

Recommended Practice for Transit Bus Fire Safety Shutdown

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Abstract: This recommended practice provides guidelines for vehicle systems shut down in case of detected fire.

Keywords: fire, suppression, detection, fire suppression, bus fire, vehicle fire, engine fire, wheel fire, tire fire

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Introduction

(This introduction is not a part of APTA BTS-BS-RP-001-05 Recommended Practice for Transit Bus Fire Safety Shutdown.)

This Recommended Practice for Transit Bus Fire Safety Shutdown reflects the consensus of the APTA Bus Standards Program members on the items, methods, and procedures that have provided the best practice based on the experiences of those present and participating in meetings of the Program Task Forces and Working Groups. Recommended practices are voluntary, industry-developed, and consensus-based practices that assist equipment suppliers, vehicle and component manufacturers, and maintenance personnel in the construction, assembly, operation, and maintenance of transit bus vehicles. Recommended practices may include test methodologies and informational documents. Recommended practices are non-exclusive and voluntary; they are intended to neither endorse nor discourage the use of any product or procedure. All areas and items included herein are subject to manufacturers' supplemental or superseding recommendations. APTA recognizes that for certain applications, the practices, as implemented by operating agencies, may be either more or less restrictive than those given in this document.

This recommended practice provides guidelines for transit bus vehicle systems shut down in conjunction with a vehicle fire. APTA recommends the use of this recommended practice by:

Individuals or organizations that inspect and maintain transit buses

Individuals or organizations that develop specifications for transit buses

Individuals or organizations that build or manufacturer fire suppression systems

Individuals or organizations that contract with others for the inspection and maintenance of transit buses

Individuals or organizations that influence how transit buses are inspected and maintained

Test results must meet or exceed federal, state, or other local regulatory agency requirements if different from the recommendations outlined in this document.

Participants

The American Public Transportation Association (APTA) greatly appreciates the contributions of the Bus Transit Standards Bus Fire Working Group, who provided the primary effort in drafting the Recommended Practice for Transit Bus Shut Down.

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Recommended Practice for Transit Bus Fire Safety Shutdown

1. Overview

This document identifies a recommended practice for transit bus fire shut down requirements. Individual operating agencies may modify these guidelines to accommodate their specific equipment and mode of operation.

This recommended practice is to be used in conjunction with the original equipment manufacturer (OEM).

1.1 Scope

This recommended practice provides guidelines for systems notifications and shutdowns in case of a transit bus fire.

1.2 Purpose

The purpose of this recommended practice is to provide guidance on what notifications and systems and circuits to shutoff, once a fire has been detected by the automatic fire suppression systems or detected otherwise in order to reduce the fire propagation.

2. References

This recommended practice shall be used in conjunction with the most recent edition of the following publications.

NFPA Fire Protection Handbook

3. Definitions, abbreviations, and acronyms

For the purposes of this recommended practice, the following terms, definitions, abbreviations, and acronyms apply.

3.1 Definitions

For the purpose of this document the following words are used as defined.

Fire: An incident that results in one of the following:

Pre-combustion – The process of heating fuels to their ignition point during which time vapors and particulates are released from the fuel.

Smoldering combustion – Glowing combustion on the fuel and may or may not be related in anyway to the oxygen content in the vicinity of the smoldering process

Flaming combustion – Production of sufficient energy and fuel vapors in the combustible range is the condition that underlies and supports the presence of flame.

3.2 Abbreviations and acronyms

AFSS	Automatic Fire Suppression System
OEM	original equipment manufacturer (vehicle manufacture)
HVAC	heating, ventilation and air conditioning

4. Detection Notification Shut Downs Processes

4.1 Automatic Detection – Notification and Shut Down Process

Upon detection of a fire the system shall provide a visual and audible alarm in the operator area.

The AFSS shall provide a signal for integration into the vehicle system controls to provide the following shut downs at time of detection:

- HVAC System
- Engine cooling fan
- Initiate an engine shut down process (Extended operating time under fire conditions, beyond 15 seconds, is not recommended)
- Control center and fire department notification via radio communication system (if so equipped)

The engine shut down shall occur prior to or simultaneously with the dispersal of the suppression agent.

In some operating conditions the engine shutdown procedures must be dictated by the unique environmental operating conditions such as tunnels/highways in conjunction with the OEM and component suppliers. Justification for an operator override should be developed and maintained by the transit system.

4.2 Manual Activation of the Fire Suppression System

Upon manual activation the fire suppression system shall immediately discharge the suppression agent and provide a signal for integration into the vehicle system controls. Provide the following signals and shut downs at time of activation:

- HVAC System
- Engine cooling fan

- Immediate engine shut down
- Control center and fire department notification via radio communication system (if so equipped)

4.3 Optional Fire Detection Signals

Other optional notifications for parked or disabled vehicles might include:

- Head and Marker Lights and horn deployment for a parked disabled vehicle
- Hazards light deployment for a parked disabled vehicle
- Control center and fire department notification via radio communication system (if so equipped)

Annex A

(Informative)

Bibliography