



**INSTRUCTION MANUAL**

**AND**

**SPARE PARTS LIST**

**FOR THE**

**ASPIN POWER CHAIN SAW**

**MODEL P56**

**F. H. ASPIN & CO. LTD, ELTON, BURY, LANCS, ENGLAND**

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## OPERATION

### 1. GENERAL INFORMATION

This instruction book has been prepared so that each operator can familiarise himself with the new Aspin Power Chain Saw. A thorough understanding will help to maintain maximum efficiency and continuous service. This book contains general information on the operation and maintenance of the power unit and the chains and guide bars. The engine is an Aspin 132 c.c. Loop Scavenge, single cylinder, air cooled, 2-cycle petrol engine, developing 5 B.H.P. at 4500 R.P.M. The saw chain speed is approximately 1100 ft/min. The petrol/oil mixture is 15:1.

### 2. PREPARING SAW FOR USE

#### a) Unpacking

The saw is shipped partially disassembled. A kit of tools and replacement chain links are included with each saw.

#### b) Assembly of Saw (see Fig 1.)

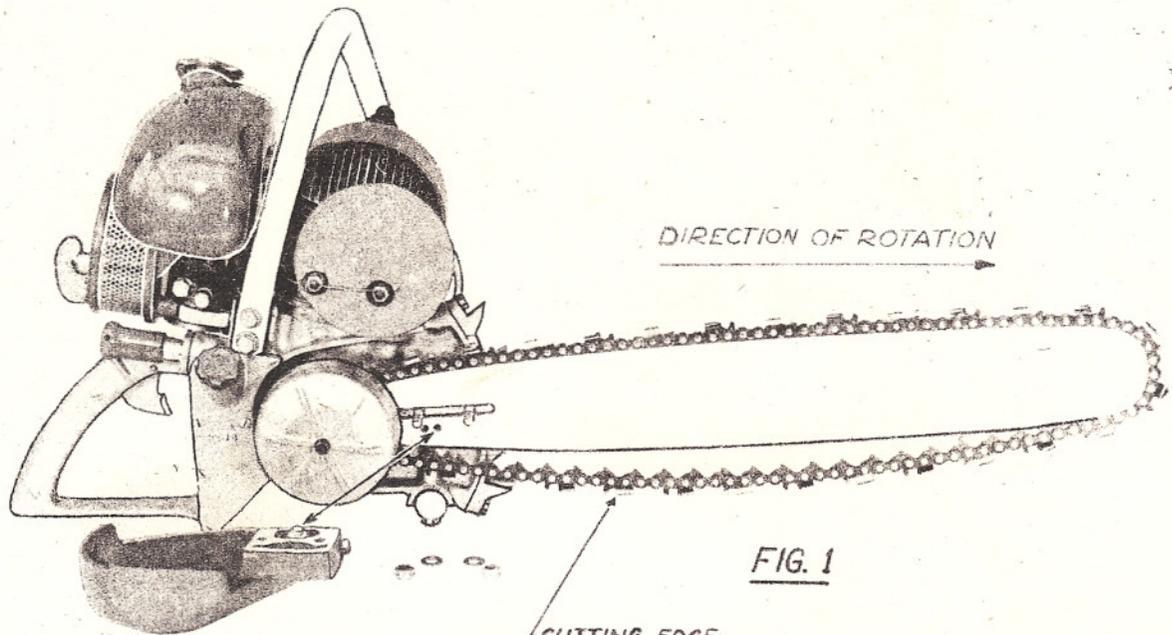
To assemble, remove the sprocket guard and slip the slotted end of the guide bar over the two guide bar locating studs. Fit the chain round the sprocket which is behind the automatic clutch, and then round the guide bar starting at the nose end first. The chain sprocket rotates in a clockwise direction when looking on the sprocket side of the saw. Ensure that the cutting edge of the chain runs towards the bottom of the sprocket.

Next place the sprocket guard over the two locating studs and ensure that the chain adjusting peg enters the first of the two holes in the guide bar. Two holes are provided here to give extra adjustment in the event of the chain or guide bar wearing. Screw the two 5/16" U.N.F. nuts on to the guide bar locating studs and tighten down sufficiently to just nip the sprocket guard.

#### c) Adjusting the Chain (see Fig 2.)

To adjust the tension of the chain, turn the adjusting screw which is situated in the end of the sprocket guard in a clockwise direction until the chain can be pulled clear of the guide bar midway along its length.

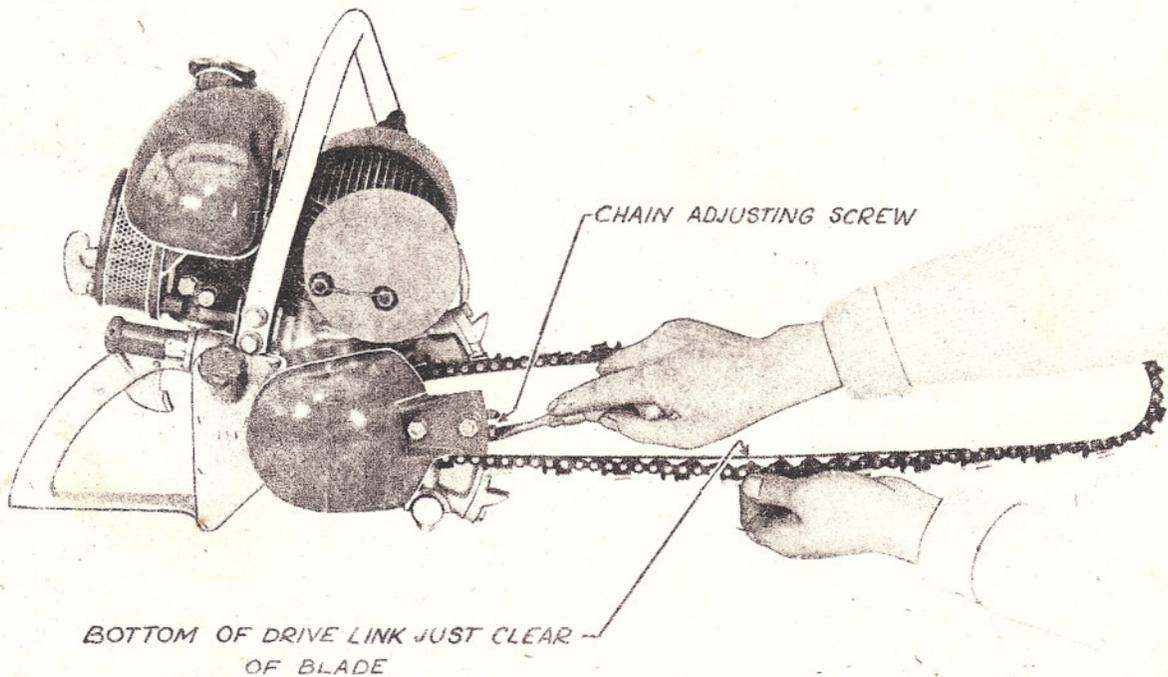
NOTE: Keep spectators at a safe distance from sawing operations. Do not allow the point of the blade to come into contact with logs or branches. Check saw chain tension regularly and adjust chain if necessary. See that the log being cut is free from nails, wire, etc., as these may cause serious damage to the chain. Operate the chain oil pump at frequent intervals during all cutting operations.



DIRECTION OF ROTATION

FIG. 1

CUTTING EDGE  
TOWARDS SPROCKET



CHAIN ADJUSTING SCREW

BOTTOM OF DRIVE LINK JUST CLEAR  
OF BLADE

FIG. 2

d) Chain Lubrication

Fill the chain oil tank with Viscosity 30 oil. Operation of the pump forces oil from the oil tank on to the chain via an oil gallery in the crankcase and an oilway in the guide bar. It is necessary to operate the chain oil pump regularly during cutting operations to ensure proper lubrication to the chain and guide bar.

e) Mixing Fuel

CAUTION: Always mix the petrol and oil thoroughly before pouring into fuel tank. Mix the fuel as follows :-

Four 1 pint of a good quality Viscosity 30 oil into a 2 gallon can, then fill the can with petrol and shake well.

Recommended Oils

Mobile A  
Castrol XL  
Essolube 30  
Shell X100  
Shell Rotella

ON NO ACCOUNT SHOULD  
DIESEL OIL BE USED IN  
THE PETROL MIXTURE.

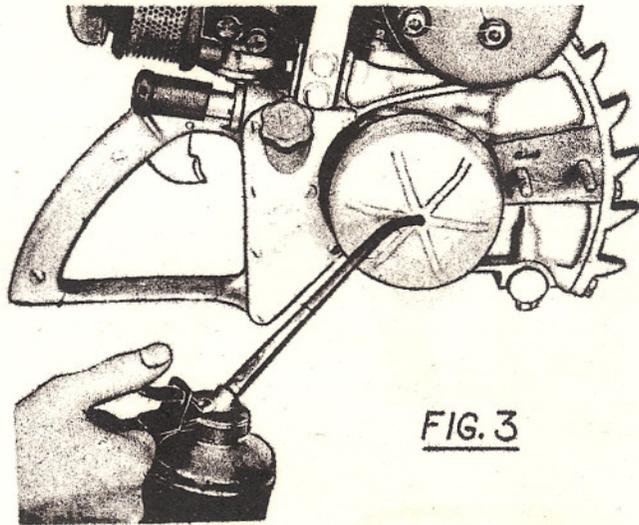


FIG. 3

f) Clutch Lubrication (Fig. 3)

It is important that the oil level in the clutch be maintained, and this point should be checked every 50

