MAY 1978

May, 1978

Supplement to Instr. Bk. 31
with Spare Parts List 31K

STUART

MARINE ENGINES

TYPES P5ME, P55ME

with Vertical Reverse Gear Lever
and Separate Dynamo and Starter

These instructions and the list of parts are generally applicable to the latest engines (5 and 10 B.H.P.) which have the suffix "A" after their type reference (e.g. P5MA). For the latest engines there is also a special instruction and spare parts leaflet describing the differences—principally in the cylinder, piston, large end bearing, and, in the case of the 5 B.H.P., the carburettor.

When ordering spares:

When ordering spares **always** quote the full Engine Number as well as the Spares Part Number and Description. Give address very clearly. Cash with order unless approved ledger account has been opened. We can send C.O.D. if preferred.

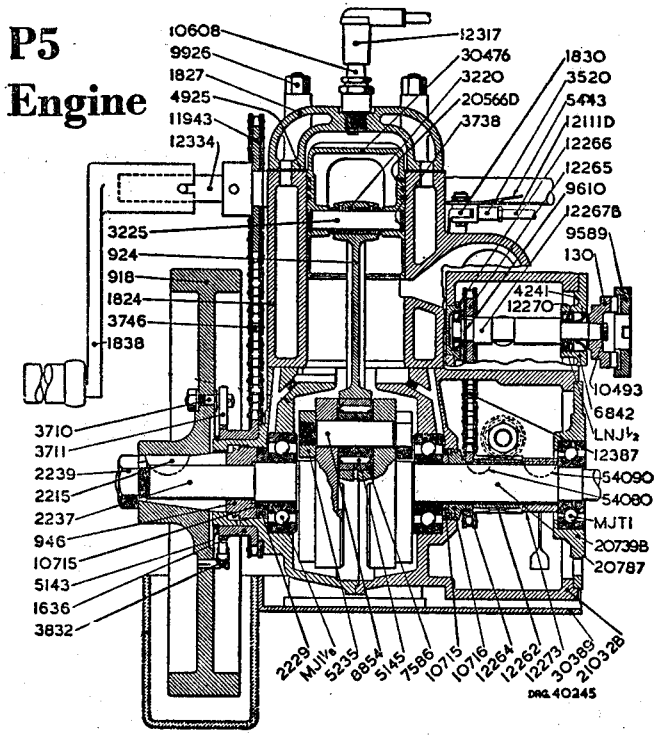
When sending parts to the Works for repair tie a label to them with the engine number and your name and address.

IN ALL CORRESPONDENCE QUOTE THE ENGINE NUMBER.

P...../.....

