SPARE PARTS
FOR
ALBION GEARS

H.J., H.J.5, H.J.R *and* H.J.R.5 Models

The Albion Engineering Co. Ltd.

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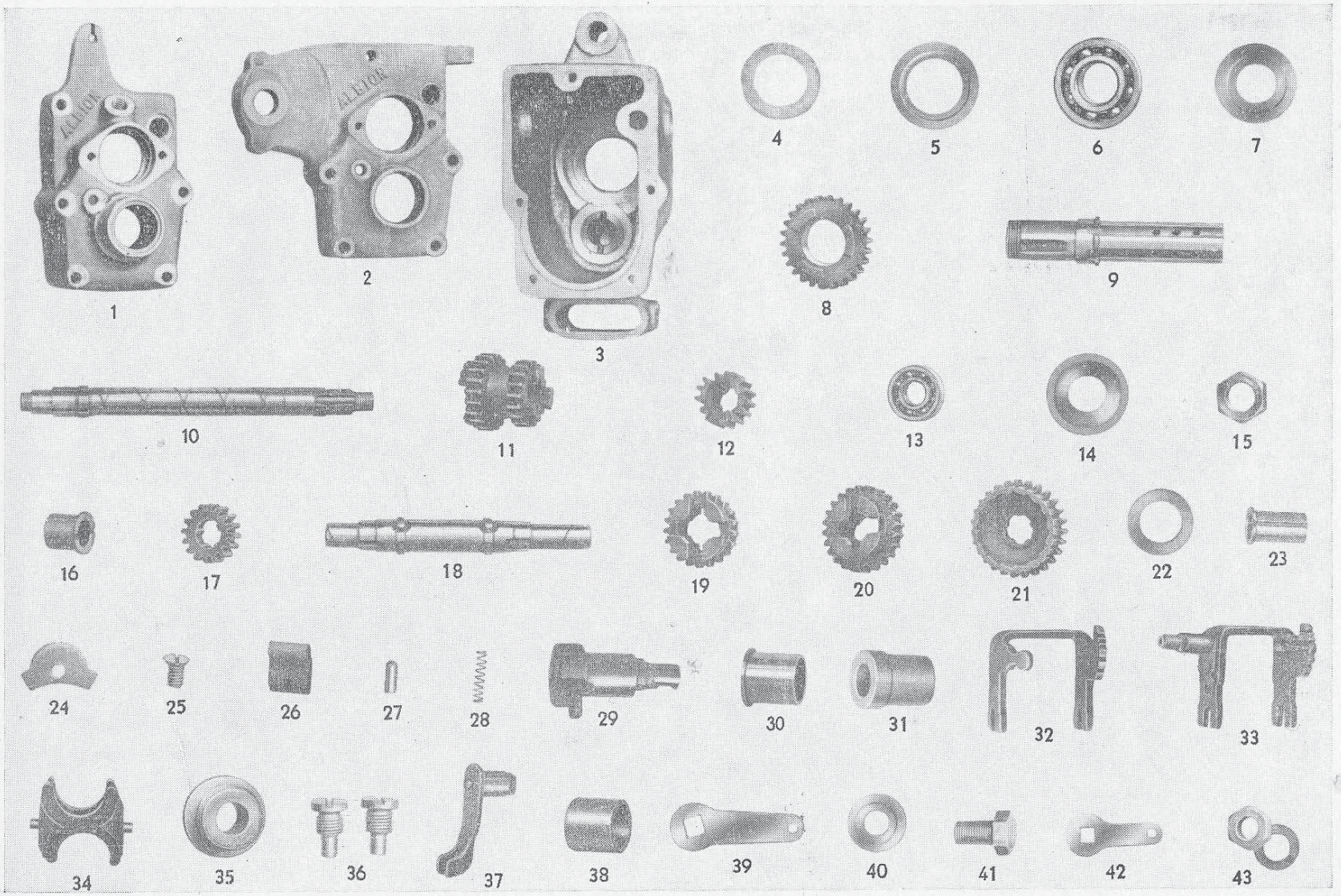

Illustrations are not to scale, small parts having been enlarged to show up more clearly

Illustration No.	Part No.		Price each
1	HJ 1	Gear Box Cover	28 10
2	HJ 1A	Gear Box Cover	28 10
3	HJ 2	Gear Box Case (state whether top, bottom, pivot or bolt-on fixing)	39 7
4	HJ 3	Rubber Oil Seal	2 6
5	HJ 4	Rubber Oil Seal Retainer	6
6	F1 5	Ball Race (Large)	17 9
7	F1 4A	Tin Washer	5
8	HJ 12	Mainshaft low gear pinion	17 4
9	HJ 8	Mainshaft Sleeve	28 10
10	HJ 7	Mainshaft	36 3
11	HJ 11	Mainshaft Sliding Gear 21T & 18T	32 6
12	HJ 9	Mainshaft High Gear Pinion 15T	11 6
13	F1 6	Ball Race (Small)	12 9
14	HJ 71	Oil Thrower	1 8
15	HJ 56	Mainshaft Nut, Left Hand Thread	6
16	HJ 14	Layshaft Bush (Box)	3 3
17	HJ 17	Layshaft Low Gear Pinion 16T	11 6
18	HJ 13	Layshaft	24 4
19	HJ 18	Layshaft 2nd Gear Pinion 21T	24 4
20	HJ 19	Layshaft 3rd Gear Pinion 24T	26 5
21	HJ 20	Layshaft High Gear and K.S. Pinion 27T	24 4
22	HJ 15A	Layshaft Bush, Penn Steel Washer	5
23	HJ 15	Layshaft Bush (K.S. End)	3 3
24	HJ 25	K.S. Stop Plate	1 8
25	HJ 26	K.S. Stop Plate Pin	3
26	HJ 22	K.S. Pawl	3 3
27	HJ 22A	K.S. Pawl Plunger	6
28	HJ 23	K.S. Pawl Plunger Spring	5
29	HJ 21	K.S. Shaft (state whether serrated or cotter type)	23 11
30	HJ 27	K.S. Shaft Bush	5 9
31	HJ 10	Gear Box Cover Collar (No Kick Start)	12 4
32	HJ 33A	Inside Operator	7 10
33	HJ 33	Inside Operator and Shaft	11 6
34	HJ 34	Operator Fork	6 3
35	EJ 14	Inside Operator Bush	3 3
36	HJ 36	Inside Operator Anchor Pins (2 off)	7
37	H 37	Operating Lever	6 7
38	H 38	Operating Lever Bush	2 11
39	G 94	Control Lever (State Centres)	1 8
40	FC 7	Dished Washer	10
41	FC 24	Operating Lever Securing Pin	10
42	EJ 47	Outside Operator Lever	1 8
43	EJ 47A	Outside Operator Lever Nut and Washer	10