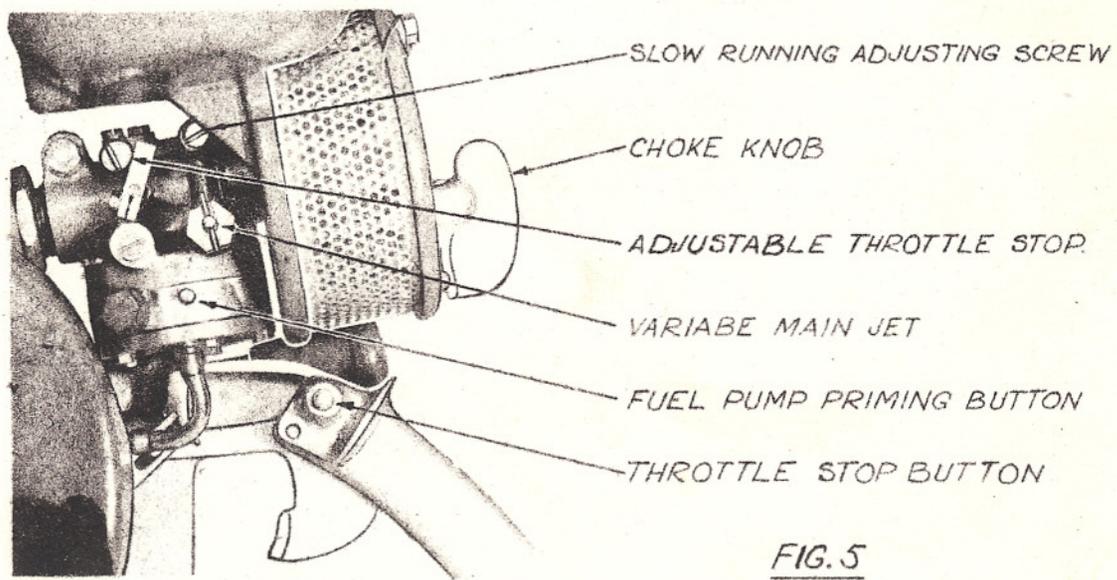
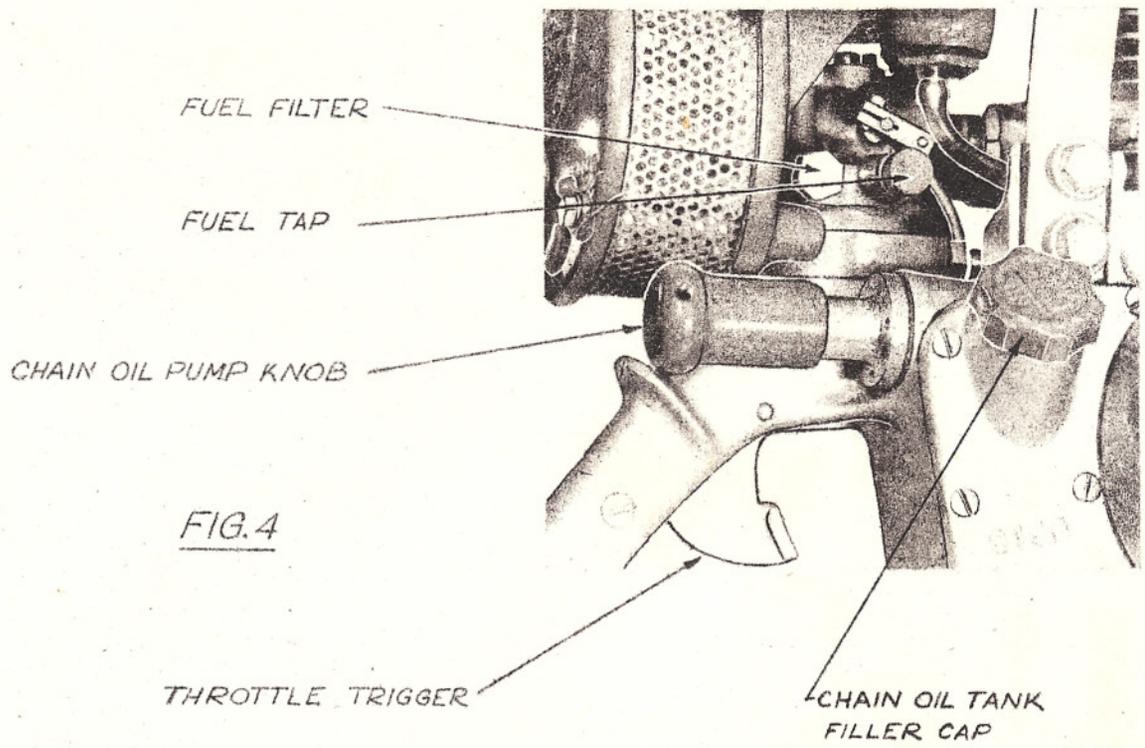
hours running time. To do this, the Alen Screw in the centre of the clutch housing must be removed and the saw tipped on its side. If no oil runs out, put a few shots of Viscosity 30 oil in, with an oil can. Care should be taken not to over fill as the clutch cover will leak due to oil pressure being built up at high engine speeds.

3. STARTING AND STOPPING

a) Starting (see Figs. 4 & 5)

Assuming an empty tank and fuel system

- (1) Fill tank with fuel mixture as indicated above.
- (2) Pull fuel tap to "ON" position.
- (3) Depress the priming button firmly and slowly to its fullest extent, 12 - 14 times.
- (4) Engage the throttle stop button on the lefthand side of the rear handle, by depressing the throttle trigger fully, pushing in the button, and allowing the trigger to return to the button. This gives sufficient throttle opening to start the engine and it will automatically disengage when the throttle trigger is operated.



- (5) With saw on ground, right foot in rear handle and left hand bearing down firmly on the frame, pull the starter slowly until the engine is felt to be against compression. Return the starter handle to its static position and pull gently until the starter re-engages. A firm long pull will then start the engine. (Fig. 6). If the engine fails to start after a few pulls it means that the engine is either too rich (due to too much use of the priming button) or too weak (due to too little use of the priming button).

It is up to the operator to decide which of these cases is so. This is quite easily decided by watching the exhaust silencer while pulling the starter. If it is too rich, a slight mist will be seen coming from the silencer. In this case, turn off the fuel, set the throttle on its stop and pull starter until the engine starts. This usually takes 4 - 5 pulls. As soon as it starts, turn on the fuel again. If it is too weak there will be no sign of any fuel mist coming from the silencer. In this case, depress the priming button once more and the engine will start after one or two pulls.

Assuming the tank and fuel system to be full  
(e.g. when the saw has been standing all night)

- (1) Turn on fuel.
- (2) Depress priming button three times to fullest extent.
- (3) Set throttle trigger on throttle stop.
- (4) Proceed as in Section (5) above.

If engine runs out of fuel whilst cutting, fill up tank and proceed as for instruction for empty system.

If the engine stops whilst ticking over or when cutting, depress the priming pump button once and saw will start.

#### Setting Variable Jets

This is done at the factory before the engine is despatched but should any variation be necessary due to unusual climatic conditions, proceed as in the Section headed CARBURETTOR (Section 11).

#### b) Stopping

At the end of each day's operation, close fuel tap and allow engine to run until it stops. This uses up all the fuel in the diaphragm chamber of the carburettor and permits easy starting the following day, as there is no fear of the oil settling out of fuel. For stops during a day's cutting, press the stop button which is situated behind the magneto back plate. If the saw is to be idle for more than a month, stop the machine as you would at the end of the day's run and empty the fuel tank completely. This will prevent the oil separating out from the petrol/oil mixture and forming a gum which will plug up the carburettor.

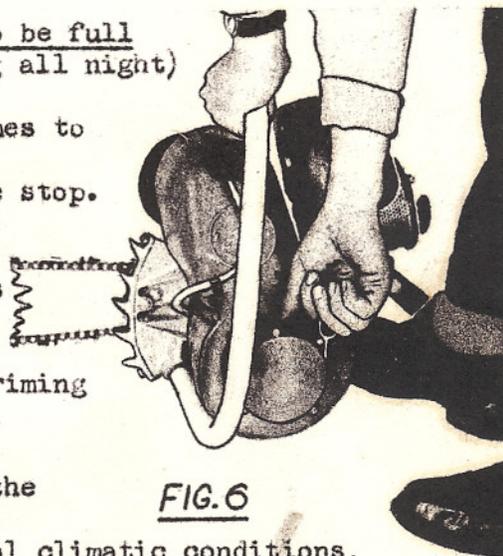


FIG. 6

#### 4. OPERATING SAW

##### a) General

This saw is fitted with an Aspin "All Position" carburettor, which as its name implies, will operate at any angle. It is not necessary therefore to turn the carburettor, fuel tank or guide bar and chain when changing from the cross-cutting to the felling position. On all felling and cross-cutting operations, the bark grips should be placed against the work, since the chain travel will otherwise pull the engine end of the saw against the wood being cut.

The Operator's judgment should dictate the position in which the saw is to be used during the various operations. Stresses in the wood should be analysed by the operator to determine whether the cross-cutting operation should be carried out from the top side or the under side of the tree.

Use a wedge in felling large trees or in heavy cross-cutting operations where there is a danger of pinching the saw.

Operate the chain oil pump at frequent intervals during all cutting operations, to avoid unnecessary chain and guide bar wear.

Open throttle, and when the chain is running at full speed, start the cut. The throttle can be held wide open whilst the cut is being made. The cut should be made by pivoting the saw round the bark grips. When the saw has been pivoted to the extent that it is no longer comfortable to manoeuvre, lower the engine end and re-engage the bark grips (see Fig. 9).

##### b) Felling

In felling trees smaller in diameter than the guide bar length, a notch should be cut about one-quarter of the way through the tree on the side to which it is going to fall. On completing the notch, the bark grip should be engaged near the corner of the notch about 2 inches above the horizontal cut. By pivoting the saw round the bark grips, the guide bar will finish parallel to the notch leaving a small step for the tree to pivot on as it falls (see Fig. 7).

In felling trees larger in diameter than the length of the guide bar the tree should be firstly notched for directional felling. The procedure from then on is clearly shown in Fig. 8. The felling is accomplished by the series of cuts shown. It is very important to make the first cut in the correct position relative to the notch.