Enter the Engine No. here

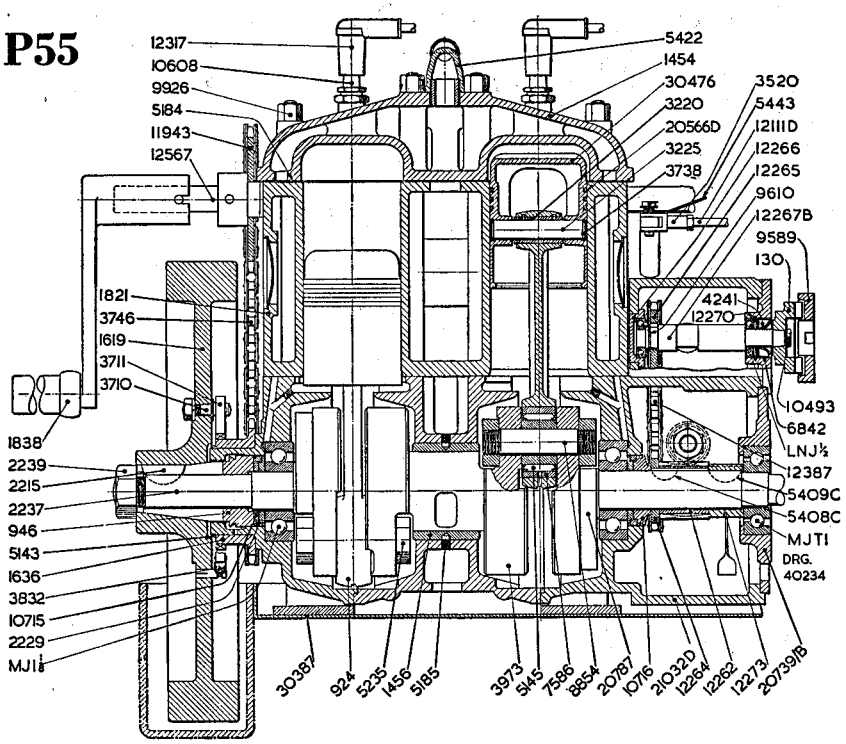
P5 Engine



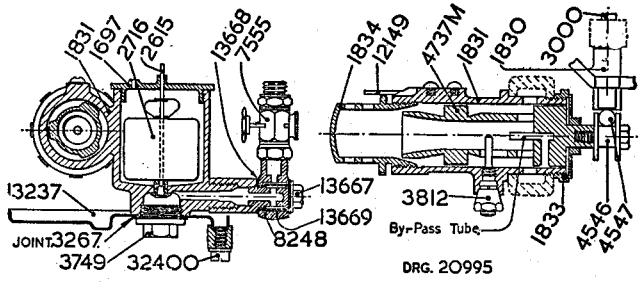
*Part Nos. marked * differ in engines with suffix "A"—see special leaflet*

£	Part No.		
51·77	1824*	**Cylinder**	
1·38	5164 set	**Cylinder** Studs (4 long, 2 short)	
75·96	*1821**	**Cylinder**	*P55*
1·15	*4959 set*	**Cylinder** *Studs Short* (4)	*P55*
1·15	*4960 set*	**Cylinder** *Studs Long* (4)	*P55*
9·47	1827	**Cylinder** Head	
27·74	*1454*	**Cylinder** *Head*	*P55*
0·35	3513 each	**Cylinder** Head Nuts (6)	
1·52	4343*	**Cylinder** Head Pipe Union Body	
0·67	*03616 set*	**Cylinder** *Head Studs* (5)	*P55*
0·35	*3513 each*	**Cylinder** *Head Nuts* (13)	*P55*
1·52	*4316*	**Cylinder** *Head Water Outlet Union*	*P55*
1·26	*5422*	**Cylinder** *Head Water Elbow*	*P55*
0·86	4934	**Cylinder** Drain Plug	
0·80	6775	Water Jacket Cover	
1·02	6776	Water Jacket Fixing Dog and Screws	
6·15	250	Expansion Chamber Cover	
0·28	4189 each	Expansion Chamber Cover Nuts (4)	
10·44	*10457*	*Expansion Chamber Cover*	*P55*
0·28	*4189 each*	*Expansion Chamber Cover Nuts* (8)	*P55*
0·16	2988	Expansion Chamber Drain Plug	
9·29	1825	Exhaust Outlet	
9·40	*6035*	*Exhaust Outlet*	*P55*
3·90	1826	Exhaust Outlet Cover (with water inlet nipple)	
4·02	*5165*	*Exhaust Outlet Cover*	*P55*
1·15	8853 set	Exhaust Outlet Studs (3)	
0·28	4189 each	Exhaust Outlet Nuts (3)	

P55



£	Part No.		
16·15	40416	**Piston** complete (Oversize Pistons + ·010″, + ·020″, + ·030″)	
1·04	20566* each	**Piston** Rings (2)	
1·14	3225	**Piston** Pin	
0·12	3738 pair	**Piston** Pin Circlips (2)	
1·20	3220*	**Piston** Pin Bush	
9·80	21650	**Connecting Rod** with Race and Bush fitted	
2·46	14724	**Connecting Rod** Roller Race } **Crankpin**	
2·46	14723 set	**Connecting Rod** Rollers in cage } **Assembly** £15·80	
9·17	14861	Crankpin with inner race and nuts } Part 5040B	
1·27	5235 each	Crankpin nuts (2)	
32·20	2237	**Crankshaft,** Flywheel end	
20·81	20787	**Crankshaft,** Driving end (Rev. Gear)	
64·53	*3973*	**Crankshaft,** *Centre Section*	*P55*
(*Send Crankshaft and Connecting Rod to Makers for renewal of any of these parts*)			
6·91	MJ1⅛″ each	Ball Bearings (2) Size 1⅛″ × 2 13/16″ × 13/16″	
14·85	*1456F*	*Bearing (Flanged), Crankshaft centre*	*P55*
14·85	*1456P*	*Bearing (Plain), Crankshaft centre*	*P55*
2·68	14752B	**Compression** Sleeve, Short, Flywheel end	
2·68	14752D	**Compression** Sleeve, Long, Driving end	
0·40	14815 each	**Compression** Seal (2)	
131·56	21032B	**Crankcase** complete (assembled)	
240·07	*21032D**	**Crankcase,** *Complete (assembled)*	*P55*
0·23	*3983* pair*	**Crankcase** *Clamping Rods, and Nuts* 8″ (2)	*P55*
0·23	*3984* pair*	**Crankcase** *Clamping Rods and Nuts,* 7¼″ (2)	*P55*
0·27	*02502 set*	**Crankcase** *Set Screws,* ¾″ (6)	*P55*
0·16	2988	**Crankcase** Drain Plug	
0·12	7765 pair	**Crankcase** Gauze Plug (2)	