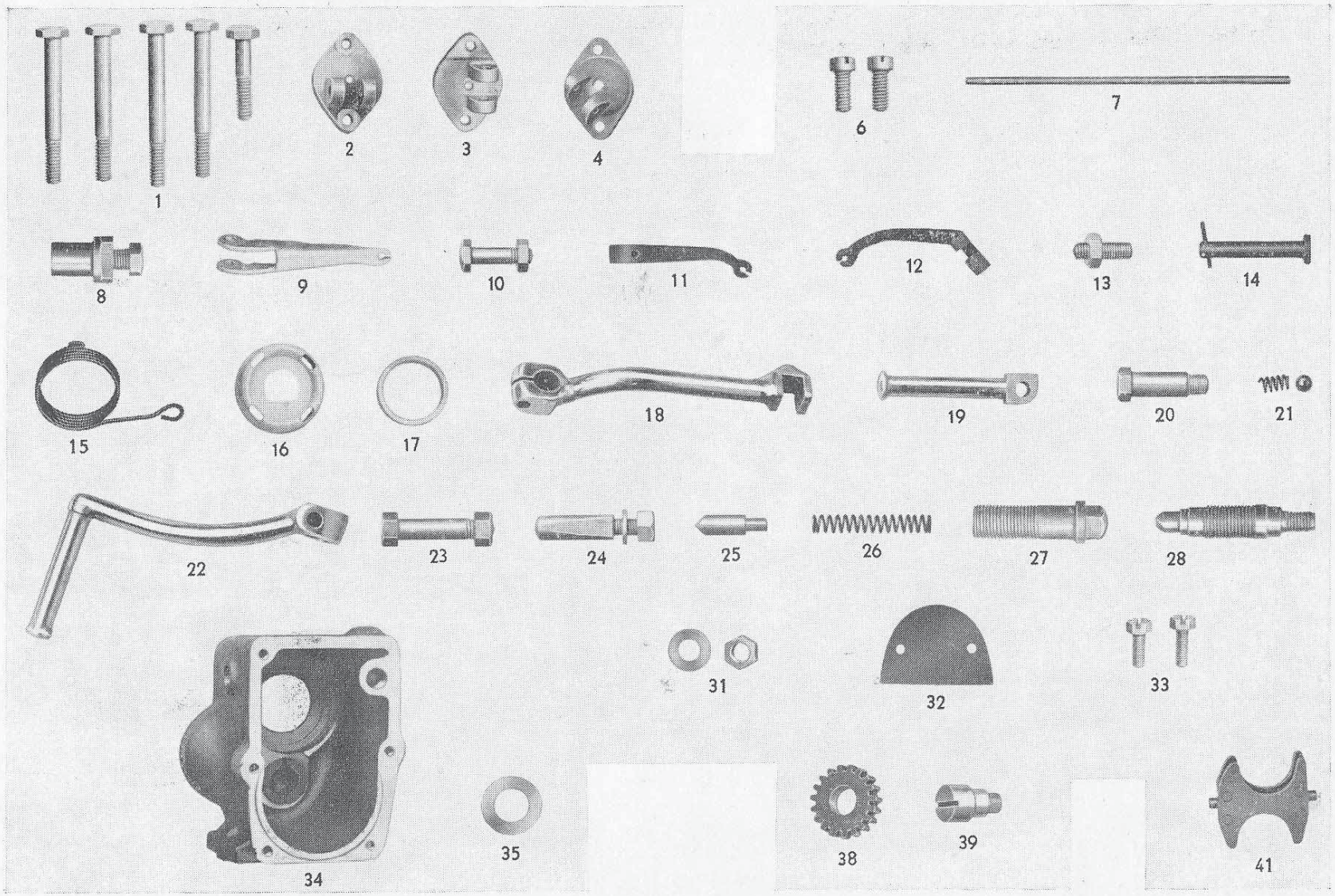

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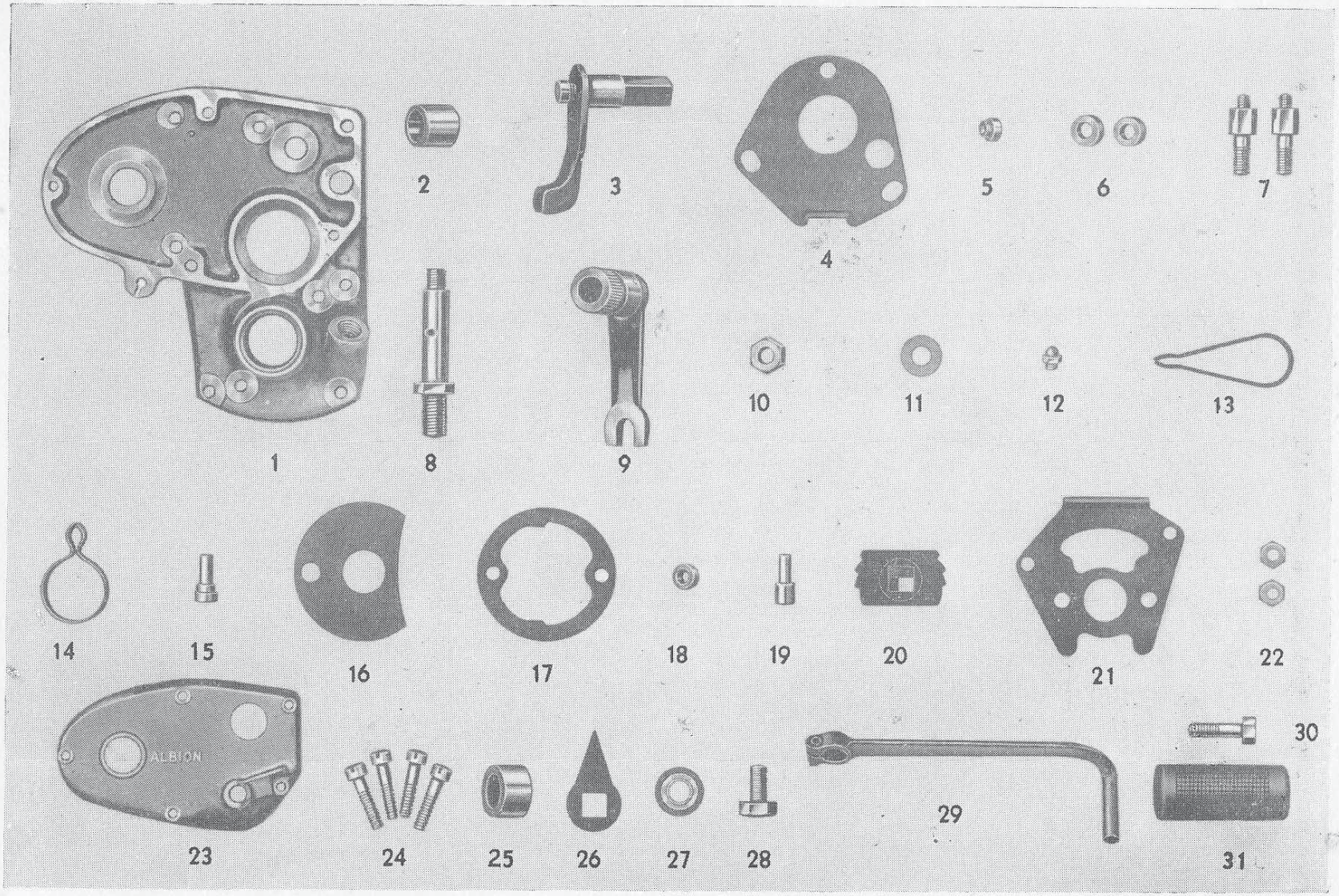
Illustration No.	Part No.		Price each
1	HJ 54	Cover Pins (6 off—state length)	5
2	HJ 40	Bearing Cap (Top or Bottom Fixing)	5 9
3	HJ 40P	Bearing Cap (Pivot Fixing)	5 9
4	HJ 40A	Bearing Cap (Special)	5 9
6	HJ 41	Bearing Cap Pins (2 off)	5
7	HJ 66	Push Rod (State Length)	2 0
8	J 37	Clutch Lever Adjusting Pin, Sleeve and Ball	4 2
9	H 30	Clutch Lever	4 2
10	H 32	Clutch Lever Pin and Nut	6
11	BJ 21C	Clutch Lever	4 2
12	E1 41	Clutch Lever	4 2
13	E1 42	Clutch Lever Adjusting Screw and Nut	10
14	E1 43	Clutch Lever Cotter	6
15	E1 37	Kick Start Return Spring	1 8
16	E1 38	Kick Start Return Spring Cover	3 3
17	HJ 21A	Kick Start Distance Tube	6
18	HJ 42	Kick Start Crank (Serrated or Cotter)	15 3
19	HJ 42A	Kick Start Crank Pedal	5 9
20	HJ 42B	Kick Start Crank Pedal Bolt	10
21	H 42C & D	Kick Start Crank Pedal Spring and Ball	5
22	G 42	Kick Start Crank (Serrated or Cotter)	16 0
