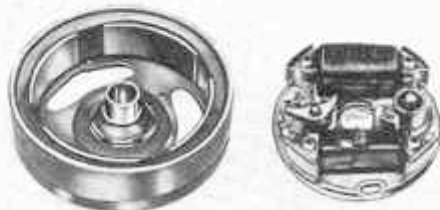


ELECTRICAL EQUIPMENT

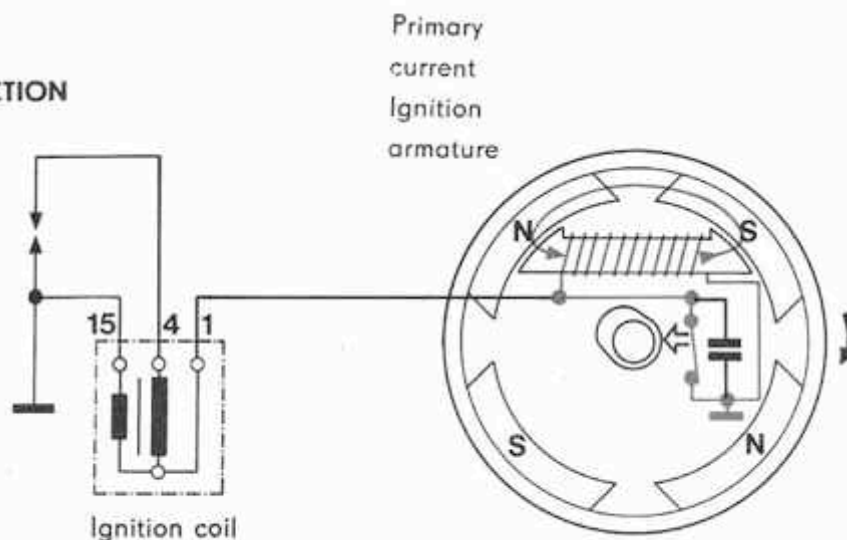
1216

FLYWHEEL MAGNETO

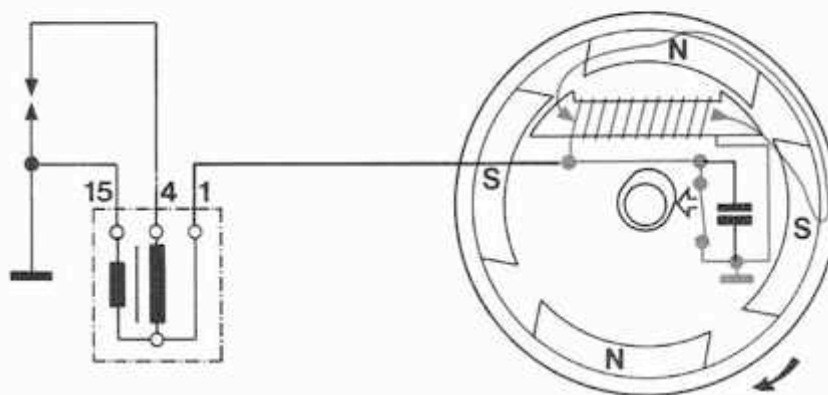
Consists of the base plate assembly and the flywheel.



IGNITION FUNCTION

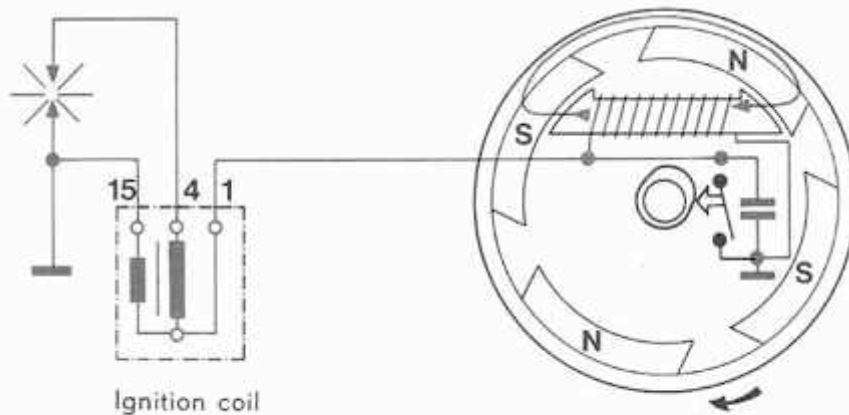


As the flywheel turns, a large number of reverses of magnetic flux is induced in the primary current ignition armature. When the breaker points are closed, as in illustration one, an induced current flows in the ignition armature of the magneto.



