

Leisure Marine and Small Engine Lubricants Section

ASTM D 4863 Yamaha Lubricity Test

SPECIFICATIONS

ASTM TC: Sequence II

OBJECTIVE

The purpose of this test is to evaluate the lubricity of a 2-cycle air-cooled engine lubricant.

FIELD SERVICE SIMULATED

Field service is typical of two-stroke cycle air-cooled engines in off-road use over hilly terrain.

TEST FIXTURE

A Yamaha CE50S single cylinder, air-cooled, two-stroke cycle, spark ignition engine is setup on a test bed and coupled to a high-speed 10 HP dynamometer. External cooling air is supplied to the engine by a variable delivery fan.

TEST PARAMETERS

Each tightening begins with a stabilization period at the following conditions:

Engine, rpm WOT	4000
Load	WOT
Spark plug gasket temperature, °F	338 (170°C)
Fuel/oil ratio	150:1

After stabilization, the cooling air is stopped and torque decrease is monitored as spark plug gasket temperature rises. Cooling air is restored when spark plug gasket temperature reaches 662°F (350°C). This procedure is repeated five times in each of two sets on both the reference and candidate lubricants.

TEST PARTS EVALUATED

General engine condition is evaluated at the end of this test.

USED LUBRICANT ANALYSIS

None.

PASS/FAIL CRITERIA

The candidate must demonstrate performance equal to or better than the ASTM 600 reference oil, using the 95% confidence level. The torque decrease of the candidate lubricant must be less than or equal to the ASTM 600 reference lubricant, using the 95% confidence level.

