NFPA Technical Committee on Fire Department Apparatus

NFPA 1910 (NFPA 1911, 1912) First Draft Meeting AGENDA
February 8-9, 11-12, 16-19, 2021

10:00 AM Start Time (ET)

I. Chair Dave Haston calls meeting to order on February 8th, 2021.

II. Welcome and Opening Remarks.

III. Introduction of attendees (Attachment A).

IV. Review purpose of meeting and schedules (Attachment B).

V. Address submitted public inputs and develop any first revisions (Attachment C)

VI. Old business:

- Recap on process items.

VII. New business:

a. Task Groups for SDM

b. NFPA 1911 and 1912 alignment

VIII. Date and location of next meeting.

IX. Adjournment.

ATTACHMENT A

Address List No Phone

01/07/2021
Ken Holland
FDA-AAA

Fire Department Apparatus

David V. Haston — **E** 1/14/2005
Chair — **FDA-AAA**
US Department of Agriculture
Forest Service
National Interagency Fire Cent
3833 South Development Ave
Boise, ID 83705-5354

John W. McDonald — **E** 1/1/1991
Secretary — **FDA-AAA**
US General Services Administration
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Potomac, MD 20854
Alternate: Daniel Buckingham

Elden L. Alexander — **E** 8/2/2010
Principal — **FDA-AAA**
US Department of the Interior
Bureau of Land Management
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Boise, ID 83705
National Wildfire Coordinating Group
Alternate: William H. Yohn

Scott Beckwith — **E** 08/08/2019
Principal — **FDA-AAA**
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#18201
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Wesley D. Chestnut — **M** 08/11/2014
Principal — **FDA-AAA**
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Peter F. Darley — **M** 4/1/1993
Principal — **FDA-AAA**
W. S. Darley & Company
325 Spring Lake Road
Itasca, IL 60143-2072
National Truck Equipment Association
Alternate: Jason Darley

Kenneth Desmond — **U** 04/08/2015
Principal — **FDA-AAA**
21 Aspen Lane
Bath, ME 04530-2200
National Volunteer Fire Council
Alternate: Ken Wettstein

Michael Flores — **U** 11/30/2016
Principal — **FDA-AAA**
Los Angeles Fire Department
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Alternate: Nicholas A. Robideau

James R. Garver — **M** 3/2/2010
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4500 Sutphen Court
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Alternate: Joseph A. Scott

Philip Gerace — **M** 04/11/2018
Principal — **FDA-AAA**
Task Force Tips
3701 Innovation Way
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Fire Apparatus Manufacturers Association

Adam J. Goodman — **SE** 04/02/2020
Principal — **FDA-AAA**
S-E-A Limited
795 Cromwell Park Drive
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Glen Burnie, MD 21061

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Steven Craig Hudson **L** 08/17/2017
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James J. Juneau **SE** 4/17/2002
Principal **FDA-AAA**
Juneau, Boll, Stacy, & Ucherek, PLLC
15301 Spectrum Drive
Suite 300
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James L. Kelker **RT** 7/16/2003
Principal **FDA-AAA**
Mistras Group Inc.
600 Kaiser Drive
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Alternate: Wayne Travis Fister

Jeremy Kennedy **U** 12/07/2018
Principal **FDA-AAA**
Charlotte Fire Department
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Kevin P. Kuntz **I** 03/07/2013
Principal **FDA-AAA**
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116 York Street
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Principal **FDA-AAA**
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Samuel T. Massa **M** 08/11/2020
Principal **FDA-AAA**
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David Michaels **I** 12/02/2020
Principal **FDA-AAA**
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183 Leader Heights Road
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552 Victory Place
River Vale, NJ 07675

Amy Ray Solaro **E** 12/06/2019
Principal **FDA-AAA**
East Fork Fire Protection District
1694 County Road
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Edward C. Rice, Jr. **U** 8/2/2010
Principal **FDA-AAA**
District of Columbia Fire Department
2332 Golden Chapel Road
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Principal **FDA-AAA**
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West Chester, PA 19380-5752

Dave Stockoski **U** 08/11/2020
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Michigan Department of Natural Resources
1337 E. Robinson Lake Road
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Robert L. Upchurch **U** 7/26/2007
Principal **FDA-AAA**
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Stephen Wilde **IM** 7/28/2006
Principal **FDA-AAA**
Certified Fleet Services, Inc.
560 North Michigan Street
Elmhurst, IL 60126
EVT Certification Commission, Inc.
Alternate: Michael L. Thorn

Jeff Vanmeter **M** 04/05/2016
Voting Alternate **FDA-AAA**
IDEX Corp/Hale Products
607 NW 27th Avenue
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Daniel Buckingham **E** 04/05/2016
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US General Services Administration
1800 F Street, NW
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Principal: Peter F. Darley

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3550 SE 48th Lane
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Patrick T. Ginnaty-Moore **RT** 08/17/2018
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Principal: James E. Johannessen

Brian Jacob Johnson **M** 12/06/2019
Alternate **FDA-AAA**
Waterous Company
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South Saint Paul, MN 55075
Principal: Mark Haider

Tony William Kelley **L** 08/17/2017
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Springfield Missouri Fire Department
1354 West Berkshire Avenue
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International Association of Fire Fighters
Principal: Steven Craig Hudson

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Los Angeles Fire Department
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Principal: Michael Flores

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Address List No Phone

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Fire Department Apparatus

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National Volunteer Fire Council
Principal: Kenneth Desmond

William H. Yohn **E** 3/1/2011
Alternate **FDA-AAA**
US Department of the Interior
National Park Service
3833 South Development Avenue
Boise, ID 83705
National Wildfire Coordinating Group
Principal: Elden L. Alexander

Dan W. McKenzie **O** 4/5/2001
Member Emeritus **FDA-AAA**
US Department of Agriculture
Forest Service
San Dimas Tech & Dev Center
750 Live Oak Drive
El Cajon, CA 92020-5634

Howard L. McMillen **SE** 1/1/1983
Member Emeritus **FDA-AAA**
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Ken Holland 03/26/2015
Staff Liaison **FDA-AAA**
National Fire Protection Association
One Batterymarch Park
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ATTACHMENT B

NFPA 1910 (1911 content) FDA-AAA
February 8th

- 10:00am -12:30pm
- 1:00pm-3:30pm

NFPA 1910 (1912 content) FDA-AAA
February 11th

- 10:00am -12:30pm
- 1:00pm-3:30pm

NFPA 1900 FDA-AAA
February 16th

- 10:00am -12:30pm (Aerial, Foam, and Wildland Content)
- 1:00pm-3:30pm (Function Content)

February 18th

- 10:00am -12:30pm (Chassis Content)
- 1:00pm-3:30pm (Chassis Content)

February 19th

- 10:00am -12:30pm (Pump Content)

February 22nd

- 10:00am -12:30pm (Chapter 7 Content
- 1:00pm-3:30pm (Chapter 7 Content)

February 24th

- 10:00am -12:30pm (Electrical Content)
- 1:00pm-3:30pm (Electrical Content)

February 26th

- 10:00am -12:30pm (Chapters 1-3 Content)

ATTACHMENT C

Public Input No. 165-NFPA 1910-2020 [Global Input]

Change all cross references of the form [1901, ... to [1900, 2023]. There are approximately 13 such cases.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Affiliation: Admin Task Group
Street Address:
City:
State:
Zip:
Submittal Date: Sat Sep 12 10:51:52 EDT 2020
Committee: FDA-AAA

Public Input No. 17-NFPA 1910-2020 [Section No. 1.2.1]

1.2.1

The purpose of this standard is to provide requirements for an inspection, maintenance, refurbishment, retirement, and testing program that will ensure that in-service emergency vehicles and marine firefighting vessels are serviced and maintained to keep them in safe operating condition and ready for response at all times.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._15_S._Wilde.pdf	1911_PI No. 15_S. Wilde	

Statement of Problem and Substantiation for Public Input

Emergency vehicle should have been plural emergency vehicles.

Submitter Information Verification

Submitter Full Name: Stephen Wilde
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Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 29 10:18:17 EDT 2020
Committee: FDA-AAA

Public Input No. 235-NFPA 1910-2020 [Section No. 1.3]

1.3* Application.

This standard can be applied as follows:

(1) Chapters 1 through 3, 4 through 26, and Annexes A through D and M, constitute NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles*.

(2) Chapters 1 through 3, 27 through 29, and Annexes A, D, E, F, ~~G ,~~ and M, constitute NFPA 1912, *Standard for Fire Apparatus Refurbishing*

(3) Chapters 1 through 3, 30 through 46, and Annexes A, H, and M, constitute NFPA 1925, *Standard on Marine Fire-Fighting Vessels*

(4) Chapters 1 through 3, 47 through 49, and Annexes A, I, J, K, L, and M, constitute NFPA 1071, *Standard for Emergency Vehicle Technician Professional Qualifications*

Statement of Problem and Substantiation for Public Input

Annex G is a duplicate of Annex D. By changing the reference in 1.3(2) from G to D, the duplicate annex can be removed.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 159-NFPA 1910-2020 [Chapter G]	
Public Input No. 159-NFPA 1910-2020 [Chapter G]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 02 14:09:14 EST 2020
Committee: FDA-AAA

Public Input No. 166-NFPA 1910-2020 [Section No. 2.2]

2.2 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 10, *Standard for Portable Fire Extinguishers,*~~2018~~ 2022 edition.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam,*~~2016~~ 2021 edition.

NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems,*~~2018~~ 2022 edition.

NFPA 72®, *National Fire Alarm and Signaling Code®,*~~2016~~ 2022 edition.

NFPA 302, *Fire Protection Standard for Pleasure and Commercial Motor Craft,*~~2015~~ 2020 edition.

NFPA 303, *Fire Protection Standard for Marinas and Boatyards,*~~2016~~ 2021 edition.

NFPA ~~720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment,* 2015 edition. NFPA~~ 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications,* 2017 edition.

NFPA 1005, *Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters,*~~2014~~ 2019 edition.

NFPA ~~1071, *Standard for Emergency Vehicle Technician Professional Qualifications,* 2016 edition. NFPA~~ 1500™, *Standard on Fire Department Occupational Safety, Health, and Wellness Program,* 2020 edition.

