







BASIC INFORMATION FOR PLUG (2)



MOTOR SPORTS
IRIDIUM POWER
 DENSO
 CHINA
 INDONESIA
 KOREA
 MALAYSIA
 PHILIPPINES
 SAUDIARABIA
 SINGAPORE
 TAIWAN
 THAILAND
 JAPAN
 EUROPE & USA
 MOTOR CYCLE
 SMALL ENGINE
 CROSS REFERENCE
 PART NUMBER

04 Failure Modes of Spark Plugs

Condition	Normal	Carbon fouling	Oil fouling
Appearance			
	When using unleaded gasoline, the base of the insulator often becomes white or gray. The electrode may become slightly burned. When using leaded gasoline, the base of the insulator becomes light brown.	Dried carbon is deposited, covering the insulation base and electrode area.	The base of the insulator and electrode become shiny black, covered with oil or gasoline.
Engine	The engine runs in excellent condition when starting or driving, both at high or low speeds.	Engine startability worsens and "misses" at low speeds. If not corrected, the engine may die often and have poor acceleration. (Nearly 90% of engine trouble from spark plugs is caused by carbon fouling or oil fouling.)	Engine startability worsens and "misses" at low speeds. If not corrected, the engine may die often and have poor acceleration. (Nearly 90% of engine trouble from spark plugs is caused by carbon fouling or oil fouling.)
Causes		<ol style="list-style-type: none"> 1. Inappropriate thermal value 2. Engine idling for a long time, or driving in low temperatures 3. Rich air-fuel mixture 4. Clogged air filter 5. Delay in ignition timing 	<ol style="list-style-type: none"> 1. Oil leakage into the combustion chamber due to frictional wear of the piston rings, valve guides, or cylinder wall. 2. Rich air-fuel mixture
Solve the problem		<ol style="list-style-type: none"> 1 or 2: Use a spark plug with a thermal value that is one level lower, or adjust engine idling 3 to 5: Perform complete readjustment and tune-up 	<ol style="list-style-type: none"> 1. Spark plugs may become wet until the oil flow control becomes normal during pre-conditioning runs with a new engine or an engine immediately after an overhaul. In such cases, simply clean the plug and reinstall it. In other cases, the engine basically requires a complete overhaul. 2. Adjust the carburetor.

Condition	Overheating	Pre-ignition	Insulator breakage
Appearance			
	The base of the insulator will be burned and become bleached white from the heat. The electrode will also be burned and become white or dark purple. Electrodes will wear out soon.	The electrode will be melted. In extreme cases, the base of the insulator is also melted.	The base of the insulator has a vertical crack. The appearance of the spark plug is similar to problems with overheating or lead fouling.
Engine	Engine horsepower decreases and speed falls when running continuously at high speeds, driving for a long time uphill, or pulling too great a load.	This is caused by overheating. Temperatures in the combustion chamber increase rapidly, destroying not only the spark plug, but the piston head also.	Engine horsepower decreases and speed falls when running continuously at high speeds, driving for a long time uphill, or pulling too great a load.
Causes	<ol style="list-style-type: none"> 1. Inappropriate thermal value of plug 2. Use of low octane gasoline 3. Ignition timing set too early 4. Inappropriate cooling 5. Poor air-fuel mixture 	<ol style="list-style-type: none"> 1. Inappropriate thermal value of plug 2. Use of low octane gasoline 3. Ignition timing set too early 4. Inappropriate cooling 5. Poor air-fuel mixture 	<ol style="list-style-type: none"> 1. Inappropriate thermal value of plug 2. Ignition timing set too early 3. Inappropriate cooling 4. Poor air-fuel mixture
Solve the problem	<ol style="list-style-type: none"> 1. Use a spark plug with a higher thermal value 2. Use higher octane gasoline 3. Adjust the ignition timing 4. Check the cooling system 5. Adjust the carburetor 	<ol style="list-style-type: none"> 1. Use a spark plug with a higher thermal value 2. Use higher octane gasoline 3. Adjust the ignition timing 4. Check the cooling system 5. Adjust the carburetor 	<ol style="list-style-type: none"> 1. Use a spark plug with a higher thermal value 2. Adjust the ignition timing 3. Check the cooling system 4. Adjust the carburetor