DRG. 20995

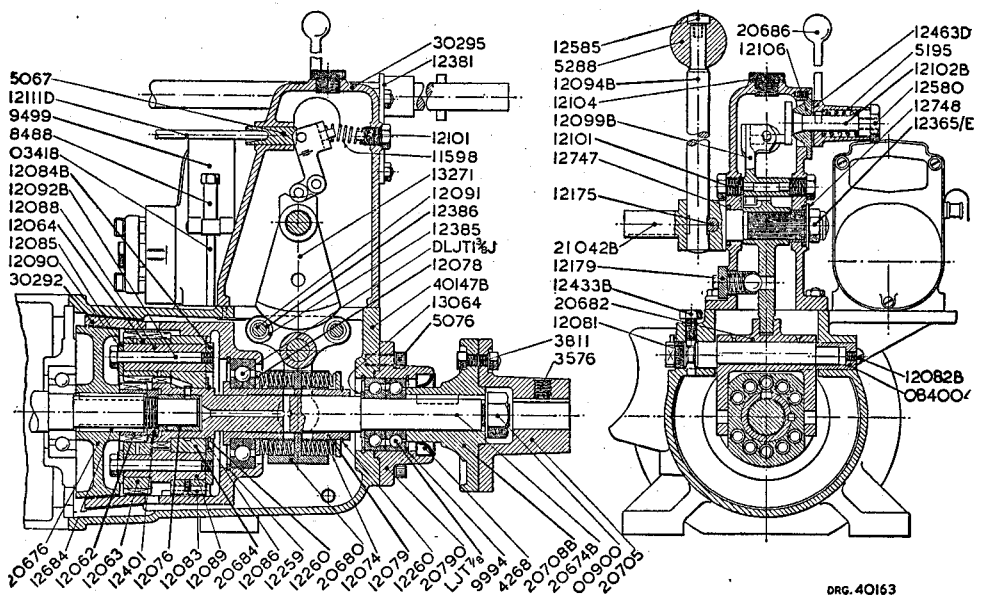
R5 STUART CARBURETTOR

(Amal Carburettor —see separate list)

£	*Part No.*		
2·10	12264	Sprocket (Magneto Drive on Crankshaft)	
7·84	12262	Spiral Gear, Pump Drive	
0·12	54090	Spiral Gear, Key	
7·89	MJT1″	Ball Race (1″ × 2½″ × ¾″)	
4·27	20739B	Ball Race Housing	
0·06	4362 pair	Ball Race Bolts (2)	
5·46	20727	Chain Wheel Starter	
0·12	54090	Chain Wheel Starter Key	
	1831*	**Stuart Carburettor** Body	*P5*
(no longer available)			
	4737M	Throttle	
(no longer available)			
1·32	4546	Throttle Collar and Screw	
0·94	4547	Throttle Operating Die	
0·96	1830*	Throttle Control Lever	
0·11	5052	Throttle Control Lever Spring	
3·72	3000	Throttle Control Lever Pin	
0·12	12149	Air Cap Clip and Screws	
	2716	**Float**	
(no longer available)			
3·90	1697	**Float** Chamber Cover	
2·28	3749	**Float** Chamber Plug	
0·60	2615	**Float** Needle	
2·90	3812	**Jet** (give number stamped on jet)	
7·34	21116	**Drip Tray**	*P55*
0·14	11904B	**Drip Tray** Drain Plug and Washer	
7·34	13237	**Drip Tray**	*P5*
0·14	32400	**Drip Tray** Drain Plug	*P5*
1·25	8248	Banjo Petrol Pipe	*P5*
1·06	13667	Banjo Bolt	*P5*
0·14	13669	Banjo Filter	*P5*
0·02	13668 each	Banjo Washer (2)	*P5*
1·90	10698	Petrol Tap	*P5*
2·62	12387	**Magneto Chain**	
10·82	12267B	**Magneto** Drive Shaft	
6·10	6842	**Magneto** Drive Cover	
1·74	12265	**Magneto** Drive Sprocket	
0·18	9619	Circlip	
2·43	KLNJ½″each	Ball Bearing (½″ × 1⅛″ × ¼″) (2)	
16·16	12266	Ball Bearing Housing	
0·12	12270	Ball Bearing Circlip	
0·40	4241	Oil Seal	

