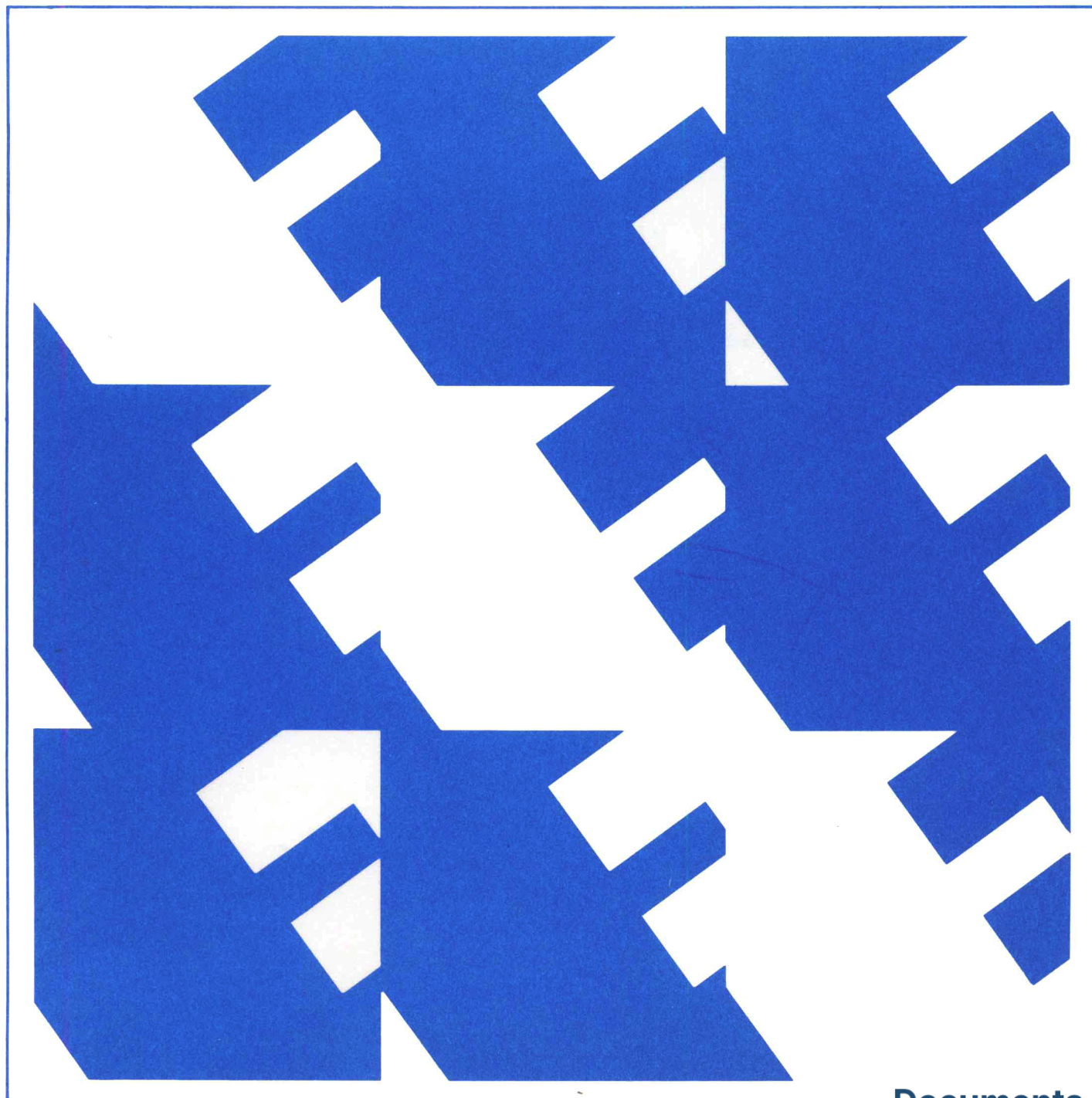


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IEEE Standard for Electric Control Apparatus for Land Transportation Vehicles

IEEE Std 16-1955



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American Standard
for
ELECTRIC CONTROL APPARATUS
for **LAND TRANSPORTATION VEHICLES**

(Supersedes C48-1931
and AIEE 16A-1951)

Approved as American Standard by the
American Standards Association
October 27, 1955

SPONSOR
American Institute of Electrical Engineers

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This proposed revision was formulated by a subcommittee of the AIEE Committee on Land Transportation. The personnel of the subcommittee was

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American Standard
for
ELECTRIC CONTROL APPARATUS
for **LAND TRANSPORTATION VEHICLES**

SCOPE

The standards in this section apply to the control apparatus on all land transportation vehicles.

SERVICE CONDITIONS

16-1 For the purpose of establishing standard rating (see 16-150) conditions, control apparatus shall be suitable for carrying its rated load:

- a. When and where the temperature of the cooling medium does not exceed 40C.
- b. Where the altitude does not exceed 1,000 meters (3,300 ft.)

16-2 It is recognized that conditions in service may or may not correspond to standard rating conditions, and that the application of equipment to a given service must recognize and take into account actual service conditions.

Factors such as the following, which may have a special bearing on the operation of equipment, should be brought to the attention of those responsible for its design and application:

- a. Cooling medium temperatures exceeding 40C.
- b. Altitudes greater than 1,000 meters (3,300 ft.)
- c. Tracks and roadways covered with water
- d. Excessive snow, rain or sleet
- e. Conditions of excessive humidity or condensation
- f. Temperatures below -30C.
- g. Conditions affecting creepage such as salt air, brakeshoe dust and ore dust
- h. Excessive dust
- i. Explosive gases, damaging fumes and oil vapor
- j. Conditions of excessive vibration or shock

DEFINITIONS AND TERMINOLOGY

Where possible, these definitions conform to American Standard Definitions of Electrical Terms, C42-1941, and have been correlated with AIEE Standard No. 15, Industrial Control Apparatus, (ASA C19.1-1943), otherwise they apply specifically to apparatus treated in this sec-

tion. Where no definition may have been included in this section, reference to above standards is suggested.

Decimal classification numbers appearing at the end of definitions indicate a definition identical with, or modified from, a similar definition in ASA C42-1941.

Classification of Controllers

16-50 Electric controller.—An electric controller is a device, or a group of devices, which serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected. (25.05.005)

16-51 Basic Functions.—The basic functions of a controller are acceleration, retardation, line closing, reversing etc. (25.05.110)

16-52 Motor Controller.—A motor controller is a device or group of devices, which serves to govern, in some predetermined manner, the electric power delivered to the motor or group of motors to which it is connected.

16-53 Master Controller.—A master controller is one which governs the operation of one or more magnetic or electropneumatic controllers.

16-54 Magnetic Controller.—A magnetic controller is an electric controller having all of its basic functions performed by electromagnets. (25.05.-030)

16-55 Electropneumatic Controller.—An electropneumatic controller is an electrically supervised controller having its basic functions performed by air pressure. (25.05.020 modified)

16-56 Pneumatic Controller.—A pneumatic controller is a pneumatically supervised device or group of devices operating electric contacts in a predetermined sequence.

16-57 Manual Controller.—A manual controller is one having all of its basic functions performed by hand. (25.05.025)

16-58 Drum Controller.—A drum controller is a controller that utilizes a drum switch as the main switching element. (25.05.015)