In illustration two the current in the ignition armature is at its greatest value.

ELECTRICAL EQUIPMENT



Ignition coil

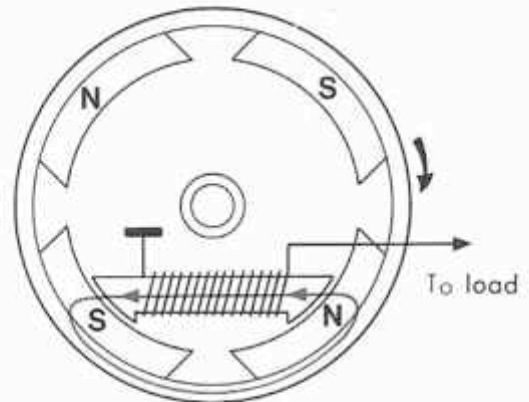
At that point the contact points open and the magnetic flux in the armature core immediately reverses direction, sending current from the magneto armature to the primary side of the external ignition coil. This induces a high voltage in a secondary winding of the ignition coil, which generates a spark at the spark plug electrode.

NOTE: The condenser connected parallel to the contact breaker, prevents the formation of a spark at the breaker contacts.

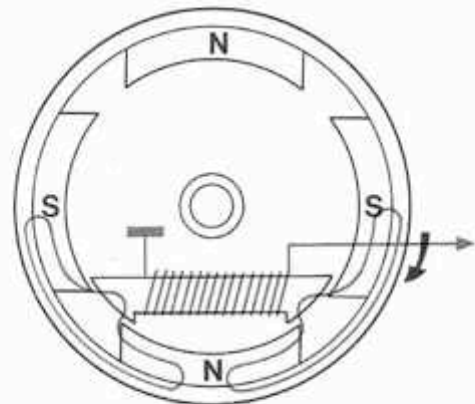
LIGHTING FUNCTION

LIGHTING FUNCTION

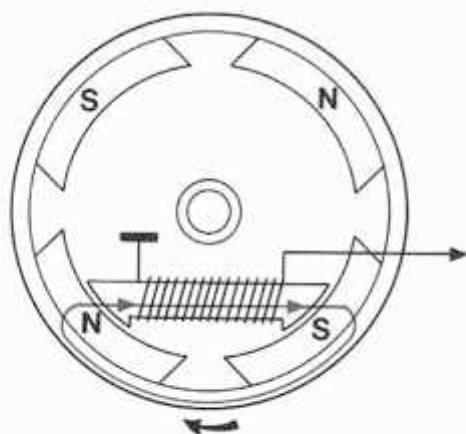
The magnetic flux, generated by the flywheel, also passes the lighting coil. The flywheel and lighting coil together form an alternating - current generator .i. e. with the flywheel rotating and the circuit closed (bulbs being switched on) alternating current will flow thru the lighting coil windings. The lamp voltage is regulated automatically by the reaction of the alternating current to the magnetic flux of the flywheel and the voltage drop in the lighting coil winding.



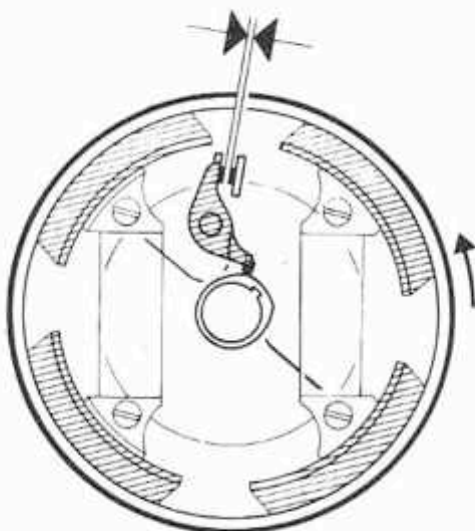
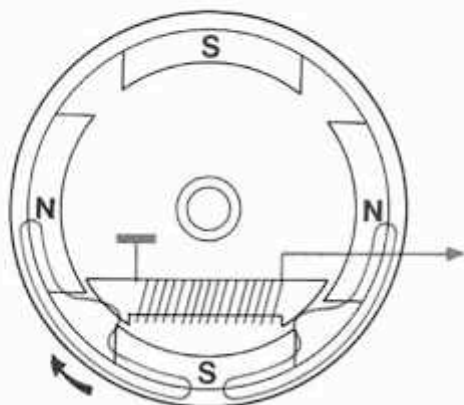
Generator armature



ELECTRICAL EQUIPMENT



This automatic regulation prevents the bulbs from burning out at both low and high engine revolutions. However, the automatic regulation is only effective if the specified load is being adhered to, i. e. if bulbs with specified voltage and capacity are used.