COIL IGNITION

9·63	21424B	Contact Breaker Assembly (Lucas)	*P5*
8·50	21588B	Contact Breaker Assembly (Wipac)	*P5*
11·97	21424D	Contact Breaker Assembly (Lucas)	*P55*
10·50	21588D	Contact Breaker Assembly (Wipac)	*P55*
4·32	14052	Cam (Lucas)	
4·32	14503	Cam (Wipac)	
5·61	21735	Ignition Coil	



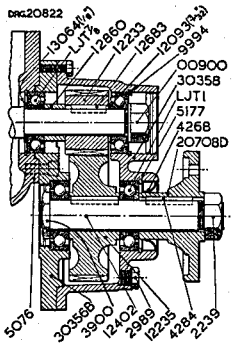
DRG. 40163

REVERSE GEAR BOX

£	*Part No.*		
89·21	40147B	**Gear Box Case**	
0·30	03505 set	**Gear Box Case** Studs and Nuts (6)	
1·16	21089B	Dipstick	
0·16	2988	Drain Plug and Washer	
20·66	20676	**Forward Cone**	
0·08	12684	**Forward Cone** Key	
4·50	12062	Sun Wheel, Driving	
0·60	12401	Nut Crankshaft	
6·19	12076	Floating Bush	
22·21	20674B	**Shaft and Sun wheel**(Secondary)	
14·75	20684	Pinion Housing with 6 Pinion Shafts	
1·86	12085	Pinion Housing Forward End Plate	
3·75	12084B	Pinion Housing Rear End Plate	
0·18	12092B each	Pinion Housing Bolts (6)	
0·18	12090 each	Locking Plate (3)	
0·58	12083 each	Pinion Housing Key (3)	
0·12	06300 set	Pinion Housing Screws (3)	
0·37	12086	Pinion Housing Washer	
0·10	12260	Pinion Housing Circlip	
1·80	12088 each	Pinion Shaft, Long (3)	
2·40	12089 each	Pinion Shaft, Short (3)	
3·55	12064 each	Planet Pinion, Long (3)	
2·20	12063 each	Planet Pinion, Short (3)	
38·38	30292	**Clutch Body**	
30·64	DLJT1⅜″	Ball Bearing (split inner race) (1⅜″ × 3″ × 11/16″)	
0·50	12259	Ball Bearing Circlip	
3·32	13064	Ball Bearing Washer	
11·80	PLJT⅞″ pair	Ball Bearing (2) (⅞″ × 2″ × 9/16″)	Not in engines with reduction gear
0·10	9994 each	Ball Bearing Circlip (2)	
6·42	20790	Ball Bearing Housing	
0·06	5076 each	Ball Bearing Housing Screws (6)	
0·66	4268	**Oil Seal**	
20·39	20708B	Coupling on Engine	
0·13	12683	Coupling Key	
0·14	00900	Coupling Nut and Washer	

