

7. TROUBLE SHOOTING AND CORRECTIVE ACTION

Trouble	Probable cause	Correct action
<p>A. Sulfation The electrode plates are covered with white layer or in spots (Fig. 5-20).</p>	<ol style="list-style-type: none"> Charging rate is too small or else excessively large. The specific gravity or the mixture of the electrolyte is improper. Battery left in a discharged condition for a long period. (left with the switch turned on) Exposed to excessive vibration due to improper installation. During cold season when motor-cycle is left stored, the wiring should be disconnected. 	<ol style="list-style-type: none"> When stored in a discharged condition, the battery should be recharged once a month even when the motorcycle is not-used. Check the electrolyte periodically and always maintain the proper level, 10-13 mm (0.400-0.518 in.) above the plates. In a lightly discharged condition, the battery may be restored by overcharging at 20H. <p>Depending upon the condition, performing recharging and discharging several times may be sufficient.</p>
<p>B. Self discharge Battery discharges in addition to that caused by the connected load.</p>	<ol style="list-style-type: none"> Dirty contact areas and case. Contaminated electrolyte or electrolyte excessively concentrated. 	<ol style="list-style-type: none"> Always maintain the exterior clean. Handle the replenishing fluid with care.
<p>C. Discharge rate large Specific gravity, gradually lowers and around 1.1, the turn signal lamp and horn no longer function.</p>	<ol style="list-style-type: none"> The fuse and the wiring is satisfactory; the loads such as turn signal lamp and horn does not function. In this condition the motorcycle will operate but with prolong use, both the \oplus and \ominus plates will react with the sulfuric acid and form lead sulfide deposits, (sulfation) making it impossible to recharge. 	<ol style="list-style-type: none"> When the specific gravity falls below 1,200 (20°C: 68°F), the battery should be recharged immediately. When the battery frequently becomes discharged while operating at normal speed, check the generator for proper output. If the battery discharges under normal charge output, it is an indication of overloading, remove some of the excess load.
<p>D. High charging rate The electrolyte level drops rapidly but the charge is always maintained at 100% and the condition appears satisfactory. A condition which is overlooked, (specific gravity over 1,260)</p>	<ol style="list-style-type: none"> The deposit will heavily accumulate at the bottom and will cause internal shorting, causing damage to the battery. 	<ol style="list-style-type: none"> Check to assure proper charging rate. When overcharge condition exist with the proper charging rate, place an appropriate resistor in the charging circuit.
<p>E. Specific gravity drops Electrolyte evaporates</p>	<ol style="list-style-type: none"> Shorted Insufficient charging Distilled water over-filled Contaminated electrolyte 	<ol style="list-style-type: none"> Perform specific gravity measurement. If the addition of distilled water causes a drop in specific gravity, add sulfuric acid and adjust to proper specific gravity.

5.6 SPARK PLUG

Spark plug performs one of the most important functions in the engine ignition system. The high voltage produced by the magneto or the ignition coil is received by the spark plug and causes the high tension spark to jump across from the center electrode of the spark plug to the side electrode within the engine combustion chamber. The spark ignites the compressed fuel mixture in the combustion chamber and produces an explosion which operates the engine. Even under various adverse conditions, durability and reliability is required. (Fig. 5-21)

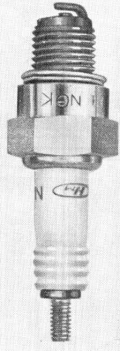


Figure 5-21. Spark plug

1. SPARK PLUG

The operation of the engine can be determined by the condition of the plug. The firing area of the insulator colored white, gray or light gray indicates good condition and is performing satisfactorily.

2. HEAT RANGE OF THE SPARK PLUG

The firing area of the spark plug insulator is exposed to carbon and oil while the engine is operating, and to prevent its build-up, plugs are designed to burn off any deposits by the heat of combustion.

Spark plugs which are too cold will not burn off the carbon and oil deposits and will cause shorting of the high tension voltage resulting in the engine to mis-fire. In the opposite case, the power output will be drastically reduced.

In order to prevent the above troubles, the surface of the insulator firing area must be maintained at approximately 500-870°C (932-1600°F) range. This temperature is referred to as the self-cleaning temperature.

The temperature of the spark plug will vary to a considerable degree with the type engine and design, riding condition, and fuel.

In order for the plugs to function properly under the different conditions, it is necessary for the plugs to properly dissipate temperature of the plug caused by the heat of combustion.

The rate of heat dissipation of the spark plug is the heat range of the spark plug. A spark plug which readily dissipates the heat and which is difficult to overheat is referred to as a "Cold Type". A spark plug which retains the heat and which will burn readily is referred to as a "Hot Type". On engine operating at high temperature, a spark plug which is difficult to overheat, in other words, the cold type spark plug is used and for engine operating at low temperature a hot type spark plug is used. (Fig. 5-22, 5-23)

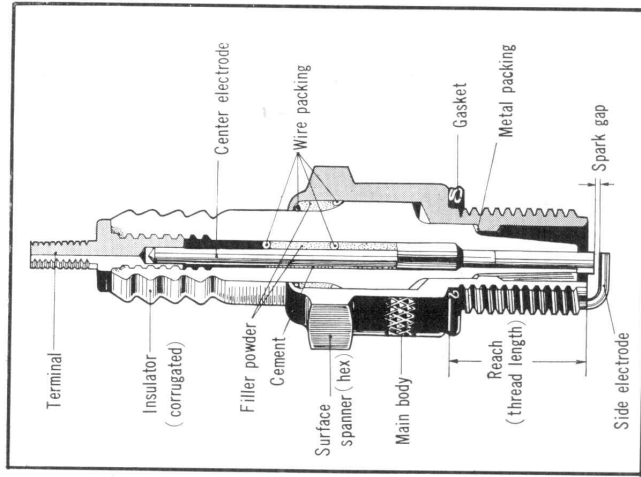


Figure 5-22. Construction of spark plug

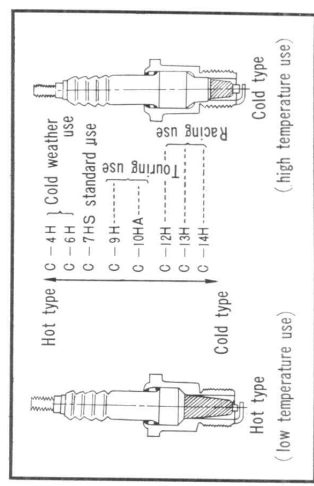


Figure 5-23. Heat range of spark plug