

CHAPTER 9: ELECTRICAL EQUIPMENTS

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CHAPTER 9: ELECTRICAL EQUIPMENTS

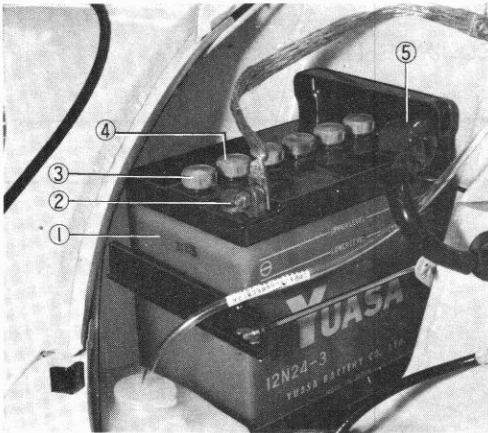
9-1: SPECIFICATIONS ON ELECTRICAL EQUIPMENTS ON BODY

	SEDAN	CUSTOM
Battery		
Type	12N24-3	Same as SEDAN
Capacity	12V/26AH	"
Charging Current	3A	"
Specific Gravity when fully charged (20°C)	1.280	"
Ground Pole	Negative	"
Electrolyte	1.5 ℓ (1.6USqt, 1.3Imp.qt)	"
Turn Signal Relay Type	F1311 Type	"
Turn Signal Frequency	70-90/min at 12±0.2V	"
Oil Level Indicator	Lights at 0.5 ℓ (1 USpt, 0.9 Imp.pt) with car parked	"
Fuel Gauge	F=25 liters (6.6US gal. 5.5 Imp.gal)	F=20 liters (5.3US gal. 4.4 Imp.gal)
	E=2 liters (0.5US gal. 0.4 Imp.gal)	E=2 liters (0.5US gal. 0.4 Imp.gal)
Horn		
Type	BS10-D	Same as SEDAN
Volume	100±5 Phon	"
Current	1.8A	"
Stop Lamp Switch		
Lighting Pressure	4-8 kg/cm ² (57-114 lb/in ²)	"
Maximum Current	5A	"
Strength Factor	150 kg/cm ² (2140 lb/in ²)	"

Windshield Wiper Motor

Mitsuba Denki	
Type	WM-2
Current: Standard Load	Under 1.5A
No Load	Under 1.0A
RPM: Standard Load	33-50 rpm
No Load	45-55 rpm
Motor Torque	Over 60cm-kg

9-2: BATTERY



- (1) Cell
- (2) Terminal Pole (-)
- (3) Filler Cap
- (4) Cover
- (5) Terminal Pole (+)

A. CONSTRUCTION

The 12V battery is composed of six 2V batteries. The main components are as follows:

ANODE PLATE:

Fine, dark-brown and hard lead dioxide is filled into a lead alloy grid which is provided with great porosity to allow free penetration of electrolyte to the plate. One anode plate group is made up of four of these plates.

CATHODE PLATE:

Grey, spongy and porous lead is filled into a lead alloy grid. A cathode plate group consist of five plates.

SEPARATOR:

In order to prevent short-circuits between the anode and cathode plates, a non-conductive, porous separator is inserted between these plates. A glass mat is used together with such separators usually made of reinforced fiber or wood.

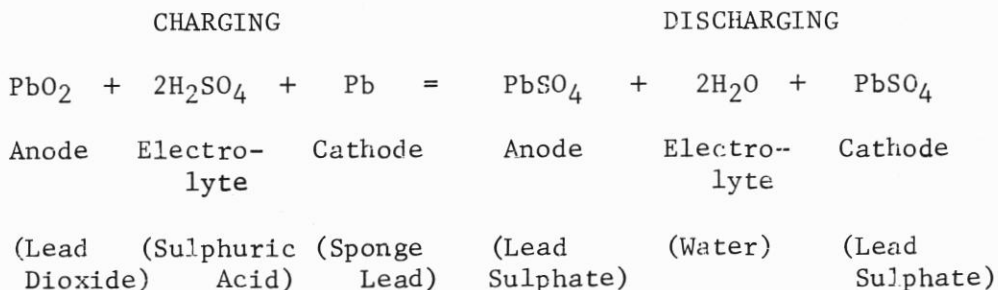
ELECTROLYTE:

An electrochemical action will take place only when there is electrolyte fluid around the reacting plates. The electrolyte should be refined diluted sulphuric acid for industrial use. It must be colorless, odorless and of high purity complying with major industrial standards.

Care must be taken in selecting the electrolyte because electrolytes made from impure water or sulphuric acid containing impurities will corrode the plates, increase spontaneous discharging and shorten the service life of battery.

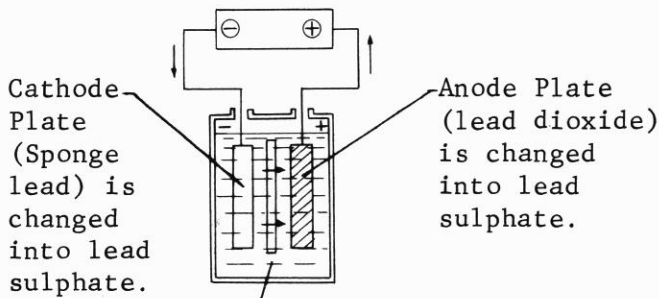
B. CHEMICAL REACTION IN BATTERY

When the battery is being discharged, a chemical reaction is occurring on the reacting materials in accordance with the degree of discharging, and conversely, when charging, the reacting materials are returning to their original conditions. The chemical formulae for this phenomena is as follows:



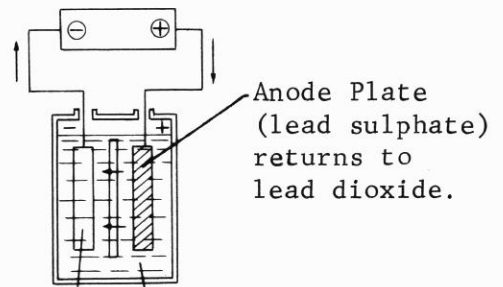
A more simplified explanation can be seen in the following drawings:

Charging



Electrolyte
The electrolyte becomes deluted because when the sulphuric acid reacts on the plates, the H in the sulphuric acid and the O in the lead dioxide combine to form water.

Discharging



Cathode Plate (lead sulphate)
returns to sponge lead.

Electrolyte
The electrolyte gradually becomes more concentrated by the sulphuric acid discharged from the plate.

C. MEASUREMENT OF SPECIFIC GRAVITY

Use a hydrometer for checking the specific gravity of the electrolyte. Place the hydrometer vertically into the electrolyte and carefully take up fluid into the glass chamber. Remove from battery and shake slightly to loosen float. Hold at eye-level and make your reading. Clean off any oily substance which may be adhering to the hydrometer as it may distort the reading. Furthermore, the specific gravity will differ with the temperature. All values are measured at 20°C. Therefore, after checking the specific gravity, be sure to check the temperature of the electrolyte at the same time and