23	G 43S	Kick Start Crank Pinch Pin, Nut and Washer	1 3
24	G 43	Kick Start Crank Cotter Pin, Nut and Washer	10
25	H 62	Selector Plunger	10
26	H 63	Selector Plunger Spring	5
27	H 61	Selector Plunger Box	1 8
28	H 67	Selector Plunger c/w Spring and Plunger	3 9
31	H 67B & C	Selector Plunger Box Washer and Nut	5
32	HJ 59	Cover Plate	10
33	H 60	Cover Plate Pin (2 off)	2
		Additional Parts for HJR Box	
34	HJR 2	Gear Box Case c/w Oil Seal	42 0
35	HJR 82	Steel Washer	3
38	HJR 83	Idler Pinion	9 1
39	HJR 80	Idler Pinion Shaft	7 5
41	HJR 34	Operator Fork	10 6
	A 9	Holding-on Studs $\frac{1}{2}''\times 20$ T.P.I. (2 off) state length	1 6
	A 9/A	Holding-on Studs Nut $\frac{1}{2}''\times 20$ T.P.I. (2 off)	6
	A 9/B	Holding-on Studs Nut Washer $\frac{1}{2}''$ (2 off)	2
	A9/1	Holding-on Stud $\frac{3}{8}''\times 26$ T.P.I. (4 off) state length	1 4
	A 9/1A	Holding-on Stud $\frac{3}{8}''\times 26$ T.P.I. Nut (4 off)	4
	A 9/1B	Holding-on Stud $\frac{3}{8}''\times 26$ T.P.I. Washer (4 off)	2
	G 42/R	K.S. Crank Rough	7 6



