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Fuels and Lubricants Research Division

NMMA 40 HP General Performance Test

Specifications

- NMMA TC-W3®

Objective

- Evaluate the overall performance of a lubricant for application in two-stroke cycle, water-cooled, spark-ignition outboard engines.

Field Service Simulated

- Two-stroke cycle outboard engines operating on recommended fuel-lubricant ratios up to 100:1 using either premix or lubricant injection systems.

Test Fixture

- An OMC 40 hp, two-stroke cycle, water-cooled, spark-ignition outboard engine with specially designed pistons and rings is mounted in a 1700-gallon test tank.
- A closed coolant system maintains engine temperature and a special load wheel replaces the propeller to obtain proper rpm at wide-open throttle (WOT).



Test Parameters

- The test is conducted for 98 hours on a 55-minute WOT, five-minute idle cycle with a one-hour soak after each seven hours of running time.
- The following conditions are maintained throughout the test:

Parameter	Value
Engine speed, rpm	4500
Coolant-out temp, °C	77
Fuel flow, lb/hr	21.5
Fuel/lubricant ratio	100:1

Test Parts Evaluation

- General engine condition is evaluated, with particular emphasis on pistons and rings.

Used Lubricant Analysis

- None.

Pass/Fail Criteria

- Piston varnish, ring sticking, and general engine deposits are the primary evaluation areas.
- As good or better performance than NMMA 93738 reference lubricant is required within the specified tolerance in the areas of top ring sticking and average piston deposits.

◆ We welcome your inquiries. For additional information, please contact:

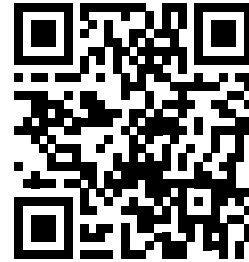
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