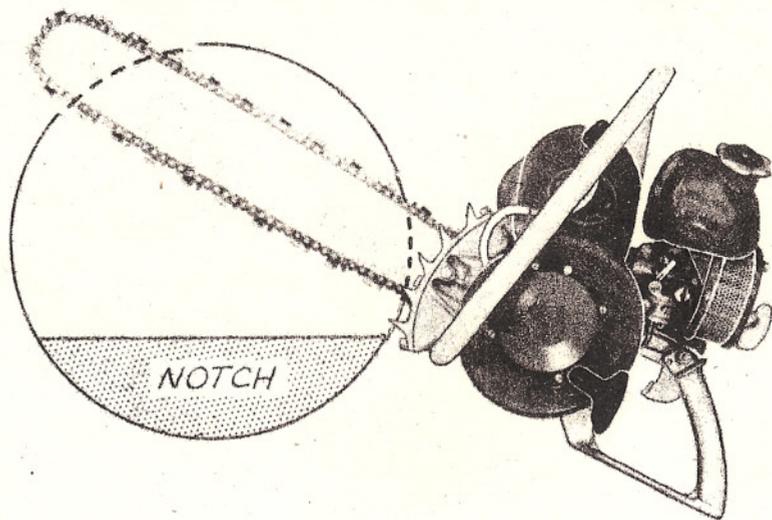


FIG. 7

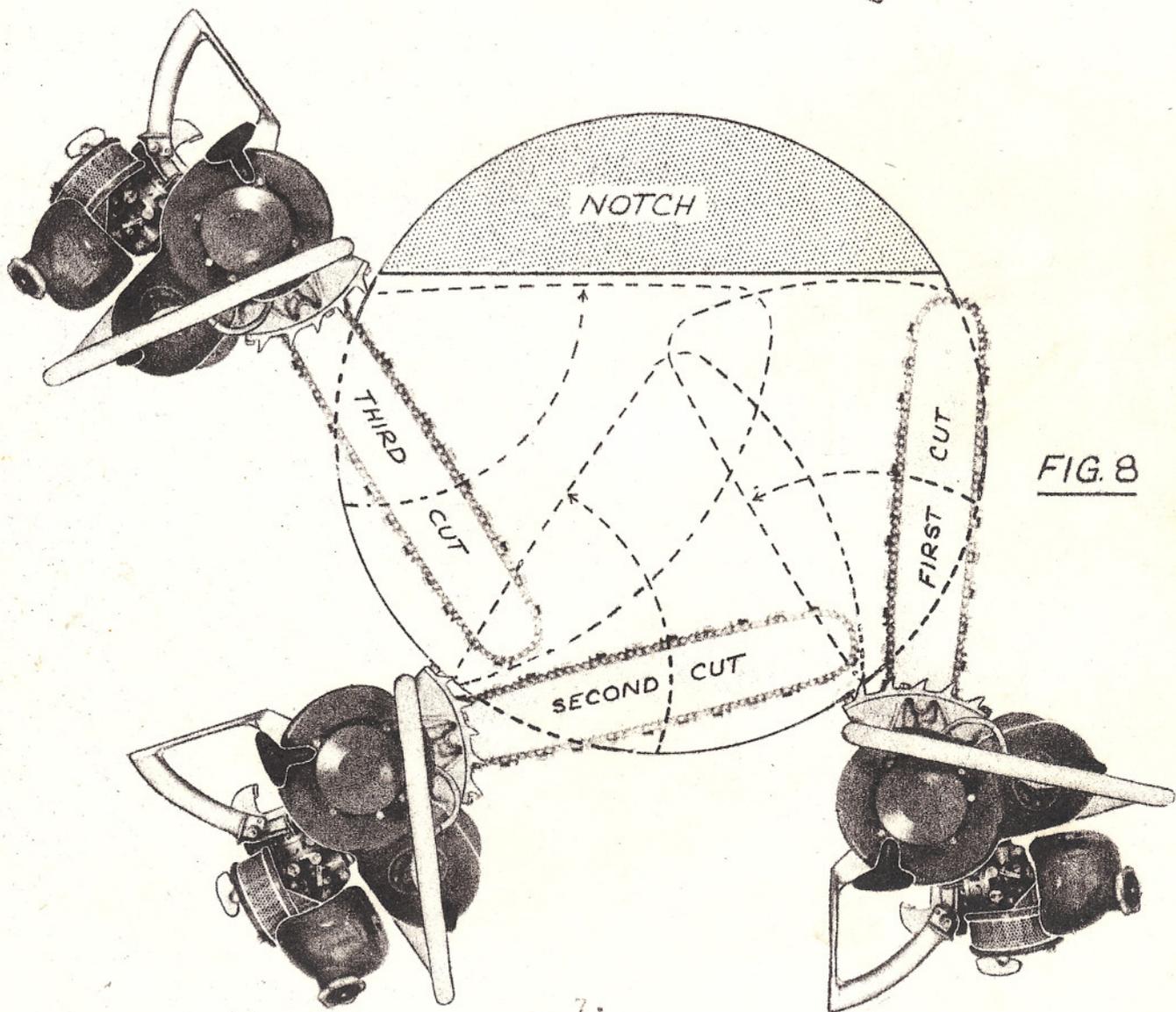
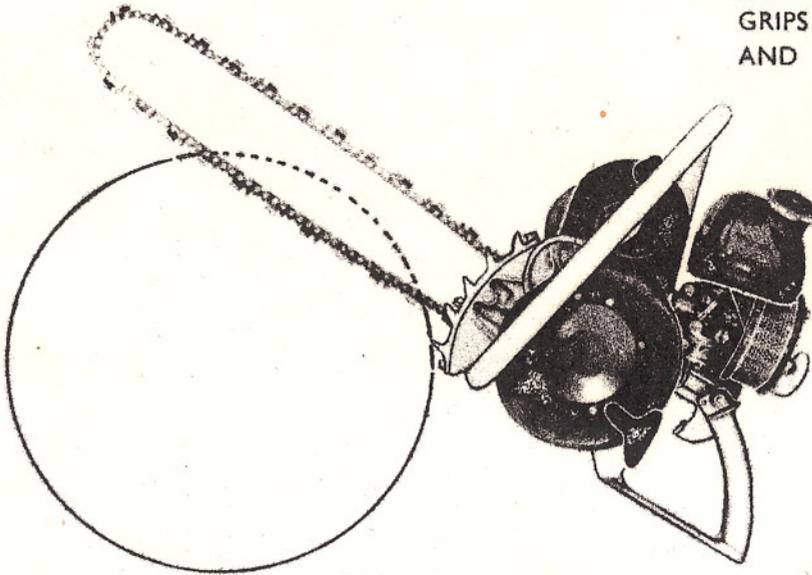


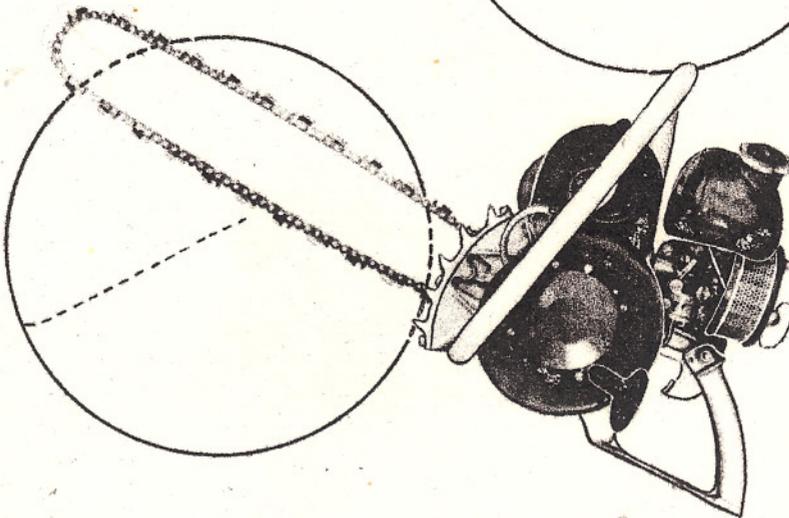
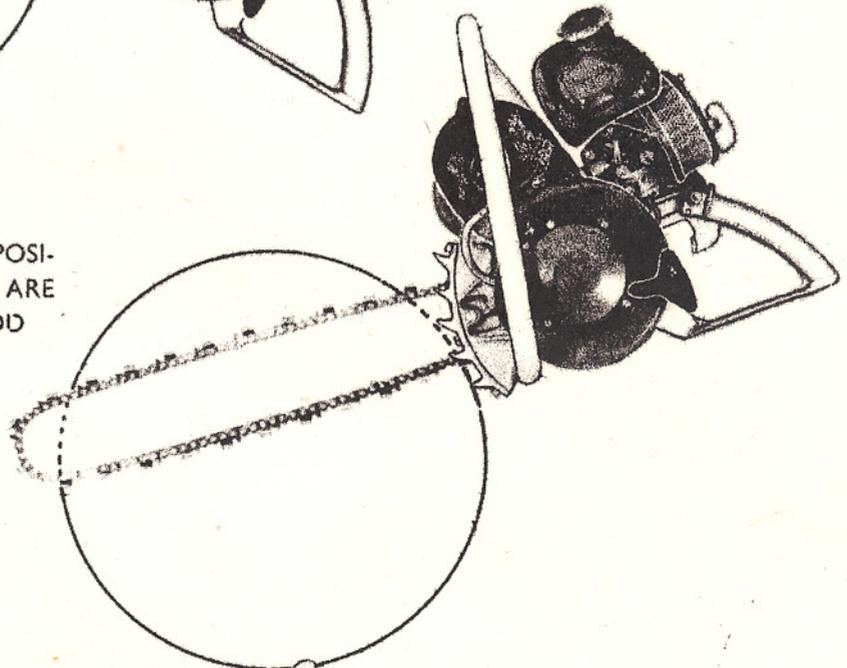
FIG. 8

c) Cross Cutting (see Fig. 9)

SAW STARTING TO CUT BARK GRIPS HAVE ENGAGED IN WOOD AND ACT AS PIVOT FOR SAW



SAW PIVOTED TO THIS POSITION THEN BARK GRIPS ARE DISENGAGED FROM WOOD



SAW PUSHED DOWN AT ENGINE END AND BARK GRIPS RE-ENGAGED SAW THEN PIVOTED TO COMPLETE CUT

FIG. 9

d) Safety Precautions

It is very important to observe the following safety precautions whenever the chain saw is being used.

- (1) Always keep the hands on the frame and rear handle when cutting.
- (2) Always stop the engine before making any adjustments to the engine or saw chain.
- (3) Remove all tree limbs before starting cross-cutting operations, in order to get full pivot action of saw. Saw will kick back if the tip of the chain comes into contact with other logs or branches.
- (4) Keep spectators at a safe distance from sawing operation.
- (5) Check saw chain tension regularly and adjust chain if necessary.
- (6) Operators must not wear loose fitting gloves, ties, shop coats or other loose clothing.
- (7) Because of the hazard of a tree "kicking back" when it is felled, it should be decided before the felling cut is made, where each man should proceed to when the tree begins to fall.
- (8) Never carry a running saw - STOP ENGINE - PLAY SAFE.

5. CHAIN AND GUIDE BAR ADJUSTMENT

Chain Tension (see Fig. 2)

- (1) The chain must be kept tight enough to keep it on the guide bar and sprocket, but not so tight that it locks on the guide bar.
- (2) To adjust the chain tension, loosen the two 5/16" U.N.F. nuts on the sprocket guard about one turn. Adjustment is then made by turning the adjusting screw in the end of the sprocket guard in a clock-wise direction to tighten the chain and an anti-clockwise direction to loosen it. When the tension is correct, retighten the two 5/16" U.N.F. nuts holding the sprocket guard.
- (3) If when the chain is pulled away from the guide bar half way along its length, the bottom of a drive link is just clear of the edge of the blade, the chain tension is correct.