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FOOT CHANGE MECHANISM. H MODEL

Illustration No.	Part No.		Price each
1	HJ FC/1-35	Gear Box Cover	41 3
2	HJ FC 6	Operator Bush	3 3
3	HJ FC 47	Operator Shaft (complete with lever)	9 0
4	FC 41	Adjuster Plate	3 3
5	FC 45	Spring Stop for Adjuster Plate	3
6	FC 58	Bush for Adjuster Plate Pin (2 off)	2
7	FC 43	Adjuster Plate Pin (2 off)	10
8	FC 49	Fulcrum Pin for Foot Change Lever	1 8
9	FC 48	Short Control Lever	5 9
10	FC 49A	Fulcrum Pin Nut	5
11	FC 49B	Fulcrum Pin Washer	2
12	FC 49C	Grease Nipple	10
13	FC 52	Lever Return Spring	1 8
14	FC 51	Pawl Plate Spring	10
15	FC 46	Spring Stop for Control Plate	6
16	FC 53	Control Plate	2 6
17	FC 1-35	Control Ratchet Male	6 7
18	HJ FC 54	Bush for Control Plate Pin (2 off)	3
19	FC 44	Operating Pin for Pawl Plate	6
20	HJ FC4-35	Control Ratchet Female	5 0
21	FC 42	Stop Plate and Spring Retainer	3 3
22	H 113	Nut for Adjuster Plate Pin (2 off)	2
23	HJ FC1A-35	Foot Change Cap	16 6
24	HJ FC57	Cover Pins (5 off—state length)	5
25	FC 50	Outer Bush for Operator	3 3
26	FC 56	Gear Indicator	10
27	FC 7	Dished Washer	10
28	FC 24	Operator Shaft Securing Pin	10
29	FC 30	Long Lever	17 6
30	FC 30A	Clip Bolt for Lever	6
31	G 47 FC	Foot Change Rubber	1 8