Breaker points gap

Burned or worn breaker points must be replaced with new ones.

Turn flywheel until the fully opened breaker contacts are visible thru the recess in the flywheel.

Since breaker points wear after operation and the gap reduces, the gap of new points should be adjusted to at least: 0.14 – 0.18 in. (0,35 mm – 0,45 mm) for 1 speed- and 0.16 – 0.20 in. (0,40 – 0,50 mm) for 2 speed engine.

BREAKER POINTS

If lighting coil/s has/have been replaced, measure air gap between coil pole shoes and flywheel. Gap should be .016 - .024 in. (0,40 - 0,60 mm). If gap is incorrect, loosen coil mounting screws and adjust as necessary.

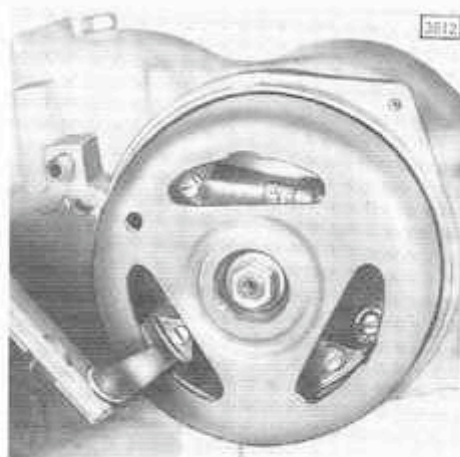
! Always check and adjust ignition timing if flywheel has been removed.

Coil resistances in ohms:

Tail lamp	6,7
Stop lamp	1,16
Head lamp	0,23

Ignition coil:

Primary	2
Secondary	5,4



Adjusting breaker points

Rotate flywheel until fully opened point gap is visible thru flywheel port. Loosen fixing screw and adjust point gap to
.014 - .018 in. (0,35 - 0,45 mm) 1-speed engine
.016 - .020 in. (0,40 - 0,50 mm) 2-speed engine



Replacing the breaker points

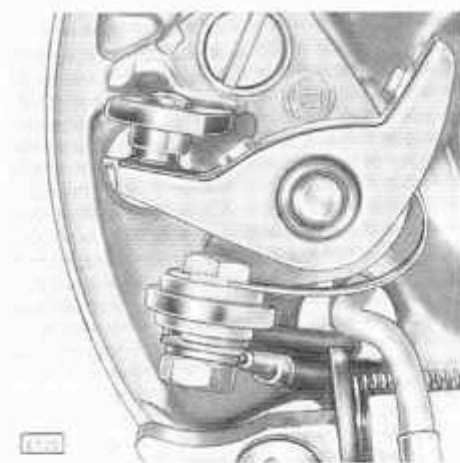
As already mentioned, points must be replaced if

- They are burned or worn
- Fiber block is worn or loose
- Bearing bush is worn or loose
- Spring is loose
- Fixed contact or moving contact are bent.

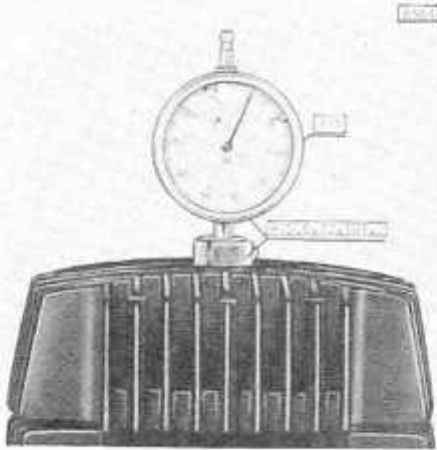
Unscrew cable at the breaker and remove fixing screw.

Replace point set.

When fitting new points be sure the contact surfaces are free from grease or oil.



