



**125cc TWO-STROKE  
ENGINE with 3-SPEED  
GEARBOX UNIT . . .**

**REFERENCE  
BOOK**

MB/W/05

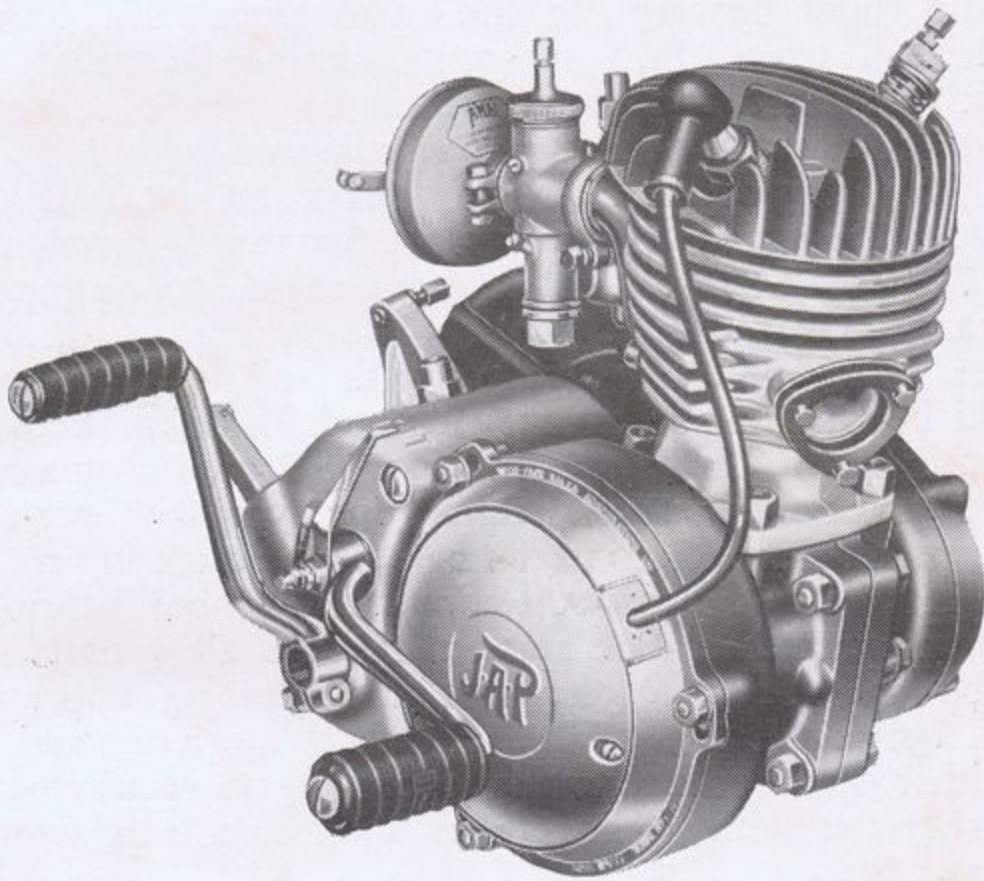
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**J. A. PRESTWICH & Co., Ltd.,**  
**NORTHUMBERLAND PARK,**  
**LONDON, N.17.**

TOTtenham 3701.

**J.A.P**



125cc TWO-STROKE ENGINE  
with 3-SPEED GEARBOX.

**BARNSTORMERS.CO.NZ**



## WORKING & MAINTENANCE INSTRUCTIONS WITH SPARE PARTS LIST FOR 125cc. TWO STROKE MOTOR CYCLE UNIT

### ENGINE AND GEARBOX

Bore	...	...	54.2 m/m.
Stroke	...	...	54 m/m.
Capacity	...	...	125 cc.
Weight of unit complete	40 lb.		

Needle roller bearing big end, with Duralumin conrod and hardened steel liner. Two self-contained needle roller bearings on the driving shaft, and one self-contained needle roller bearing on the magneto shaft. Flat top design piston with fully floating gudgeon pin. Fully enclosed primary chain running in an oil bath.

The recommended top gear ratio for this lightweight motor cycle is 7 to 1. The gear ratios from engine to output side of gearbox are 2.59 ; 4.21 ; 7.58.

Three speed unit construction with engine. The mainshaft has a ball bearing on the output side and Phosphor Bronze bush on the other side. The layshaft is mounted on Phosphor Bronze bushes. Gear changing is the sliding dog type with positive stop operating pedal. The cork insert single plate clutch is very smooth in action and the clutch sprocket is mounted on ball bearings. The gearbox incorporates a kick starter. All the alloy parts are die-cast which contributes to the neat and pleasing appearance of the unit. Ignition is by "Wico" flywheel magneto, and lighting can be either direct or alternating, according to requirements. An Amal carburetter with a choke-filter and controls is standard on this engine.

### RUNNING INSTRUCTIONS

Fuel must be one part oil, SAE.30, to 16 parts petrol, the mixture to be well stirred before pouring into the tank. Remove the gearbox filler plug, which is situated on the magneto side of the crankcase, near the clutch adjuster boss, and pour in one-tenth of a pint of oil (or insert a dipstick through the filler plug hole, and when touching the bottom of the case, the oil level should be half an inch). Remove the filler plug from the primary chaincase and pour in as much oil as will enter, the bottom of the plug hole acting as a level.

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## STARTING

**When Cold.**—Turn the fuel tap to ON position. Open the throttle lever (inwards) about one-third and close the strangler, then flood the carburetter by depressing the tickler. If the back wheel is on the ground, place gear in neutral position, then give a sharp kick on the starter pedal when the engine should start. Gradually open the strangler to its full open position as the engine warms. In very cold weather it may not be possible to do this immediately, in which case leave partly open until the engine is warmed up.

**When Hot.**—Do not flood carburetter, and leave the strangler open.

## FAILURE TO START

If repeated kicks meet with no success after flooding well (when cold), open the throttle fully, turn off fuel and resume kicking, when the engine will probably start after several half-hearted attempts. The throttle should then be closed and the fuel turned on again. If this fails, clean the sparking plug, and if the plug is wet with fuel, remove the drain plug at the bottom of the crankcase. The engine should then be kicked round several times with the drain plug and sparking plug out, with the fuel turned off and the throttle wide open: this will blow out any surplus fuel mixture.

## STOPPING THE ENGINE

If the engine is stopped by turning off the fuel tap instead of using the decompressor, an easier start will be made if the engine stands a long time before re-starting.

## MAINTENANCE DETAILS

### Engine

The gudgeon pin is parallel and held in position by circlips which can be removed with a pointed tool.

### Gearbox

The gear lever positions are as follows:

Bottom gear	...	...	Press pedal down.
Neutral	...	...	Next notch up.
Middle gear	...	...	Next notch up.

Top gear ... Next notch up

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The pedal will always return to its original position. The gear changing can best be remembered by "UP" for changing to a higher gear and "DOWN" for changing to a lower gear. The position of the gear pedal can be altered to any position as it is on serrations. Remove nut and gear pointer, put the pedal in required position, replace the pointer and nut.

## **Clutch**

Play between the end of push rod in mainshaft and the clutch operating lever is taken up by screwing in the operating pin after slackening the locknut. Slackness in the clutch cable is taken up by means of the adjuster at the top and back of the gearbox.

## **To Remove Clutch and Engine Sprocket**

1. Remove the cylinder head by releasing the four bolts.
2. Remove the primary chain cover by releasing the screws.
3. Place the clutch removal tool\* across the cylinder top and bolt down. Turn engine normal rotation until the piston presses against the tool. Release the engine sprocket nut.  
\*This is a special tool which can be purchased from our works.
4. Remove the clutch springs and pressure plate by releasing the screws. Remove the clutch and engine sprockets with the chain.
5. Remove the Flat tool from top of cylinder and place between the collar on the mainshaft and one of the spring posts on the clutch plate. Turn the back plate to lock and release the clutch nut.
6. Place the clutch removal tool across two clutch spring posts and tighten down with screws. Screw in the extractor bolt and when tight against the shaft, give a sharp tap on the bolt head and the clutch will loosen on taper.