NFPA ~~1901~~ 1900, Standard for Aircraft Rescue and Firefighting vehicles, Automotive Fire Apparatus, ~~2016 edition. NFPA 1906, Standard for~~ Wildland Fire Apparatus, ~~2016 edition. NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles,* 2017~~ and Automotive Ambulances, 2023 edition.

NFPA ~~1912, *Standard for Fire Apparatus Refurbishing,* 2016 edition.~~

~~NFPA 1925, *Standard on Marine Fire-Fighting Vessels,* 2018 edition.~~

~~NFPA~~ 1931, *Standard for Manufacturer's Design of Fire Department Ground Ladders,*~~2015~~ 2020 edition.

NFPA 1961, *Standard on Fire Hose,*~~2013~~ 2020 edition.

NFPA 1962, *Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances,*~~2013~~ 2023 edition.

NFPA 1963, *Standard for Fire Hose Connections,*~~2014~~ 2019 edition.

NFPA 1964, *Standard for Spray Nozzles,*~~2013~~ 2018 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services,*~~2013~~ 2019 edition.

NFPA ~~1983, *Standard on Life Safety Rope and Equipment for Emergency Services,* 2017 edition. NFPA~~ 1989, *Standard on Breathing Air Quality for Emergency Services Respiratory Protection,* 2019 edition.

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems,*~~2015~~ 2022 edition.

NFPA 2500, Standards for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services, 2022 edition.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.
Update document editions.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Submittal Date: Sat Sep 12 10:56:19 EDT 2020
Committee: FDA-AAA

Public Input No. 3-NFPA 1910-2020 [Section No. 2.3]

2.3 Other Publications.

2.3.1 ABS Publications.

American Bureau of Shipping, 16855 Northchase Drive, Houston, TX 77060.

ABS Guidance Notes on Fire-Fighting Systems, 2005, updated 2015.

ABS Rules for Conditions of Classification - High Speed Craft, 2014.

ABS Rules for Building and Classing Steel Vessels, 2015.

ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, 2015.

ABS Rules for Building and Classing Steel Vessels Under 90 Meters (295 ft) in Length, 2015.

2.3.2 ABYC Publications.

American Boat and Yacht Council, 613 Third Street, Suite 10, Annapolis, MD 21403.

ABYC A-4, *Fire Fighting Equipment*, July 2008.

ABYC A-24, *Carbon Monoxide Detection Systems*, July 2007.

ABYC A-27, *Alternating Current (AC) Generator Sets*, July 2004.

ABYC A-28, *Galvanic Isolators*, 2014.

ABYC A-31, *Battery Chargers and Inverters,* 2013.

ABYC E-2, *Cathodic Protection*, 2013.

ABYC E-10, *Storage Batteries*, July 2011.

ABYC E-11, *Alternating Current (AC) and Direct Current (DC) Electrical Systems on Boats*, July 2012.

ABYC H-2, *Ventilation of Boats Using Gasoline*, 2013.

ABYC H-3, *Windows, Windshields, Exterior Hatches, Doors, Port Lights and Glazing Materials*, July 2014.

ABYC H-24, *Gasoline Fuel Systems*, July 2012.

ABYC H-25, *Portable Gasoline Fuel Systems*, July 2010, reaffirmed 2013.

ABYC H-26, *Powering of Boats*, July 2011.

ABYC H-32, *Ventilation of Boats Using Diesel Fuel*, 2008, reaffirmed 2013.

ABYC H-33, *Diesel Fuel Systems*, 2009.

ABYC H-40, *Anchoring, Mooring, and Lifting*, July 2014.

ABYC P-1, *Installation of Exhaust Systems for Propulsion and Auxiliary Engines,* 2014.

ABYC P-4, *Marine Inboard Engines and Transmissions*, July 2012.

ABYC P-6, *Propeller Shafting Systems*, July 2010.

ABYC P-14, *Mechanical Propulsion Control Systems*, December 2010.

ABYC P-17, *Steering Systems for Outboard, Inboard, Sterndrive, and Water Jet Drive Boats*, July 2013.

ABYC P-18, *Cable over Pulley Steering Systems for Outboard Engines*, July 2013.

ABYC P-21, *Manual Hydraulic Steering Systems*, July 2012.

ABYC P-22, *Steering Wheels*, July 2013.

ABYC P-23, *Steering and Propulsion Controls for Jet Boats*, July 2012.

ABYC P-24, *Electric/Electronic Propulsion Control Systems*, July 2013.

ABYC S-12, *Outboard Motor Transom and Motor Well Dimensions*, July 2010.

ABYC S-30, *Outboard Engine and Related Equipment Weights*, July 2012.

ABYC Standards and Technical Information Reports for Small Craft, July 2012.

2.3.3 ANSI Publications.

American National Standards Institute, Inc., 25 West 43rd Street, 4th floor, New York, NY 10036.

ANSI A14.2, *Ladders — Portable Metal — Safety Requirements*, 2007.

ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements*, 2007.

ANSI/NEMA Z535.4, *Product Safety Signs and Labels*, 2011, Reaffirmed 2017 .

2.3.4 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*, 2013.

ASME B30.5, *Mobile and Locomotive Cranes*, 2014.

ASME B40.100, *Pressure Gauges and Gauge Attachments*, 2013.

2.3.5 ASNT Publications.

American Society for Nondestructive Testing, Inc., P.O. Box 28518, 1711 Arlingate Lane, Columbus, OH 43228-0518.

ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, 2011.

2.3.6 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM B647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*, 2010.

ASTM B648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*, 2010.

ASTM E6, *Standard Terminology Relating to Methods of Mechanical Testing*, 2011 e1.

ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*, 2012.

ASTM E18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*, 2014.

ASTM E92, *Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials*, 2016.

ASTM E114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method*, 2010.

ASTM E165/E165M, *Standard Test Method for Liquid Penetrant Examination*, 2012.

ASTM E569/E569M, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*, 2013.

ASTM E650/E650M, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*, 2012.

ASTM E709, *Standard Guide for Magnetic Particle Examination*, 2014.

ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*, 2010.

ASTM E1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method*, 2009.

ASTM E1220, *Standard Test Method for Visible Penetrant Examination Using the Solvent-Removable Process*, 2010.

ASTM E1316, *Standard Terminology for Nondestructive Testing*, 2013.

ASTM E1418, *Standard Test Method for Visible Penetrant Examination Using the Water-Washable Process*, 2010.

ASTM F683, *Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery*, 2010.

2.3.7 AWS Publications.

American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672.

AWS B1.10/B1.10M, *Guide for the Nondestructive Examination of Welds*, 2009.

AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*, 2014.

AWS D1.1/D1.1M, *Structural Welding Code — Steel*, 2011.

AWS D1.2/D1.2M, *Structural Welding Code — Aluminum*, 2014.

2.3.8 CGA Publications.

Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151

CGA G-7.1, *Commodity Specification for Air*, 2011.

2.3.9 FAMA Publications.

Fire Apparatus Manufacturers' Association, P.O. Box 397, Lynnfield, MA 01940-0397. www.fama.org

FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, 2012.

Fire Apparatus Safety Guide, 2014.

2.3.10 IMO Publications.

International Maritime Organization, 4, Albert Embankment, London, SE1 7SR, United Kingdom.

IMO A 18, Resolution 749, *Code on Intact Stability for All Types of Ships Covered by IMO Instruments*, 1993 edition.

2.3.11 ISO Publications.

International Organization for Standardization, ~~ISO~~ Central Secretariat, ~~BIBC II,~~ Chemin de Blandonnet 8, CP 401, 1214

Vernier, Geneva, Switzerland~~.~~

ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*, 2012.

ISO 9244, *Earth-moving machinery — Machine safety labels — General principles*, 2008, amendment 1, 2016 .

ISO 12217-1, *Small Craft — Stability and Buoyancy Assessment and Categorization — Part 1: Non-Sailing Boats of Hull Length Greater Than or Equal to 6 m*, 2013.

ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspection*, 2012.

2.3.12 U.S. Government Publications.

U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20402-0001.

Title 33, Code of Federal Regulations, Parts 1–124, “Navigation Rules,” July 2000.

Title 33, Code of Federal Regulations, Parts 1251–1387, “Federal Water Pollution Control Act,” 2002.

Title 46, Code of Federal Regulations, Parts 24–28 (Subchapter C), “Uninspected Vessels,” Oct. 2001.

Title 46, Code of Federal Regulations, Parts 50–64 (Subchapter F), “Marine Engineering,” Oct. 2001.

Title 46, Code of Federal Regulations, Part 56, “Piping Systems and Appurtenances,” Oct. 2002.

Title 46, Code of Federal Regulations, Part 111, “Electric Systems — General Requirements,” Oct. 2002.

Title 46, Code of Federal Regulations, Part 112, “Emergency Lighting and Power Systems,” Oct. 2002.

Title 46, Code of Federal Regulations, Parts 175–187 (Subchapter T), “Small Passenger Vessels (Under 100 Gross Tons),” 2015.

Title 46, Code of Federal Regulations, Part 197, “Marine Occupational Safety and Health Standards,” Oct. 2015.

Title 49, Code of Federal Regulations, Part 399.211, Appendix G, “Minimum Periodic Inspection Standards.”

Navigation and Vessel Inspection Circular (NVIC) No. 9-97, Change 1, *Guide to Structural Fire Protection*, U.S. Coast Guard, July 2010.

2.3.13 Other Publications.

Merriam-Webster’s Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

Additional Proposed Changes

File Name	Description	Approved
1912_PI_No._2_A._Adamczyk.pdf	1912_PI No. 2_A. Adamczyk	

Statement of Problem and Substantiation for Public Input

Referenced current SDO contact information and national consensus standard editions.

Submitter Information Verification

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Submittal Date: Tue Jul 28 08:59:04 EDT 2020
Committee: FDA-AAA

Public Input No. 8-NFPA 1910-2020 [Section No. 2.3]

2.3 Other Publications.

2.3.1 ABS Publications.

American Bureau of Shipping, 16855 Northchase Drive, Houston, TX 77060.

ABS Guidance Notes on Fire-Fighting Systems, 2005, updated 2015.

ABS Rules for Conditions of Classification - High Speed Craft, 2014.

