IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead- Acid (VRLA) Batteries for Stationary Applications

IEEE Power Engineering Society

Sponsored by the
Stationary Battery Committee

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Abstract: This recommended practice is limited to maintenance, test schedules, and testing procedures that can be used to optimize the life and performance of valve-regulated lead-acid (VRLA) batteries for stationary applications. It also provides guidance to determine when batteries should be replaced.
Keywords: battery acceptance test, battery capacity text, battery performance test, battery service test, valve-regulated lead-acid (VRLA) battery

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Introduction

This introduction is not part of IEEE Std 1188-2005, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications.

Valve-regulated lead-acid (VRLA) batteries are playing an ever-increasing role in control and power systems. In many cases, VRLA batteries are being substituted for vented lead-acid batteries. Their use is also expanding into many other applications where their unique characteristics are desirable. Both gelled electrolyte and absorbed electrolyte VRLA designs, covering a range of sizes and capacities, are now available for use in many traditional and nontraditional battery applications. This recommended practice fulfills the need within the industry to provide a common or standard practice for battery maintenance, testing, and replacement of VRLA batteries for stationary applications. Alternative energy applications are not covered.

This recommended practice may be used separately, and when combined with IEEE Std 1187™, IEEE Std 1189™, and IEEE 485™, it will provide the user with a general guide to selection, sizing, designing, installing, and testing a VRLA battery installation.

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Errata, if any, for this and all other standards can be accessed at the following URL: http://standards.ieee.org/reading/ieee/updates/errata/index.html. Users are encouraged to check this URL for errata periodically.

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Contents

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1. Scope

This recommended practice is limited to maintenance, test schedules, and testing procedures that can be used to optimize the life and performance of valve-regulated lead-acid (VRLA) batteries for stationary applications. It also provides guidance to determine when batteries should be replaced.

The maintenance and testing programs described in this recommended practice represent "the best program" based on the information reviewed at the time this document was developed. The user should evaluate these practices against their operating experience, operating conditions, manufacturer's recommendations, resources, and needs in developing a maintenance program for a given application. These maintenance and testing recommendations were developed without consideration of economics, availability of testing equipment and personnel, or relative importance of the application. Development of a maintenance and testing program for a specific application requires consideration of all issues, not just the technical issues considered in this document.

Stationary cycling applications, such as those found in alternative energy applications, are also beyond the scope of this recommended practice.

This recommended practice does not include any other component of the dc system nor surveillance and testing of the dc system, even though the battery is part of that system.

Sizing, installation, qualification, selection criteria, and other battery types and applications are also beyond the scope of this recommended practice.