## **To Remove the Rear Drive Sprocket**

Place the clutch removal tool between a tooth on the sprocket and collar on the mainshaft. Turn sprocket normal rotation to lock and release the nut.

## **Chain Adjustment**

No chain adjustment is provided as the chain runs in an oil bath and wear is negligible. If, after long running, the chain becomes slack, obtain a replacement from our works, or official agents or stockists.

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## **To Remove the Magneto**

The flywheel should not be removed unless absolutely necessary. First remove the inspection cover and then release the screw holding the breaker cam. Remove cam. Release the magneto cover by releasing three nuts. Release the flywheel nut after placing the clutch removal tool on the cylinder top as previously explained. Screw on the flywheel withdrawer\*, tighten withdrawer bolt and tap the bolt head to loosen the flywheel. Do not strain the extractor bolt. When replacing the flywheel the correct timing is automatically obtained as both flywheel and cam are keyed in position.

\*This is a special tool which can be purchased from our works.

## **AMAL CARBURETTER DETAILS—TYPE 223/001.D**

### **Working and Maintenance Instructions**

#### **How It Works**

The carburetter is designed to suit this J.A.P. Engine and to eliminate any difficulty arising out of the use of very small jets. The control is automatic, the hand lever on the bar operating the throttle, which in its turn controls the mixture according to the engine speed.

The full power control of the mixture is by the main jet feeding the engine through a needle-jet in which there is the needle. The taper on the needle controls the mixture at lesser throttle openings, and the position of the taper in the needle jet, providing a means of richening or weakening the mixture at various throttle positions. The needle is located in the throttle by a circular spring clip held down by the throttle spring, and the needle itself is positioned by that particular groove in which the spring clip is located.

For idling, the fuel supply is controlled by the parallel portion of the needle entering the bore of the needle jet, the difference in diameter being the jet orifice, which is small—although in case of obstruction or gumming up due to the fuel system, it can be instantly cleared by opening the throttle.

The fuel feed is into the top of the float chamber where constant levels are maintained, and the fuel at these levels flows to the main jet through a passage, and air locks are liberated through a passage, back into the float chamber at the top.

The jets can be removed by first undoing the jet plug. The throttle and adjustable needle can be removed by unscrewing the mixing chamber top. The throttle is guided by a screw, working in a groove in the throttle, and the slot in the throttle itself enables the cable to be quickly detached.

The intake of the carburetter has an air strainer and a strangler for closing off the air only for starting when cold.

## General Maintenance Instructions

Keep the float chamber free from impurities, which are the commonest cause of flooding. Otherwise, if flooding takes place, remove the fuel pipe connection from the lid and clean out all passages. See that the float needle is not bent, nor the fuel float logged. If the needle seating is at fault, rub the needle lightly in by twisting it between the finger and thumb. (Never use any grinding compound.) If the needle itself has a deep groove in it on the taper end, a new needle and float may be necessary. When replacing the float chamber lid, first see that the blunt end of the float needle is in the guide hole at the bottom of the float chamber, and then guide the lid over the taper end of the needle before screwing down. Also see that the tickler works freely and springs back, and that the air hole in the rim of the lid is clear.

If the carburetter is ever removed from the induction pipe, see that it is pushed right home on to the pipe, before locking the ring clip. Never fit the carburetter to a pipe on which it is slack, nor ever drive it on to a tight one. A carburetter should be a good push fit on to the inlet pipe, and should be pushed on true with a screwing motion after having put a little oil on the pipe.

Keep the air intake or gauze free from obstructions and see that the air strangler, if of the knife type fitted into the intake of the carburetter, remains firmly open when opened. If it is inclined to be slack, bend it slightly to stiffen the movement.

If the throttle should become slack after years of use, it should be replaced, otherwise the slow running may be erratic. Also, if the throttle has become badly worn, it may be advisable at the same time to replace the needle-jet, as this might wear slightly large in diameter through the movement of the needle in same, thus causing a richer mixture than necessary.

Also bad fuel consumption will be apparent if the throttle needle-jet has worn: it may be remedied or improved by lowering the needle in the throttle, but if it cannot be—then the only remedy is to fit a new needle-jet.

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## Tracing Faults

1. Assure yourself of ample fuel supply, good compression, clean sparking plug and good spark at the points. Also rectify if flooding, verify complete closing and opening of throttle and air strangler, and that the air intake gauze is clean.
2. Verify carburetter to be clean internally and that jet and passages are clear and that there is no air leak at the connection of the carburetter to the engine. Also verify that main jet and needle-jet are screwed up firmly.
3. When the above parts are in order, there are only two possible faults in carburation—either the mixture is **RICH** or **WEAK**, and you must determine which of the two is causing inefficient running, and at what throttle opening, so that the carburetter can be tuned correctly. Indications are as follows:

### For Richness

Black sooty smoke in exhaust.  
Engine four stroking.  
Fuel spraying out of carburetter.  
Heavy fuel consumption.  
Sparking plug sooty.  
Heavy lumpy running.

### For Weakness

Spitting in the carburetter.  
Erratic slow running.  
Poor acceleration.  
Engine runs better at less than full throttle opening.  
Overheating.  
Sparking plug, dry grey colour around the points.

4. Some causes for above producing:

### Richness

Punctured float or bent float needle.  
Tickler stuck down.  
Needle raised too much.  
Main jet too large or not screwed up.  
In old machines, needle jet worn.  
Air filter choked.