ABS Rules for Building and Classing Steel Vessels, 2015.

ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, 2015.

ABS Rules for Building and Classing Steel Vessels Under 90 Meters (295 ft) in Length, 2015.

2.3.2 ABYC Publications.

American Boat and Yacht Council, 613 Third Street, Suite 10, Annapolis, MD 21403.

ABYC A-4, *Fire Fighting Equipment*, July 2008.

ABYC A-24, *Carbon Monoxide Detection Systems*, July 2007.

ABYC A-27, *Alternating Current (AC) Generator Sets*, July 2004.

ABYC A-28, *Galvanic Isolators*, 2014.

ABYC A-31, *Battery Chargers and Inverters,* 2013.

ABYC E-2, *Cathodic Protection*, 2013.

ABYC E-10, *Storage Batteries*, July 2011.

ABYC E-11, *Alternating Current (AC) and Direct Current (DC) Electrical Systems on Boats*, July 2012.

ABYC H-2, *Ventilation of Boats Using Gasoline*, 2013.

ABYC H-3, *Windows, Windshields, Exterior Hatches, Doors, Port Lights and Glazing Materials*, July 2014.

ABYC H-24, *Gasoline Fuel Systems*, July 2012.

ABYC H-25, *Portable Gasoline Fuel Systems*, July 2010, reaffirmed 2013.

ABYC H-26, *Powering of Boats*, July 2011.

ABYC H-32, *Ventilation of Boats Using Diesel Fuel*, 2008, reaffirmed 2013.

ABYC H-33, *Diesel Fuel Systems*, 2009.

ABYC H-40, *Anchoring, Mooring, and Lifting*, July 2014.

ABYC P-1, *Installation of Exhaust Systems for Propulsion and Auxiliary Engines,* 2014.

ABYC P-4, *Marine Inboard Engines and Transmissions*, July 2012.

ABYC P-6, *Propeller Shafting Systems*, July 2010.

ABYC P-14, *Mechanical Propulsion Control Systems*, December 2010.

ABYC P-17, *Steering Systems for Outboard, Inboard, Sterndrive, and Water Jet Drive Boats*, July 2013.

ABYC P-18, *Cable over Pulley Steering Systems for Outboard Engines*, July 2013.

ABYC P-21, *Manual Hydraulic Steering Systems*, July 2012.

ABYC P-22, *Steering Wheels*, July 2013.

ABYC P-23, *Steering and Propulsion Controls for Jet Boats*, July 2012.

ABYC P-24, *Electric/Electronic Propulsion Control Systems*, July 2013.

ABYC S-12, *Outboard Motor Transom and Motor Well Dimensions*, July 2010.

ABYC S-30, *Outboard Engine and Related Equipment Weights*, July 2012.

ABYC Standards and Technical Information Reports for Small Craft, July 2012.

2.3.3 ANSI Publications.

American National Standards Institute, Inc., 25 West 43rd Street, 4th floor, New York, NY 10036.

ANSI A14.2, *Ladders — Portable Metal — Safety Requirements*, 2007.

ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements*, 2007.

ANSI/NEMA Z535.4, *Product Safety Signs and Labels*, 2011.

2.3.4 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*, 2013.

ASME B30.5, *Mobile and Locomotive Cranes*, ~~2014~~ 2018 .

ASME B40.100, *Pressure Gauges and Gauge Attachments*, 2013.

2.3.5 ASNT Publications.

American Society for Nondestructive Testing, Inc., P.O. Box 28518, 1711 Arlingate Lane, Columbus, OH 43228-0518.

ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, ~~2011~~ 2016 .

2.3.6 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM B647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*, 2010, Reapproved 2016 .

ASTM B648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*, 2010.

ASTM E6, *Standard Terminology Relating to Methods of Mechanical Testing*, ~~2011 e1~~ 2015 .

ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*, ~~2012~~ 2018 .

ASTM E18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*, ~~2014~~ 2018 .

ASTM E92, *Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials*, ~~2016~~ 2017 .

ASTM E114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method*, ~~2010~~ 2015 .

ASTM E165/E165M, *Standard Test Method for Liquid Penetrant Examination*, 2012.

ASTM E569/E569M, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*, 2013.

ASTM E650/E650M, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*, ~~2012~~ 2017 .

ASTM E709, *Standard Guide for Magnetic Particle ~~Examination~~ Testing* , ~~2014~~ 2015 .

ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*, ~~2010~~ 2015 .

ASTM E1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method*, ~~2009~~ 2017 .

ASTM E1220, *Standard Test Method for Visible Penetrant Examination Using the Solvent-Removable Process*, ~~2010~~ 2016 .

ASTM E1316, *Standard Terminology for Nondestructive Testing*, ~~2013~~ 2018a .

ASTM E1418, *Standard Test Method for Visible Penetrant Examination Using the Water-Washable Process*, ~~2010~~ 2016 .

ASTM F683, *Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery*, 2010.

2.3.7 AWS Publications.

American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672.

AWS B1.10/B1.10M, *Guide for the Nondestructive Examination of Welds*, ~~2009~~ 2016 .

AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*, 2014.

AWS D1.1/D1.1M, *Structural Welding Code — Steel*, ~~2011~~ 2015, errata 2016 .

AWS D1.2/D1.2M, *Structural Welding Code — Aluminum*, 2014, errata 2014 .

2.3.8 CGA Publications.

Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151

CGA G-7.1, *Commodity Specification for Air*, 2011.

2.3.9 FAMA Publications.

Fire Apparatus Manufacturers' Association, P.O. Box 397, Lynnfield, MA 01940-0397. www.fama.org

FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, 2012.

Fire Apparatus Safety Guide, 2014.

2.3.10 IMO Publications.

International Maritime Organization, 4, Albert Embankment, London, SE1 7SR, United Kingdom.

IMO A 18, Resolution 749, *Code on Intact Stability for All Types of Ships Covered by IMO Instruments*, 1993 edition.

2.3.11 ISO Publications.

International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland.

ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*, 2012.

ISO 9244, *Earth-moving machinery — Machine safety labels — General principles*, 2008.

ISO 12217-1, *Small Craft — Stability and Buoyancy Assessment and Categorization — Part 1: Non-Sailing Boats of Hull Length Greater Than or Equal to 6 m*, 2013.

ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspection*, ~~2012~~ 2017 .

2.3.12 U.S. Government Publications.

U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20402-0001.

Title 33, Code of Federal Regulations, Parts 1–124, “Navigation Rules,” July 2000.

Title 33, Code of Federal Regulations, Parts 1251–1387, “Federal Water Pollution Control Act,” 2002.

Title 46, Code of Federal Regulations, Parts 24–28 (Subchapter C), “Uninspected Vessels,” Oct. 2001.

Title 46, Code of Federal Regulations, Parts 50–64 (Subchapter F), “Marine Engineering,” Oct. 2001.

Title 46, Code of Federal Regulations, Part 56, “Piping Systems and Appurtenances,” Oct. 2002.

Title 46, Code of Federal Regulations, Part 111, “Electric Systems — General Requirements,” Oct. 2002.

Title 46, Code of Federal Regulations, Part 112, “Emergency Lighting and Power Systems,” Oct. 2002.

Title 46, Code of Federal Regulations, Parts 175–187 (Subchapter T), “Small Passenger Vessels (Under 100 Gross Tons),” 2015.

Title 46, Code of Federal Regulations, Part 197, “Marine Occupational Safety and Health Standards,” Oct. 2015.

Title 49, Code of Federal Regulations, Part 399.211, Appendix G, “Minimum Periodic Inspection Standards.”

Navigation and Vessel Inspection Circular (NVIC) No. 9-97, Change 1, *Guide to Structural Fire Protection*, U.S. Coast Guard, July 2010.

2.3.13 Other Publications.

Merriam-Webster’s Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._8_A._Adamczyk.pdf	1911_PI No. 8_A. Adamczyk	

Statement of Problem and Substantiation for Public Input

Referenced current national consensus standard editions.

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk
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Submittal Date: Tue Jul 28 09:51:35 EDT 2020
Committee: FDA-AAA

Public Input No. 167-NFPA 1910-2020 [Section No. 2.3.1]

2.3.1 ABS Publications.

American Bureau of Shipping, 16855 Northchase Drive, Houston, TX 77060.

ABS Guidance Notes on Fire-Fighting Systems, 2005, updated 2015.

ABS Rules for Conditions of Classification - High Speed Craft, ~~2014~~ 2020 .

ABS Rules for Building and Classing Steel Vessels, ~~2015~~ 2019 .

ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, ~~2015~~ 2020 .

ABS Rules for Building and Classing Steel Vessels Under 90 Meters (295 ft) in Length, ~~2015~~ 2019 .

Statement of Problem and Substantiation for Public Input

Update document editions.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Affiliation: Admn Task Group
Street Address:
City:
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Committee: FDA-AAA

Public Input No. 168-NFPA 1910-2020 [Section No. 2.3.2]

2.3.2 ABYC Publications.

American Boat and Yacht Council, 613 Third Street, Suite 10, Annapolis, MD 21403.

ABYC A-4, *Fire Fighting Equipment*, ~~July 2008~~ 2018 .

ABYC A-24, *Carbon Monoxide Detection Systems*, ~~July 2007~~ 2015 .

ABYC A-27, *Alternating Current (AC) Generator Sets*, ~~July 2004~~ 2016 .

ABYC A-28, *Galvanic Isolators*, 2014.

ABYC A-31, *Battery Chargers and Inverters,* ~~2013~~ 2015 .

ABYC E-2, *Cathodic Protection*, 2013.

ABYC E-10, *Storage Batteries*, ~~July 2011~~ 2016 .

ABYC E-11, *Alternating Current (AC) and Direct Current (DC) Electrical Systems on Boats*, ~~July 2012~~ 2018 .

ABYC H-2, *Ventilation of Boats Using Gasoline*, 2013.

ABYC H-3, *Windows, Windshields, Exterior Hatches, Doors, Port Lights and Glazing Materials*, ~~July 2014~~ 2019 .

ABYC H-24, *Gasoline Fuel Systems*, ~~July 2012~~ 2017 .

ABYC H-25, *Portable Gasoline Fuel Systems*, ~~July 2010, reaffirmed 2013~~ 2016 .

