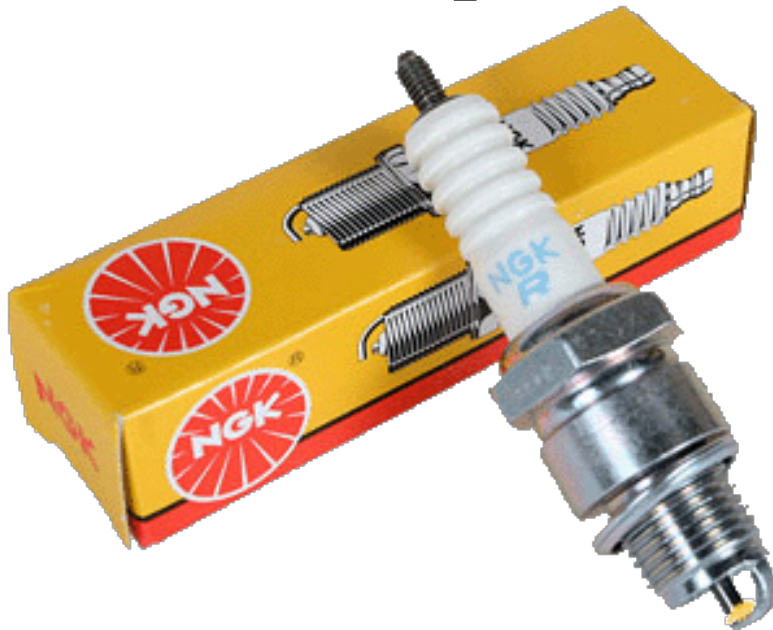


Spark Plugs



¶ The Bible tells us---

**"Where no counsel is, the people fail:
but in the multitude of counsellors there is safety."**

Proverbs 11:14

So to prevent you from failing Spark Plug reading here is a multitude of counsellors in picture form.

I got all this from a Free hand out I recieved from [NGK Spark Plugs](#) back in 1977. I think their Hot-but-OK plug

le cause delle candela fuliginose come quelle mostrate nelle figure 3-4 e 5 sono solitamente il risultato di:

- Viene utilizzata una candela con un grado di calore troppo elevato e la parte di accensione della candela non raggiunge la sua temperatura di autopulizia (superiore a 400-450 ° C) a causa delle condizioni di carico leggero.

- Uso di una miscela aria-carburante troppo ricca di più ricco di 8: 1-10: 1

- Problemi nel sistema di accensione

- Sistema di raffreddamento che non funziona correttamente con conseguente raffreddamento eccessivo

- Le bruciature dell'estremità di cottura illustrate nelle figure 25-26, fine 27 possono essere il risultato di:

- Tempo di calore troppo basso che consente alla candela di superare il limite massimo per una temperatura operativa ottimale di oltre 850-10000 ° C a causa di operazioni di carico eccessivamente pesanti

- Una miscela di carburante aria troppo magra

- tempi di consegna troppo avanzati

- combustione anomala come battiti

- guasto del sistema di raffreddamento che causa il surriscaldamento del motore

- Le condizioni di surriscaldamento mostrate nelle figure 28 e 29 a causa di intensi colpi e pre-accensione a seguito di situazioni identiche a quelle delle figure 25-26 e 27 in cui un aumento della temperatura dell'estremità di accensione della candela provoca la fusione dell'elettrodo

Indicazioni Colorazione candela

Introduction

The appearance of the firing-end of a spark plug graphically reflects the condition of an engine, the suitability of the spark plug heat rating, and whether or not the carburetor and ignition timing are properly adjusted.

This pamphlet is intended to assist you in correctly choosing your spark plugs and determining the performance condition of your engine.

■ Even plugs which present a good appearance, such as those shown in Figures 6~8, can quite often be covered with a lead deposit which causes misfiring.

■ Wet plug firing-ends such as shown in Figures 1~3 are normally attributed to one of the following causes:

- (1) Excessive choking.
- (2) Trouble within the ignition system.
- (3) Oil pumping past worn piston rings and valve guides.

■ The causes of sooty plugs like those shown in Figures 3, 4 and 5 are usually the result of:

- (1) A plug with a too high heat rating is being used and the plug firing-end does not reach

its self-cleaning temperature (above 400~450°C) due to light load conditions.

- (2) Use of a too rich air-fuel mixture of richer than 8:1~10:1
- (3) Trouble in the ignition system.
- (4) Improperly functioning cooling system resulting in excessive cooling.




■ The firing-end burns illustrated in Figures 25, 26 and 27 may be a result of:

- (1) Too low heat rating, permitting the plug to exceed the highest limit for optimum operating temperature of over 850~1000°C due to excessively heavy load operations.
- (2) A too lean air-fuel mixture.
- (3) Ignition timing too over advanced.
- (4) Abnormal combustion such as knocking.
- (5) Cooling system trouble, which causes engine overheating.

■ Overheating conditions shown in Figures 28 and 29 are due to intense knocking and pre-ignition following situations identical to those in Figures 25, 26 and 27 where increased temperature of the spark plug firing-end results in melting of the electrode.

| | | | |
|---|---|--|---|
|  |  |  |  |
| <u>1</u> Oil Fouled | <u>2</u> Oil Fouled | <u>3</u> Carbon Fouled | <u>4</u> Too Cold |
|  |  |  |  |
| <u>5</u> Too Cold | <u>6</u> Cold or Rich But OK | <u>7</u> Cold or Rich But OK | <u>8</u> Cold or Rich But OK |

Indicazioni Colorazione candela

| | | | |
|---|---|--|---|
|  |  |  |  |
| <u>9</u> Good | <u>10</u> Good | <u>11</u> Good | <u>12</u> Good |
|  |  |  |  |
| <u>13</u> Real Good | <u>14</u> The Best | <u>15</u> Best | <u>16</u> Best |
|  |  |  |  |
| <u>17</u> Best | <u>18</u> Good | <u>19</u> Good | <u>20</u> Good |
|  |  |  |  |
| <u>21</u> Kinda Hot But OK | <u>22</u> Hot or Lean But OK (?) | <u>23</u> Hot or Lean But OK (?) | <u>24</u> Hot or Lean But OK (?) |

Indicazioni Colorazione candela



| | | | |
|---|---|---|---|
| <u>25</u> Too Hot or Lean Pre-Ignition Range | <u>26</u> Too Hot or Lean Pre-Ignition Range | <u>27</u> Too Hot or Lean Pre-Ignition Range | <u>28</u> Too Hot or Lean Pre-Ignition Range |
|---|---|---|---|



29
Too Hot or Lean
Pre-Ignition Range



30
Burned on Antifreeze