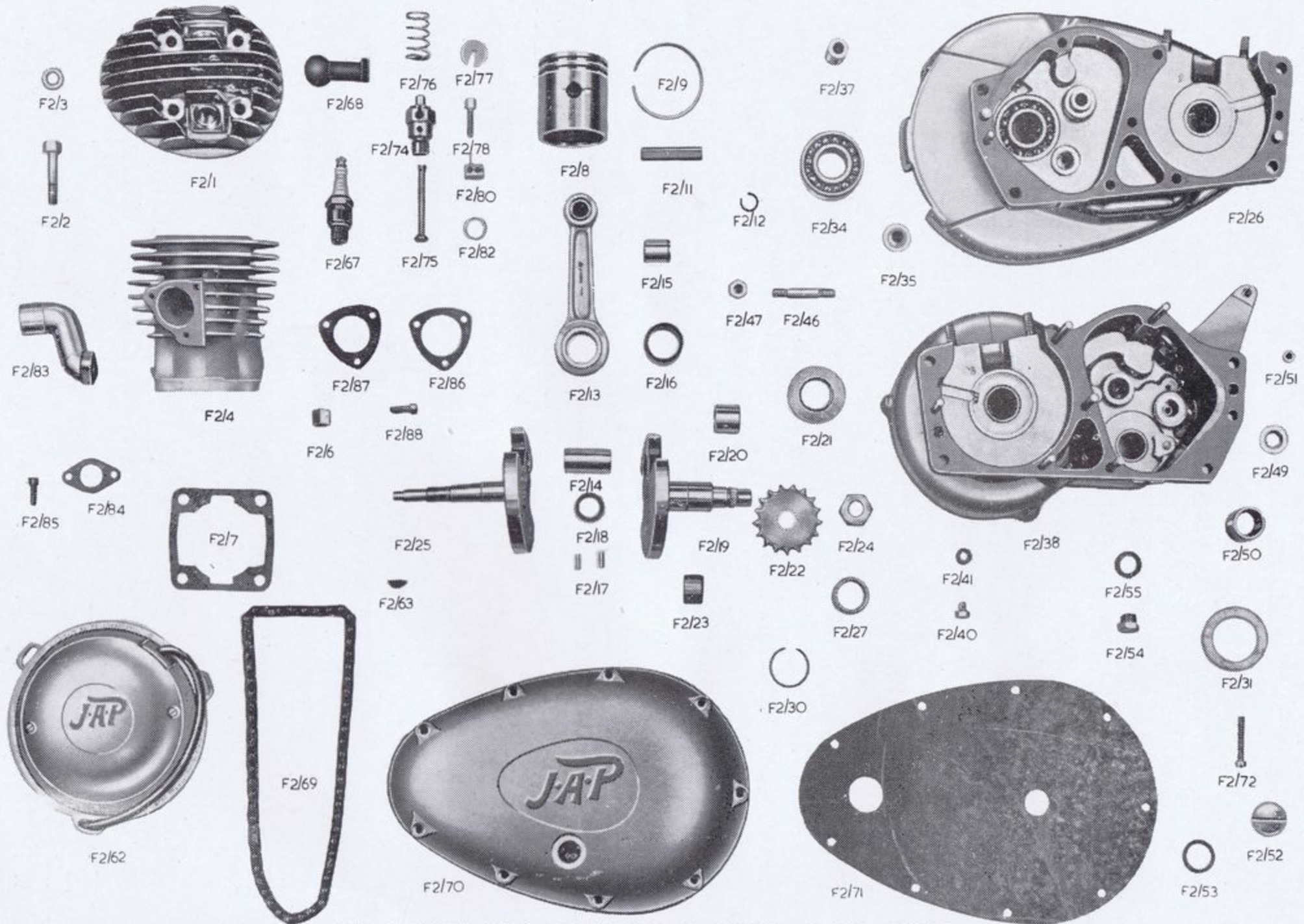
### Weakness

Air leaks.  
Fuel supply or jet partially choked.  
Too small main jet.  
Needle in too low position.  
Air gauze or filter removed.  
Using fuel with water in it.

5. If engine "idles" better after tickling the float and gives better power with air shutter partially closed, the mixture is weak.  
Idling better with fuel turned off temporarily and no suspicion of spitting when opening throttle quickly when engine is cold—the mixture is rich.
6. Trouble at half to full throttle is most likely to be connected with the main jet supply. The trouble at quarter to three-quarters throttle opening will be due to needle position, which can be remedied. Bad slow running will probably be due to air leaks.

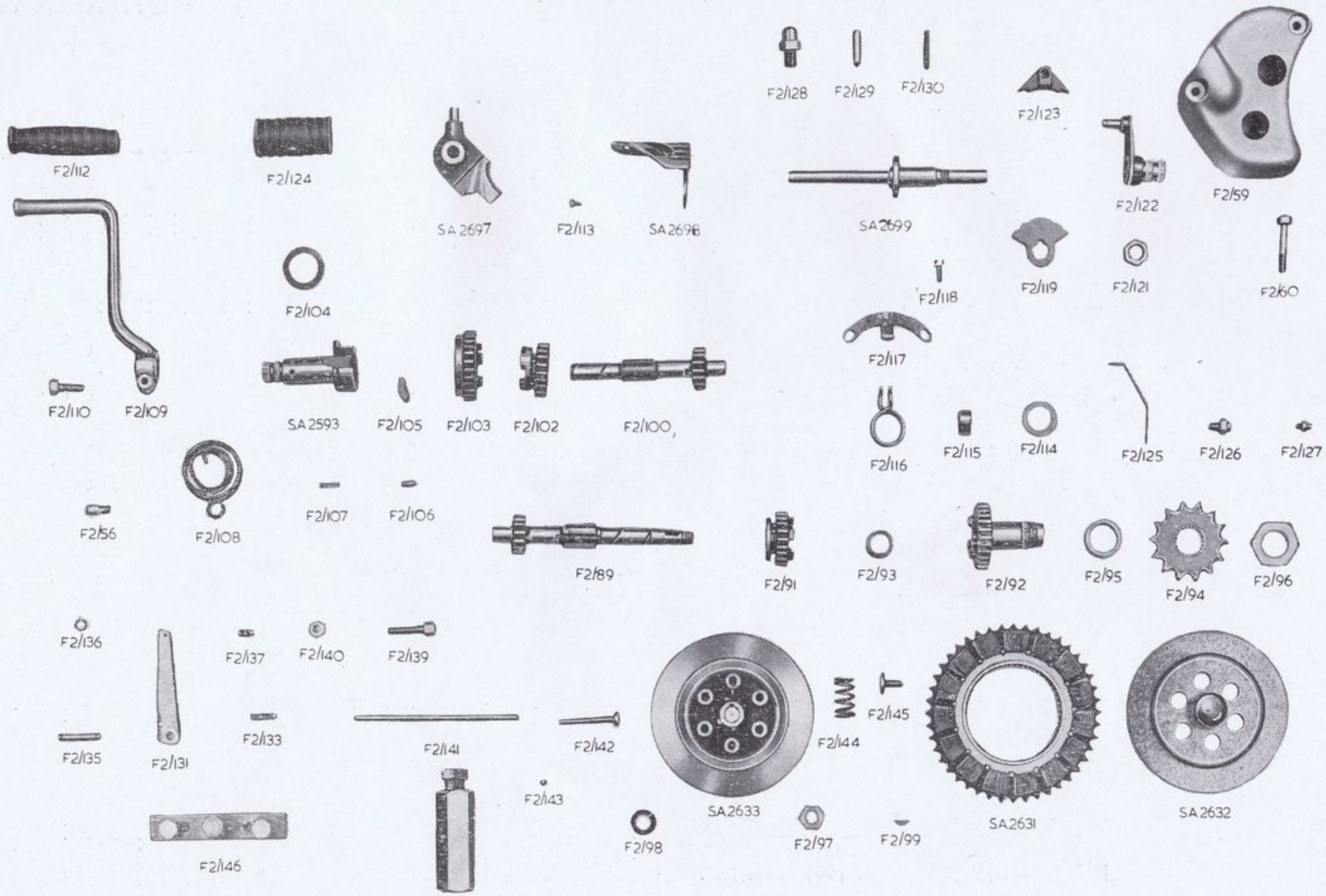
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ENGINE ILLUSTRATION