ABYC H-26, *Powering of Boats*, ~~July 2011~~ 2016 .

ABYC H-32, *Ventilation of Boats Using Diesel Fuel*, ~~2008, reaffirmed 2013~~ 2018 .

ABYC H-33, *Diesel Fuel Systems*, ~~2009~~ 2016 .

ABYC H-40, *Anchoring, Mooring, and Lifting*, ~~July 2014~~ 2019 .

ABYC P-1, *Installation of Exhaust Systems for Propulsion and Auxiliary Engines,* ~~2014~~ 2019 .

ABYC P-4, *Marine Inboard Engines and Transmissions*, ~~July 2012~~ 2019 .

ABYC P-6, *Propeller Shafting Systems*, ~~July 2010~~ 2016 .

ABYC P-14, *Mechanical Propulsion Control Systems*, ~~December 2010~~ 2016 .

ABYC P-17, *Steering Systems for Outboard, Inboard, Sterndrive, and Water Jet Drive Boats*, ~~July 2013~~ 2018 .

ABYC P-18, *Cable over Pulley Steering Systems for Outboard Engines*, ~~July~~ 2013.

ABYC P-21, *Manual Hydraulic Steering Systems*, ~~July 2012~~ 2017 .

ABYC P-22, *Steering Wheels*, ~~July 2013~~ 2018 .

ABYC P-23, *Steering and Propulsion Controls for Jet Boats*, ~~July 2012~~ 2017 .

ABYC P-24, *Electric/Electronic Propulsion Control Systems*, ~~July~~ 2013.

ABYC S-~~12, *Outboard Motor Transom and Motor Well Dimensions* , July 2010.ABYC S-~~ 30, *Outboard Engine and Related Equipment Weights*, ~~July 2012~~ 2017 .

ABYC Standards and Technical Information Reports for Small Craft, ~~July 2012~~ 2019 .

ABYC TH-12, *Outboard Engine Mounting Guide*, 2017.

Statement of Problem and Substantiation for Public Input

Update document editions.
ABYC S-12 was withdrawn and published as Technical Information Report TH-12.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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2.3.3 ANSI Publications.

American National Standards Institute, Inc., 25 West 43rd Street, 4th floor, New York, NY 10036.

ANSI A14.2, *Ladders — Portable Metal — Safety Requirements*, ~~2007~~ 2017 .

ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements*, ~~2007~~ 2017 .

ANSI/NEMA Z535.4, *Product Safety Signs and Labels*, ~~2011~~ 2017 .

Statement of Problem and Substantiation for Public Input

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2.3.4 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*, 2013.

ASME B30.5, *Mobile and Locomotive Cranes*, ~~2014~~ 2018 .

ASME B40.100, *Pressure Gauges and Gauge Attachments*, 2013.

Statement of Problem and Substantiation for Public Input

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Public Input No. 171-NFPA 1910-2020 [Section No. 2.3.5]

2.3.5 ASNT Publications.

American Society for Nondestructive Testing, Inc., P.O. Box 28518, 1711 Arlingate Lane, Columbus, OH 43228-0518.

ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, ~~2011~~ 2020 .

Statement of Problem and Substantiation for Public Input

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Submitter Full Name: Thomas Stalnaker
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Public Input No. 172-NFPA 1910-2020 [Section No. 2.3.6]

2.3.6 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM B647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*, ~~2010~~ 2016 .

ASTM B648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*, ~~2010~~ 2015 .

ASTM E6, *Standard Terminology Relating to Methods of Mechanical Testing*, ~~2011 e1~~ 2015e3 .

ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*, ~~2012~~ 2018 .

ASTM E18, *Standard Test Methods for Rockwell Hardness and Rockwell ~~Superficial~~ Hardness of Metallic Materials*, ~~2014~~ 2020 .

ASTM E92, *Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials*, ~~2016~~ 2017 .

ASTM E114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam ~~Examination by the Contact Method~~ Testing* , ~~2010~~ 2015 .

ASTM E165/E165M, *Standard Test Method for Liquid Penetrant ~~Examination~~ , 2012 Testing for General Industry* , 2018 .

ASTM E569/E569M, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*, ~~2013~~ 2020 .

ASTM E650/E650M, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*, ~~2012~~ 2017 .

ASTM E709, *Standard Guide for Magnetic Particle ~~Examination~~ Testing* , ~~2014~~ 2015 .

ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*, ~~2010~~ 2015 .

ASTM E1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method*, ~~2009~~ 2017 .

ASTM E1220, *Standard ~~Test Method~~ Practice for Visible Penetrant ~~Examination~~ Testing Using ~~the~~ Solvent-Removable Process*, ~~2010~~ 2016 .

ASTM E1316, *Standard Terminology for Nondestructive ~~Testing~~ Examinations* , ~~2013~~ 2020 .

ASTM E1418, *Standard ~~Test Method~~ Practice for Visible Penetrant Examination Using the Water-Washable Process*, ~~2010~~ 2016 .

ASTM F683, *Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery*, ~~2010~~ 2014 .

Statement of Problem and Substantiation for Public Input

Update document titles and version dates.

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Submitter Full Name: Thomas Stalnaker
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Public Input No. 173-NFPA 1910-2020 [Section No. 2.3.7]

2.3.7 AWS Publications.

American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672.

AWS B1.10/B1.10M, *Guide for the Nondestructive Examination of Welds*, ~~2009~~ 2015 .

AWS B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*, 2014.

AWS D1.1/D1.1M, *Structural Welding Code — Steel*, ~~2011~~ 2020 .

AWS D1.2/D1.2M, *Structural Welding Code — Aluminum*, 2014.

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 174-NFPA 1910-2020 [Section No. 2.3.8]

2.3.8 CGA Publications.

Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151

CGA G-7.1, *Commodity Specification for Air*, ~~2011~~ 2018 .

Statement of Problem and Substantiation for Public Input

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Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 175-NFPA 1910-2020 [Section No. 2.3.9]

2.3.9 FAMA Publications.

Fire Apparatus Manufacturers' Association, P.O. Box ~~397~~ 3065 , ~~Lynnfield, MA 01940-0397~~ Ocala, FL 34478 . www.fama.org

FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, ~~2012~~ 2019 .

Fire Apparatus Safety Guide, ~~2014~~ 2016 .

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Public Input No. 176-NFPA 1910-2020 [Section No. 2.3.11]

2.3.11 ISO Publications.

International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland.

ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*, 2012.

ISO 9244, *Earth-moving machinery — Machine safety labels — General principles*, 2008.

ISO 12217-1, *Small Craft — Stability and Buoyancy Assessment and Categorization — Part 1: Non-Sailing Boats of Hull Length Greater Than or Equal to 6 m*, ~~2013~~ 2015 .

ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspection*, ~~2012~~ 2017 .

Statement of Problem and Substantiation for Public Input

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Public Input No. 177-NFPA 1910-2020 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam,*~~2016~~ 2021 edition.

NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection,*~~2016~~ 2022 edition.

NFPA 58, *Liquefied Petroleum Gas Code,*~~2017~~ 2023 edition.

~~*NFPA* 58, *Liquefied Petroleum Gas Code,* 2014 edition. *NFPA 70*® , *National Electrical Code*®, 2017 - 2020 edition.~~

NFPA 99, *Health Care Facilities Code,*~~2015~~ 2021 edition.

NFPA 302, *Fire Protection Standard for Pleasure and Commercial Motor Craft,*~~2015~~ 2020 edition.

NFPA ~~414, *Standard for Aircraft Rescue and Fire-Fighting Vehicles,* 2017 edition. NFPA~~ 1000, *Standard for Fire Service Professional Qualifications Accreditation and Certification Systems,*~~2017~~ 2022 edition.

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications,* 2017 edition.

NFPA ~~1031~~ 1030 , Standard for Professional Qualifications for Fire ~~Inspector and Plan Examiner, 2014 edition.~~ Prevention Program Positions, 2023 edition

NFPA 1404, *Standard for Fire Service Respiratory Protection Training,*~~2018~~ 2022 edition.

NFPA 1405, *Guide for Land-Based Fire Departments That Respond to Marine Vessel Fires,*~~2016~~ 2020 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program,*~~2018~~ 2021 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety,* 2020 edition.

NFPA

~~1901~~

1900 , Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus,

~~2016 edition. NFPA 1906, Standard for~~

Wildland Fire Apparatus,

~~2016~~

and Automotive Ambulances, 2023 edition.

NFPA ~~1911~~ 2500 , ~~*Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles,* 2017 edition. NFPA 1983, Standard on~~ Standards for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services, ~~2017~~ 2022 edition.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.
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Public Input No. 236-NFPA 1910-2020 [Section No. 3.3.25]

3.3.25 * _ Auxiliary Pump.

A water pump mounted on the fire apparatus

~~that is used for firefighting operations that is neither a fire pump, an industrial supply pump, nor a transfer pump.~~

~~**3.3.25.1** – Auxiliary Pump.~~

~~A water pump mounted on the fire apparatus~~

in addition to a fire pump and used for firefighting either in conjunction with or independent of the fire pump. [**1900,** 2023]

Statement of Problem and Substantiation for Public Input

Eliminate duplicate definition due to combining documents.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
City:
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Zip:
Submittal Date: Mon Nov 02 14:33:44 EST 2020
Committee: FDA-AAA

Public Input No. 223-NFPA 1910-2020 [Section No. 3.3.84]

3.3.84* Emergency Vehicle.

A motor vehicle ~~with a GVWR of 5001 lb (2268 kg) or more~~ used by public, governmental, military, and private organizations to provide rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, or other emergency services.