REVERSE AND THROTTLE CONTROL

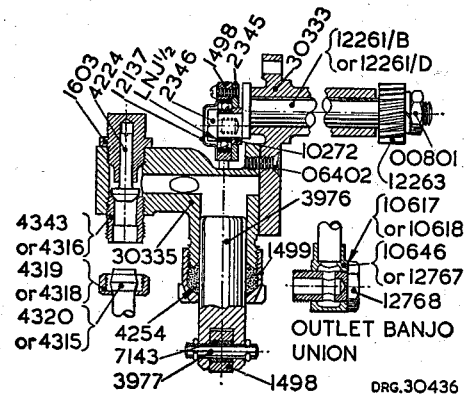
£	Part No.	
8·13	20680	Operating Sleeve on Crankshaft
0·12	12684	Operating Sleeve Key
3·56	12079	Operating Inner Sleeve
0·39	12078 each	Operating Inner Sleeve Washer (2)
0·10	12260	Operating Inner Sleeve Circlip
0·80	12074 set	Operating Springs (20)
7·32	12081	Eccentric Shaft
0·18	12433B	Eccentric Shaft Locking Screw
0·33	12082B	Eccentric Shaft End Cap
0·06	084004	Eccentric Shaft End Cap Screw
6·87	20682	Operating Fork
1·58	13950 each	Operating Fork Roller (2)
0·35	12091 each	Operating Fork Pin and Split Pin (2)
14·38	30295	**Control Housing**
0·36	03403 set	**Control Housing** Studs and Nuts (4)
0·75	12104	Oil Filler Plug with Felt Breather
9·04	21042B	Reverse Cross Shaft
3·50	13271	Reverse Cross Shaft Cam
8·14	13517	Reverse Cross Shaft Collar
0·15	12747 each	Reverse Cross Shaft O Rings (2)
0·60	12748	Reverse Cross Shaft Washer
0·10	12365E	Reverse Cross Shaft Nut (Self-locking)
2·12	12179	Locking Ball Assembly
7·08	12094B	Reverse Lever
0·18	12175	Reverse Lever Cotter and Nut
0·36	5288	Reverse Lever Ball
0·12	12585	Reverse Lever Ball Screw
1·60	20686	**Throttle Lever**
2·76	12102B	**Throttle Lever** Spindle
0·12	5195	**Throttle Lever** Spring
0·22	12580	**Throttle Lever** Nut
8·45	12106	**Throttle Lever** Bearing
0·10	12463D	Friction Disc
5·65	12099B	Interlock Lever
0·35	12101	Pivot Interlock Lever (2) Cap Interlock Spring
0·08	11598	Interlock Lever Spring
0·75	5067	Tappet
2·03	12111D	Tappet Rod
0·78	3520	Knuckle Joint and Pin



REDUCTION GEAR BOX

26·70	30356B	Backplate
0·05	11728 each	Backplate Dowel (2)
0·06	5076 each	Backplate Screws (6)
41·72	30358	Reduction Gear Case
0·21	02402 set	Reduction Fixing Screws and Washers (7)
0·27	2989	Reduction Drain Plug and Washer
5·90	LJT⅞″ each	Ball Bearing (2) (⅞″ × 2″ × $\frac{9}{16}$″)
3·34	13064	Ball Bearing Washer Forward (⅛″ thick)
2·24	12093	Ball Bearing Washer Aft ($\frac{3}{32}$″ thick)
0·10	9994 each	Ball Bearing Circlip (2)
4·46	12860	Ball Bearing Distance Sleeve ($\frac{11}{16}$″ long)
9·77	12233	Gear Wheel (driving)
0·13	7522	Gear Wheel Key
0·14	00900	Gear Wheel Nut and ⅜″ Washer
14·72	12402	Shaft, Driven with Locknut
18·27	12235	Gear Wheel (driven)
0·05	9624	Gear Wheel Shim (to prevent end-float)
0·05	4284	Gear Wheel Key
6·46	LJT1″ each	Ball Bearing (2) (1″ × 2¼″ × ⅝″)
0·12	5177	Ball Bearing Circlip
0·66	4268	Oil Seal
20·39	20708D	Coupling on Engine
0·13	4284	Coupling Key
2·60	2239	Coupling Nut

CIRCULATING PUMP



£	Part No.		
16·72	30333	Pump Shaft Bearing	
0·07	06402 set	Pump Shaft Bearing Screws (3)	
3·40	12263	Gear Wheel	
0·07	00801	Gear Wheel Nut and Washer	
24·36	12261B	Shaft Wheel	*P5*
24·36	12261D	Shaft Wheel	*P55*
2·23	1498	Banjo Link with Bush	
0·56	7143	Banjo Link Bush	
2·43	KLNJ½″	Banjo Link Ball Bearing (½″ × 1⅛″ × ¼″)	
2·00	12072	Ball Bearing Collar	
0·40	2345	Ball Bearing Inner Washer	
0·89	2346	Ball Bearing Fixing Screw	
0·29	12137	Ball Bearing Grease Cap	
0·06	37301 set	Ball Bearing Grease Cap Screws (3)	
15·00	30335	Pump Body	
1·40	3976	Pump Plunger	
0·78	3977	Pump Plunger Pin with Split Pins	
2·22	1499	Pump Gland	
0·25	4254/28	Pump Gland Packing	
0·68	4224 each	Valve (2)	
1·07	1603 each	Valve Cap (2)	
1·52	4343	Union Body ⅜″ pipe	*P5*
1·52	4316	Union Body ½″ pipe	*P55*
0·37	4319	Union Nut	*P5*
0·42	4318	Union Nut	*P55*
0·27	4320	Union Olive	*P5*
0·29	4315	Union Olive	*P55*
1·13	10646	Outlet Banjo ⅜″ pipe	*P5*
1·13	12767	Outlet Banjo ½″ pipe	*P55*
1·56	12768	Outlet Banjo Bolt	
0·09	10617 pair	Outlet Banjo Bolt Washer (2)	*P5*
0·09	10618 pair	Outlet Banjo Bolt Washer (2)	*P55*