6. CHAIN REPAIRS

The new Aspin Power Chain Saw is fitted with an Aspin made Oregon Chipper chain of 7/16" pitch. This general purpose chain is designed and manufactured for efficient cutting on any make of saw in all types of wood. Any new Aspin-Oregon chain is ready for use when it is taken from the shipping carton. However, because there is a variation in species of timber (softwood, hardwood, frozen wood) it is necessary to make certain changes in filing and maintenance procedure in order to obtain maximum performance under specific conditions from any chain including Aspin-Oregon chain. The following suggestions are therefore important.

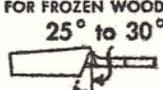
TOP PLATE ANGLE



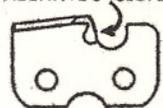
SIDE PLATE ANGLE



TOP PLATE ANGLE FOR FROZEN WOOD



SIDE PLATE ANGLE FOR FROZEN WOOD  
NEGATIVE 5° SLOPE



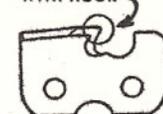
THIN OR FEATHERED  
TOP PLATE



DEPTH GAUGE  
SETTING



SIDE PLATE  
WITH HOOK



#### a) Cutter Angles

For General Use. The top plate angle should be  $35^\circ$ . The side plate angle should be maintained at a  $90^\circ$  angle from the base of the cutter or absolutely straight up and down or vertical.

For Hardwood or Frozen Wood. A smaller top plate angle of  $25^\circ$  to  $30^\circ$  and a negative or back sloping side plate angle of  $5^\circ$  are recommended.

Avoid "Feathering" Top Plates. That is, extremely thin cutting edges along the top plate angle.

#### b) Depth Gauge Setting

Correct depth gauge setting is determined by the type of wood to be cut, and the horsepower of the saw.

Lowering Depth Gauges. Note gauge setting on chain new from factory. Lower depth gauges gradually to depth at which excessive downward pressure on the guide bar will slow the engine or cause clutch slip. Adjustment to the depth controls should always be made AFTER the chain has been sharpened.

Uniformity. Depth gauges should be lowered uniformly. These can be checked with an Aspin-Oregon "GAUGIT".

#### c) Hook

When filing cutters take special care to avoid filing a "hook" in the side plate of the cutters.

#### d) Correct Parts

Install correct parts for the specific type of chain. For example do not install  $\frac{1}{2}$ " pitch chain parts in a  $\frac{7}{16}$ " pitch chain. (Pitch is determined by the distance between rivet centres).

#### e) Sequence and Direction

Take care to install parts in proper sequence. Be careful not to install parts backwards.

#### f) New Parts

Use new parts to repair chain. Old parts are often damaged or badly worn and subject to failure.

g) New Cutters

Before installing new cutters, file down the bottoms to compensate for wear in used cutters in the chain. After installing new cutters, reduce the lengths of their top plates so that they are comparable to the lengths of used cutters in the chain. Adjust depth gauges of new cutters to heights comparable to those on used cutters.

h) Tie Straps

Before installing new tie straps, file down the bottoms to compensate for wear on other tie straps in the chain. CAUTION: each tie strap has an outside and an inside. Always install the flat side of a tie strap (the side which is not countersunk or bevelled) toward the centre of the chain.

i) Rivets

Always use new rivets when repairing a chain. To avoid fracturing a new rivet being installed, peen it gently with a ball peen hammer. A SMASHED RIVET IS A FRACTURED RIVET.

NOTE: All sharpening is carried out by filing the front edge of the cutter only, with a  $\frac{1}{4}$ " diameter round file. The only other adjustment necessary is to the depth controls which are lowered by filing the tops with a smooth black file. When doing this, be sure to round off the leading edge of the depth control.

7. COMMON CHAIN COMPLAINTS

a) Chain Runs Off - Causes

- (1) Cutters are predominantly longer on one side of the chain than the other.
- (2) Cutters are sharper on one side of the chain than the other, with the result that the chain runs to the sharp side.
- (3) Depth gauges are lower on one side than the other, with chain running to side with lower depth gauge clearance.
- (4) One bar rail is lower than the other, with chain running to side with lowest rail.

b) Chains Dull Quickly - Causes

- (1) Insufficient depth gauge clearance.
- (2) Top plate filed too thin (feathered).
- (3) Hook filed in the side plate of cutters.

c) Chain Grabs (Hangs Up) - Causes

- (1) Irregular or too much depth gauge clearance.
- (2) Top plate filed too thin (feathered).
- (3) Hook filed into side plate of cutters.

d) Excessive Chain Breakage - Causes

- (1) Excessive chatter due to insufficient depth gauge clearance.
- (2) Tight joints due to improper repair.
- (3) Shallow groove.
- (4) Worn sprocket.
- (5) Incorrect assembly for parts of different size or pitch, or parts installed backwards.

NOTE: Once a chain is broken by excessive stretch or impact (due for example to a log dropping), the likelihood of additional later breakage is increased.

e) Excessive Chatter - Causes

- (1) Insufficient depth gauge clearance and/or dull cutters.
- (2) Sprocket of improper pitch.

8. AUTOMATIC CLUTCH

Should clutch slip occur after a number of running hours it will probably mean that the bonded friction plate has worn slightly. To accommodate this wear, 0.010" shims have been fitted under the ball cage. Removal of these shims, as wear occurs, maintains the correct working clearance between the ball thrust plate and the friction plate. This clearance should be 0.020". A friction plate that has been worn to 3/16" thickness must be replaced as adjustment cannot be made below this figure.

It is necessary to remove the clutch from the machine to carry out this adjustment. To do this proceed as follows :-

- (1) Remove sprocket guard.
- (2) Remove the Clutch Cover. To do this, remove the cover retaining ring which is situate behind the chain driving member. A small part of the edge of the cover has been cut away to facilitate this operation. Remove the 1/4" UNF Allen Screw in the centre of the cover and insert in its place one of the withdrawal screws from the toolkit. Screwing this right down will withdraw the clutch cover.
- (3) Remove the centre nut from the crankshaft. Take out two of the 1/4" U.N.F. cap head Allen screws from the clutch assembly and insert in their place, the two withdrawal screws in the toolkit. Screwing these down will withdraw the clutch from the engine.
- (4) The clutch can now be broken down by removing the two withdrawal screws and the remaining three cap head Allen screws. (See exploded view of clutch in the Spare Parts Book).

NOTE: When rebuilding a clutch, great care must be taken to avoid trapping the clutch plate on the clutch pillars, when tightening the five cap head Allen screws. Correct position of the clutch plate is shown in Fig.10. Failure to observe this point will result in permanent damage to the clutch plate. Should a clutch plate be so damaged, and correctly built into a clutch it will not pass its power and clutch slip will occur causing over-heating and burning of the clutch lining.

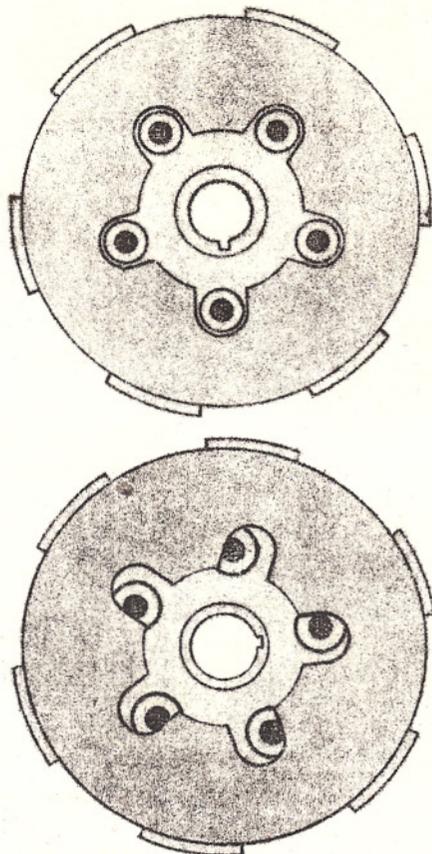


FIG. 10

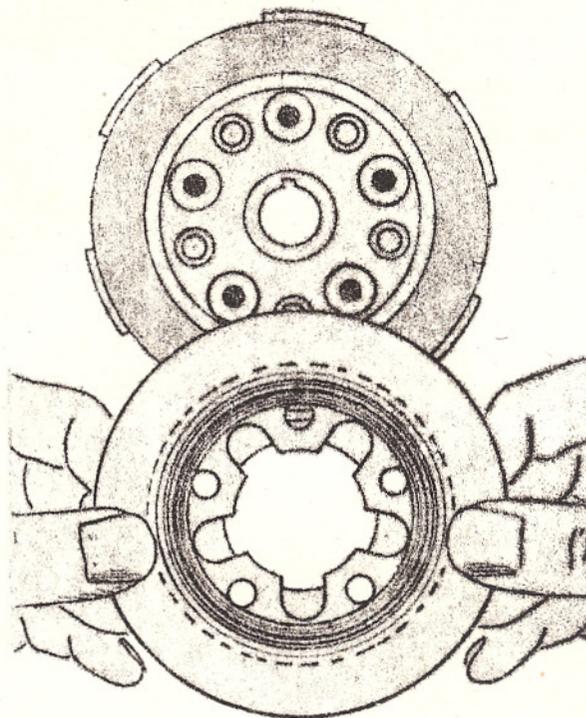


FIG. 11

#### Hints on Clutch Assembly

Group together the back plate, friction plate and the five pairs of springs (Fig. 11), then group together the front plate, ball cage, 10 balls and the necessary shims, then line up the five fixing holes in these components and place the ball thrust plate on the group so that the five holes are in the centre of the five slots. Now carefully lift this group, turn it over, then place it above the first group (Fig. 11), line up the five holes and bring the two groups together, insert the five cap head Allen screws and screw them down to just reach the clutch front plate. **IMPORTANT** - no pressure must be applied to the screws at this stage, but a check must be made to ensure that the ball thrust plate will pass freely over the five pillars. This is best carried out by applying pressure by hand with the assembly on a flat surface. When the ball thrust plate has been correctly positioned and the assembly can be compressed against the springs, the five cap head screws should be carefully screwed in a little at a time,

keeping a check on the compressability of the assembly until it is clear that the ball thrust plate is safely housed around the five pillars, they should then be screwed up securely. Refit the clutch assembly, being careful to line up the key in the shaft with the key-way in the clutch assembly. Refit the centre fixing nut on the crankshaft. Ensure that the rubber 'O' ring is in its groove in the clutch cover, press the cover onto the clutch assembly and refit the cover retaining ring in its groove, behind the driving member.

