R6) — — —	3	0

B.W. SLEEVE FIXING GATE TANK CONTROL

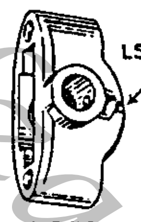
		s.	d.
BS221	Gear Control Lever — —	4	0
BS222	Gear Control Quadrant — —	4	0
BS223	Gear Control Bracket — —	3	6
BS224	Gear Control Fulcrum Stud —	0	9
LS120	Gear Control Sleeve Nut —	0	5
LS121A	Gear Control Spring Washer —	0	4
LS143	Gear Control Rivet *per doz.*	0	6
CS 87B	Gear Control Rod Connection —	0	10
CS 80	Gear Connection Pin — —	0	2
CS 94A	Gear Lever Knob — — —	0	9
CS 95A	Gear Lever Knob Washer —	0	1
CS 97	Gear Connection Washer — —	0	1
CS 98	Collar for Quadrant Knob —	0	1

		s.	d.
CS108	Split Pin for Gear Connection CS87 — — *per doz.*	0	6
CS137	Gear Connection Lock Nut —	0	1
	Gear Control Rod — —	1	0

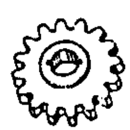
GATE CONTROL FOR DUNELT MODEL 'T.' (B.W. BOX.)

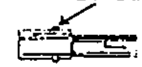
		s.	d.
BS137A	Short Gear Lever, 2-11-16*in. centres*	2	6
LS317D	Control Rod — — —	1	0
CS182	Gear Control Gate — —	3	6
CS183	Gear Control Fulcrum Screw —	0	10
CS184A	Gear Control Lever — —	8	0
CS186	Gear Control Spring Washer —	0	2
CS 94A	Gear Control Knob — —	0	9
CS 98A	Gear Control Knob Collar —	0	2
P 019	Gear Control Knob Washer —	0	1
CS 87	Gear Connection — — —	0	10
CS 87B	Gear Connection (*narrow slot*) —	0	10
CS 80	Gear Connection Pin — —	0	2
CS 97	Gear Connection Washer —	0	1
CS108	Split Pin — — *per doz.*	0	6
CS137	Gear Connection Locknut —	0	1

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



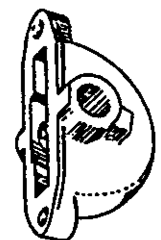
LS-332


LS-333



LS-322


LS-323


LS-339A


LS-325


LS-324


CS-136


LS-331


MC-255

SPEEDO DRIVE FOR B.S. AND B.W. GEARS.

		s.	d.
BS 1E	Gear Box Shell with "Speedo" Facing (*Matchless Model 'A' B.S.*)	25	0
BS 1D	Gear Box Shell with "Speedo" Facing (*Coventry Eagle Models 1 & 2, Enfield 1929/350 c.c. Royal Ruby*) — — —	25	0
BS201A	Gear Box Shell with "Speedo" Facing (*Dunelt Model 'T' B.W.*)	25	0
BS230	Gear Box Shell with "Speedo" Facing (*A.J.S. Models R5 and R12., B.W.*) — — —	25	0
LS339A	Casing for "Speedo" Drive (*A.J.S. Models R5/R12, Coventry Eagle 1 and 2, Enfield 1929/350 c.c., Montgomery, Royal Ruby, Dunelt T*) —	2	6
LS333B	"Speedo" Pinion 21T — —	2	6
LS333C	"Speedo" Pinion 20T cut from 21 blank — — —	2	6
LS333F	"Speedo" Pinion 23T (*A.J.S. Models* R5/R12 — —	2	6
LS322	Spindle for "Speedo" Drive —	1	3
LS323	Bush for "Speedo" Drive —	1	6
LS324	End Bush for "Speedo" Drive —	0	8
LS325	End Bush Washer — — —		1
LS326	End Bush Fixing Screw — —	0	1
LS328	Coupling Pin — — *per doz.*	0	6
LS331	Spring Washer — — —	0	1
MC255	Fixing Screw for "Speedo" Casing	0	1
LS341	Cover Plate (*used when 'Speedo' is left off*) — — —	0	8
CS139A	Fixing Screw for Cover Plate —	0	1

(*Give number of teeth on pinion when ordering*).