

# Ignition Distributors — Marine — SAE J1294 APR80

SAE Recommended Practice  
Approved April 1980

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# IGNITION DISTRIBUTORS— MARINE—SAE J1294 APR80

## SAE Recommended Practice

Report of the Marine Technical Committee, approved April 1980.

1. **Scope**—This recommended practice covers distributors used on marine engines.

2. **Purpose**—To provide recommendations and guidelines for the evaluation, design, and testing of distributors to be used on marine engines.

3. **General**—The three elements required to create a fire or explosion are often present in marine engine compartments. They are: an enclosure, a fuel, and a source of ignition. Compliance with this recommended practice will minimize the possibility of a distributor used on a marine engine acting as a source of ignition and assure conformance to the U.S. Coast Guard Standard 33 CFR 183, Subpart I, Section 183.410, (Ignition Protection).

#### 4. Definitions

4.1 **External Ignition Protection (EIP)**—The ability to prevent the ignition of a combustible mixture surrounding the distributor when a combustible mixture within the distributor is ignited.

4.2 **Wire**—The combination of a conductor surrounded by insulation.

#### 5. Distributor Enclosure

5.1 The distributor shall meet the requirements of SAE Recommended Practice J1171 (September, 1977), External Ignition Protection of Marine Electrical Devices. Openings for the purpose of draining, ventilating, timing, and vacuum advancing must be carefully evaluated and tested to determine their ability to quench an internal combustion of propane and air. Removable covers, plugs, plates, etc., should be avoided due to the possibility of their becoming dislodged, lost, or discarded. Gaskets may be used if secured to one of the mating surfaces.

5.2 The fit of distributor cap to bowl and distributor bowl drain holes must be carefully evaluated. A drain at the bottom of the bowl is recommended. A safe drain configuration will depend on the size and length of the flame path through the drain. Smaller openings and longer flame paths provide the greatest assurance of EIP.

5.3 Flame suppressor screening can provide ventilation without loss of EIP. The screened area, the screen mesh, and the number of layers of screening can be varied to provide a safe ventilation method. Screening shall be securely held in place and of corrosion resistant composition such as brass or stainless steel. If the distributor housing is painted or otherwise coated, the function of the screening must not be impaired.

5.4 Timing adjustment openings are not recommended.

5.5 If used, vacuum advance mechanisms shall be enclosed and tightly fitted or gasketed to the distributor housing.

#### 6. Insulation and Wire Size

6.1 The available voltage which exists at a distributor is fully capable of igniting a mixture of gasoline and air. The voltage must be contained within the insulation system of the distributor towers, wires, and nipples.

6.2 Tower nipples and secondary cable insulation must meet the requirements of SAE J1191 (June, 1978) and SAE J557 (January, 1968). Distributor cap material must meet the tests described in the Appendix.

6.3 All single exposed low voltage leads 7 in (180 mm) or longer in length must be SAE No. 16 gauge minimum, multiple wires enclosed in a sheath of loom may be 18 gauge. Those under 7 in (180 mm) must be SAE No. 18 gauge minimum. All exposed low voltage leads must meet SAE J378c (June, 1978) and SAE J1128 (November, 1975).

#### 7. Tower Connections

7.1 Terminal connections and nipples which are initially secure have the greatest potential of remaining in place during service.

7.2 See Figs. 1 and 2 for tower configurations. Tower cable terminations and nipples shall be in accordance with SAE J1191 (June, 1978). A locking tower terminal configuration is required. Tower connections must be of non-ferrous material. Nipples must be designed so that they do not touch the cap at base of tower before seating.

7.3 New tower connections must meet a minimum of 6 lb (26.7 N) pull-off force along the tower axis when installed without nipples.

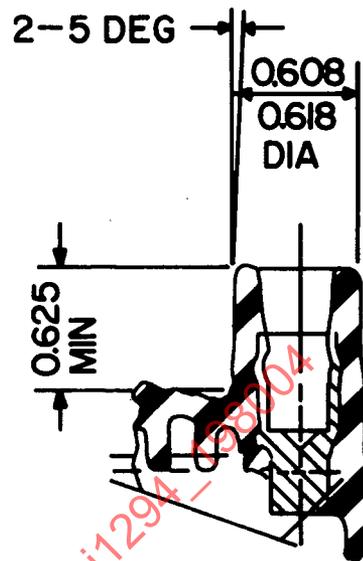


FIG. 1-TYPICAL TOWER CONFIGURATION

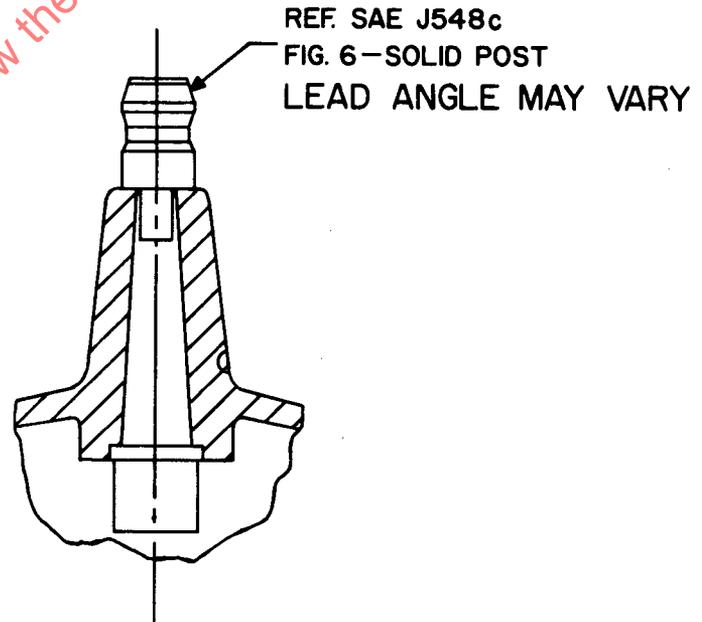


FIG. 2-TYPICAL TOWER CONFIGURATION