## 9. SPARKING PLUG

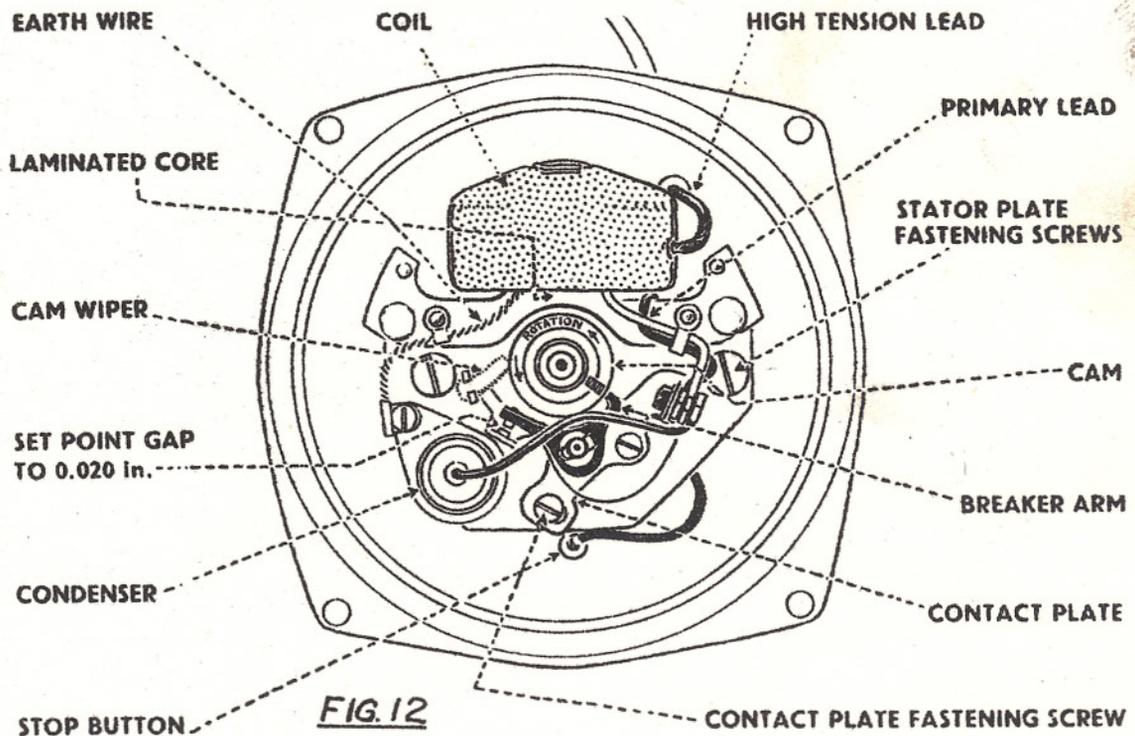
### a) Inspection

Remove and inspect the plug every 50 hours. Clean points and adjust the gap to 0.020". If the points are badly burned or the porcelain is cracked, fit a new Champion J. 12 plug.

### b) Testing

In locating engine trouble (first make certain there is fuel in the tank) it is always advisable to fit a new plug. If this does not cure the trouble, leave the new plug in while checking further. Fouling of the plug may be caused by an excessive amount of oil in the fuel. Ensure that the correct mixture is being used. If the sparking plug is very wet it indicates excess fuel in the cylinder. After drying the plug, remove the drain plug in the bottom of the crankcase and attempt to start with the throttle fully open. After two or three pulls the engine will start. Replace crankcase plug when engine is running.

## 10. IGNITION



a) Description

The engine ignition is obtained from a high tension flywheel type magneto. It consists of a magnet mounted in the flywheel, a high tension coil with laminated core mounted on a stator plate, contact point assembly and a condenser.

b) Testing Ignition Spark

Disconnect the high tension lead from the spark plug. Fit a new spark plug to the end of the lead and hold the body of the plug against the cylinder barrel. Spin the engine rapidly. If a strong spark jumps the gap, the ignition system is perfectly correct. If there is a weak, or no spark, check the magneto.

c) Contact Point Adjustment

- (1) The only magneto adjustment is at the contact points. The point gap should be maintained at 0.020".
- (2) To gain access to the contact points for adjustment, the flywheel must be removed, although if only a check is required on the contact point gap, this can be done through the inspection plate in the flywheel. To remove the flywheel proceed as follows :-

- (i) Remove high tension lead from plug.
- (ii) Remove fan cowling. To do this, remove the four  $\frac{1}{4}$ " U.N.F. nuts holding the fan cowl to the magneto backplate and withdraw the cowl complete with rewind starter.
- (iii) Remove the starter dog, which is held on to the flywheel by three wired  $\frac{1}{4}$ " U.N.C. screws. Next remove the  $\frac{7}{16}$ " U.N.F. nut holding the flywheel to the shaft. Refit the starter dog which has a  $\frac{1}{2}$ " U.N.F. thread incorporated in its bore. Screw into this thread the  $\frac{1}{2}$ " U.N.F. bolt supplied in the toolkit until it bottoms firmly on the end of the shaft. Tighten the bolt with a spanner. If the flywheel does not come off a smart tap on the head of the bolt with a  $\frac{3}{4}$  lb. hammer will release the flywheel from the crankshaft taper. (Fig.13).

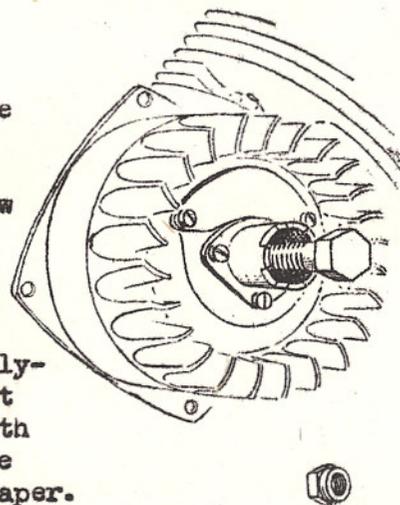


Fig. 13

- (3) Turn crankshaft until the breakerarm cam follower rests on the highest part of the cam and check the gap with a feeler gauge. Correct setting is 0.020".
- (4) To adjust the gap, slightly loosen the screw which fastens the contact plate to the stator plate.
- (5) Move the contact plate away from the cam to increase the gap and towards the cam to decrease the gap.
- (6) Tighten contact plate fastening screw securely.
- (7) Re-check gap. Tightening the contact plate screw sometime alters the gap.
- (8) Examine points for pitting. If points are badly pitted, fit a new set, otherwise lap points together with fine grinding paste.
- (9) Reassemble engine as follows:-

- (i) Align flywheel keyway with key in crankshaft and slide flywheel on shafts as far as possible and fit 7/16" U.N.F. Philidas Nut.
- (ii) Re-fit starter dog and wire the three screws.
- (iii) Re-fit fan cowl and high tension lead.

d) Coil and Condensor

If no spark, or only a weak one is obtained, first check that the insulated wires are not earthed. If they are, repair or renew defective wire. If no spark or only a weak spark is obtained after checking points, and insulated wires, trouble is most likely to be in the condensor or coil. Re-new the condensor first and then the coil after checking all other magneto parts.

e) Lubrication

The only lubrication necessary inside the magneto is supplied by the cam wick. To check this, press the wick between the fingers. If oil appears on the fingers, wick contains sufficient oil. If no lubricant appears on the fingers, apply a few drops of engine oil. DO NOT OVER OIL.

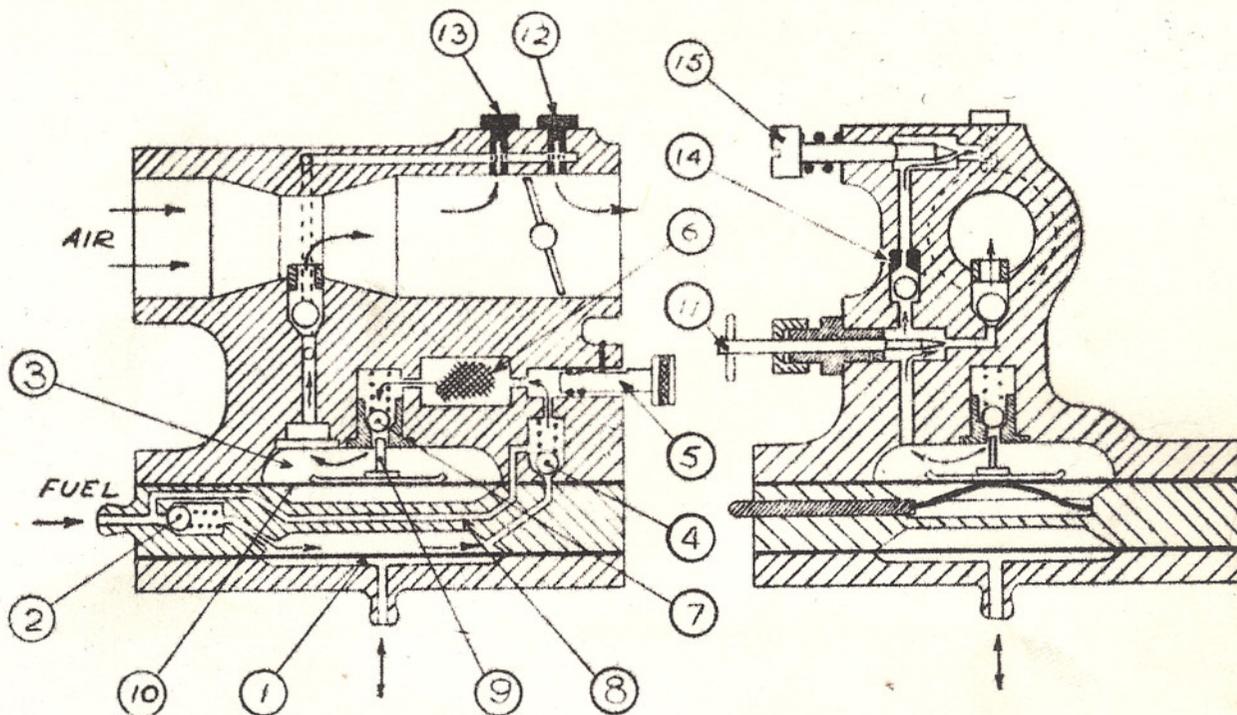
f) High Tension Cable

A chafed or broken high tension cable which causes continuous or intermittent mis-firing should be renewed.