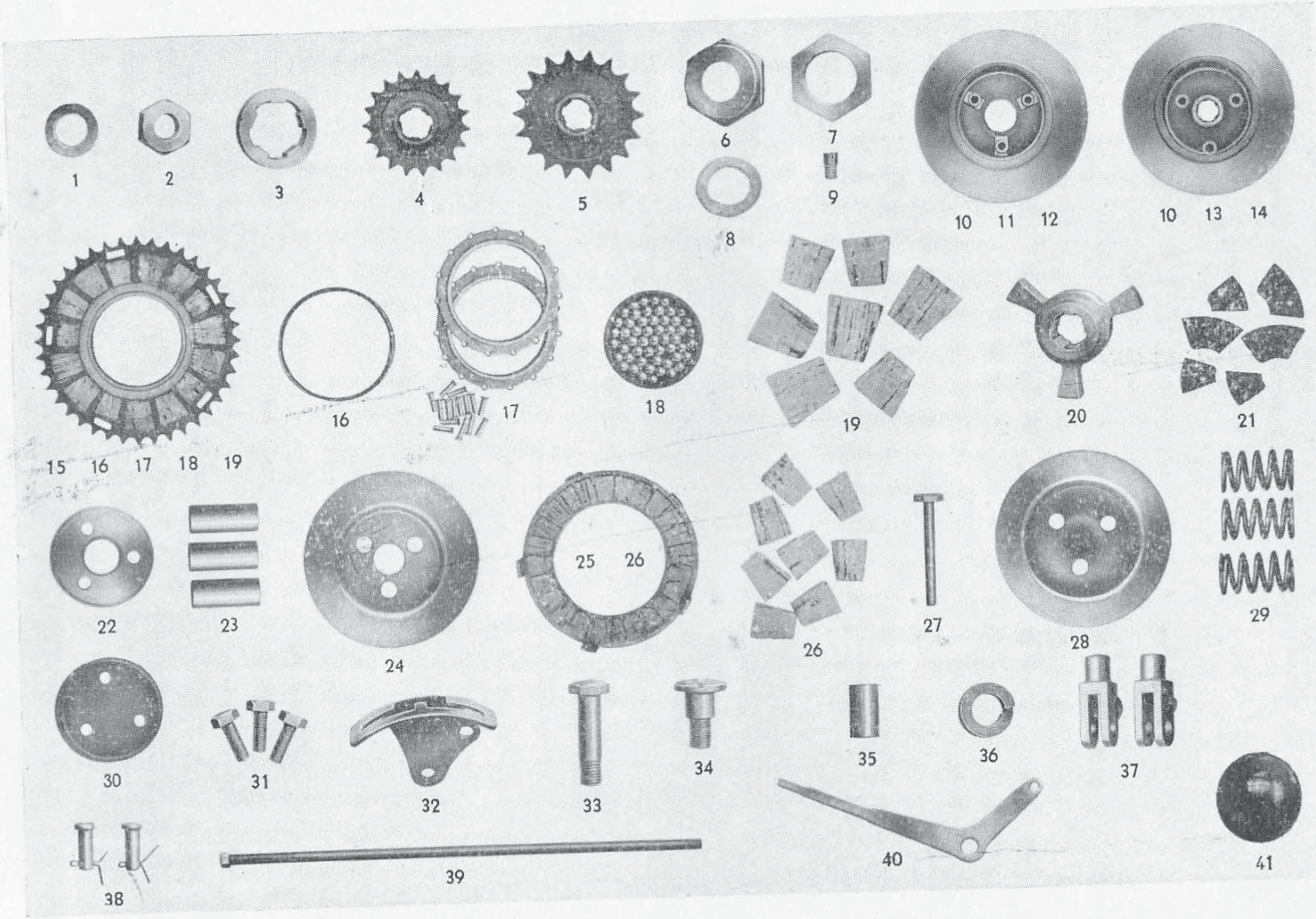

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Illustration No.	Part No.		Price each
1	HJ 57	Mainshaft Spring Washer	3
2	HJ 55	Mainshaft Nut, Right Hand Thread	6
3	HJ 53	Sprocket Distance Collar	1 8
4	E1 33	Sprocket $\frac{1}{2}$" × .305 19T	12 4
5	E1 45	Sprocket $\frac{5}{8}$" × $\frac{3}{8}$" 15T	14 0
6	HJ 120	Sprocket Gland Nut	1 11
7	F1 46	Sprocket Locking Nut	1 11
8	HJ 121	Sprocket Gland Nut Felt Washer	5
9	H 51	Sprocket Locking Screw	2
10	F1 68	Clutch Back Plate	
11	F1 50	Clutch Centre Drum (Shock Absorber) } Assembled with back plate	26 5
12	F1 68 BD	Clutch Back Plate Studs	
13	E1 50	Clutch Centre Drum (Solid Centre)	
14	F168CD	Clutch Back Plate Studs } Assembled with back plate	26 5
15	E1 53	Clutch Sprocket Assembly	23 1
17	E1 54	Ball Cage and Rivets	3 3
18	E1 58	Balls (set of 58)	1 8
19	E1 80	Corks (set—5 medium 10 large)	2 0
20	F1 69	Clutch Centre (Shock Absorber Only)	16 6
21	F1 70	Rubber Segments (Shock Absorber Only)	3 3
22	G 71	Rubber Retaining Washer (Shock Absorber Only)	4 2
23	E1 56	Distance Tubes (Shock Absorber Only)	1 8
24	F1 75	Intermediate Plate	6 7
25	E1 59	Cork Insert Plate	7 5
26	Ex-E1 59	Cork Inserts (Set—24)	2 0
27	HJ 66B	Push Rod End Piece	10
28	F1 77	Front Plate	8 3
29	F1 78	Clutch Springs (3 off)	6
30	G 79	Clutch Cap (now replaced by 3 spring retaining washers, 1d. each G79)A	5 0
31	F1 80	Screws for Clutch Springs (3 off)	5
		Clutch Complete Two Plate	82 6
32	G 87	Quadrant	6 7
33	G 88A	Quadrant Bolt, Long	1 3
34	G 88B	Quadrant Bolt, Short	1 3
35	G 89	Quadrant Distance Piece	5
36	G 90	Quadrant Spring Washer	5
37	G 93	Yoke Ends for Control Rod (2 off)	1 3
38	G 96	Cotter and Split Pin (2 off)	5
39	G 92	Control Rod and Nuts	2 6
40	G 91	Change Speed Lever c/w Knobs	7 6
41	G 91A	Change Speed Lever Knob	1 8
	E153/DP/80	Clutch Sprocket 80T $\frac{3}{8}$"x $\frac{7}{32}$" Two Plate	34 8
	E153/DP/B	Clutch Sprocket Blank. Two Plate	19 9
	E153/SP/B	Clutch Sprocket Blank, Single Plate	19 9
	E153/SP/80	Clutch Sprocket 80T. $\frac{3}{8}$" × $\frac{7}{32}$" Single Plate	34 8
	E153/D	Clutch Sprocket 54T. $\frac{3}{8}$" × $\frac{7}{32}$" Duplex	34 8

Additional parts for model HJR 5 gearbox — 3 speed and reverse
As used on light cars

