

Marine Engine Rating Code— SAE J1228 JUN84

SAE Recommended Practice
Completely Revised June 1984

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MARINE ENGINE RATING CODE— SAE J1228 JUN84

SAE Recommended Practice

Report of the Marine Technical Committee, approved March 1980, completely revised June 1984.

Contents—This code is composed of the following sections:

1. Terminology and Power Declarations
2. Test Measurements
3. Test Procedures
4. Presentation of Results

Purpose—The purpose of this code is to provide a standard for documenting the declared (rated) performance of a marine propulsion engine or propulsion system and a standard procedure for determining this performance in an engine dynamometer laboratory.

Scope—This recommended practice specifies requirements in addition to those given in ISO 3046 for testing a high speed reciprocating internal combustion marine propulsion engine or propulsion system for recreational and small commercial craft, for the determination of the rated power (single point) or power curve. This code is not intended as a complete laboratory test manual or for derating engines for site conditions.

References

ISO 3046/1—Reciprocating Internal Combustion Engines: Performance-Part I: Standard Reference Conditions and Declarations of Power, Fuel Consumption, and Lubricating Oil Consumption.

ISO 3046/II—Reciprocating Internal Combustion Engines: Performance-Part II: Test Methods.

ISO 3046/III—Reciprocating Internal Combustion Engines: Performance-Part III: Test Measurements.

ISO 2710—Reciprocating Internal Combustion Engines: General Definitions

ISO 1000—SI Units

1. Terminology and Power Declarations

1.1 Observed power is the power actually developed by an engine under the atmospheric conditions existing during the test.

1.2 Corrected power is the observed power adjusted to the standard atmospheric conditions specified in ISO 3046/1 using the correction methods specified in ISO 3046/II.

1.3 Power shall be declared (rated) at the final output shaft of the engine or propulsion unit as offered for sale by the manufacturer and according to the following principles:

1.3.1 The rated power is that power declared at a given crankshaft speed (the rated speed).

1.3.1.1 In the case of ungoverned engines, if any power within the manufacturer's recommended speed range exceeds the rated power by more than 6%, it shall be stated additionally.

1.3.2 Propeller Shaft Power shall be declared at the propeller shaft of engines sold with complete propulsion units, and at the coupling to the propeller shaft of inboard engines sold with reduction or-reversing gear.

1.3.3 Crankshaft Power shall be declared at the crankshaft (flywheel) of engines sold without reduction gears, stern drive, or sail drive units. Declaration of rated power shall contain a statement that usable power will be reduced by transmission or gear box losses.

1.3.4 In the case of ungoverned engines, the rated speed shall be the midpoint of the full throttle speed range recommended by the manufacturer for propeller selection.

1.3.5 In the case of governed engines, the rated speed shall be that speed declared by the manufacturer.

2. **Test Measurements**—Test measurements and their degree of accuracy shall be as specified in ISO 3046/III.

2.1 Temperatures

2.1.1 Temperature of the inlet air to the engine (ambient air) shall be measured in a manner to get a mass average temperature. The temperature shall be taken in the engine inlet air stream, or within 150 mm of the air inlet horn to the air cleaner. (Inside the engine cowl, if furnished.)

2.1.2 Temperature of coolant medium shall be measured within 150 mm of sea water inlet. Water jacket temperatures in liquid-cooled engines shall be measured at the inter-cooler inlet if applicable, or at an outlet point of the engine specified by the manufacturer. Temperatures in air-cooled engines should be measured at point(s) specified by the manufacturer, such as spark plug(s) or cylinder heads.

2.1.3 Oil temperatures shall be measured at point(s) specified by the manufacturer.

3. **Test Procedures**—This section contains the required test procedures for determining propeller shaft power and crankshaft power.

3.1 Description of Tests

3.1.1 Power tests consists of runs at full throttle to determine power output as defined in paragraph 1.3.

3.2 **Engine Installation**—The test engine or propulsion system shall

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