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 GEARBOX ILLUSTRATION

**SPARE PARTS LIST FOR 125cc. TWO STROKE—  
FOOT GEAR CHANGE**

F2U)  
/2 & 3

Ref. No.	Part No.	Description	No. Off	Price Each		
				£	s.	d.
F2/1	18516	Cylinder Head ... ..	1		18	0
F2/2	14746	" " Bolt ... ..	4			5
F2/3	12518	" " Washer ... ..	4			2
F2/4	18512	" Barrel ... ..	1	3	7	6
F2/5	4582	" Base Stud ... ..	4			5
F2/6	285	" " Nut ... ..	4			3
F2/7	18645	" " Gasket ... ..	1			3
F2/86	18898	Exhaust Port Flange ... ..	1		1	0
F2/87	18644	" " " Gasket ... ..	3			3
F2/88	18930	" " " Screw ... ..	3			3
F2/8	18531	Piston ... ..	1		16	6
F2/9	18534	" Ring ... ..	2		1	6
F2/11	18532	Gudgeon Pin ... ..	1		3	0
F2/12	18533	" " Circlip ... ..	2			3
F2/13	18555	Conrod ... ..	1		15	0
F2/14	18553	Crankpin ... ..	1		5	3
F2/15	18849	Small End Bush ... ..	1		3	0
F2/16	18927	Big End Liner ... ..	1		4	6
F2/17	18881	" " Roller ... ..	21			6
F2/18	18700	" " Washer ... ..	2			6
F2/19	18558	Crankshaft—Driving side ... ..	1	1	2	6
F2/20	18968	" Bearing Sleeve ... ..	2		6	0
F2/21	18869/1	" " Trust Washer ... ..	1			6
F2/22	18550	" Sprocket ... ..	1		6	0
F2/23	18969	" " Distance Piece ... ..	1			6
F2/24	18872	" " Nut ... ..	1			6
F2/25	18554	Crankshaft—Magneto side ... ..	1	1	1	0
F2/20	18968	" Bearing Sleeve ... ..	1		6	0
F2/21	18869/1	" " Thrust Washer ... ..	1			6
F2/26	19311	Crankcase—Driving side ... ..	1	2	15	6
F2/27	18961	" Bearing ... ..	2		11	3
F2/28	18974	" " Distance piece ... ..	1		2	3
F2/29	18975	" " " " " ... ..	1		1	3
F2/30	18976	" " Circlip ... ..	1			3
F2/31	18702	" Oil Seal ... ..	1			6
F2/32	12581	" Stud— $\frac{1}{4}$ " B.S.C. x 1-9/32" ... ..	1			3
F2/33	3574	" " Nut— $\frac{1}{4}$ " B.S.C.... ... ..	1			3
F2/34	18343	Gearbox Bearing ... ..	1		5	3
F2/35	18783	" Layshaft Bush ... ..	1		3	0
F2/36	16992	" Selector Shaft Cap ... ..	1			2
F2/37	19265	" " " Bush ... ..	1		2	0
F2/38	19312	Crankcase—Magneto side ... ..	1	2	15	6
F2/27	18961	" Bearing ... ..	1		11	3
F2/39	18975	" " Distance Piece ... ..	1		1	3
F2/30	18976	" " Circlip ... ..	1			3
F2/40	16135	" Drain Plug ... ..	1			6
F2/41	9308	" " " Washer ... ..	1			3
F2/42	18784	" Dowel ... ..	2			3
F2/43	18640	" Stud— $\frac{1}{4}$ " B.S.C. x 1-13/16" ... ..	3			6
F2/44	18641	" " $\frac{1}{4}$ " B.S.C. x 2 $\frac{1}{2}$ " ... ..	2			6
F2/45	18639	" " $\frac{1}{4}$ " B.S.C. x 1-11/16" ... ..	1			6
F2/48	3574	" " Nut— $\frac{1}{4}$ " B.S.C.... ... ..	6			3
F2/46	8398	" Stud—5/16" B.S.C. x 2" ... ..	4			6
F2/47	285	" " Nut—5/16" B.S.C. ... ..	8			3
F2/49	10056	Gearbox Mainshaft Bush ... ..	1		3	0
F2/50	18785	Kickstarter Bush ... ..	1		3	0

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Ref. No.	Part No.	Description	No. Off	Price Each		
				£	s.	d.
F2/51	18701	Gearbox Clutch Rod Bush ...	1		1	5
F2/52	18642	" Filler Plug ...	1			6
F2/53	11649	" " Washer ...	1			3
F2/54	3730/1	" Drain Plug ...	1			6
F2/55	18007	" " Washer ...	1			3
F2/56	18735	" Kickstarter Spring Stud...	1			3
F2/57	18733	" " Stop ...	1			6
F2/58	18734	" " " Screw...	1			3
F2/59	19302	" Cover ...	1	15		0
F2/60	18890	" " Screw ...	2			8
F2/61	19022	Mainshaft Washer ...	1			6
F2/62	19429	Flywheel Mag. 5¼" D.C.	1 Alt	6	10	0
F2/62	19475	" " 5¼" A.C.	1 Alt	6	10	0
F2/63	16729	" Key ...	1			3
F2/64	16600	" Magneto Fixing Stud ...	3			4
F2/65	18315	" " " Washer	3			2
F2/66	3574	" " " Nut	3			3
F2/67	18593	Sparking Plug ...	1		5	0
F2/68	18326	Plug Cover ...	1		1	6
F2/69	18707	Primary Chain—60 P. ...	1		15	0
F2/70	18559	" " Cover ...	1		15	0
F2/71	18560	" " " Back Plate ...	1		5	3
F2/72	16905	" " " Screw ...	9			3
F2/73	18646	" " " Washer ...	2			6
F2/52	18642	" " " Plug ...	1			6
F2/53	11649	" " " Washer ...	1			3
F2/74	18524	Decompressor Body ...	1		3	0
F2/75	18525	" Valve ...	1			9
F2/76	18526	" Spring ...	1			9
F2/77	18527	" " Cap ...	1			6
F2/78	18528	" Cable Adjuster ...	1			9
F2/79	6731	" " " Locknut	1			3
F2/80	18529	" Adjuster Block ...	1			6
F2/81	16228	" " " Pin...	1			2
F2/82	18703	" Washer ...	1			3
F2/83	18566	Inlet Pipe ...	1		5	3
F2/84	18643	" " Gasket ...	1			3
F2/85	18705	" " Screw ...	2			3
F2/150	18695	Carburetter—Complete ...	1	3	3	9
F2/89	18751	Mainshaft—Gearbox ...	1	1	5	6
F2/90	18715	" Pinion—15 T. ...	1		6	0
F2/91	18712	" Sliding Pinion—21 T....	1		10	6
F2/92	18711/1	" Sleeve Pinion—26 T. ...	1	1	1	0
F2/93	18752	" Thrust Washer ...	1		1	6
F2/94	18754	Final Drive Sprocket ...	1		6	0
F2/95	18978	" " " Distance Piece	1		1	6
F2/96	18853	" " " Nut ...	1			6
F2/97	303/1	Clutch Retaining Nut—7/16" B.S.C.	1			3
F2/98	18755	" Spring Washer ...	1			2
F2/99	18429	" Key ...	1			3
F2/100	18756	Layshaft-Gearbox ...	1		15	0
F2/101	18714	" Pinion—16 T. ...	1		6	0
F2/102	18713	" Sliding Pinion—21 T. ...	1		12	0
F2/103	18710	" Ratchet Pinion—27 T. ...	1	1	4	0
SA.2593	SA.2593	Kickstarter Spindle & Bush ...	1		18	0
F2/104	18891	" " Washer—.027" 1 Alt.	1			3
F2/105	18759	" Ratchet Pawl ...	1		1	0
F2/106	18760	" Plunger ...	1			9
F2/107	18761	" Spring ...	1			3
F2/108	18773	" Return Spring ...	1		1	3