Statement of Problem and Substantiation for Public Input

There should not be a minimum weight on an emergency vehicle. A car used as a chief's vehicle with a GVWR of 4500 pounds is still an emergency vehicle as defined by state law if it is authorized to display lights and siren and responds subject to those state laws. Likewise it should be maintained by professional emergency vehicle technicians. While many sections of 1917 would not apply to a 4500 pound, or 6000 pound, chief's vehicle, the applicable sections of 1917 are still important. NFPA 1901 and 1906 (now 1900) apply to vehicles over 10,000 pounds, so if the intent is to match this, the statement should be 10,001 or more.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 224-NFPA 1910-2020 [Section No. A.3.3.84]	
Public Input No. 224-NFPA 1910-2020 [Section No. A.3.3.84]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Submittal Date: Sun Nov 01 10:30:42 EST 2020
Committee: FDA-AAA

Public Input No. 178-NFPA 1910-2020 [Section No. 3.3.87]

3.3.87 Estimated In-Service Weight.

The amount that the fire apparatus manufacturer estimates the apparatus will weigh when it is placed in service with all fixed and portable equipment installed, all tanks full, and all personnel seating positions occupied. [~~**1906**~~ **1900** , ~~2016~~ **2023**]

Statement of Problem and Substantiation for Public Input

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Submitter Full Name: Thomas Stalnaker
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Submittal Date: Sun Sep 13 11:24:08 EDT 2020
Committee: FDA-AAA

Public Input No. 237-NFPA 1910-2020 [Section No. 3.3.161]

3.3.161 Manufacturer.

The ~~entity responsible for the assembly of a finished product from materials or components.~~ [~~**1900,** 2023~~]

~~**3.3.161.1** – Manufacturer.~~

~~The person or persons, company, firm, corporation, partnership, or other organization~~

person(s) or entity responsible for turning raw materials or components into a finished product. [**1900** , 2023]

Statement of Problem and Substantiation for Public Input

Eliminate duplicate definitions due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Submittal Date: Mon Nov 02 14:38:34 EST 2020
Committee: FDA-AAA

Public Input No. 179-NFPA 1910-2020 [Section No. 3.3.210]

3.3.210 Requisite Knowledge.

Fundamental knowledge one must have in order to perform a specific task. [~~**1031**~~ **1030** ,~~2014~~ 2023]

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 180-NFPA 1910-2020 [Section No. 3.3.211]

3.3.211 Requisite Skills.

The essential skills one must have in order to perform a specific task. [~~1031~~ **1030** , ~~2014~~ 2023]

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 192-NFPA 1910-2020 [Section No. 4.2.3.2]

4.2.3.2

If the emergency vehicle is equipped with a fire pump, wildland fire pump, or an industrial supply pump, the fire pump system, wildland fire pump system, or industrial supply pump system shall be performance tested as required by Chapter 21.

Statement of Problem and Substantiation for Public Input

Chapter 21 covers fire pumps (1901) and wildland fire pumps (1906).

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State:
Zip:
Submittal Date: Tue Oct 27 14:10:56 EDT 2020
Committee: FDA-AAA

Public Input No. 183-NFPA 1910-2020 [Section No. 4.2.8]

4.2.8 Winches and Davits .

If the emergency vehicle is equipped with a winch and/or davit , the winch ~~shall~~ and/or davit shall be inspected and maintained as required by Chapter 18.

Statement of Problem and Substantiation for Public Input

The standard addresses winches but not davits, which are typically found on marine firefighting vessels.

Submitter Information Verification

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Submittal Date: Thu Oct 15 11:38:32 EDT 2020
Committee: FDA-AAA

Public Input No. 30-NFPA 1910-2020 [Section No. 4.4.1]

4.4.1

Inspections, maintenance, and testing of emergency vehicles shall be performed by qualified personnel as required by 4.4.1.1 or 4.4.1.2.

4.4.1.1*

Any person performing diagnostic checks, inspections, performance testing, or maintenance of the emergency vehicle shall meet the qualifications of ~~NFPA 1071~~ chapters 47 through 49 this standard or the equivalent.

4.4.1.2

Pump tests and annual aerial tests shall be performed by personnel who are qualified in accordance with ~~NFPA 1071~~ chapters 47 through 49 this standard or the equivalent or by an organization that is accredited for inspection and testing systems on fire apparatus in accordance with ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspections*.

Statement of Problem and Substantiation for Public Input

NFPA 1071 now part of this document.

Submitter Information Verification

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Submittal Date: Tue Sep 01 13:09:36 EDT 2020
Committee: FDA-AAA

Public Input No. 9-NFPA 1910-2020 [Section No. 4.4.1]

4.4.1

Inspections, maintenance, and testing of emergency vehicles shall be performed by qualified personnel as required by 4.4.1.1 or 4.4.1.2.

I suggest adding an additional Qualification of Personnel item (DO). NFPA 1002 requires the DO to perform Daily/Weekly Walk-Around Check (Visual and Operational) within 24 hours of a run or during the week (4. 5. 4)

4 . 3. 1 states: Inspections, Maintenance, and testing of emergency vehicles shall be performed by qualified personnel as required by 4 . 3. 1 .1 or 4.3.1.2

4.3.1.1 Any person performing diagnostic checks, inspections, performance testing, or maintenance of the emergency vehicle shall meet the qualifications of NFPA 1071 or hte equivalent.

This wording leads me to believe that all DO's must meet NFPA 1071 qualifications or equilivent to qualify to do a Visual and Operational Inspection as listed in NFPA 1911 Annex C. I believe it to be unreasonable to think that every Fire Department and DO will follow NFPA 1071 and meet the Level 1 suggestions. This could involve both EVT testing and ASE Testing to qualify as the current text describes in NFPA 1071.

Suggestion: New line and renumber

4.3.1 Fire Department Personnal specifically the Driver Operator (DO) shall be approved by the AHJ and have a minimum of 8 hours training on Heavy Duty Vehicles or Emergency Vehicles to include Chassis,

DOT Inspections, and Brakes.

(EVTCC offers a DO Level 1 Exam to verify basic knowledge of the Emergency Vehicle)

The existing 4.3.1 may become 4.3.1.1 and the following numbers would all increase.

4.4.1.1 *

Any person performing diagnostic checks, inspections, performance testing, or maintenance of the emergency vehicle shall meet the qualifications of NFPA 1071 or the equivalent.

4.4.1.2

Pump tests and annual aerial tests shall be performed by personnel who are qualified in accordance with NFPA 1071 or the equivalent or by an organization that is accredited for inspection and testing systems on fire apparatus in accordance with ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspections*.

Additional Proposed Changes

File Name	Description	Approved
.1596030511555 1911_PI_No._1_A._Conkle.pdf	1911_PI No. 1_A. Conkle	

Statement of Problem and Substantiation for Public Input

The current NFPA 1911 requires all personnel doing inspections, visual and operational to meet NFPA 1071 qualifications. NFPA 1071 has three levels identified. Level I would cover inspections, operational checks. NFPA 1002 & NFPA 1911 requires the Driver Operator (DO) to do visual and operational inspections within 24 hours of a
run or weekly if no runs. NFPA 1911 offers a template Daily/Weekly walk-around check in Annex C. It is unreasonable to believe that every Fire Department and Every DO will qualify as a Level I NFPA 1071 Technician.

I propose a line describing the DO and 8 hours of mechanical training to include DOT inspections, Chassis and braking systems as a minimum, along with approval by AHJ.

Submitter Information Verification

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Submittal Date: Wed Jul 29 09:46:24 EDT 2020
Committee: FDA-AAA

Public Input No. 13-NFPA 1910-2020 [Section No. 6.4.2]

6.4.2

If there are deficiencies of the following systems or components, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ concerning the following:

(1) Air filter restriction

(2) Fuel tank, mountings, or straps

(3) Exhaust leak into crew compartment

(4) Oil that contains coolant

(5) Oil that is diluted with fuel

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._5_A._Conkle.pdf	1911_PI No. 5_A. Conkle	

Statement of Problem and Substantiation for Public Input

6.4.2 (4) Oil that cocntains coolant
This shoud be in the OUT OF SERVICE section 6.4.1 (3) and the others renumbered. 6.4.1(3,4,5 renumbered to 5,6,7)
Reason is that the coolant/Glycol os detrimental to all internal engine components and the glycol attacks the bearing material causing catastrophic bearing failure and or piston/liner failure or seizure. The engine bearings can/will fail and cause the engine crankshaft to seize causing catastrophic and a dangerous situation. If a Driver
Operator finds Engine Oil contaminated with Coolant it Shall be Taken Out of Service.

Submitter Information Verification

Submitter Full Name: Alan Conkle
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Submittal Date: Wed Jul 29 09:57:48 EDT 2020
Committee: FDA-AAA

Public Input No. 14-NFPA 1910-2020 [Section No. 6.4.2]

6.4.2

If there are deficiencies of the following systems or components, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ concerning the following:

(1) Air filter restriction

(2) Fuel tank, mountings, or straps

(3) Exhaust leak into crew compartment

(4) Oil that contains coolant

(5) Oil that is diluted with fuel

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._6_A._Conkle.pdf	1911_PI No. 6_A. Conkle	

Statement of Problem and Substantiation for Public Input

6.4.2 (5) Oil that is diluted with fuel
This statement shall be placed back into 6.4.1 Out of Service and become 6.4.1 (4) and move the 6.4.1 (4 and 5) renumbered.
Oil that is diluted with fuel will cause a failure in the lubrication system and cause catastrophic engine failure and seizure. This will cause a Safety issue if on an emergency scene and or continued operation. This used to be a Out of Service item and this 2017 version has been reduced in importance,. Need to be Out of Service and not
Conduct out of Service Evaluation, as this is certain catastrophic engine failure.

Submitter Information Verification

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Submittal Date: Wed Jul 29 09:59:22 EDT 2020
Committee: FDA-AAA

Public Input No. 12-NFPA 1910-2020 [Section No. 6.10.2]

6.10.2

If there are deficiencies of the following systems or components, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ:

(1) Hydraulic relief valve

(2) Hydraulic system components

(3) Emergency hydraulic system

(4) Visual and audible alarm systems

(5) Aerial lighting system

(6) Labels or warning signs

(7) Aerial water delivery system

(8) Class 3 hydraulic leak

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._4_A._Conkle.pdf	1911_PI No. 4_A. Conkle	

Statement of Problem and Substantiation for Public Input

Remove 6.10.2 (8) and move to 6.10.1 into out of service. A Class three (3) hydraulic leak in the aerial hydraulic system could be a safety issue so it should be an out of service item.