## 11. CARBURETTOR

The Aspin carburettor fitted to this saw, is of the diaphragm type and will operate in any position without moving the carburettor in relation to the engine.

Reference to the diagrammatic sketch (Fig. 14) of the carburettor will assist in understanding its operation which is as follows :



The fuel is picked up by a "searcher" inside the tank. This consists of a very soft synthetic rubber pipe, weighted at the free end, the weight containing a fine filter gauze, through which the fuel passes. The fuel is then drawn down a plastic pipe by a diaphragm pump unit attached to the bottom of the carburettor. The pump diaphragm (1) is operated by the change of pressure in the engine crankcase, thereby drawing fuel into the pump chamber via an inlet valve (2) and delivering it to the carburettor diaphragm chamber (3) via a delivery valve (4) fuel tap (5), a second filter (6) and the diaphragm chamber inlet valve (7). It will be noticed from the diagram that there is a bleed hole (8) connecting the delivery and inlet sides of the pump. This is to prevent a fuel lock-up. The inlet valve (7) to the diaphragm chamber (3) is operated by a pin (9) mounted in the centre of the diaphragm. As the chamber (3) empties the diaphragm (10) rises and the pin lifts the inlet ball valve (7) off its seat, thereby allowing fuel to enter. As the chamber fills, the diaphragm (10) is forced down and the inlet ball (7) returns to its seat shutting off the fuel.

From the diaphragm chamber (3), the fuel passes through a variable main jet (11) and into the venturi of the carburettor. The variable main jet (11) controls the fuel flow and can be adjusted to suit atmospheric conditions existing at the time.

The fuel for the slow running (12) and progression jets (13) is also picked up from the carburettor diaphragm chamber. It passes through a restriction jet (14), past a slow running adjusting screw (15) and into the air stream via progression (13) and slow running jets (12) situated each side of the throttle butterfly (16).

The restriction jet (14) contains a free ball which, when the saw is inverted covers the hole in the jet to prevent the engine becoming over-rich and cutting out.

The carburettor is adjusted at the Works before the saw is despatched but should any adjustment be necessary the procedure is as follows :-

Firstly the slow running mixture adjusting screw (15) (screw driver slot) is adjusted to give a clean pick-up of engine speed as the throttle is opened. It should be noted that an alteration to the engine idling speed stop (on throttle shaft) may be necessary in conjunction with this to get a good tick-over. Once the clean pick-up is obtained, the variable main jet (11) (T-Handle) is adjusted at full throttle until maximum power is obtained with the saw cutting. After this is accomplished it may be necessary to again slightly adjust the slow running mixture screw (15), but once this procedure has been carried out, the carburettor will remain in adjustment and various climatic conditions can be catered for by alteration to the main jet (11).

It should be noted that anti-clockwise rotation on each jet provides the richening process.

NOTE: In order to give a rough idea of setting both the slow running (15) and the main variable jets (11) should be open approximately three-quarters of a turn. Care should be taken to only alter the setting a very small amount at a time as a small movement varies the mixture strength appreciably.

If the engine loses power and it is noticed that the fuel is bubbling vigorously in the plastic inlet pipe to the carburettor, the fuel pump inlet valve (2) must be removed and cleaned in petrol. If this does not cure the fault fit a new inlet valve unit.

## 12. REWIND STARTER

### a) To fit new cable

It may be found necessary at some time to fit a new cable to the rewind starter - if so, proceed as follows :-

b) Removal of old cable

- (i) Remove the four screws holding the rewind starter to the fan cowl and remove starter complete.
- (ii) Pull the two halves of the casing apart exposing the inner rotor.
- (iii) Assuming cable to be intact, pull handle to fullest extent, holding the starter in the left hand. Close the fingers of the left hand firmly over the rotor and slip the end of the cable out through its slot.
- (iv) Insert new cable complete with rubber handle into slot and holding the handle in the right hand with the cable fully extended, release the rotor and allow the rewind spring to return the cable slowly to its static position.

NOTE: When the rotor spring is wound to its limit, i.e. when the cable is extended to the full as in part (iii) above, be sure to hold the rotor very firmly, as if the rotor is allowed to fly back serious damage might be done to the fingers.

- (v) If the cable has broken proceed as in (i) and (ii) above, then remove the broken cable end from its slot in the rotor. Wind up the rotor to its fullest extent, taking care to hold the rotor firmly at all times.
- (vi) Proceed as in (iv) above.

ENGINE CHECK LIST

In locating engine trouble, instal a new spark plug to see if this corrects the difficulty. If not, leave the new plug in while checking further.

TROUBLE	PROBABLE CAUSE	REMEDY
<u>Will not start</u>	No fuel in tank. Carburettor not primed (see Section 3a). Petrol tap shut.	Fill. Prime. Open tap.
<u>Hard to Start</u>	Engine throttled Engine too rich (see Section 3a). Carburettor not primed (see Section 3a). Spark Plug defective. Weak spark. Filter in tank searcher clogged. Water or dirt in fuel. Loose or broken high tension lead. Contact points out of adjustment. Loose or grounded connections in magneto. Defective coil or condensor. Wrong type of plug.	Open throttle Turn off fuel and pull till engine starts. Prime. Fit new one. See ignition Section 10. Remove and clean. Drain and clean out tank and refill with fresh fuel. Tighten or renew. Adjust (see Section 10c). Check (see Section 10). Check (see Section 10). Use Champion J.12.
<u>Overheating</u>	Weak mixture. Oil not thoroughly mixed with fuel. Spark plug loose.	Adjust main jet (see Section 11). Drain tank and refill with freshly mixed fuel. Tighten or renew washer.

TROUBLE	PROBABLE CAUSE	REMEDY
<u>Overheating</u>	Spark plug defective.	Fit new plug or clean and adjust gap.
	Wrong type of plug.	Fit Champion J.12.
	Contact points out of adjustment.	Adjust (see Section 10c).
	Exhaust port clogged.	Remove silencer and clean.
<u>Low Power</u>	Silencer clogged.	Clean.
	Engine four stroking - too rich.	Close main jet slightly (see Section 11).
	Engine too weak.	Open main jet slightly (see Section 11).
	Water or dirt in fuel.	Drain tank and clean. Refill with fresh fuel.
	Contact points out of adjustment.	Adjust (see Section 10).
	Silencer or exhaust port clogged.	Remove silencer and clean.
	Fuel pump inlet valve leaking. (Indicated by fuel bubbling in carburetter inlet pipe.)	Remove inlet valve and clean or fit new valve unit.
<u>Will not cut</u>	Chain dull.	Sharpen (see Section 6.)
	Chain reversed.	Be sure cutting edge of chain rotates towards bottom of sprocket.
<u>Chain will not rotate</u>	Chain too tight.	Adjust tension (see Section 2c).
	No oil.	Fill chain oil tank and lubricate chain.
	Dirty chain.	Remove and clean.
	Groove in Guide Bar clogged.	Remove and clear.

CONDITIONS OF WARRANTY

We, F. M. Aspin & Company Limited, of Elton, Bury, England, warrant that all Power Units sold by us are free from defect. Every effort is made to ensure sound material and good workmanship and we will replace free of charge any parts or components of our manufacture which under normal use and service are admitted by us to be defective providing:-

1. Such defective parts are returned to us or our authorised Agents, carriage paid, within a period of three months from the date of delivery of the unit to the original purchaser whose name should be shown on the Warranty Registration Card.
2. Our liability in respect of such defect is limited to replacement only and we are unable to accept any claim for labour charges or any expenditure, damages or costs that may have been incurred,
3. All proprietary fittings or components are warranted by their respective manufacturers.
4. This Warranty does not become effective in any way unless the Warranty Registration Card has been filled in and returned to us within 7 days of the date of purchase.

This Warranty is issued for and on behalf of :

F.M. Aspin & Co. Limited.  
Signed F. DODSON  
Secretary.

ASPIN CHAIN SAW

Serial No. \_\_\_\_\_

REGISTRATION OF WARRANTY

Delivery Date \_\_\_\_\_

Having purchased the above Aspin Chain Saw from :

Supplier's Name \_\_\_\_\_

Address \_\_\_\_\_

I wish to have this Warranty registered in my name as follows:

Name \_\_\_\_\_

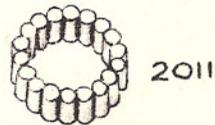
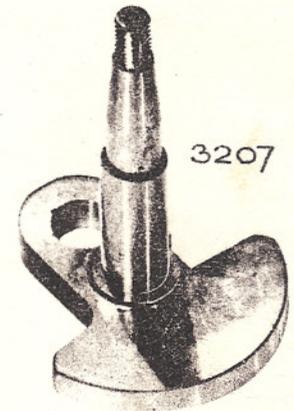
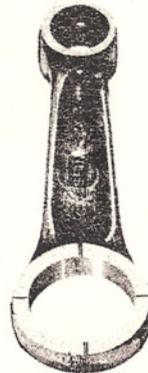
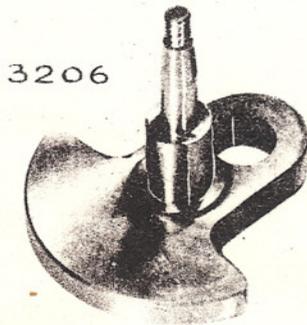
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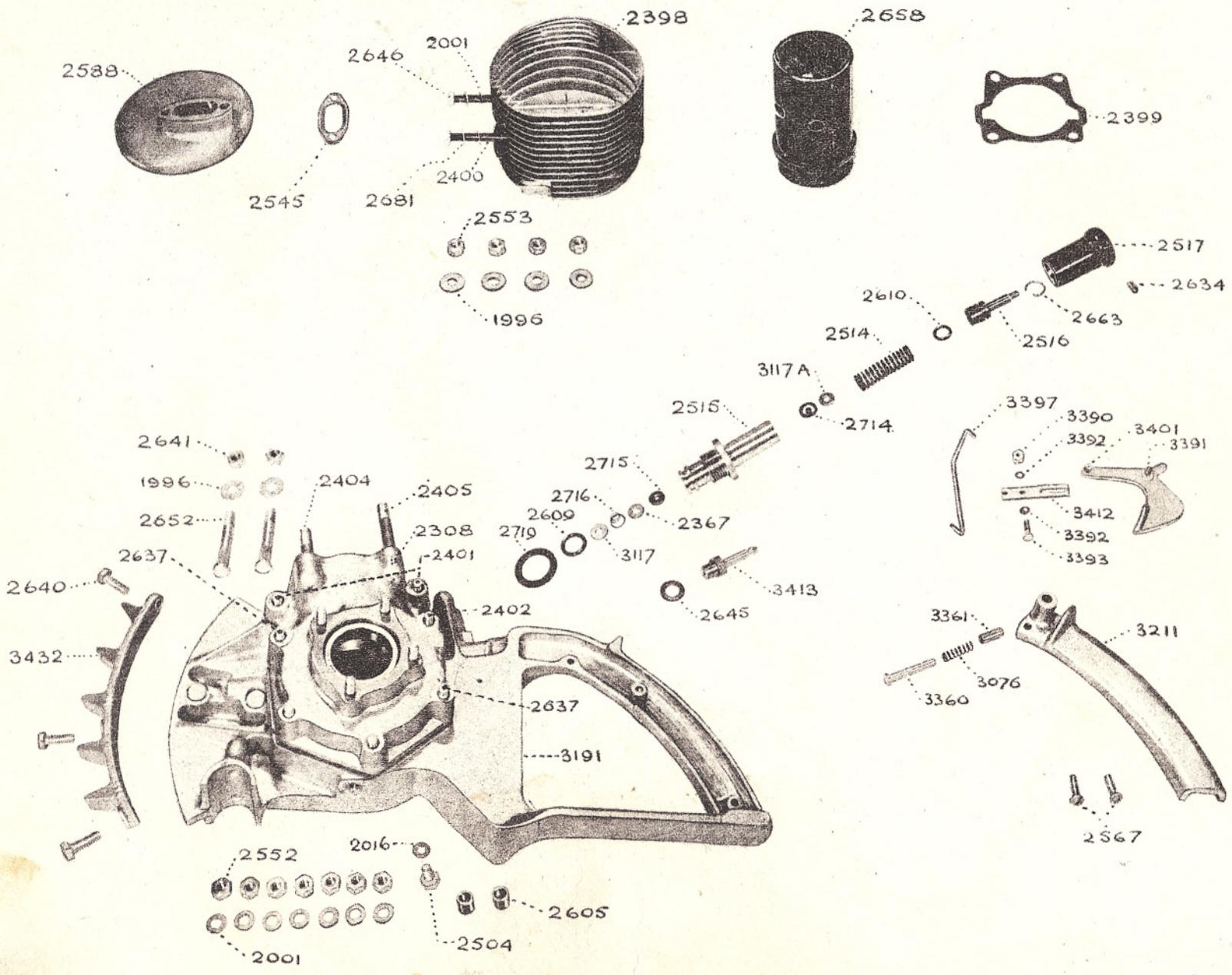
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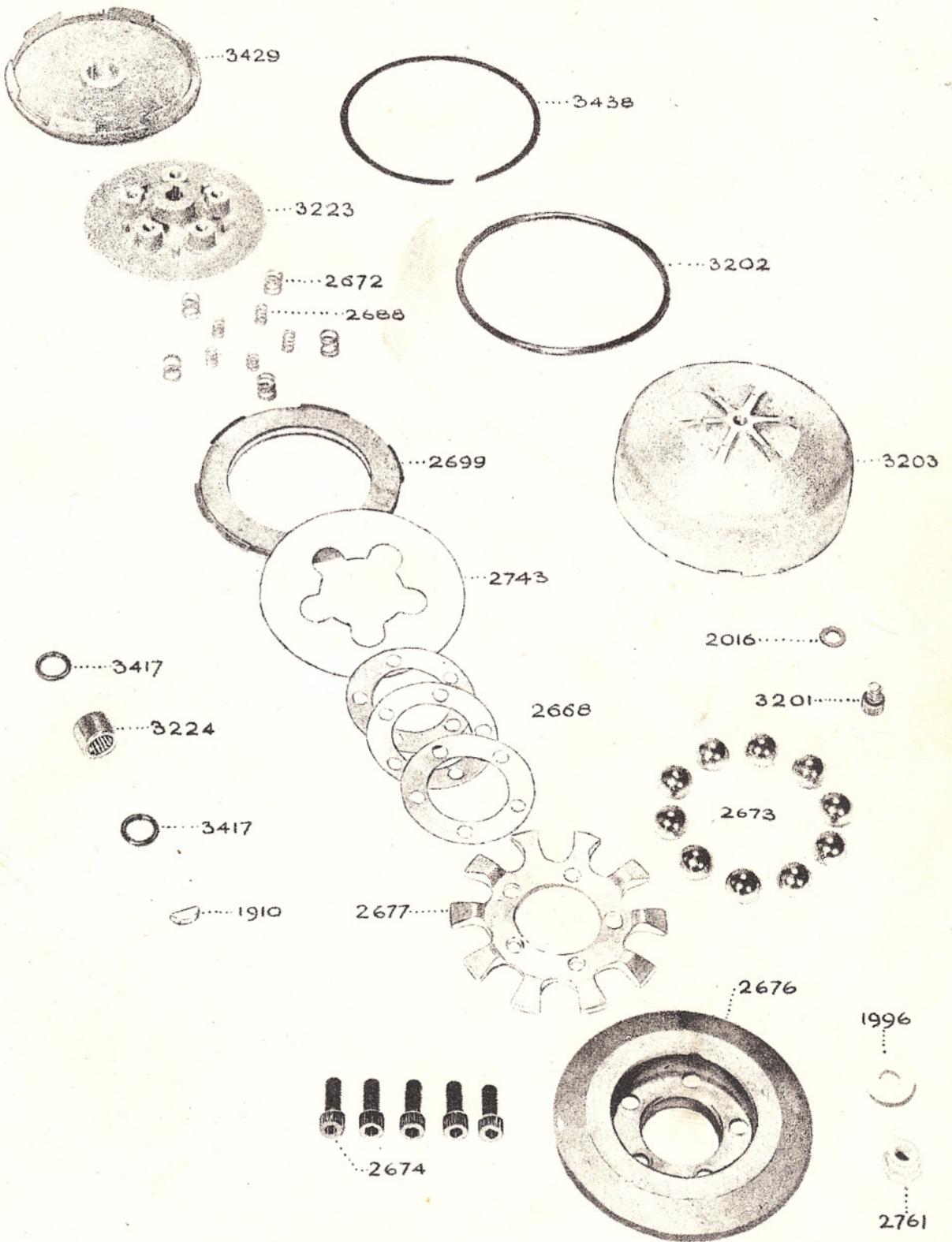
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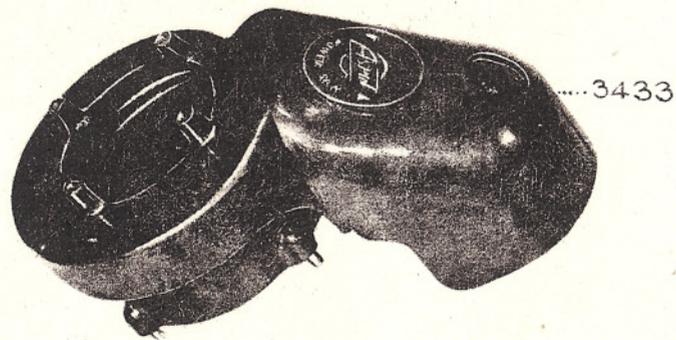
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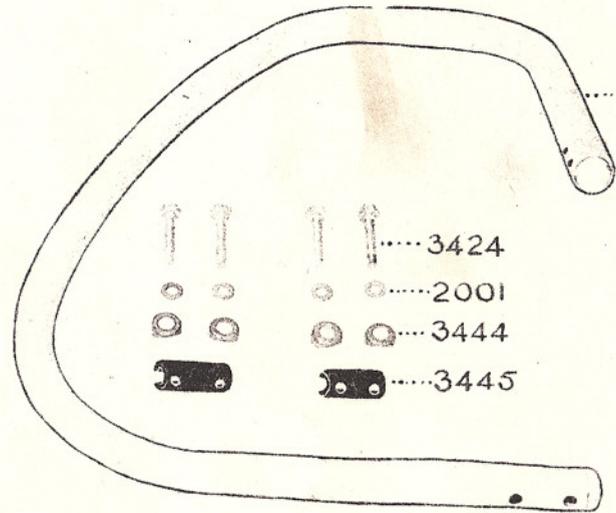
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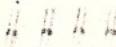
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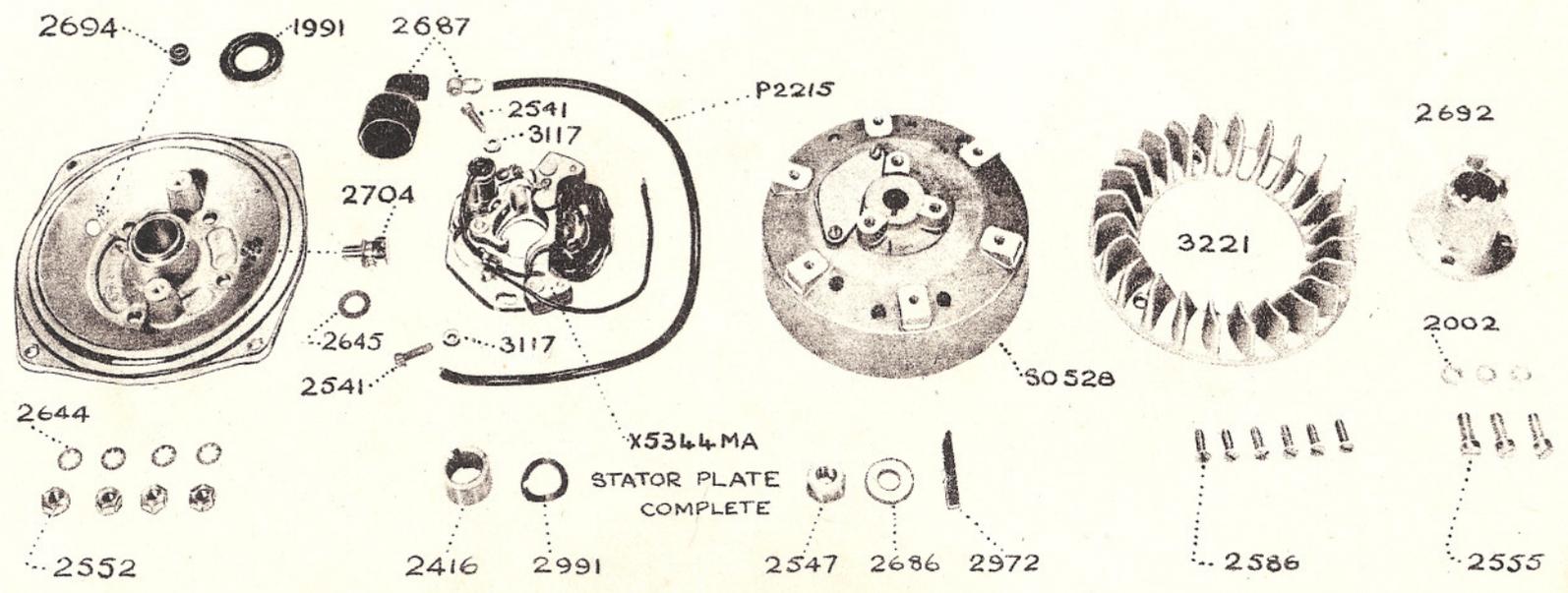
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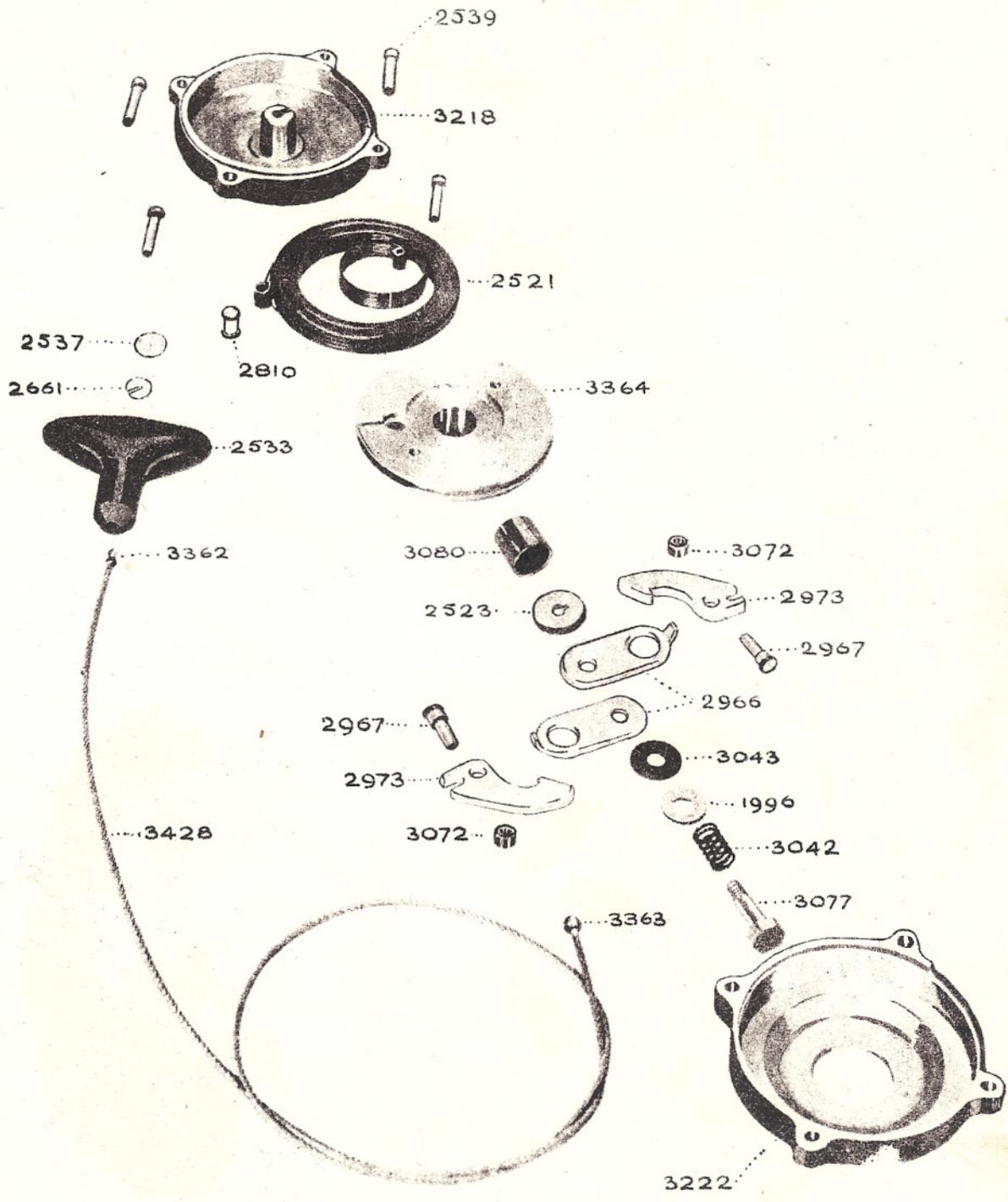