IGNITION TIMING



IGNITION TIMING

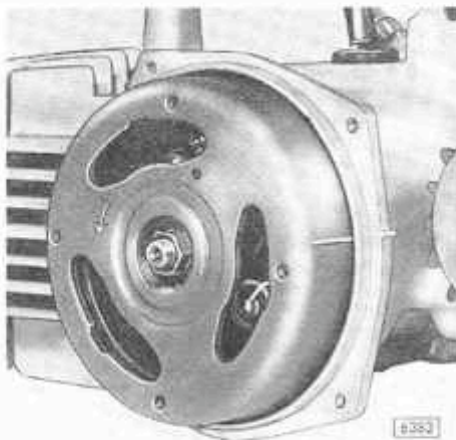
The engine output depends on correct ignition timing. Too far advanced ignition causes the engine to knock and too far retarded ignition reduces output. In both cases the engine overheats. Checking and adjusting the ignition:
Adjusting

Necessary for proper adjustment:

- 1 Dial indicator part no. 278
- 1 Puch low scale Ohmmeter 906.6.21.001.0



- a) Remove spark plug
- b) Screw adaptor with dial indicator into plug hole
- c) Connect one cable of Ohmmeter to the blue wire and the other to ground



Turn flywheel to find TDC of piston travel and zero gauge. Turn flywheel opposite normal rotational direction (opposite arrow on flywheel)

- 1-speed .032 - .047 in. (0.80 - 1.20 mm)
- 2-speed .051 - .067 in. (1.30 - 1.70 mm)

A needle movement of the Ohmmeter should indicate the points are opening within this tolerance. If the tolerance is not achieved the timing is incorrect.

Re-check breaker point gap or re-adjust till the correct ignition timing is achieved, providing the base plate assembly has been correctly installed.

IGNITION TIMING

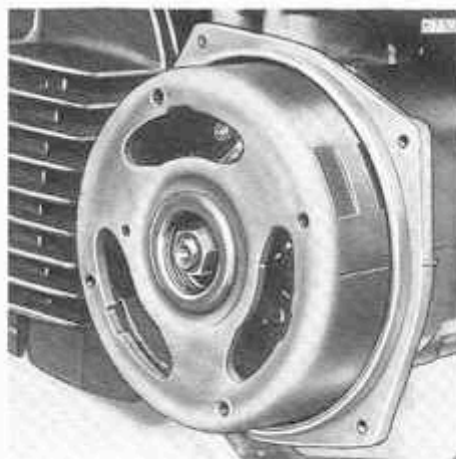
ENGINE ROTATION

1 speed:

Engine rotation and ignition timing marks on flywheel and crankcase. Engine rotates to the right (clockwise).

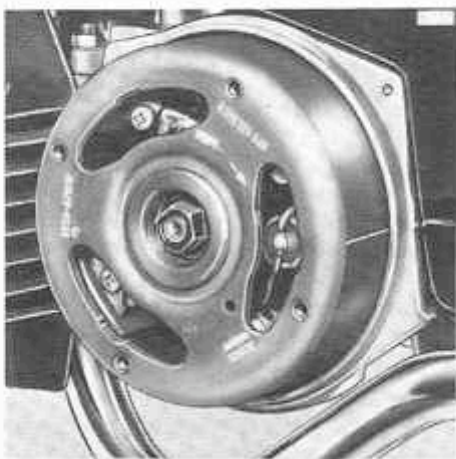
2-speed:

Engine rotation and ignition timing marks on flywheel and crankcase. Engine rotates to the left (counter-clockwise).



Fitting new flywheel (without timing mark):

Adjust breaker point gap to correct setting. To find T.D.C. of piston travel, insert a dial indicator into the plug hole (with holder). Find T.D.C. zero dial indicator and turn engine (.031 - .047 in. = 0,8 - 1,2 mm 1-speed engine and .051 - .067 in. = 1,3 - 1,7 mm 2-speed engine, measured on the dial indicator) backward (against engine direction) and mark flywheel in line with the timing mark on the housing. This is ignition timing mark. Re-check ignition as described on previous page.



ADJUST IGNITION TIMING WITH UNMARKED FLYWHEEL (without dial indicator)

Adjust breaker point gap to correct setting. Find T.D.C. of piston travel (insert a drift into plug hole). Make a pencil mark on the flywheel at the parting line of the two housing halves (1 speed engine) or raised timing mark on housing with 2-speed engine. From that pencil mark measure .728 - .827 in. = 18,5 - 21,0 mm, for 2-speed-engine and .630 - .709 in. = 16 - 18 mm for 1-speed-engine forward on flywheel (in engine direction) and mark the flywheel. This is ignition mark. Re-check ignition timing as described on previous page.