Submitter Information Verification

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Submittal Date: Wed Jul 29 09:56:19 EDT 2020
Committee: FDA-AAA

Public Input No. 29-NFPA 1910-2020 [New Section after 6.12]

TITLE OF NEW CONTENT

6.13 ARFF Vehicle Out of Service Criteria

6.13.1 Driving and Crew Areas, Apparatus Body, and Compartmentation

6.13.1.1 A vehicle shall be placed out of service if the window deluge system is inoperative.

6.13.3 Chassis, Axles, Steering, and Suspension Systems, Driveline, Wheels and Tires

6.13.3.1 A vehicle shall be placed out of service if a planetary axle/wheel end has a class 3 leak.

6.13.3.2 If a vehicle driveline locking system does not operate as intended, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.3.3 The vehicle shall be placed out of service if a vehicle driveline locking system fails to disengage

6.13.3.4 A vehicle shall be placed out of service if the tire does not meet or exceed the vehicle manufactures tire ratings, such as but not limited to speed and load rating.

6.14.4 Engine Systems

6.13.4.1 If the vehicle cannot achieve performance requirements for acceleration and top speeds, as specified in NFPA 414 section 4.4.1.2 and 4.4.1.2.1, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.5 Power Divider and Modulating Clutch

6.13.5.1 A vehicle shall be placed out of service if a power divider has a class 3 leak.

6.13.5.2 If a power divider overheats a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.5.3 If power divider has oil contamination the vehicle a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.5.4 If the modulating clutch has any slippage when it is fully engaged in the normal driving mode a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.5.5 A vehicle shall be placed out of service if the vehicle cannot pump and roll.

6.13.6 Braking Systems

6.13.6.1 If it cannot achieve the performance standards for service brake stopping distance, as specified in NFPA 414 4.10.2.2, 4.10.2.3, and 4.10.2.4, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.7 Fire Pump System

6.13.7.1 A vehicle shall be placed out of service if a fire pump will not engage or disengage

6.13.7.2 If there are any deficiencies in the fire pump drive system a qualified technician shall conduct an

out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.7.3 The vehicle shall be placed out of service if the pump cannot supply the primary turret to meet its performance specifications as specified in NFPA 414 6.4.12.

6.13.7.4 The vehicle shall be taken out of service if any deficiency exists that inhibits the delivery and replenishment of water to the pump.

6.13.7.5 The vehicle shall be placed out of service if the water pump cannot maintain system pressure based on manufacturers recommendations.

6.13.8 Foam System

6.13.8.1 The vehicle shall be placed out of service if the foam system has any defects or deficiencies that cause the primary turret concentration or delivery to not meet the specified concentration and condition as specified in NFPA 412 5.1 and 5.2.

6.13.8.2 The vehicle shall be taken out of service if any conditions exists which inhibits the re-filling of the foam tank.

6.13.8.3 If any foam capable discharge other than primary turret is out of specification for concentration and condition, as specified in NFPA 412 5.1 and 5.2, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.9 Turrets

6.13.9.1 The vehicle shall be placed out of service if the dual rate primary turrets, cannot meet the specified flow rate in the high flow rate mode.

6.13.9.2 The vehicle shall be taken out of service if the primary turret cannot meet the NFPA 414 4.19.5 (1-3) for turret operational capabilities.

6.13.9.3 If the primary turret operation malfunctions, as specified in NFPA 414 4.19.1, 4.19.2, 4.19.3, 4.19.4.1, 4.19.4.2, 4.19.5 (4-5), a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.10 Extendable Turret

6.13.10.1 The vehicle shall be taken out of service if the extendable turret cannot be stowed.

6.13.10.2 If the following conditions exist the extendable boom shall be taken out of service, a qualified technician shall conduct a vehicle out-of-service evaluation and make a written report, including recommendations to the AHJ.

1. PTO that will not engage

2. Hydraulic system components not operational

3. Cables that are frayed

4. Extendable boom device that is structurally deformed

5. Turntable fasteners that are broken or missing, damaged bearings.

6. Extendable boom mounting system that is deformed, damaged, has missing or cracked bolts.

7. Extendable boom functions will not raise, lower, extend, retract, or rotate with the use of the primary controls.

6.13.11 Complimentary Agents

6.13.11.1 If any complimentary agent system does not function as intended, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

6.13.12 Winterization Systems

6.13.12.1 If there is any defect in the winterization system, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ.

[HK1] This will be submitted as a new chapter 6.13 based on the current numbering for 1911 (2017)

Statement of Problem and Substantiation for Public Input

This is additional information to cover Aircraft Rescue Firefighting Vehicle form the ARFF Tech Committee.

Submitter Information Verification

Submitter Full Name: Robert Mathis
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Submittal Date: Wed Aug 26 11:21:30 EDT 2020
Committee: FDA-AAA

Public Input No. 10-NFPA 1910-2020 [Section No. 8.3.3]

8.3.3*

Tires shall be inspected for damage and shall be inflated to the tire manufacturer's recommended pressure.

Revise A.8.3.3 and A.16.2.8 Appendix states to follow the emergency vehicle manufacture's recommended tire pressure. Conflicts with 8.3.3 which states "Tire manufacturers recommended

pressure".

Emergency Vehicles commonly are weighed at the manufacturer when new, however after they are put into service the compartments are typically changed around and weight commonly added. Thus NFPA

1911 requires the emergency apparatus be weighed annually. Tire manufacture's have specific inflation recommendations for tires. This is a safety issure and the Appendix leads to confusion.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._2_A._Conkle.pdf	1911_PI No. 2_A. Conkle	

Statement of Problem and Substantiation for Public Input

The reader is confused while trying to follow the standard and reads 8.3.3* then reads the appendices only to find conflicting statements. The Appendices read the NFPA 1901 terminology for "New" vehicles as they are manufactured and do not reflect the emergency vehicle after it has been placed in-service.

Submitter Information Verification

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City:
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Submittal Date: Wed Jul 29 09:50:06 EDT 2020
Committee: FDA-AAA

Public Input No. 193-NFPA 1910-2020 [Section No. 10.1.1]

10.1.1

If the fire apparatus is equipped with a fire pump, auxiliary pump, industrial pump, ~~or~~ transfer pump, or wildland fire pump; the pump shall be inspected and maintained in accordance with Section 10.2 and the component manufacturer's recommendations.

Statement of Problem and Substantiation for Public Input

Include wildland fire pumps in the scope of this chapter.

Submitter Information Verification

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City:
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Submittal Date: Tue Oct 27 17:43:04 EDT 2020
Committee: FDA-AAA

Public Input No. 194-NFPA 1910-2020 [Section No. 10.2.1]

10.2.1* General.

All fire pumps, auxiliary pumps, industrial pumps, ~~and~~ transfer pumps, and wildland fire pumps shall be inspected for security of mounting, structural integrity, and leakage and shall be diagnostically checked.

Statement of Problem and Substantiation for Public Input

Include wildland fire pumps in the scope.

Submitter Information Verification

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Submittal Date: Tue Oct 27 17:45:32 EDT 2020
Committee: FDA-AAA

Public Input No. 214-NFPA 1910-2020 [Section No. 15.3]

15.3 Labels.

All warning signs , function labels , and instruction ~~labels~~ plates shall be inspected for condition and legibility.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Submittal Date: Fri Oct 30 15:50:27 EDT 2020
Committee: FDA-AAA

Public Input No. 28-NFPA 1910-2020 [New Section after 19.1]

TITLE OF NEW CONTENT

Chapter 19 Inspection and Maintenance of ARFF Vehicles

19.1 General. Components and systems, if equipped, commonly found on ARFF vehicles shall be inspected and maintained in accordance with the manufactures instructions and this chapter on an annual basis.

19.2 Crew and Passenger Compartments

19.2.1 Deluge system shall be inspected for leaks, spray pattern, security of mounting, deformation, corrosion, diagnostically checked to include automatic wiper activation, and maintained.

19.2.2 Driver's Enhanced Vision (DEVS) systems shall be inspected for security of mounting, deformation, and diagnostically checked.

19.2.3 Roll-over alert shall be inspected for security of mounting, deformation, diagnostically checked, and maintained.

19.2.4 Monitoring and Data Acquisition System (MADAS) shall be inspected for security of mounting, deformation, and diagnostically checked.

19.2.5 Imaging, video, and cameras shall be inspected for corrosion, security of mounting, deformation, and diagnostically checked.

19.3 Axles, Tires and Wheels

19.3.1 Vehicle driveline locks shall be inspected for leaks, security of mounting, deformation, diagnostically checked and shall be maintained.

19.3.2 Planetary axles/wheel ends shall be inspected for leaks, deformation, diagnostically checked, and maintained.

19.3.3 Central Tire Inflation Systems shall be inspected for leaks, deformation, diagnostically checked, and maintained.

19.4 Engine/Auxiliary Braking System

19.4.1 Engine/Auxiliary braking systems shall be diagnostically checked, and maintained.

19.5 Pumping Systems

19.5.1 Driveline modulating clutches shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.5.2 Water pump clutches shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.5.3 Power dividers shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.5.4 Accessory PTOs shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.5.6 Torque Boxes shall be inspected for security of mounting, deformation, diagnostically checked, and maintained.

19.6 Foam Systems

19.6.1 Foam transfer pumping systems shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.6.2 Foam tanks vents shall be inspected for deformation and diagnostically checked.

19.7 Complimentary Systems

19.7.1 Mounting system for propellant storage tank shall be inspected for security of mounting, deformation, and diagnostically checked.

19.7.2 Mounting system for agent tank shall be inspected for security of mounting, deformation, and diagnostically checked.

19.7.3 Agent storage tank shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.7.4 Lifting system, supports, and straps shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.7.5 Pressure regulators shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.7.6 Controls, valves, actuators, and hoses shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.7.7 Pressure indicating devices shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.7.8 Complimentary agent shall be inspected for leaks, quantity, and diagnostically checked.

19.7.9 The complimentary agent system components not designed to continuously contact the complimentary agent shall be thoroughly flushed after each use to ensure all piping and components are clear of agent.

19.7.10 The complimentary propellant system pressurized cylinders shall be inspected for current hydrostatic test date.

19.8 Hose reels, hand lines, preconnects

19.8.1 Hose reels, hand lines and preconnected lines shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.8.2 Controls, valves, actuators, and hoses shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.8.3 Rewind systems shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.8.4 Flow switches shall be inspected for leaks, security of mounting, deformation, and diagnostically checked.