part No.	Description	price each
HJR 5A/2	Gearbox case	57 9
HJR 5A/1	Gearbox Cover c/w bush	28 10
HJR 5A/4	Bearing Cap (Alloy)	10 9
EJM 21	Bearing Cap (Alloy) Clutch Lever	3 3
EJM 22	Bearing Cap (Alloy) Clutch Lever Pin and Nut	6
EJM 42/43	Bearing Cap (Alloy) Clutch Lever Adjuster	3 3
HJR 5A/5	Bearing Cap (Gun Metal)	16 6
H 30	Bearing Cap (Gun Metal) Clutch Lever	4 2
H 32	Bearing Cap (Gun Metal) Clutch Lever Pin and Nut	6
J 37	Bearing Cap (Gun Metal) Clutch Lever Adjuster	4 2
HJR 9/15	Mainshaft High Gear Pinion 15T.	11 6
HJR 11	Mainshaft Sliding Gear 23T. × 18T. or 24T. × 18T.	32 6
HJR 12	Mainshaft Reverse Pinion 23T.	17 4
HJR 17	Layshaft Reverse Pinion 15T.	11 6
HJR 18	Layshaft 1st Gear Pinion 17T. or 18T.	24 4
HJ 19	Layshaft 2nd Gear Pinion 24T.	26 5
HJR 20/32	Layshaft High Gear Pinion	24 4
HJ 13/1	Layshaft	24 4
HJ 74	Oil Filler Plug and Dip Stick	2 6
BJ 23	Drain Plug	10
BJ 23a	Drain Plug Fibre Washer	2
HJ 67	Plunger Box c/w Nut and Washer	4 2
HJ 67B & C	Plunger Box Nut and Washer	5
HJ 54/100	Cover Pin Hex. Head 1″ × ¼″ × 20 T.P.I. (5 off)	5
FC.57/014	Cover Pin C/Head ⅞″ × ¼″ × 20 T.P.I. (2 off)	5
HJ 54/100	Bearing Cap Pin 1″ × ¼″ × 20 T.P.I. (2 off)	5
HJR 90	Idler Pinion Shaft Cover Plate	2
HJR 91	Mainshaft L.H.T. Nut Locking Washer	3

Additional parts for model HJ 5 gearbox — 4 speed footchange

HJ 5/2	Gearbox Case	65	0
HJ 5/1	Gearbox Cover	41	3
HJ 5/1A	Gearbox Cover Cap	16	6
HJ 21/5	K.S. Shaft	23	11
HJ 5/4	Bearing Cap	5	9
EJM 42/43	Clutch Lever Adjuster Complete	3	3
EJF 21	Clutch Lever	7	5
HJ 73	Inspection Cover		5
H 60	Inspection Cover Pin		2
E 137/5	K.S. Return Spring	1	8
FC 6D	Operator Bush	3	3
FC 47D	Inside Operator Shaft and Lever	9	0
FC 41A	Adjuster Plate	3	3
FC 48E	Short Control Lever	12	0
FC 52/5	Short Control Lever Return Spring	1	8
FC 42/5	F.C. Stop Plate and Spring Retainer	3	3
FC 50/D	Outer Bush for Operator Shaft	3	3
FC 13	Gear Indicator		10
FC 30/E	Footchange Lever	14	0

Modifications — Model HJR and HJR 5

1. Gearbox RBZ 1 and onwards fitted with 18T. idler pinion and idler pinion bush (P.B.), this pinion and bush is interchangeable with the HJ 83 19T. idler pinion.

Modifications all Models

2. Gearbox RCB 283 and onwards fitted with externally fitted rubber oil seal, this type of seal dispenses with the use of oil seal retainer HJ 4. In future gearbox case will be supplied complete with oil seal and in this state is interchangeable with old type therefore the existing part numbers will be retained. As the new seal on its own is not interchangeable with the old type, the latter will still be available as a spare part.

New Part Numbers

HJR 83/1	Idler Pinion 18T.	9	1
HJR 84	Idler Pinion Bush	2	0
HJ 3/1	Oil Seal	2	6

SPARE PARTS LIST FOR 3 PLATE CLUTCH

		£	s.	d.
HJ 83/B	Clutch Blank and Drum Assembly	2	9	6
HJ 83/D	Clutch Sprocket and Drum Assembly Duplex 54T. or 56T. $\frac{3}{8}'' \times \frac{7}{32}''$	2	17	9
HJ 83/42	Clutch Sprocket and Drum Assembly 42T. $\frac{1}{2}'' \times .305''$	2	15	0
HJ 83/80	Clutch Sprocket and Drum Assembly 80T. $\frac{3}{8}'' \times \frac{7}{32}''$	3	9	3
G 74	Clutch Sprocket Ball Retainers (2 off) pair		4	2
G 76	Clutch Sprocket Balls $\frac{3}{16}''$ (54 off) Set		2	0
G 66	Clutch Sprocket Retainer Rivets (15 off) Set			3
HJ 85	Clutch Sprocket Drum		11	6
G 74a	Clutch Sprocket Drum Rivets (15 off) Set			5
H 82/K	Clutch Sprocket Klinger Rings (2 off) each		6	3
C 10	Clutch Sprocket Klinger Rings Rivets (7 off) Set			5
H 72	Clutch Sprocket Circlip		1	8
HJ 80	Clutch Back Plate Assembly	1	16	3
G 75a	Clutch Intermediate Plate (Dished)		6	7
H 89/K	Clutch Insert Plate Klingerite (2 off) each		12	4
H 89/C	Clutch Insert Plate Cork (2 off) each		7	5
G 75	Clutch Intermediate Plate (Flat)		6	7
G 71	Clutch Back Plate Distance Piece		4	2
HJ 86	Clutch Stud Distance Piece (3 off) each			6
G 67/K	Clutch Inserts Klingerite (48 off) set of 24		6	7
G 67/C	Clutch Inserts Cork (48 off) set of 24		2	0
Fl 77	Clutch Front Plate		8	3
Fl 78	Clutch Springs 13 gauge (3 off) each or			6
G 78/12½	Clutch Springs 12½ gauge (3 off) each or			6
G 78/14	Clutch Springs 14 gauge (6 off) each			6
Fl 80	Clutch Springs Pin—3 spring clutch (3 off) each			5
Fl 79a	Clutch Springs Pressure Washer 3 spring clutch (3 off) each			2
HJ 88	Clutch Cap c/w thimbles 6 spring clutch		5	9
HJ 89	Clutch Cap ins 6 spring clutch (3 off) each			5
HJ 79/B	Clutch Complete no teeth	6	0	0
HJ 79/D	Clutch Complete Duplex Chain 54T. or 56T. $\frac{3}{8}'' \times \frac{7}{32}''$	6	10	0
HJ 79/42	Clutch Complete 42T. $\frac{1}{2}'' \times .305''$	6	6	0
HJ 79/80	Clutch Complete 80T. $\frac{3}{8}'' \times \frac{7}{32}''$	7	0	0

Hints to Users of Albion Gear Boxes.

