

# GROUP 05

## CONTENTS

BATTERY .....	05-2	CHARGING .....	(●)
ELECTRICAL SYSTEM .....	(●)	Dismantling .....	(●)
Ignition and injection diagram .....	(*)	Checks and adjustments .....	(●)
Starting diagram .....	(●)	Reassembly .....	(●)
Charging diagram .....	(●)	Bench testing .....	(●)
Technical data and specifications .....	05-3	Technical data and specifications .....	(●)
STARTING .....	(●)	Fault finding and corrective	
Dismantling .....	(●)	operations .....	(●)
Checks and adjustments .....	(●)	IGNITION .....	(●)
Reassembly .....	(●)	Dismantling .....	(●)
Bench testing .....	(●)	Checks and adjustments .....	(●)
Technical data and specifications .....	(●)	Reassembly .....	(●)
Fault finding and corrective		Bench testing .....	(●)
operations .....	(●)	Fitting of ignition distributor or vehicle ...	(●)

(\*) SEE GROUP 00

(●) SEE WORKSHOP MANUAL FOR PETROL ENGINE — GROUP 05

# BATTERY

## ATTENTION:

- a. Do not touch the negative and positive poles of the battery simultaneously with bare hands.
- b. When starting the engine from an auxiliary battery using jump leads, the input must not exceed 12 V.

## CHECKS AND ADJUSTMENTS

- a. Check that there are no signs of leakage of acid and/or cracks on the external casing of the battery.
- b. Check that the top of the battery is clean and that the terminals are free from oxidation.
- c. Make sure that the terminals are well tightened so as to guarantee a good contact.

## CLEANING

- a. Clean the upper part of the battery, the poles and the terminals with a solution of water and bicarbonate of sodium.
- b. Before fitting the terminals, apply the specified type of **grease (REINACH E10 TAC)**.

## TENSION TEST

1. Check the tension across the terminals of the battery periodically, to see that it coincides with the exact rating of the tension regulator.
2. The value of the tension across the terminals of the battery should be  $13.7 \div 14.7$  V with the engine running at **3,000 r.p.m.**
3. Check that either the minimum value, with the engine warmed up and the auxiliary devices (at least the headlamps) on, or the maximum value with the engine cold and the auxiliary devices off, is equal to the specified values.
4. If the values obtained do not fall within the specified limits, it will be necessary to check the components of the electrical system.

## BATTERY CHARGE CHECK

1. Do not use the battery for at least **2 hours** and then measure the tension with

the circuit open and the negative terminal disconnected to prevent the dispersion of current into the electrical system.

2. If the battery is not properly charged (flat), the value will be less than **12.30 V**.
3. The condition of charge of the battery can be estimated approximately from the following table:

Tension across the terminals	Charge
12.30	50
12.36	
12.42	
12.48	75
12.54	
12.60	
12.66	100
12.70	

## WARNING:

The use of a digital voltmeter is advised in so far as this permits readings down to **1/100 of a V (on the scale from 0 to 20 V) and is characterised by lower absorption.**

## CHARGING

1. Recharging must be effected with the input of a current (in A) of approximately **1/20** of the capacity of the battery (in Ah) corresponding to approximately **1/100** of the value indicated on the rating plate.
2. The recharging is complete when the variation in the value of the battery tension is less than **0.05 V** for two consecutive readings taken with an interval of **1 hour** between them.

The duration of the recharging is directly proportional to the condition of charge of the battery.

## WARNING:

Check that the temperature of the electrolyte during recharging does not exceed **50°C** and that the tension does not exceed **16.5 V**.

3. After recharging, check the battery tension again after an interval of **2 hours**.

## WARNING:

Sealed batteries are not fitted with topping up caps. Some of these are fitted with a lid which should only be removed in case of emergency to restore the level of the electrolyte by topping up with distilled water when the wrong setting of the tension regulator (excessive tension) has resulted in an excessive consumption of water.

## GENERAL SAFETY MEASURES

1. Lead batteries generate (especially during recharging) an explosive mixture of hydrogen and oxygen.

It is therefore indispensable to take safety measures in order to guard against damage to persons and to the vehicle.

2. The recharging zone must be adequately ventilated so as to facilitate the dispersion of the gas which is released during recharging.

If the recharging is carried out in an enclosed environment, artificial ventilation must be provided.

3. The transfer of the acid must be carried out with the greatest care wearing protective clothing (rubber gloves and acid resistant apron) for the protection of clothes and person.

Protective goggles must also be worn.

4. When mixing acid with water (for example for the dilution of an excessively concentrated acid), the acid must be poured slowly into the water and not vice versa.

5. The use of metallic funnels and containers is not recommended. Perfectly clean glass or plastic funnels and containers are recommended.

6. The use of a naked flame (matches or cigarette lighters) is absolutely forbidden for the checking of batteries.

## ENGINE IGNITION, STARTER, CHARGING

### TECHNICAL DATA AND SPECIFICATIONS

#### TECHNICAL DATA

##### Components

Engine	Starter engine	Alternator (4)	Ignition distributor	Coil with electronic module	Spark plugs
2000 (062.24)	116.55.05.030.03 BOSCH 0.001.108.011 12V-1,4 kW	116.10.05.060.08 BOSCH 0.120.489.549 K1→14V55A20	195.36.05.011.00 (2) BOSCH 0.237.501.005	195.36.06.079.02 BOSCH 0.221.600.054	195.10.05.106.00 SPICA LODGE 25 HLD
		116.10.05.060.12 PARIS-RHONE A13R192	195.36.05.011.01 (3) BOSCH 0.237.501.006		195.10.05.106.01 (1) CHAMPION RC6YC
		116.55.05.060.00 MAGNETI MARELLI			

- (1) Alternative
- (2) Distributor mounted on the cylinder head
- (3) Distributor mounted on the timing system cover
- (4) With electronic tension regulator incorporated

#### Battery

Tension (V)	12
Capacity (Ah)	55
Discharge current (A)	255
Electrolyte density (kg/dm <sup>3</sup> )	1.28 ÷ 0.01

## ENGINE IGNITION, STARTER, CHARGING

### GENERAL PRESCRIPTIONS

#### Fluids and lubricants

Application	Type	Name	Q.ty
Spark plug thread	OIL	ISECO Molykote A Norm. 4500-18304	—

#### TIGHTENING TORQUES

Item	Unit of measurement	
	N·m	kg·m
Spark plugs	25 ÷ 34	2.5 ÷ 3.5