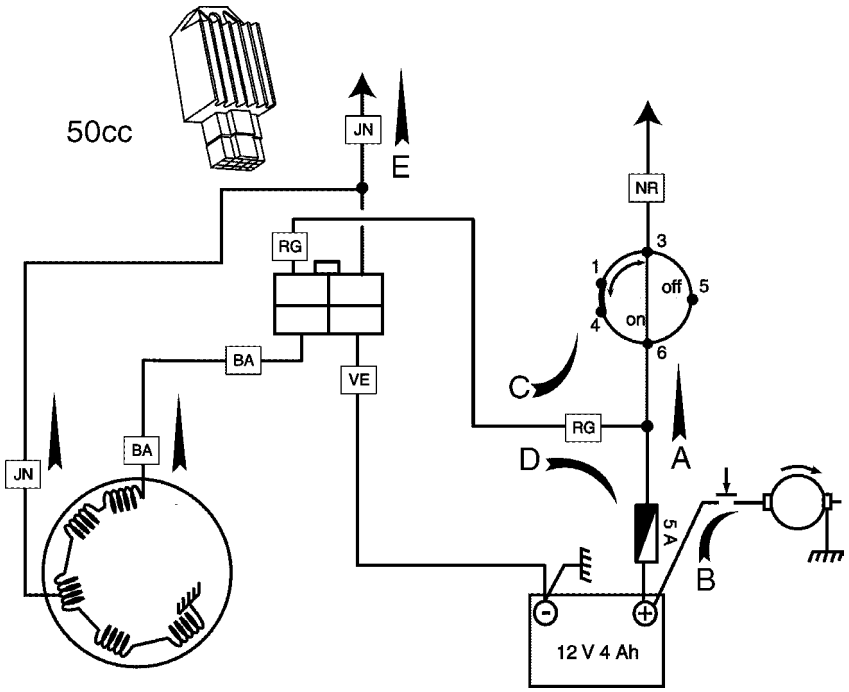
INSTALLATION INSTRUCTIONS

COMMERCIAL DIVISION
NETWORK TECHNICAL INFORMATION

THE SCOOTER BATTERY CHARGING CIRCUIT

Functioning diagram:

50 cc scooters:

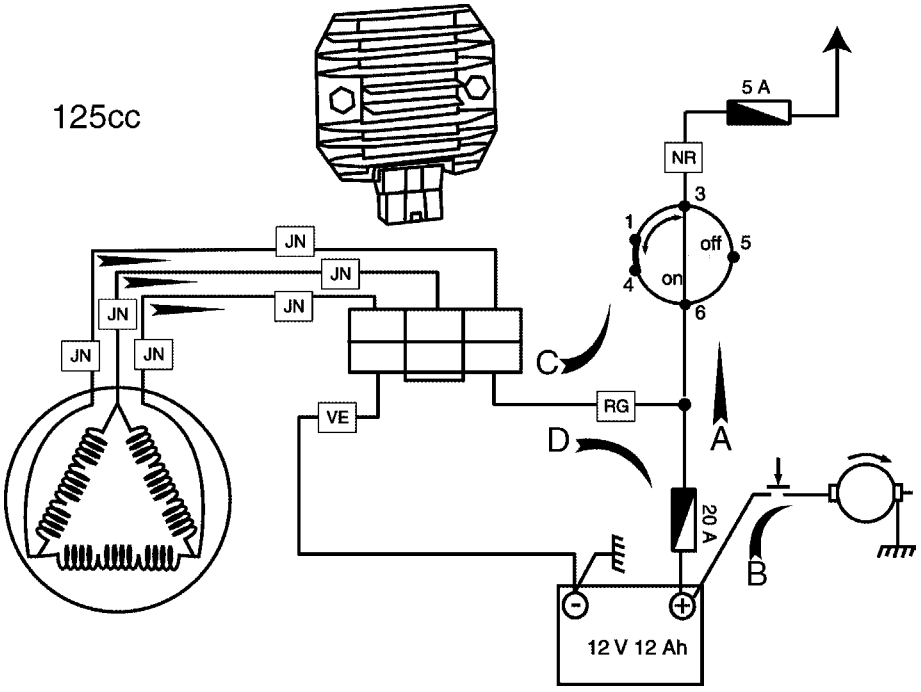


When the ignition is turned on, the battery supplies current (A) to the machine electrical circuit.
When starting the engine, in addition to current (A), the battery supplies a current (B) to the starter motor to operate it

Therefore, in order to start the engine, the battery must be sufficiently charged to supply the two currents.