PETROL PUMP

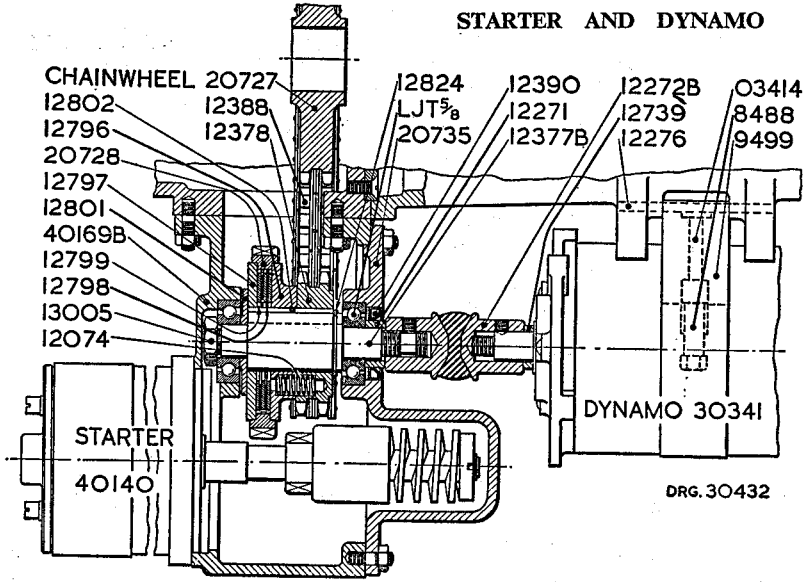
3·60	12268	Push Rod	
3·35	12298	Push Rod Guide	
5·20	21107	Pipe, with banjo union pump to carburettor	*P5*
5·20	*30513*	*Pipe, with banjo union pump to carburettor*	*P55*

STARTING GEAR

1·56	12334	Shaft with Collar	*P5*
1·81	12567	Shaft with Collar	*P55*
1·50	12381	Bracket with Bush on Gearbox	

For details of other parts see Instruction Book 31 and/or separate leaflet on engines with type suffix "A"

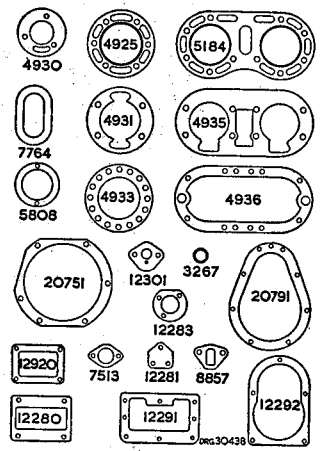
STARTER AND DYNAMO



£	*Part No.*	
3·00	12388	Duplex Chain
11·00	40169B	Case
5·00	20735	Case Cover
4·00	12377B	Spindle, Starter Gear
4·72	LJT⅝″ each	Ball Bearing (2)
0·35	13005	Ball Bearing Locknut
0·95	12801	Ball Bearing Spacing Disc
3·25	12797	Clutch Side Plate
0·96	12798 each	Clutch Plates (2) steel
0·50	12799 each	Clutch Plates (3) bronze
6·81	12796	Clutch Closing Plate
0·32	12074 set	Clutch Closing Plate Springs (8)
0·62	12528	Clutch Inspection Cover
69·37	40140	**Starter**
2·50	251372 set	**Starter** Brushes (4)
9·62	20728	**Starter** Gear
14·46	12378	Duplex Chain Sprocket
0·24	12802	Duplex Chain Sprocket Key
0·15	12824	Duplex Chain Sprocket Circlip
0·60	12390	Oil Seal
3·22	12271	Oil Seal Sleeve
52·63	30341	**Dynamo**
0·47	227305 pair	**Dynamo** Brushes (2)
8·84	14630A	**Dynamo** Coupling
0·12	9762 pair	**Dynamo** Coupling Grub Screws (2)
0·12	54030	**Dynamo** Coupling Key
0·15	12739	**Dynamo** Coupling Collar
2·00	13972 pair	**Dynamo** Strap and Pin (2 pairs)
1·32	8488 each	**Dynamo** Strap Nut (2)
16·53	20872	Current Regulator
5·80	4901	Ammeter
2·68	4171	Stop Button
2·68	12734	Start Button
2·70	14960	Starting Contactor