Ref. No.	Part No.	Description	No. Off	Price Each		
				£	s.	d.
F2/109	18762	Kickstarter Pedal ... ..	1	1	2	6
F2/110	3687	" " Bolt ... ..	1			6
F2/111	18891/1	" Spindle Washer—.020" 1 Alt.	1			3
F2/112	18708	" Rubber ... ..	1		1	3
SA.2699	SA.2699	Gear Selector Shaft Assembly ...	1	12		0
SA.2698	SA.2698	" " Gate Assembly ... ..	1	6		0
F2/113	14493	" " Arm Screw ... ..	4			2
SA.2697	SA.2697	" " Assembly ... ..	1	12		0
F2/114	17554	" " Thrust Washer As Req'd				6
F2/115	19257	" " Distance Collar ... ..	1			10
F2/116	19256	" " Spring ... ..	1	3		0
F2/149	11475	" " Washer ... ..	1			1
F2/117	19318	" " Adjusting Plate ... ..	1			10
F2/118	16055	" " " Screw	2			3
F2/119	19253	" " Quadrant ... ..	1	1		6
F2/120	16729/1	" " " Key ... ..	1			3
F2/121	19305	" " " Nut ... ..	1			4
F2/122	19258-5	" " Arm & Pawl Pin ... ..	1	12		0
F2/123	19254	" " Pawl & Circlip ... ..	1	8		0
F2/109	18762/2	" Lever—Foot Change ... ..	1	12		6
F2/151	10617	" " Bolt ... ..	1			6
F2/152	3574	" " " Nut ... ..	1			3
F2/124	19306	" " Rubber ... ..	1			10
F2/125	19307	" Pointer ... ..	1			6
F2/126	19308	" " Union ... ..	1	1		4
F2/127	16227	" " Grease Nipple ... ..	1			4
F2/128	19262	" Plunger Housing ... ..	1	2		8
F2/129	18634	" Plunger ... ..	1			6
F2/130	18635	" " Spring ... ..	1			3
F2/131	18552	Clutch Lever ... ..	1			9
F2/132	18863	" " Adjuster Block ... ..	1			5
F2/133	18549	" " " Screw ... ..	1			3
F2/134	6045	" " " Locknut... ..	1			3
F2/135	18551	" " Pin ... ..	1			3
F2/136	18883	" " " Circlip ... ..	2			2
F2/137	18704	" Cable Nipple ... ..	1			2
F2/138	18929	" " " Split Pin ... ..	1			2
F2/139	3954	" " Adjuster ... ..	1			6
F2/140	6045	" " " Locknut ... ..	1			3
F2/141	18774	" Operating Rod ... ..	1	1		2
F2/142	18775	" " Mushroom ... ..	1	1		6
F2/143	16670	" " Ball—3/16" ... ..	1			3
SA.2631	SA.2631	" Sprocket Assembly ... ..	1	1	4	0
SA.2632	SA.2632	" Front Plate Assembly ... ..	1	4		6
SA.2633	SA.2633	" Back Plate Assembly ... ..	1	13		6
F2/144	18769	" Plate Spring ... ..	6			6
F2/145	18771	" " " Screw ... ..	6			6
F2/148	9308	" " " Washer As Req'd				3
—	5512	Engine Spanner—5/16" x 3/8"	1	2		3
—	5210	" " 7/16" ... ..	1	2		3
—	16579	" Box Spanner ... ..	1	2		3
—	14967	Sparking Plug Spanner ... ..	1	2		3
—	16811	Spanner Tommy Bar ... ..	1			9
F2/147	19067-8	Flywheel Extractor Tool Complete	1	2		6
F2/146	19069	Clutch Extractor Complete ...	1	6		6
—	19430	Head Lamp ... .. To Order	3	10		0
—	19158	Rear Lamp ... ..	"	9		6
—	19401	Battery—6 Volt. 10 Amperes ...	"	1	0	0
—	19431	Rectifier ... ..	"	2	0	0
—	19402A	Electric Horn ... ..	"	16		6
—	19402B	" Push ... ..	"	3		6

SPARE PARTS LIST FOR AMAL CARBURETTER—  
TYPE 223/001.D

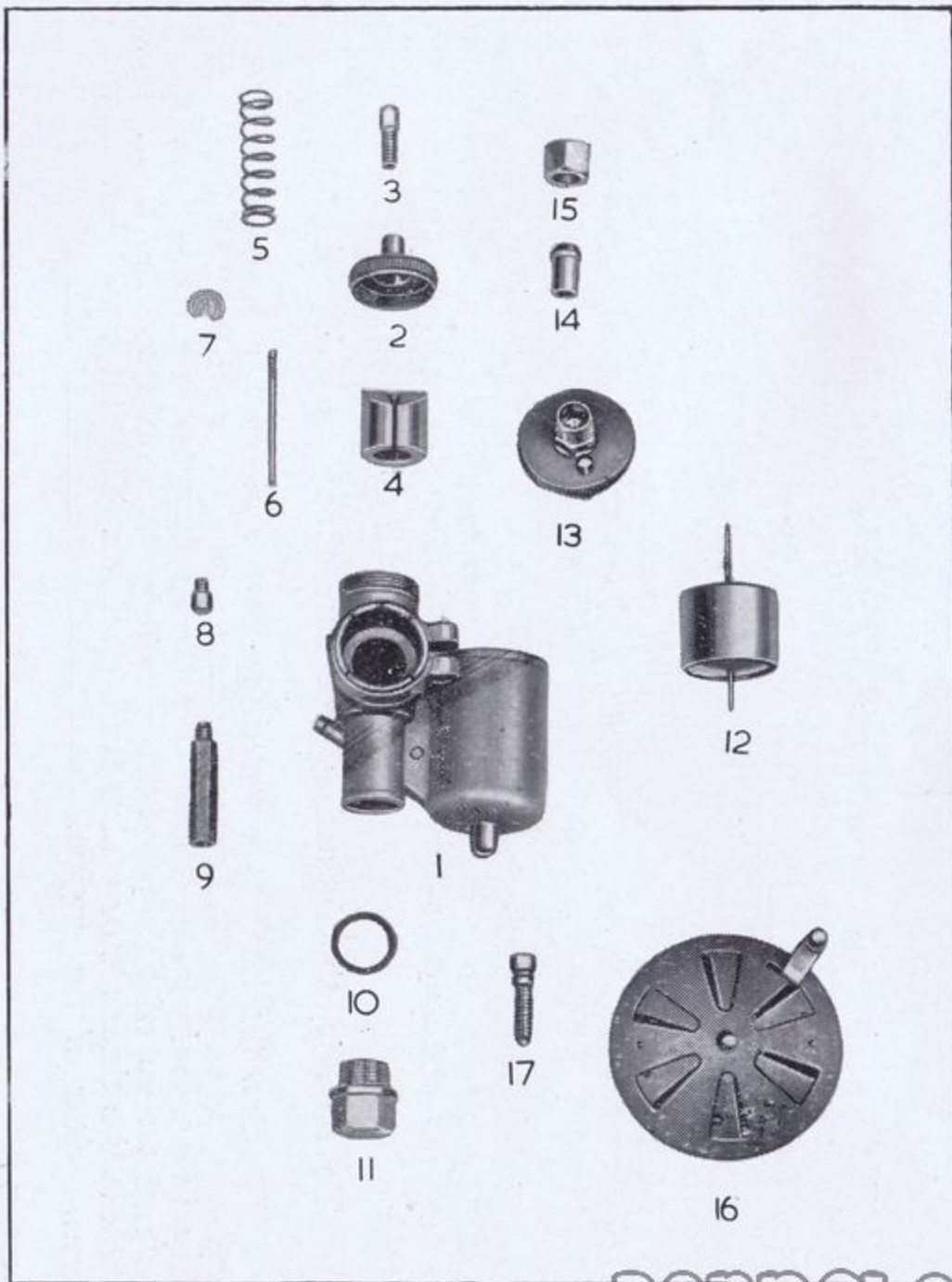


Illustration No.	Part No.	Description	s.	d.	Price
1	223/001	Mixing Chamber Body ... ..	22	6	
2	223/011	Mixing Chamber Top Cap ... ..	2	3	
3	4/035	Cable Adjuster ... ..		6	
4	223/012	Throttle Valve ... ..	4	6	
5	52/057	Throttle Valve Spring ... ..		4	
—	52/060	Throttle Valve Locating Screw ... ..		2	
—	4/036	Throttle Valve Wire Nipple ... ..		2	
6	159/068	Jet Needle ... ..	2	0	
7	161/054	Jet Needle Clip ... ..		2	
9	223/016	Needle Jet ... ..	2	6	
8	4/042	Jet ... ..		8	
—	161/070	Jet Key ... ..	1	6	
11	223/013	Jet Plug ... ..	2	0	
10	223/014	Jet Plug Washer ... ..		2	
—	4/207	Outlet Clip ... ..	2	6	
17	4/048	Outlet Clip Pin ... ..		6	
16	224/100	Air Filter and Strangler combined ... ..	10	0	
—	52/054	Clip Pin for ditto ... ..		3	
13	22/012	Float Chamber Cover, top feed ... ..	3	9	
—	22/021	Tickler ... ..		10	
—	14/032	Tickler spring ... ..		2	
—	14/033	Tickler Cotter ... ..		1	
—	22/022	Tickler Bush ... ..		9	
12	22/016	Float ... ..	3	9	
12	22/014	Float Needle ... ..	1	6	
15	14/042	Petrol Union Nut ... ..		9	
14	14/026	Petrol Union Nipple ... ..		5	
—	23/180	Plug Screw ... ..		2	
—	116/147	Washer for ditto ... ..		1	
—	223/001D	Carburetter less Control and Cable ... ..	41	3	
—	16/117CE	Twist Grip Control ... ..	10	6	
—	16/069	Dummy Grip ... ..	1	6	
—		Inner Wire and Outer Cable 2' 9" ... ..	2	6	