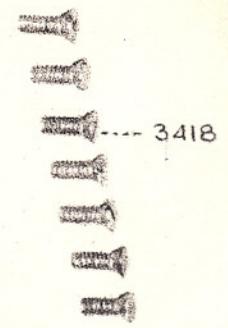
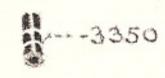
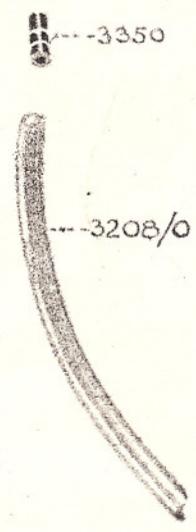
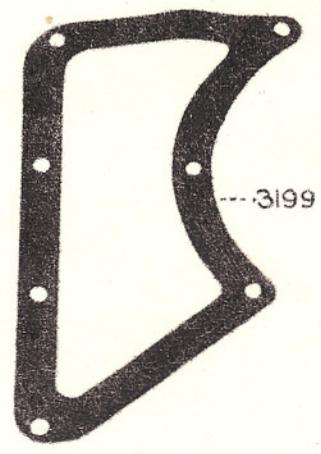
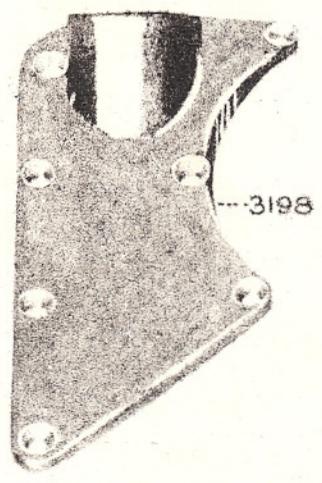
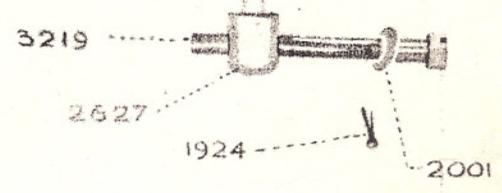
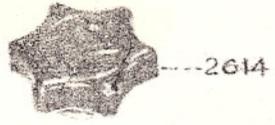
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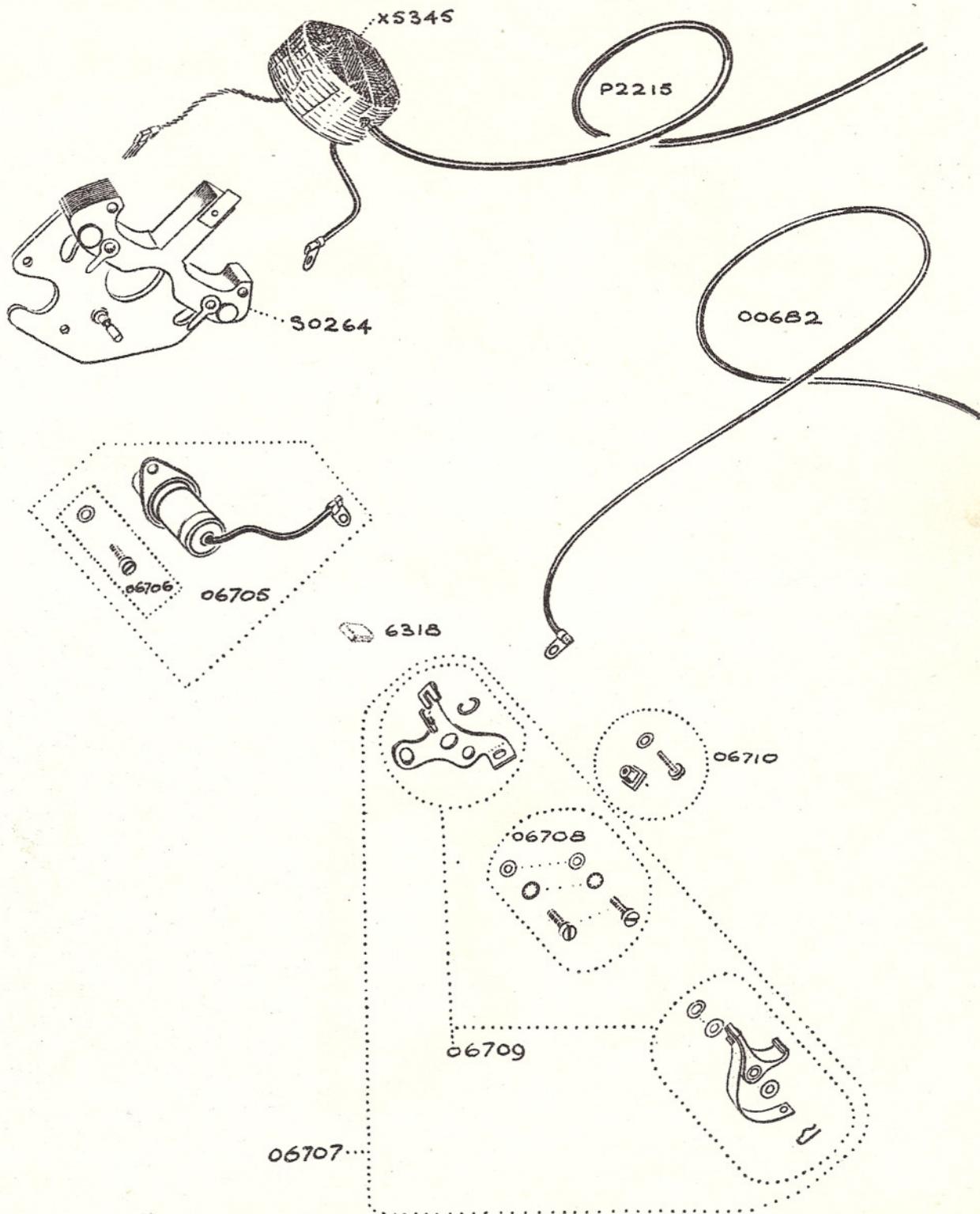


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# THE ASPIN DIAPHRAGM CARBURETTOR WITH FUEL PUMP.