JOINTS

£	*Part No.*		
2·88	13676	Complete Set	*P5*
3·19	13677	Complete Set	*P55*
0·96	4925	Cylinder Head	*P5*
1·32	21623	Cylinder Head	*P55*
0·07	4931	Cylinder Base	*P5*
0·07	4935	Cylinder Base	*P55*
0·14	7764 each	Water Jacket Cover (2)	*P5*
0·14	7764	Water Jacket Cover (1)	*P55*
0·07	4930 each	Exhaust Outlet (2)	
0·14	4933	Expansion Chamber	*P5*
0·28	4936	Expansion Chamber	*P55*
0·07	7513	Carburettor Mounting Flange	*P55*
0·09	20751	Reverse Gear Case	
0·07	5808	Magneto Drive Cover	
0·06	12283	Circulating Pump Gear Cover	
0·04	12281	Circulating Pump Body	
0·09	12280	Control Box	
0·05	3267	Float Chamber Plug	*P5*
0·18	12292	Chaincase Cover	
0·18	12291	Chaincase to Crankcase	
0·08	12920	Clutch Inspection Cover	
0·12	20791	Reduction Gear Case	
0·07	8857	Petrol Pump	
0·05	12301	Petrol Pump Push Rod Guide	
0·07	9590	Thermostat Housing	*P5*
0·14	13867	Thermostat Cover (Wax Type)	*P5*
0·14	13866	Thermostat Cover (Wax Type)	*P55*



Special Instructions for

P5ME & P55ME with vertical reverse gear lever

53 **The gearbox** differs from that on the hand started engine. Lucas starter and dynamo are used. The dynamo is driven by a chain from the crankshaft and the driving pinion of the starter engages with the starter wheel on the dynamo drive shaft. A Lucas regulator controls the current.

The Stuart switchboard has two push buttons. The one on the right operates the starter contactor, the other stops the engine by earthing the magneto.

The gear lever moves in a fore and aft direction. It may be fitted in either of two positions, whichever is more convenient, by taking out the cotter pin and turning the lever round. The nut 12365 should not be tighter than is necessary to prevent end movement of the shaft. The gear lever and throttle have the well-known STUART interlock; it is impossible to race the engine when the gear is in neutral.

54 **"Lubrication."** The filler 12104 for gearbox and chaincase is on top of the control housing. Use the same oil as in the engine, contents about 1 pint (1½ pints on the reduction gear model). The dipstick is on the port side.

A magnetic drain plug attracts any iron particles which enter the lubricating system; it is on the starboard side of the chaincase, below the circulating pump.

On the early model P55ME the dipstick is on the top of the chaincase; the early model single cylinder engine has not a dipstick, but there is an oil level plug above the magnetic drain plug. Take it out and fill until oil overflows.

55 **Reverse gearbox:—Dismantling.** Don't do it unless necessary for repairs. Put the lever in gear, unscrew the nut 00900 at the after end. Draw off coupling and remove the key. Put lever into neutral. In a reduction gear engine remove the coupling as before, draw off reduction gearbox casing, unscrew nut 00900, removing ball race and pinion wheel. Remove the control housing with the gear lever and throttle mechanism. Take out the eccentric shaft screw 12433B and withdraw the shaft 12081, at the other end of which is a plug 12082. Take out the screw 12082B, then with a rod, drive the shaft out ¼in. to clear the serrations. Lift out the operation fork 20682.

The gearbox is attached to the crankcase by six studs. The secondary shaft 20674B carrying the remaining moving parts of the gearbox is removed by driving it forward—take care not to damage the end of the shaft. The shaft with the planet train slips forward out of the clutch body 30292 which slides upon it on three keys.

The part of the gearbox most subject to wear is the floating bush 12076. The outside diameter is 0·999 to 0·998in. If it has worn to 0·996in., renew. The bore is 0·75075 to 0·750in. Replace when it exceeds 0·753in.

Do not disturb the planet train unless it is absolutely necessary. The planet pinions (short, 12063 and 12064, long), are retained by an end plate 12085 secured by six set bolts 12092B: mark the planet pinions so that they go back the same as before. The pinion housing 20684 rotates on shaft 20674B and is secured by a circlip 12260.

To dismantle the clutch body and operating assembly, remove the large internal circlip 12259 securing the double thrust race DLJT1⅛in. in the body and tap the operating sleeve assembly forward and out of it.

To dismantle the sleeve, place two clamps over the thrust race and the rear pressure plate 12078 to compress the springs 12074 sufficiently for the circlip 12260 at the after end of the inner sleeve to be removed.