19.8.5 Hose reel brake systems shall be inspected for security of mounting, deformation, diagnostically checked and maintained.

19.8.6 Nozzle holders shall be inspected for security of mounting, and deformation.

19.8.7 Back up hand crank shall be inspected for security of mounting, deformation, and presence.

19.9 Winterization

19.9.1 Winterization package/kit shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained.

19.10 Turrets

19.10.1 Turret systems shall be inspected for leaks, security of mounting, deformation, corrosion, diagnostically checked under operational pumping system pressure, and maintained.

19.10.2 Turret system back-up/manual controls shall be diagnostically checked.

19.10.3 Complimentary agent hoses used in conjunction with turret shall be inspected for leaks, security of mounting, and deformation.

19.10.4 Nozzle(s) shall be checked for damage, debris or other obstructions that impact the flow or discharge pattern.

19.11 Extendable Turret

19.11.1 Extendable turrets shall be inspected and diagnostically checked and maintained according to manufacturer specifications.

19.11.2 Three-way valves shall be inspected for leaks, corrosion, security of mounting, deformation, and diagnostically checked.

19.11.3 Piercing tip and clutches shall be inspected for security of mounting, deformation, structural integrity and diagnostically checked.

19.11.4 Emergency back-up systems shall be inspected for leaks, security of mounting, deformation, diagnostically checked, and maintained according to manufacturer specifications.

19.11.5 Extendable turret piping and hoses shall be inspected for leaks, security of mounting, and deformation.

19.11.6 The diagnostic codes for extendable turrets shall be reviewed for types and frequency of error codes that have been logged.

19.11.7 Mounting hardware shall checked and torqued to manufacturer’s recommendations

19.12 Under Truck Nozzles

19.12.1 Under truck nozzles shall be inspected for security of mounting, deformation, corrosion, and diagnostically checked.

19.13 Electrical

19.13.1 Low voltage electrical systems will be diagnostically checked for an excessive parasitic drain.

[HK1] This will be submitted as a new chapter 19 based on the current numbering for 1911 (2017)

Statement of Problem and Substantiation for Public Input

This is the New proposed Chapter 19 from the ARFF Tech Committee.

Submitter Information Verification

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Submittal Date: Wed Aug 26 11:16:44 EDT 2020
Committee: FDA-AAA

Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]

19.2.1

The fully loaded emergency vehicle shall be weighed following the procedure specified in 19.2.2 through 19.2.5 to ensure that the weight on the front and rear axles and the gross vehicle weight do not exceed the gross axle weight ratings (GAWRs) and the gross vehicle weight rating (GVWR) or gross combination weight rating (GCWR) as shown on the rating ~~plate~~ label on the emergency vehicle.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA and NHTSA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 212-NFPA 1910-2020 [Section No. 19.2.4]	
Public Input No. 211-NFPA 1910-2020 [Section No. 21.7.2.2]	
Public Input No. 210-NFPA 1910-2020 [Section No. 22.9.6.7]	
Public Input No. 209-NFPA 1910-2020 [Section No. 28.20.4]	
Public Input No. 208-NFPA 1910-2020 [Section No. 29.20.3]	
Public Input No. 207-NFPA 1910-2020 [Section No. 48.2.2]	
Public Input No. 206-NFPA 1910-2020 [Section No. G.3]	
Public Input No. 205-NFPA 1910-2020 [Section No. J.1]	
Public Input No. 214-NFPA 1910-2020 [Section No. 15.3]	
Public Input No. 215-NFPA 1910-2020 [Section No. 33.5]	
Public Input No. 216-NFPA 1910-2020 [Section No. A.8.15.5]	

Submitter Information Verification

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Submittal Date: Fri Oct 30 15:27:21 EDT 2020
Committee: FDA-AAA

Public Input No. 212-NFPA 1910-2020 [Section No. 19.2.4]

19.2.4

The emergency vehicle weight form shown in Figure 19.2.4 shall be completed as follows to determine if the emergency vehicle is overloaded:

(1) Record the axle weight ratings shown on the rating ~~plate~~ label of the vehicle on line A.

(2) Record the weight data obtained when the emergency vehicle is weighed, as required by 19.2.3, on line B.

(3) * Determine the personnel allowance by multiplying the number of riding positions in the driving and crew compartment by 200 lb (90 kg) and record that value on line C.

(4) * Determine other weight that might be added, including any items found on the emergency vehicle when it is in service but missing during the weighing, such as personal clothing, and additional equipment that might be carried during response to certain incidents, and enter those values on line D.

(5) Add lines B, C, and D for each column and record the value on line E.

(6) Subtract line E from line A and record the value on line F.

Figure 19.2.4 Emergency Vehicle Weight Form.

	Front Axle	Rear Axle	Tiller Axle	Total Vehicle
A. GAWR				
B. Recorded weight				
C. Personnel allowance				
D. Other adjustments				
E. Total of rows B, C, and D				
F. Reserve capacity (row A minus row E)				

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

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Submittal Date:	Fri Oct 30 15:26:34 EDT 2020
Committee:	FDA-AAA

Public Input No. 195-NFPA 1910-2020 [Section No. 19.2.5]

19.2.5

If ~~all~~ any of the reserve capacity values (line F of Figure 19.2.4) are not positive, equipment on the vehicle shall be removed or redistributed as necessary and the vehicle reweighed until all reserve values are positive.

Statement of Problem and Substantiation for Public Input

Improved wording. There is a problem to be worked on if ANY of the reserve capacities are not positive. The existing wording could be misinterpreted or correctly interpreted. The proposed wording is less likely to be misinterpreted.

Submitter Information Verification

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Submittal Date: Tue Oct 27 18:20:02 EDT 2020
Committee: FDA-AAA

Public Input No. 182-NFPA 1910-2020 [Section No. 20.4.2.1]

20.4.2.1

The voltage drop in the positive (+) starter wiring shall be measured between the positive (+) input post on the starter solenoid (not the wire or connector) and the positive (+) battery terminal (not the wire or connector).

Statement of Problem and Substantiation for Public Input

Voltage drop readings, when taken through the starter solenoid will be higher. The contacts in a solenoid can have up to a 0.3 volt drop before the solenoid is considered defective.

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Committee: FDA-AAA

Public Input No. 181-NFPA 1910-2020 [Section No. 20.4.3]

20.4.3

The voltage drop in ~~each side of the wiring~~ the positive or negative circuits shall not exceed 0.~~2~~ 1 volts per 100 amps of draw for a 12-volt nominal system or 0.~~4~~ 2 volts per 100 amps of draw for a 24-volt nominal system.

Statement of Problem and Substantiation for Public Input

the .02 volt drop on a starting system without an amp draw is misleading industry experts recommend 0.1 volt drop per 100 amps of draw.

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Committee: FDA-AAA

Public Input No. 191-NFPA 1910-2020 [Section No. 20.4.3]

20.4.3

The voltage drop in each side of the wiring shall conform to the design standards set in NFPA 1900. The design standard requires the starting system comply with the **SAE J541** . (Eliminate *not exceed 0.2 volts for a 12-volt nominal system or 0.4 volts for a 24-volt nominal system.*)

Statement of Problem and Substantiation for Public Input

NFPA 1901, 1906, 1917 (by reference) Build Standards call for:

Section 13.5.2: When the electrical starting device is operating under maximum load, the voltage drop of the conductors between the battery and the starting device shall be in accordance with SAE J541, Voltage Drop for Starting Motor Circuits. (The difference between these two standards can and will result in failed maintenance performance tests while the vehicle was working as designed.)

The SAE J541 standard specifies:

Maximum Voltage Drop of the starting motor circuit from the battery post to the starter post shall not exceed: (Power and ground are the same specification)

Light and Medium duty trucks 200mV (.2 volts) per 100A load
Heavy Duty Trucks 100mV (.1 volt) per 100A load
The examples below demonstrates the potential conflict between the design and maintenance standard.

Design Standard:(1901,1906,etc)

Light Duty, Medium Duty (up to 26000 gvw)
Common starter amperage is for these vehicles is usually around 150 – 400 Amps. The SAE J541 standard used to build a vehicle (1901 and 1906) an allowable volt drop could be .3 to .8 volts per leg. (Amps X .2 Volts per 100A). NFPA 1911 only allows a maximum .2 volt per leg.
Heavy Duty truck greater than 26000 gvw.
The 42MT a common heavy duty starter specification is 7.3 kW.
663amps X 11 volts (good cranking voltage) = 7300 Watts
760 amps X 9.6 volts (minimum battery voltage @ 70 degrees) = 7300 Watts
Using parallel battery circuits in the design means each side carrying one half of the load could theoretically need to handle from 330 to 380 amps and the allowable design voltage drop under SAE J549 would be .33 to .38 volts per leg. NFPA 1911 only allows a maximum of .2 volts in each leg.

The design of our apparatus has changed significantly from the days of battery locations being at the step into the cab with short battery cable runs to the late model units with remote battery locations and cable lengths often exceeding 10-15 feet. Battery cables are commonly a 4/0 cable. Resistance in these cables varies slightly between design and manufacture but is usually .05 to .06 ohms per 1000 feet of cable (.00005 to .00006 per foot). Applying this resistance per foot to the potential cranking amperage of 332 amps (from the above example) gives a voltage drop on a 10 foot cable of .166 - .199 volts in the cable alone with no terminal ends or connections.

Though I feel that the .2 volt drop per leg is very desirable, I also feel as noted above it may be unrealistic for this circuit. The NFPA 1911 maintenance standard should reflect the build standard to which the vehicle was designed and those specifications provided to the AHJ and their maintenance personnel to utilize for performance testing.

ACCEPTANCE TESTING (3.3.2)- One method to insure the vehicle can conform to the required performance standards in the 1911 maintenance standard is to include all 1911 performance testing as a required part of the apparatus acceptance test. This would provide extremely valuable information to the AHJ purchasing the vehicle and their maintenance personnel.

I completely understand and fully support the critical need for regular accurate performance testing and the valuable information it provides to forecast the decline of a system prior to a catastrophic failure. That said, these and all the requirements of the NFPA documents should be consistent between the design standards and the maintenance standards and that information provided to the Purchaser and their technicians as part of a unit specific “As Built Document”.

