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EVINRUDE[®]
Johnson[®]



OUTBOARDS

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SERVICE
Bulletin

Date: February, 2006

No. 2006-01(S)

MODELS: Evinrude[®] E-TEC[™] Outboards

SUBJECT: Engine Duty Cycle and Spark Plugs

Dear Evinrude/Johnson[®] Dealers:

This communication is intended to provide Evinrude dealers with specific information related to engine duty cycles and spark plugs.

MARINE ENGINE DUTY CYCLES

The International Council of Marine Industry Associations (ICOMIA) Standard No. 36-88 specifies a marine engine duty cycle based on documented studies. Both the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) recognize this duty cycle as representative of actual engine use by the average recreational user. This duty cycle or "running profile" provides the basis used to determine average spark plug longevity and maintenance requirements for Evinrude E-TEC outboards.

ICOMIA Marine Engine Duty Cycle		
Operating Mode	Engine Speed as Percentage of Rated Speed (RPM)	Time at Specified RPM (Percentage of Total Engine Running Time)
1	IDLE	40%
2	40%	25%
3	60%	15%
4	80%	14%
5	100%	6%

IMPORTANT: Variations in running profiles (duty cycles) can affect spark plug longevity and maintenance requirements.

SPARK PLUG PERFORMANCE

Evinrude E-TEC outboards produce exceptionally clean exhaust emissions. Engine efficiency is improved through the unique control of ignition spark. The "hybrid" ignition system, unique to these outboards, can initiate multiple ignition sparks to each cylinder during certain slow speed operating conditions. Simply stated, ignition events per revolution are more frequent. This factor can influence spark plug requirements related to these engines.



Evinrude Diagnostic Software, Engine Monitor Display

SPARK PLUG MAINTENANCE

The operation and running profiles of outboards can vary considerably for different users and/or applications. Some running profiles and/or conditions can lead to spark plug wear sooner than expected. Understanding how Evinrude E-TEC outboards perform will help in making adjustments to maintenance schedules for specific running profiles.

Occasionally, maintenance schedules must be adjusted for specific users and/or applications.



Reasonable service practices should be noted and applied on all outboards. Make sure outboard is operating at specified operating temperature, and eliminate possible rich operating conditions which cause fouled spark plug(s).

Suggested “hours of use” on maintenance schedules cannot account for all variations in running profiles and/or conditions.

Use *Evinrude Diagnostics* software program to observe engine hour and RPM profile information.



Evinrude Diagnostic Software, Profiles Display