56 **Re-assembling.** Ball thrust races must be the right way round. In the direct drive engine there is a pair of races PLJT7/8 at the after end of the gearbox: they must be assembled with the thicker edges of the outer race marked "thrust" facing inwards. In the reduction gear engines these races are on each side of the pinion 12233 and LJT1in. bearings on both sides of the gearwheel 12235, in this case they must be assembled thrust side outwards.

57 **Chaincase.** For access to the chain drive take off starter 40140, dynamo 30341, and gearbox. Remove the sun wheel 12062, forward cone, thrust race MJT1in. and housing 20739B. Loosen the grubscrew in the dynamo coupling 12272B and unscrew it. Take off the inspection cover and chaincase cover 20735. Remove the split link from the chain to detach it. The spindle may now be withdrawn.

58 The starter gear incorporates a slipping clutch to absorb shock. Dismantle by removing the nut 13005 on the end of the shaft and drawing off the ballrace LJT⅝in. The clutch consists of two steel and three phosphor bronze discs 12798 and 12799 interleaved. There are eight springs 12074 in holes in the chainwheel.

The magneto chain 12387 drive is at the forward end of the chaincase, to get at it remove the large chainwheel 20727 on the crankshaft.

59 **Adjusting the gear control.** Equal force is needed to engage ahead and astern gear. To adjust:—Turn the shaft 12081 to a position where the force is balanced. Drive it out to clear the serrations, then turn one serration at a time (see para. 3). Trial and error will find the correct adjustment. Finally retighten the eccentric shaft screw.

ELECTRICAL EQUIPMENT 12 Volt (Lucas)

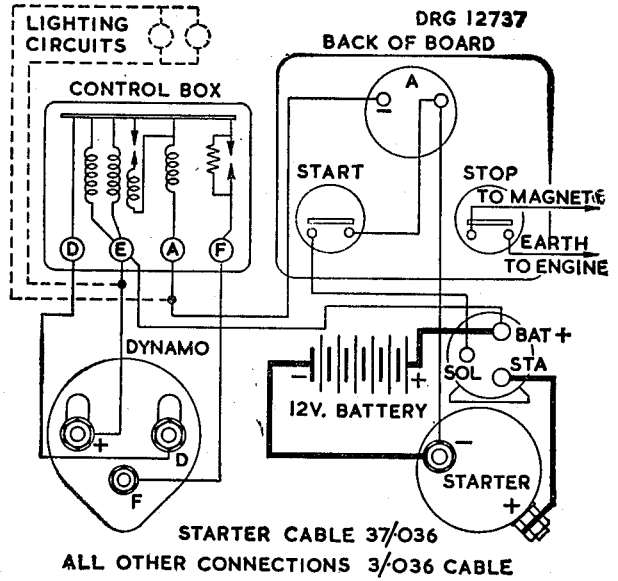
60 **Dynamo.** Speed 2715 r.p.m. with engine at 1500 r.p.m. Cutting-in speed 1050/1200 r.p.m. with engine at 530/665 r.p.m. Maximum output 9 amps.

Every 400 hours remove rubber plug in the end of the dynamo bearing housing, and inject a few drops of engine oil. No lubrication is necessary at the driving end. At the same time remove the through bolts retaining the non-driving end cover, and withdraw the cover to inspect the brush gear and commutator.

See that the brushes move freely in their holders by holding back the springs and pulling gently on the flexible connectors. If a brush is inclined to stick remove it from its holder and clean its sides with a petrol-moistened cloth Be careful to replace brushes in their original positions in order to retain the bedding. Brushes which have worn so that they will not bed properly on the commutator must be renewed. The commutator should be clean, free from oil and dirt and should have a polished appearance. If dirty, clean by pressing a fine dry cloth against it while the engine is slowly turned over by hand. If this is not effective, moisten the cloth with petrol.

The Starter should be examined in the same way. It needs no lubrication.

The Current Regulator requires no maintenance or adjustment. If the battery is over- or under-charged, adjustment should be made by a Lucas Service Depot.



For starters without + terminal connect STA of solenoid to starter fixing bolt.

See separate wiring diagram for engines with coil ignition.

Stuart Turner Ltd.

Makers

Henley-on-Thames

RG9 2AD

England

[redacted]

Telephone: 2655 STD (049-12-2655)
Telegrams: Stuart, Henley-on-Thames
Telex: 847093

31K. Printed in England 6/78 H—500

Higgs & Co., Henley