

Marine Carburetors — SAE J1223 DEC80

SAE Recommended Practice
Approved December 1980

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Report of the Marine Technical Committee, approved December 1980.

1. **Scope**—This recommended practice covers all carburetors used on permanently installed gasoline marine engines.

2. **Purpose**—To recommend design practices and test procedures for carburetors used in a marine environment.

3. Design Practice

3.1 All vents and air bleeds shall normally be within the envelope of the air induction system. Vents or air bleeds external to the air induction system are permitted if they have flame arresting capability and are in compliance with all other requirements as stated in this standard.

3.2 Each updraft and horizontal draft carburetor must have a device that:

3.2.1 Prevents fuel from being carried out of the carburetor and its induction system by the shock wave of a backfire or by reverse air flow; and

3.2.2 Returns collected fuel to the engine induction system after the engine starts.

3.3 All gaskets communicating to the outside of the carburetor shall be of a non-wicking type.

3.4 The carburetor shall be capable of operation throughout an ambient range from -7 to $+80^{\circ}\text{C}$ ($+20$ – 176°F) without failure.

3.5 The carburetor shall operate under conditions of 12 deg tilt from the carburetor design position.

4. Environmental Conditioning for Leakage Test

4.1 The carburetor shall be subjected to a storage temperature of -29°C (-20°F) for 48 h and returned to room temperature.

4.2 The carburetor shall be subjected to 1000 cycles of 13–17g peak vertical accelerations at a rate of 80 cycles or less per minute with the duration at the base of the half-sine shock pulse a minimum of 6 ms, with the carburetor in its normal operating position.

4.2.1 After the above shock test the steady state fuel delivery shall not change more than $\pm 5\%$ and no structural or mechanical failure of components is permissible.

4.3 The carburetor shall be mounted on an intake manifold, or sealed flange, with its flame arrestor, fuel, and vacuum lines attached (or line openings closed) and shall be subjected to a 96 h salt spray test at 35°C (95°F) per ASTM test B-117, using a 5% salt solution.

4.3.1 During the 96 h test, all linkage is to be cycled once during each 24 h interval.

4.3.2 After testing per paragraph 4.3, all moving parts shall operate without loss of function.

5. Leakage

5.1 There shall be no more than 5 cm^3 of fuel leakage external to the carburetor and its air induction system in 30 s when:

5.1.1 The fuel inlet shut-off valve is fixed in its full-open flow condition; and

5.1.2 Throttle plates are fixed at mid-position between closed and full-open. In the case of multiple throat carburetors having secondary throttle plates slaved to primary throttle plates, the primary plates may be so positioned as to allow the secondary plates to open no more than 50% to prevent fuel accumulation; and

5.1.3 The engine is cranked without starting for 30 s.

6. Identification

6.1 Evidence of compliance with the recommended practice shall be indicated by the marking "SAE J1223" together with the word "Marine" arranged in any suitable manner.

6.2 Marking should be as permanent in nature as practicable.

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