CLUTCH. This may be of cork inserts or of fabric. In either case there should be 1/32" to 1/16" play between the push pin in the clutch lever and the end of the push rod. In no circumstances should the clutch be regarded as an infinitely variable gear.

DO NOT SLIP YOUR CLUTCH TO GET UP THAT HILL IN TOP. CHANGE DOWN. THAT IS WHY THE GEAR BOX IS THERE.

The clutch will settle down a bit when new or after recorking, therefore watch the clutch adjustment especially during this period. At all times maintain the clearance between push pin and push rod. If the ends are allowed to come into contact they will hold the clutch partially out of engagement, this is progressive, and in a very short time the corks will be burnt out or the fabric glazed.

When new inserts are required, the plates should be returned to the works, as the faces have to be ground flat and true.

ADJUSTMENTS. Do not run the chains too tight. Tight chains mean heavily stressed bearings. There should be about 3/8" up and down play in the middle of the run at the tightest spot. Wheels should be turned and the movement tried in several places. Always check for tightness after locking down all bolts and nuts.

After adjusting the chains (this only applies to side tank control models when the gear box has been moved) check over the positions of the gear lever in the quadrant for the various gears. Adjust the gear rod up or down, as is necessary, by disconnecting the yoke end and screwing or unscrewing until the hole in the yoke end lines up exactly with the hole in the lever when in one of the middle gears.

If difficulty is found in changing gear, make sure that the clutch is freeing and that there is no drag. Clutch drag is the chief cause of "sticky" gear changing. Clutch drag is usually due to unequal spring pressure.

With the three spring type no adjustment is provided, and inequalities are balanced by changing over the springs for others

After considerable wear clutch drag may be caused through a worn drum or worn tongues on the friction plates, these should be replaced.

No attempt should be made to force a gear into engagement when the machine is stationery, as damage in some form is almost sure to result. The machine should be moved backwards and forwards until the gear moves in easily.

LUBRICATION.—We specially recommend the following :

	WAKE-FIELD	VACUUM	SHELL	B.P.	ESSO
Home....	Castrol XXL	Mobiloil "BB"	X100-40-	Energol SAE 40	Essolube 50
Overseas	Castrol XXL	Mobiloil "BB"	X-100-40	Energol SAE 40	Essolube 50

All outside connections, yoke ends, etc., should be oiled at least monthly, and a dab of grease should be put on the end of the push rod where the push pin in the clutch lever makes contact. A Tecalemit nipple is fitted in the end of the foot change lever fulcrum pin for regular greasing.

The gearbox is charged with oil and light grease on leaving the works. Too much grease tends to block the oil ways cut in the shafts and gears, and therefore oil is recommended for topping up. If, however, the box has been completely dismantled and washed out, a mixture of 50% light grease and 50% oil is recommended.

The foot change mechanism is packed with grease before leaving the works, and need not be touched for at least 12 months.

To pack more grease in proceed in the following order : (1) Remove lever by unscrewing pinch pin and drawing off the splines, (2) disconnect clutch cable, (3) remove gear indicator by unscrewing the bolt holding it, (4) unscrew round-headed screwdriver slotted pins and lift off the cover. Put on the grease and re-assemble.

The clutch sprocket runs on ball bearings when free, and a little oil should be run in occasionally.

Hard clutch operation is usually due to sharp bends in the cable, these should be smoothed out, and also a little oil injected into the cable.

DISMANTLING. The clutch must first be taken off. The three bolts (F1 80) are removed, and the clutch cap (F1 79) lifted clear; springs (F1 78), distance tubes (E1 56), clutch plates (F1 75, E1 59) rubber retaining washer (E1 55), and sprocket assembly (E1 53) can now be removed in turn. The mainshaft holding-on nut (HJ 55) is now exposed, and this should be unscrewed a few turns (RH thread) and the end tapped with a mallet; this loosens the clutch centre (F1 69) on the splines, and allows the clutch back plate assembly (F1 68) to be drawn off after the removal of the nuts

Turning to the cover end of the gear box (for the hand change box) take out the two bolts (HJ 41) holding the bearing cap (HJ 40) in position, and remove complete with clutch lever (E1 41).

The mainshaft nut (HJ 56) is LEFT HAND, and must therefore be unscrewed in a clockwise direction, followed by the oil thrower, (HJ 71). The cover bolts (HJ 54) should now be withdrawn, together with the selector plunger box (H 61) and the cover (HJ 1) lifted off. Do not prize the cover off by means of a screwdriver or similar tool, as this will destroy the joint and cause oil leaks. A gentle tap on the clutch end of the mainshaft will free it. The kick starter mechanism comes away with the cover. The mainshaft (HJ 7) can now be withdrawn, followed by the layshaft (HJ 13) layshaft gears (HJ 17-20) mainshaft sliding gears (HJ 11) and fork (HJ 34) in one block.