When the engine is running, the magneto is used to power the electrical system with current (C) and recharge the battery with current (D).
At the same time, the magneto produces current (E) which is used to power the machine lighting system.
If the current produced by the magneto is insufficient (coil partly short-circuited, engine earth fault, etc…), the vehicle electrical system shall be powered by current (C) and completed by current (A) drawn from the battery. But in this case, the battery will be discharged by current (A)

125 cc scooters:



When the ignition is turned on, the battery supplies current (A) to the machine electrical circuit.
When starting the engine, in addition to current (A), the battery supplies a current (B) to the starter motor to operate it

Therefore, in order to start the engine, the battery must be sufficiently charged to supply the two currents.

When the engine is running, the magneto is used to supply the electrical system with current (C) and recharge the battery with current (D).
If the current produced by the magneto is insufficient (coil cut off, etc…), the vehicle electrical system is powered by current (C) and completed by current (A) drawn from the battery. But in this case, the battery will be discharged by current (A)

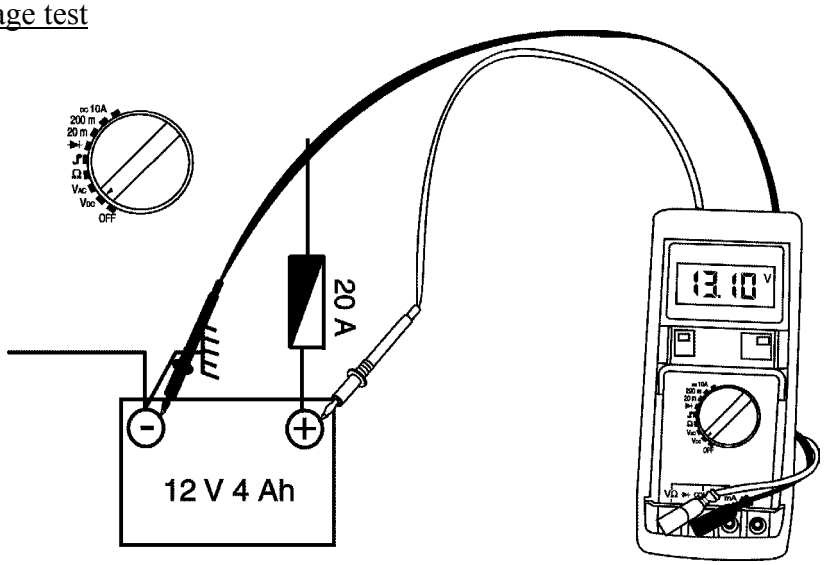
Testing the charging system:

Before testing the charging system, **check and top up the battery charge if necessary.**

Battery charging:

To charge a battery, a charger suited to the battery capacity must be used. (see SI N° 72)
The maximum charge current for a battery is equal to 1/10 of its capacity. For example: a 4Ah battery may be charged with a maximum current of 0.4 A for 10 hours. With a weaker current, more time will be required to charge the battery.

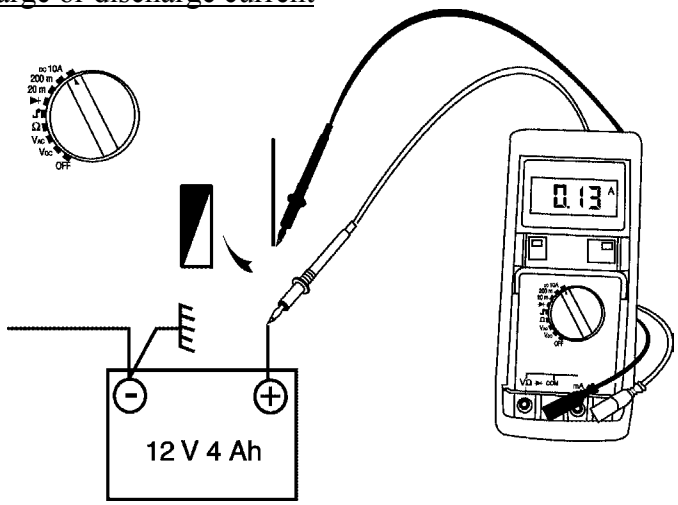
Method of testing the charging system:
To check the battery charging system is functioning correctly, two tests must be carried out.
1. The charge voltage test