CARBURETTER ILLUSTRATION

**GENERAL MAINTENANCE AND SERVICE INSTRUCTIONS**  
**FOR THE**  
**SERIES 55 MARK 8. AC/DC FLYWHEEL IGNITION**  
**GENERATOR RUNNING MAINTENANCE**

The magneto requires very little maintenance and if the following notes are observed the life of the machine should prove trouble free.

Check and if necessary re-adjust the contacts once every 5,000 miles. (See Service Instructions.)

Occasionally clean the contacts by inserting a dry, smooth piece of paper between them and withdrawing while the contacts are in the closed position. Do not allow the engine to run with oil or petrol on the contacts or they will start to burn and blacken, and if they do, lightly polish with a piece of smooth emery cloth.

Moisten the cam lubricating pad with a few drops of thin oil every 5,000 miles.

Do not run with a faulty or damaged high-tension lead and occasionally clean away mud and dirt from around the H.T. insulator.

If the magneto requires any attention beyond the replacement of contact points and condenser, it is recommended that the complete machine should be sent to us or to an authorised Wipac Service Station. The following information is given for the benefit of those unable to do so :

### **SERVICE INSTRUCTIONS**

#### **Checking the Magneto for Spark**

If the engine fails to start and there is an indication of the magneto causing trouble, the spark can be checked by holding the H.T. lead 3/16" away from a point on the frame. When the engine is kicked over in the usual way, a spark should jump this gap. If no spark is visible, see that the H.T. lead is in good condition and examine the contact breaker.

Make sure there are no metallic particles inside the housing, and that the contacts are perfectly clean, and the contact breaker gap is correct to the recommended setting.

If the contacts are found to be in a burnt or badly pitted condition, a faulty condenser is indicated. If the contact breaker appears to be in order, the stator plate may be removed from the engine complete with coils.

To do this, the following procedure should be adopted.

Unscrew the two cover securing screws and remove the cover, unscrew the cam screw and withdraw the cam free of the shaft. The small cam key in some instances may leave its keyway, so care should be taken to make sure of this point when taking the cam from the shaft. Next remove the three stator plate securing screws. The stator can now be withdrawn clear of the engine.

The leads of the ignition coil should be examined to ensure that there is no break in the wiring. One lead will be found to be joined to a tab which is clamped underneath one of the nuts which anchor the stator coil assembly to the stator housing. If this is in order, check the sleeved lead of the primary ignition coil which is connected to the front of the insulated post, which also carries the condenser lead and contact breaker return spring.

The screw which locks the insulated post in position will be found underneath the low tension coil on the right hand side looking at the inside of the stator housing when in its upright position.

There is, however, no need to remove this screw for any of the investigations recommended in these instructions. The second screw lying at a larger radius and appearing over the top of the coil is the earthing screw for the No. 2 terminal on the front of the machine.

If the leads joined to the insulated post are in order and firmly clamped and the tags not earthing in any way, the ignition coil should be in working order. Should it be necessary to completely remove the stator plate entirely, the low and high tension leads should be freed from the insulated terminal boards on the front of the unit and the plugs respectively, the former by the loosening off of the grub screws and withdrawing the low tension leads which are coloured through the rubber insulator. The stator plate assembly should then be entirely free of the engine.

In the unlikely event of the H.T. insulation of the coil breaking down, provided this is not internal, it should be possible to detect signs of charring on the binding tape of the coil. If the absence of spark is due to tracking, track burns may be visible on the insulator gasket.

### **Replacement of Ignition Coil**

The removal of the stator coil assembly is effected by first disconnecting the ignition lead from the coil, then freeing the white, red and green low tension leads from the terminals marked 3, 1 and 4 respectively, and unscrewing the two clamp nuts. The live lead of the primary winding of the ignition coil must then be disconnected from the insulated post by removing the securing screw. The stator coil assembly may then be gently eased off the two stator plate studs.

In order to slide the ignition coil from the iron limb, it is necessary to straighten the small brass tab which will be found on the side of the coil which faces the stator housing. If the coil is grasped firmly in one hand with the fingers under the insulator gasket and on either side of the core, it may be quite easily pulled off.

To refit the ignition coil proceed as follows :

- (a) Hold the coil in the left hand with the brass contact pointing away from the line of vision and the lead wires projecting downwards from the underside, and drop the leads through the rectangular hole in the insulating gasket, the extended end of which must point in the same direction as the coil tab.

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- (b) With the other hand, push the coil core through the coil, making sure that the brass locking tab rivetted to the iron is on the same side as the coil contact. Drive the fibre wedge provided in between the core and the coil, on the same side as the locking tab and bend over the tab.
- (c) Replace the stator coil assembly in position on the stator plate and before pushing right down on the studs, bring the sleeved low tension lead of the ignition coil inside the base of the right hand stator core stud. This keeps the lead clear of the flywheel rotor. Pass the low tension leads through to the front of the unit. Note also that none of the coil leads become clamped in between the stator and the housing.
- (d) Press the core down firmly and tighten down the two clamp nuts anchoring the ignition coil earth lead tab underneath the left hand nut.
- (e) Reconnect the sleeved ignition coil lead to the insulated post together with the condenser lead tab and the contact breaker return spring. Firmly screw home the securing screw.
- (f) Reconnect the ignition lead to the H.T. terminal of the ignition coil, and reconnect the low tension leads to the appropriate terminals as follows :
- The white lead to No. 3, green to No. 4 and red lead to No. 1 terminal on the front of the unit.
- (g) Make sure that all tabs are clean and all clamped connections are tight.

**IMPORTANT.**—Bend all stray loops of wire to behind the radius of the stator to ensure they do not foul the rim of the flywheel rotor.

### Removal of Condenser

To replace the condenser, remove the condenser terminal nut and free the condenser lead. Unscrew the condenser bracket fixing screw and withdraw the condenser.

### Adjustment and Replacement of Breaker Points

The only adjustable part of the magneto is the breaker plate which provides for the setting of the breaker points. To set these points proceed as follows :

Turn the engine over until the breaker points are fully open and insert the feeler gauge. Slacken off the locking screw which is to be found immediately above the points, and if the gauge is tight, adjust the fixed contact plate, by means of a suitable screw driver engaged in the recess provided, in an anti-clockwise direction until the correct setting of 0.015" is obtained. Tighten up the fixed contact plate locking screw. The breaker point setting should only be adjusted in the manner described and at no time should the fixed contact platform be bent to provide adjustment. The moving contact is integral with the breaker arm. If the points need replacement it is recommended that both fixed and moving points be replaced at the same time.

When assembling the moulded breaker arm to the magneto it is necessary to lightly prime the pivot pin with oil or soft grease, and an occasional priming throughout its life will be found to be advantageous.