The final drive sprocket (E1 33) is fixed on the mainshaft sleeve (HJ 8) by splines, and locked down with a nut (HJ 120) with a grub screw (H 51) preventing the latter from unscrewing.

With the removal of the final drive sprocket, the mainshaft sleeve can be taken out, and with it the mainshaft low gear pinion (HJ 12) and the tin washer (F1 4a).

To remove the reverse pinion (HJR 83) in the model HJR box, unscrew the reverse pinion shaft (HJR 80)—left hand thread.

ENCLOSED TYPE FOOT CHANGE. Remove the cap (HJ 1a-35) as for greasing. This discloses two nuts (H 113) holding down the stop plate and spring retainer (FC 42). Remove these and lift the plate clear. The centre ratchet (HJ FC 4-35) can now be drawn off the squared operator shaft (HJ FC 47). The male control ratchet (FC 1-35) control plate (FC 53) and pawl plate spring (FC 51) are now taken out. Remove the nut (FC49a) on the end of the fulcrum pin, (FC 49) and take off the short control lever (FC48) with the lever return spring (FC52). Under the lever will be found a hexagon headed screw ; this is one of the cover bolts, and must be removed before the cover can be taken off. The adjuster plate (FC41) should not be touched, as this is set in position before leaving the works, and any alteration here will cause difficulty in selecting the gears. Dismantle the remainder of the box as above.

RE-ASSEMBLING. Place the felt washer (F1 3) and dished washer (F1 4) in the main bearing housing with the dish away from the ball race, then press the large ball race (F1 5) into position. Place the mainshaft sleeve pinion (HJ 12) and the tin washer (F14a) on the sleeve (HJ8) with the dish of the tin washer towards the ball race. Put the screwed end of the sleeve through the ball race and place the final drive sprocket on the splines from the outside of the gearbox. Secure with the locknut and the locking screw.

Fit the inside operator (HJ 33) into the case with either an anchor pin (HJ 36) and an inside operator bush (EJ 14) or, in the

case of the foot change and front control, two anchor pins. Make sure that the operator is quite free and the vee-slots move central to the plunger box hole.

Assemble the layshaft and see that the mainshaft sliding gear (HJ 11) is free to slide on the sleeve, then fit the assembled layshaft with the operator fork (HJ 34) in position between the mainshaft sliding gear and the layshaft sliding gears (HJ 18 and 19). Locate the pegs of the selector fork in the slots of the inside operator and ease the assembly into the box. Now make sure that all these parts are operating easily with no undue friction. Fit the mainshaft high gear pinion (HJ 9) on the mainshaft and insert in the mainshaft sleeve, giving a liberal coating of oil, then fit the end cover carrying the small ball race (F1 6), the kick starter shaft assembly and the operator shaft. Place the recessed oil return washer (HJ 71) (recess away from ball race) on the end of the mainshaft and screw on the left hand nut (HJ 56). Lightly tighten down the plunger box (H 61) first, with the plunger (H 62) and spring (H 63) in position ; the plain portion above the thread serves as a locating dowel. Make sure that the plunger engages in the vee-slots on the inside operator and doesn't twist and ride over them. The ball end of the inside operator arm should be located in the spoon attached to the operating lever. The latter applies only to the foot change and front control boxes.

It should now be possible to revolve the shafts and gears in all gear positions and neutral.

The clutch can now be fitted after the push rod end piece (HJ 66b) has been inserted, also the push rod, bearing cap and clutch lever, followed by the kick starter spring (E1 37) and spring cover (E1 38). The spring tension should be between $\frac{1}{4}$ and $\frac{1}{2}$ turn when the K.S. Crank (G 42) is up against the stop. The desired tension may be obtained by locating the 'tail' of the spring in one of the slots in the spring cap. The kick start distance tube (HJ 21a) and kick start crank can then be fitted.

RE-ASSEMBLY OF FOOT CHANGE. The adjuster plate should be fitted first if this has been removed. Do not tighten the adjuster plate pins (FC 43) which hold this plate in position. Next fit the fulcrum pin, short control lever and spring; the ends of the spring should fit round the 'lip' on the adjuster plate. Fit the control plate with the male control ratchet assembled in position, followed by the female control ratchet, which fits on the square operator shaft. Rotate the adjuster plate slightly until the teeth on the male ratchet engage the slots on both sides of the female ratchet when the short control lever (FC 49) is moved for changing up or down in 2nd and 3rd gear. Tighten up the adjuster plate pins. The stop plate and spring retainer can now be placed on and fastened down with the two $\frac{1}{4}$ nuts. It maybe necessary to file the stop plate slightly, if a new

one is being fitted, in order to engage the gear before the control plate bush comes into contact with the stops. Care should be taken not to file away too much as this would allow the gears to be taken past the correct gear.

If all has been made to operate up to this point, grease the foot change mechanism and fit the cap (HJ FC 1a-35) outer bush for operator (FC 50) gear indicator (FC 56) recessed washer (FC 7) and operator shaft securing pin (FC 24). Lastly fit the gear change foot lever to the desired position.

In all correspondence please state the prefixed letter and number stamped on the gearbox cover.

When ordering gears and sprockets state the number of teeth required, and in the case of sprockets, state chain size. The following final drive sprockets are available.

$\frac{1}{2}$" × .205"	15T	17T	18T	19T		
$\frac{1}{2}$" × .305"	12T	13T	15T	17T	18T	19T
$\frac{5}{8}$" × $\frac{3}{8}$"	13T	14T	15T	16T		

A gear ratio chart may be obtained on application.

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