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Helpful Hints

Spark Plug Faces: Recognise and rectify your automotive problem



1, 2
Normal condition
Insulator nose greyish-yellow to russet brown. Engine is in order. Heat range of plug correct. Mixture setting and ignition timing are correct, no misfiring, cold starting device functions correctly.
No deposits from fuel additives containing lead or from alloying constituents in the engine oil.
No overheating.



3, 4
Soot - carbon fouled
Insulator nose, electrodes and spark-plug shell covered with velvet-like, dull black soot deposits.
Cause: incorrect mixture setting (carburettor, fuel injection): mixture too rich, air filter very dirty, automatic choke not in order or manual choke pulled too long, mainly short distance driving, spark plug too cold, heat range code number too low
Effect: misfiring, poor cold-starting performance.
Remedy: set mixture and cold-starting device correctly, check air filter.



5, 6
Oil-fouled
Insulator nose electrodes and spark-plug shell covered with shiny soot or carbon residue.
Cause: too much oil in combustion chamber. Oil level too high, badly worn piston rings, cylinders and valve guides. In two stroke gasoline engines, too much oil in mixture.
Effect: misfiring, poor starting performance.
Remedy: overhaul engine, correct fuel-oil mixture, new spark plugs.



7, 8
Lead deposits
In places the insulator nose is glazed brownish yellow; this may also tend towards green.
Cause: fuel additives which contain lead. The glaze appears in the case of heavy engine loading after lengthy part-load operation.
Effect: under heavy loading deposits become electrically conductive and cause misfiring.
Remedy: new spark plugs, cleaning is pointless.



9, 10
Heavy lead deposits.
In places the insulator nose is thickly glazed brownish-yellow, this may also tend towards green.
Cause: fuel additives which contain lead. The glaze appears in the case of heavy engine loading after lengthy part-load operation.
Effect: under heavy loading, deposits become electrically conductive and cause misfiring.
Remedy: new spark plugs, cleaning is pointless.



11, 12
Formation of ash
Heavy ash deposits from oil and fuel additives on the insulator nose, in the scavenging area and on the ground electrode. The structure of the ash is loose to cinder-like.
Cause: alloying constituents, in particular from oil, can deposit this ash in the combustion chamber and on the spark-plug face.
Effect: can lead to auto ignition with loss of power and engine damage.
Remedy: repair engine. New spark plugs. Possibly use other oil.



13
Partially melted centre electrode
Centre electrode partially melted, blistered, spongy insulator tip.
Cause: overheating due to auto-ignition, e.g. due to over-advanced ignition timing, combustion deposits in combustion chamber, defective valves, defective ignition distributor, inadequate fuel quality, heat range possibly too low.
Effect: misfiring, loss of power (engine damage)
Remedy: check engine, ignition and mixture formation. New spark plugs with correct heat range.



15
Partially melted electrodes
Cauliflower-like appearance of the electrodes. Possibly deposition of foreign matter.
Cause: overheating due to auto-ignition, e.g. due to over-advanced ignition timing, combustion deposits in combustion chamber, defective valves, defective ignition distributor, inadequate fuel quality.
Effect: loss of power prior to complete failure (engine damage)
Remedy: check engine, ignition and mixture formation. New spark plugs



17
Heavy wear on ground electrode.
Cause: aggressive fuel and oil additives. Unfavourable influence of gas turbulence in the combustion chamber, possibly caused by deposits. Knocking. No overheating.
Effect: misfiring particularly when accelerating (ignition voltage no longer sufficient for large electrode gap). Poor starting performance.
Remedy: new spark plugs.



18
Insulator nose breakage
Cause: mechanical damage due to being struck or dropped or due to pressure on the centre electrode when improperly handled. In borderline cases – particularly when the spark plug has been in use for too long – the insulator nose may be cracked by deposits between the centre electrode and the insulator nose and by corrosion of the centre electrode.
Effect: misfiring. Spark jumps across at points which are not reliably reached by the mixture.
Remedy: new spark plugs