Care must be taken to put in the correct number of thin spacing washers behind the breaker arm in order to bring the contacts in line with one another. The free end of the contact breaker spring is then anchored to the insulated terminal post with a screw and shake-proof washer. The condenser and primary ignition coil sleeved lead is secured by the same screw and washer. Place one of the spacing washers over the pivot on the outer side of the breaker arm and insert the spring clip in its groove.

### **The Low Tension Coils**

These coils are robust in character and are most unlikely to develop fault. In the event of a fault developing in the coil group, the removal more so than the replacement, of the coil or coils may not be an easy operation, and it is likely that further damage to the windings will occur during the removal process. It is advisable before any steps are taken to remove the low tension coils, that the coils be thoroughly checked and proved beyond doubt to be at fault. The coils are secured to the iron core by means of a varnish adherent assisted by a fibre wedge. Paper formers are used, so damage to the windings can occur when being taken off.

In view of this, it is strongly recommended that should a fault occur in the low tension coil group, that application be made for a coil group replacement already secured to the iron core.

The ignition coil can be removed from the stator assembly as previously described and replaced on the new stator core and coil group replacement. Having completed the coil assembly, proceed as instructed under paragraph "Replacement of Ignition Coil."

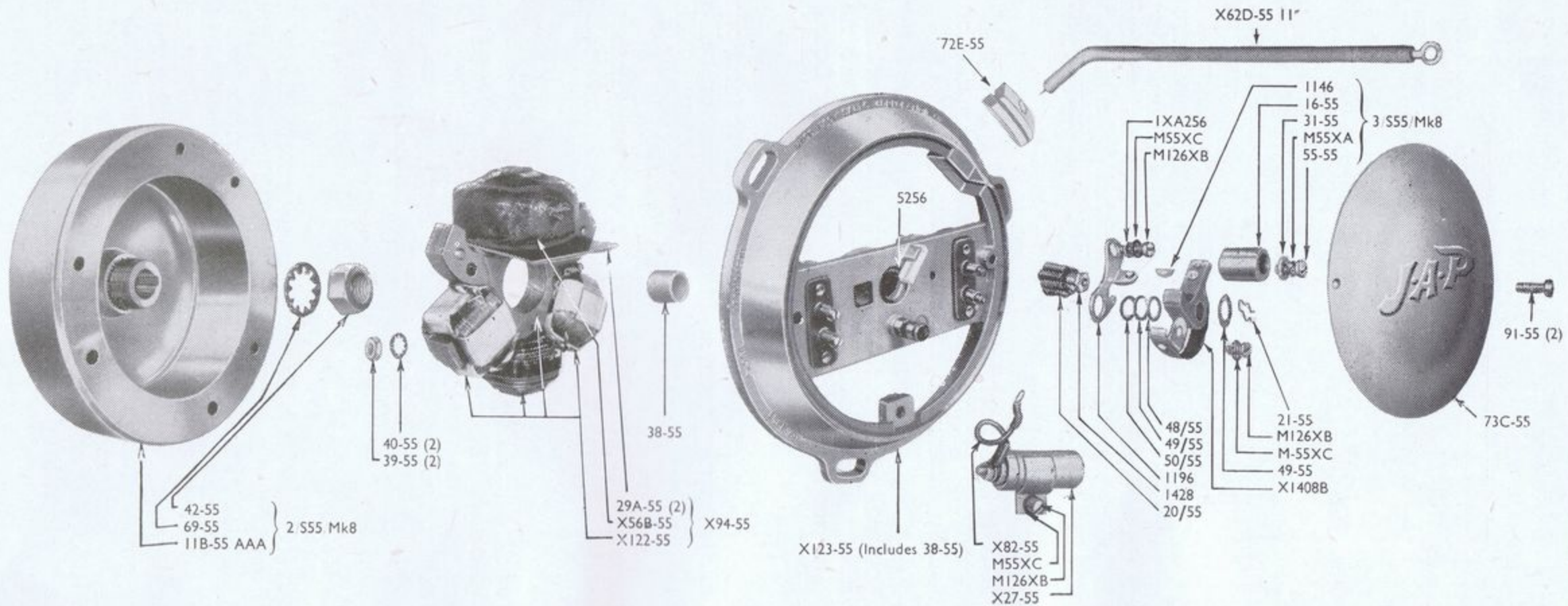
Care should be taken to see that the wire connections face toward the front of the machine when assembling the stator coil assembly into the housing.

Any wire loops or wires that could come into contact with the flywheel rotor should be pushed back clear to prevent any fouling or electrical breakdown.

Finally, when connecting the low tension leads of the frame wiring to the magneto generator, make sure that the white, red and green leads are placed on the machine terminals already carrying that colour of lead. This is part of a colour coding scheme, the complete scheme of which is given with the wiring diagram, on page 3 of cover.

### **The Flywheel Rotor**

The robust construction of the flywheel rotor reduces the possibility of any faults on this unit to a minimum. The three powerful magnet inserts are cast in the rim of the rotor and it is not possible to demagnetise them by ordinary usage. No keepers are necessary when the magneto housing and stator are removed. The boss of the flywheel rotor is located on the crankshaft by a keyed taper and locked by a nut and shakeproof washer. It is unnecessary to remove the rotor unless at any time the engine has to be dismantled. A thread cut on the outside of the rotor boss enables it to be removed by the use of a special extractor. When replacing, the rotor must be perfectly clean inside and out.



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MAGNETO ASSEMBLY ILLUSTRATION

**SERIES 55 MARK 8 AC/DC IGNITION GENERATOR**

**SPARE PARTS LIST**

Part No.	Qty.	Description	Price		
			£	s.	d.
1/S55/MK8	1	Stator Plate Unit	4	18	6
2/S55/MK8	1	Flywheel Unit	3	1	6
3/S55/MK8	1	Cam Unit (CW Parallel bore)		5	9
11B-55AAA	1	Flywheel	3	0	0
16-55	1	Breaker Cam (Parallel fitting)		5	6
20-55	1	Breaker Arm Spring Block		1	8
21-55	1	Breaker Arm Lock			2
X27-55	1	Condenser Group		7	0
29A-55	2	H.T. Coil Gasket			4
M-31X	1	Breaker Arm Spring Block Fixing Screw			2
31-55	1	Cam Screw Lock Ring			2
38-55	1	Bearing Bush		1	6
39-55	2	Core Stud Nut			2
40-55	2	Core Stud Nut Lock Washer			2
42-55	1	Flywheel Locking Nut		1	6
48-55	1	Breaker Arm Washer (1/32" thick)			2
49-55	1	Breaker Arm Washer (.020" thick)			2
50-55	1	Breaker Arm Shim (.005" thick)			2
51-55	1	Breaker Arm Insulating Washer			2
52-55	1	Breaker Arm Spring Block Washer (steel)			2
53-55	1	Fixed Contact Screw Nut			2
53-55	1	Condenser Screw Fixing Nut			2
53-55	2	Breaker Cover Screw Fixing Nut			2
55-55	1	Cam Screw			2
M-55XA	1	Cam Screw Lock Washer			2
M-55XC	1	Breaker Arm Bracket Screw Lock Washer			2
M-55XC	1	Breaker Arm Spring Block Fixing Screw Lock Washer			2
M-55XC	1	Fixed Contact Screw Lock Washer			2
X56B-55	1	H.T. Coil Group		15	6
X62D-55	1	H.T. Lead Wire Group 11"		2	2
69-55	1	Flywheel Nut Lock Washer			2
72E-55	1	Lead Outlet Rubber Cover		2	4
73C-55	1	Contact Breaker Cover		3	6
X82-55	1	Condenser to Contact Lead Assembly Contact Breaker Cover Fixing Screw			9
91-55	2	Ignition Coil, Lighting Coils and Core Unit		2	6
X94-55	1			0	
97-55	4	Junction Board Grub Screw			2
X122-55	1	Lighting Coils and Core Assembly		1	10
X123-55	1	Stator Plate Assembly		18	9
M-126XB	1	Condenser Fixing Screw			2
M-126XB	1	Fixed Contact Screw			2
M-126XB	1	Breaker Arm Spring Screw			2
IXA-256	1	Fixed Contact Screw Washer			2
1146	1	Cam Key			2
1196	1	Fixed Contact		3	0
X1408B	1	Breaker Arm Group		6	6
1428	1	Breaker Arm Spring Block Screw Nut			2
2264A	1	Coil Wedge 1/16"			2
2264B	1	Coil Wedge 3/64"			2
5256	1	Cam Oil Pad			2

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## Guarantee

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WE GUARANTEE, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship; but this guarantee is to extend and be in force for six months only from date of purchase, and the damages for which we make ourselves responsible under this guarantee are limited to the replacement of any part which may have proved defective.