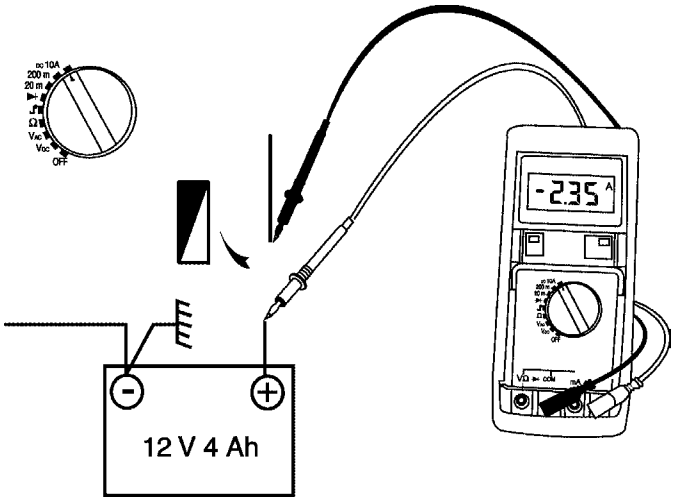
Connect a voltmeter in parallel to the battery. The voltage measured must be 14.5 ±0.5 volts.

If the voltage is not correct, check that the earth (green wire) of the voltage regulator is properly connected to the battery negative terminal.
Test the battery
If not, change the voltage regulator.

2. Testing the battery charge or discharge current



Connect an ammeter in series to the battery circuit.
The ammeter should be set to the **highest ammeter** range, 10A. It should be connected in place of the charging fuse (5A for 50cc, 20A for 125cc) the red cable to the machine and the black one to the battery
When the ignition is turned on, the ammeters gives the current consumption for the different equipment connected (negative value as current consumption ~ -1 to -2 A).



With the engine running, the ammeter shows the quantity of current charging the battery (the multimeter shows as positive value, as the current is flowing in the opposite direction)
The charge current quantity depends on the state of charge of the battery (battery charged = low current (1 to 3A), battery very discharged = max current that the magneto can supply).
Important on the 125cc the magneto maximum current may reach around twenty amperes and therefore exceed the measuring capacity of the multimeter in the case of a very weak battery and under acceleration.

In case of a problem on the charging circuit, the charge current cannot exist in this case it is necessary to test the magneto, the regulator and the wiring.

Electrical data:

50 cc scooters:

Lighting circuit (yellow AC wire)

Equipment	Power	Current
Rear light	5W	0.5 A
Front light	35W	3 A
Warning lights	5 x 1.2W	0.5 A

Machine accessory circuit (red DC wire with 5A fuse)

Equipment	Power	Current
Direction indicators	2 x 10W	1.5 A
Brake light	21W	1.7A
Horn	15W	1.2A
Saddle control	---	2.5 A

Starter circuit (max power at blocked torque)

Equipment	Power	Current
Starter motor	250W	20 A

Magneto

Equipment	Power	Current
Lighting (yellow wire)	55W	4.5 A
Battery charge (white wire)	35W	3 A

125 cc scooters:

Machine accessory circuit (red DC wire with 20A fuse)

Equipment	Power	Current
Direction indicators	2 x 10W	1.5 A
Brake light	21W	1.7A
Horn	15W	1.2 A
Rear light	5W	0.5 A
H4 front light	55/60W	4.5/5 A
Warning lights	5 x 1.2W	0.5 A
Cooling fan	35W	3 A

Starter circuit (max power at blocked torque)

Equipment	Power	Current
Starter motor	440W	36 A

Magneto

Equipment	Power	Current
Magneto	235W	19.6 A