Supersession List

Previous Type	New Type	Previous Type	New Type	Previous Type	New Type
D10BC	DR10BC	FR7DTC	FR7DC+	W5DTC	WR5DC+
D6BC	DR6BC	FR7KC	FR7KWC	W6BC	WR6BC
D7BC	DR7BC	FR7KCU	FR7KCX	W6DC	WR6DC+
D8BC	DR8BC	FR7KDC	FR7LDC+	W6DTC	WR6DC+
D9BC	DR9BC	FR7LDC	FR7LDC+	W7BC	WR7BC+
F5DC	FR5DC	FR8DC	FR8DC+	W7CC	WR7CC
F6DC	FR6DC+	FR8DC0	FR8DC+	W7DC	WR7DC+
F6DC0R	FR6DC+	FR8DCX	FR8DCX+	W7DC0	WR7DC+
F6DCX	FR6DCX	FR8LDC	FLR8LDCU+	W7DCR	WR7DC+
F6DTC	FR6DTC	H07DC	discontinued	W7DCX	WR7DCX+
F6LTCR	FR6LTC	H10BC	HR10BC	W7DP	WR7DP
F7DC	FR7DC+	H6BC	HR6BC	W7DTC	WR7DC+
F7DC0	FR7DC+	H6DC	HR6DC+	W7LTCR	WR7LTC+
F7DC	FR7DCX+	H7DC	discontinued	W8BC	WR8BC+
F7DPP222T	FR7DPP33	H7CCY	discontinued	W8DC	WR8DC+
F7DTC	FR7DC+	H7DC	HR7DC+	W8DC0	WR8DC+
F7HPP222	FR7HPP222	H7DC0	HR7DC+	W8DCX	WR8DC+
F7KTCR	FR7KTC	H7DCY	HR7DCY	W8DP	WR8DP
F7LDCR	FR7LDC+	H7DP	HR7DP	W8DPX	WR8DPX
F7LTCR	FR7LDC+	H8BC	HR8BC	W8DTC	WR8DCX+
F8DC	FR8DC+	H8BCS	discontinued	W8FC	WR8FC
F8DC4	FR8DC+	H8DC	HR8DC+	W8LCR	WR8LC
F8DPP32	FR8DPP33	H8DC0	HR8DC+	W8LTCR	WR8LTC+
F8DPP332	FR8DPP33	H9BC	HR9BC+	W9DC	WR9DC+
F8KTCR	FR8KTC	H9BCY	HR9BCY	W9LC	WR9LE
F8LCR	FR8LC	H9DC	HR9DC	W9LCX	WR9LCX+
FGR6KQC	FGR6KQC	HR6DC	HR6DC+	WR5DC	WR5DC+
FGR6KQE	FGR6KQE	HR7DC	HR7DC+	WR6DC	WR6DC+
FGR7DQE0	FGR7DQE+	HR7DC0	HR7DCX	WR6DTC	WR6DC+
FGR8MQPE	FR8SPP332	HR7MPP	HR7MPP+	WR7BC	WR7BC+
FLR8LDCU	FLR8LDCU+	HR7MPP22U	HR7MPP+	WR7DC	WR7DC+
FR5DC	FR5DC	HR8DCV	HR8DCV+	WR7DCX	WR7DCX+
FR5DP1	FR5DPP222	HR9BC	HR9BC+	WR7DP1X	discontinued
FR5DP1X	FR5DPP222	HR9DCY	HR9DCY+	WR7DTC	WR7DCX+
FR6DC	FR6DC+	M8AC0	discontinued	WR8DC	WR8DC+
FR6DC2	FR6DC+	UET2	discontinued	WR8DCX	WR8DCX+
FR6DP1	FR6DPP22	W10DC	W10DC	WR8HP	discontinued
FR6DP1X	FR6DPP33X	W10FC	WR10FC	WR9DC	WR9DC+
FR6DTCW	FR6DC+	W2CC	W2CC	WR9DCX	WR9DCX+
FR7DC	FR7DC+	W3CC	WR3CC	WR9EC0	WSR9EC
FR7DC0	FR7DC+	W3CP	WR3CP	WR9LCX	WR9LCX+
FR7DC2	FR7DC+	W4CC07	WR4CC	WR9LEV	WR9LEV+
FR7DC9	FR7DC+	W4CP	WR4CP	WS8E	WS9EC
FR7DCU	FR7DCX+	W4DP0	WR4DP0	XR2AS	discontinued
FR7DCX	FR7DCX+	W5BC	WR5BC	XR4AS	discontinued
FR7DP1X	FR7DPP22U	W5DC	WR5DC+		
FR7DPP10	FR7DPP+	W5DP	WR5DP		



SBR 2003/2004 V8 Supercar
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