WE UNDERTAKE, subject to the conditions mentioned below, to make good at any time within six months any defects in these respects. As equipment is easily liable to derangement by neglect or misuse, this guarantee does not apply to defects caused by wear-and-tear, misuse or neglect.

### CONDITIONS OF GUARANTEE.

If an alleged defective part should be found in our equipment, it must be sent to us, carriage paid, and accompanied by an intimation from the sender that he desires to have it replaced free of charge, under our guarantee, stating clearly the nature of the fault, and he must also furnish us at the same time with the number of the Engine, the name of the Agent from whom he purchased, and the date of the purchase. Failing compliance with the above, no notice will be taken of anything which may arrive, but such articles will lie here at the risk of the sender and this guarantee, or any implied guarantee, shall not be enforceable.

### COMPLAINT.

In all cases of complaint the full nature of the complaint must be stated.

PILOT LAMP BULB 6V .45A 2.7W FOR DC  
2.5V .2A 5W FOR AC

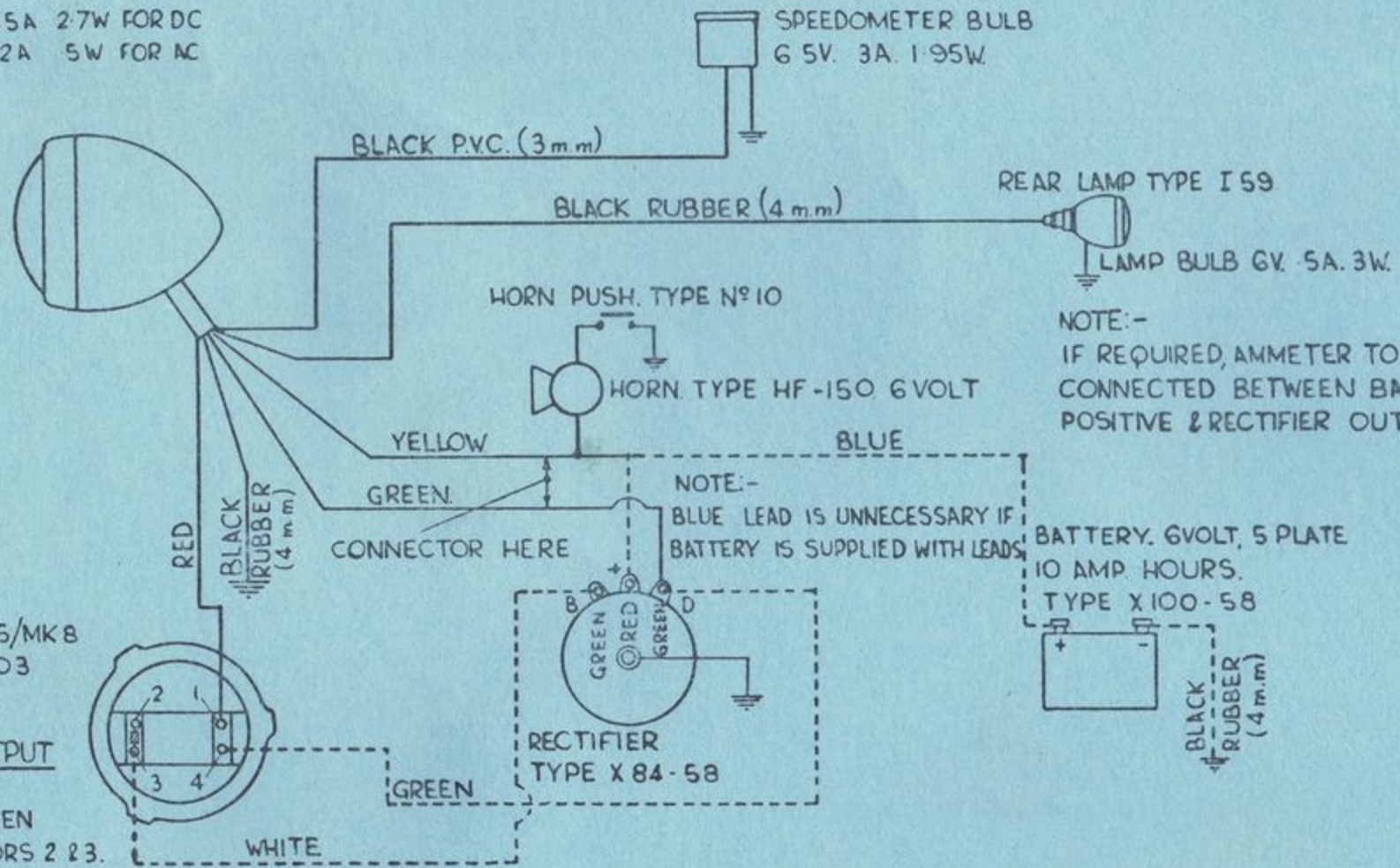
SPEEDOMETER BULB  
6.5V. 3A. 1.95W

HEADLAMP BULB  
DOUBLE FILAMENT  
6V 24W 24W

5 1/4 GENMAG TYPE S55/MK8  
SPECIFICATION IG 1103

NOTE:- TO CONVERT TO DC OUTPUT

- (1) REMOVE EARTH LINK BETWEEN TERMINALS ON ALTERNATORS 2 & 3.
- (2) REMOVE CONNECTOR BETWEEN GREEN & YELLOW LEADS AND RECONNECT THESE LEADS TO RECTIFIER.
- (3) CONNECT NO 3 TERMINAL OF ALTERNATOR TO BRIDGE POINT 'B' ON RECTIFIER BY A WHITE LEAD.
- (4) CONNECT NO 4 TERMINAL OF ALTERNATOR TO BRIDGE POINT 'D' ON RECTIFIER BY A GREEN LEAD.
- (5) CONNECT BATTERY NEGATIVE TO EARTH.
- (6) CONNECT BATTERY POSITIVE TO RECTIFIER OUTPUT.
- (7) REPLACE 2.5V. .2A. 5W. PILOT LAMP BULB WITH A 6V. .45A. 2.7W BULB.
- (8) REMOVE 3 VOLT BATTERY FROM HEADLAMP IF FITTED.



NOTE:-  
IF REQUIRED, AMMETER TO BE  
CONNECTED BETWEEN BATTERY  
POSITIVE & RECTIFIER OUTPUT

NOTE:-  
BLUE LEAD IS UNNECESSARY IF  
BATTERY IS SUPPLIED WITH LEADS

BATTERY HORN AND PUSH ARE NOT  
SUPPLIED UNLESS SPECIALLY ORDERED.  
SPEEDOMETER CANNOT BE SUPPLIED BY J.A.P.