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Public Input No. 16-NFPA 1910-2020 [Section No. 20.7.1]

20.7.1

If the emergency vehicle is equipped with a battery charger or conditioner, it shall be tested as follows:

(1) Batteries shall be fully charged to at least 12.66 volts for a 12-volt nominal system, 25.32 volts for a 24-volt nominal system, and 37.98 volts for a 42-volt nominal system before starting the test.

(2) Engine shall be turned off, and the shoreline power cord shall be attached.

(3) Battery voltage shall be recorded at the beginning of the test.

(4) A load of at least 80 percent of nominal charger output shall be applied for 1 hour ~~shall be applied~~ .

(5) At the end of the test, the load shall be removed and the battery voltage recorded.

(6) The test shall be considered a failure if the system does not maintain battery voltage of at least 12.54 volts or higher for a 12-volt nominal system, 25.08 volts or higher for a 24-volt nominal system, and 37.62 volts or higher for a 42-volt nominal system.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._14_S._Wilde.pdf	1911_PI No. 14_S. Wilde	

Statement of Problem and Substantiation for Public Input

correct the grammar on item #4

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Committee: FDA-AAA

Public Input No. 26-NFPA 1910-2020 [Section No. 20.8]

~~**20.8** * – Total Continuous Electrical Load Test.~~

~~**20.8.1** –~~

~~The total continuous electrical load test shall be permitted to be conducted simultaneously with other electrical or pumping tests.~~

~~**20.8.2** –~~

~~The voltage measurements for this test shall be made with a voltmeter with a resolution of 0.01 volts or better.~~

~~**20.8.3** –~~

~~The following test procedure shall be used:~~

(1) ~~Advance the engine speed to at least 50 percent of the governed speed of the engine.~~

(2)~~*~~ ~~Turn on all loads that comprise the total continuous electrical load, except loads associated with the following:~~

- (3) ~~Aerial hydraulic pump~~
- (4) ~~Foam pump~~
- (5) ~~Hydraulic-driven equipment~~
- (6) ~~Winch~~
- (7) ~~Windshield wipers~~
- (8) ~~Four-way hazard flashers~~
- (9) ~~Compressed air foam system (CAFS) compressor~~

(10) ~~Measure the battery voltage at the battery terminals.~~

(11) ~~Operate the emergency vehicle under the conditions specified in 20.8.3(1) through 20.8.3(3) continuously for at least 20 minutes, with load shedding permitted by the system if the vehicle is equipped with an automatic electrical load management system.~~

(12) ~~Measure the battery voltage at the battery terminals.~~

(13) ~~Turn off electrical loads and reduce engine speed, unless required for other simultaneous testing.~~

~~**20.8.4** * –~~

~~If the voltage drop exceeds 0.05 volts from the beginning to the end of the test, the test shall be considered a failure.~~

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._24_S._Wilde.pdf	1911_PI No. 24_S. Wilde	

Statement of Problem and Substantiation for Public Input

The committee needs to either delete this section or totally rewrite it. Performance tests are supposed to be performed to test performance to a predetermined specifications. Since there are no predetermined anything in this section it can not be a performance test. Also, 20.8.4 is about voltage drops, but the section doesn't say what systems should be tested for voltage drops during this procedure.

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Public Input No. 31-NFPA 1910-2020 [Section No. 21.5.1.1]

21.5.1.1* Suction Hose and Strainer from Draft.

When a pump is tested from draft at elevations up to 2000 ft (610 m), the suction hose arrangement shall be as specified in NFPA ~~1901 and NFPA 1906~~ 1900 for the particular pump capacity rating and pump type .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now part of NFPA 1900.

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Committee: FDA-AAA

Public Input No. 196-NFPA 1910-2020 [Section No. 21.5.4.3]

~~21.5.4.3~~ –

~~A manometer shall be permitted to be used in lieu of a pump intake gauge, provided that the tests are being conducted from draft.~~

Statement of Problem and Substantiation for Public Input

We should not be encouraging, or allowing, the use of a mercury manometer with its associated environmental hazards. The corresponding section was removed from 1901 and 1906 in the 2016 editions.

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Public Input No. 32-NFPA 1910-2020 [Section No. 21.6.2.2.1]

21.6.2.2.1*

If the fire apparatus was built to the 1996 or later editions of NFPA 1901 or to NFPA 1900 and the apparatus is equipped with a fixed power source driven by the same engine that drives the fire pump, the power source shall be running at a minimum of 50 percent of its rated capacity throughout the pumping portion of the pump test.

Statement of Problem and Substantiation for Public Input

NFPA 1901 now replaced with NFPA 1900.

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Public Input No. 18-NFPA 1910-2020 [New Section after 21.7.1]

21.7.1.2 List of Required Tests.

The required tests to be performed as part of the Performance testing of Fire Pumps, Wildland Fire Pumps,

Ultra-High-Pressure pumps and Industrial Supply pumps are listed below.

(1) Engine Speed Test.

(2) Pump Shift Indicator Test.

(3) Pump Engine Control Interlock Test.

(4) Priming System Tests.

(5) Vacuum Tests.

(6) Pumping System Tests.

(7) Pressure Control System Tests.

(8) Intake Relief Valve System Test.

(9) Gauge Test.

(10) Flowmeter Test

(11) Tank-to-Pump Flow Rate Test.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._16_S._Wilde.pdf	1911_PI No. 16_S. Wilde	

Statement of Problem and Substantiation for Public Input

The committee needs to discuss listing all of the required tests, so the users understand that all tests need to be done every time the performance test of the pumping system is done.

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Public Input No. 19-NFPA 1910-2020 [Section No. 21.7.2]

21.7.2 Engine Speed ~~Check~~ Test .

21.7.2.1

A ~~check~~ test of the governed engine speed shall be made.

21.7.2.2

The engine speed shall be within ±50 rpm of the governed engine speed as recorded on the pump test plate.

21.7.2.3

The reason for any discrepancy shall be determined prior to testing, and testing shall begin only if the discrepancy will not have an adverse effect on the outcome of the test.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._17_S._Wilde.pdf	1911_PI No. 17_S. Wilde	

Statement of Problem and Substantiation for Public Input

the standard uses the word check in other contexts, in keeping with testing to a know figure we need to change the word to "Test"

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Public Input No. 211-NFPA 1910-2020 [Section No. 21.7.2.2]

21.7.2.2

The engine speed shall be within ±50 rpm of the governed engine speed as recorded on the pump test ~~plate~~ label .

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

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Submittal Date: Fri Oct 30 15:25:28 EDT 2020
Committee: FDA-AAA

Public Input No. 20-NFPA 1910-2020 [Section No. 21.7.3]

21.7.3* Pump Shift Indicator Test .

A test of the pump shift indicators shall be made to verify that the pump shift indicators in the cab and on the operator's panel indicate correct pump status when the pump is shifted.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._18_S._Wilde.pdf	1911_PI No. 18_S. Wilde	

Statement of Problem and Substantiation for Public Input

add the word test to the chapter heading

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 197-NFPA 1910-2020 [Section No. 21.7.4]

21.7.4* Pump Engine Control Interlock.

[IN THE 2016 EDITION OF NFPA 1901 AND NFPA 1906, THE CORRESPONDING SECTION (16.13.8) WAS REVISED TO TEST MORE COMBINATIONS OF CONDITIONS, INDICATORS, AND CONTROL. THE COMMITTEE SHOULD CONSIDER WHETHER THE TESTS HERE SHOULD BE EXPANDED TO AT LEAST TEST THAT EACH SENSOR (TRANSMISSION GEAR, PARKING BRAKE, AND PUMP SHIFT) DISABLES THROTTLE CONTROL, OR THE FULL SET OF COMBINATIONS AS IN NFPA 1900 SECTION 19.13.8.]

For apparatus where the chassis engine drives the pump and electric or electronic engine throttle controls are provided, a test of the interlock that controls the advancement of the engine speed at the pump operator's panel shall be made.

21.7.4.1*

If the pump is designed to be driven through a split-shaft PTO with the apparatus in a stationary position, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.1 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.1 Stationary Pump Driven Through Split-Shaft PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Point
N	On	Road	Yes	-
N	Off	Road	No	✓
N	On	"Pump engaged"	Yes	-
N	Off	"Pump engaged"	No	-
Pump gear*	On	"Pump engaged" "OK to pump"	Yes	-
Pump gear*	Off	"Pump engaged"	No	-
Pump gear*	On	Road	No	✓
Pump gear*	Off	Road	No	-
Any gear other than N and pump gear*	On or off	Road	No	-
Any gear other than N and pump gear*	On or off	"Pump engaged"	No	-

*Chassis transmission shift selector placed in position for pumping as indicated on label provided in the driving compartment.

21.7.4.2*

If the pump is designed to be driven through a transmission-mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO with the apparatus in a stationary position, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.2 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.2 Stationary Pump Driven Through Transmission-Mounted PTO, Front-of-Engine Crankshaft PTO, or Engine Flywheel PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Point
N	On	Disengaged	Yes	-
N	Off	Disengaged	No	✓
N	On	"Pump engaged" "OK to pump"	Yes	-
N	Off	"Pump engaged"	No	-
Any gear other than N	On	"Pump engaged"	No	✓
Any gear other than N	Off	"Pump engaged"	No	-
Any gear other than N	On or off	Disengaged	No	-

21.7.4.3*

If the pump is in a fire apparatus that has both stationary and "pump-and-roll" capability, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.3 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.3 Stationary and "Pump-and-Roll" Pump

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Required
N	On	Disengaged	Yes	-
N	Off	Disengaged	No	✓
N	On	"Pump engaged" "OK to pump"	Yes	-
N	Off	"Pump engaged"	No	-
Any gear other than N	On	"Pump engaged" "OK to pump and roll"	No	✓
Any gear other than N	Off	"Pump engaged" "OK to pump and roll"	No	-
Any gear other than N	On or off	Disengaged	No	-

21.7.4.4

Testing shall be performed with a qualified person positioned in the driving compartment and a qualified person verifying engine speed control status at the pump operator's panel.

21.7.4.5

Shifting of the pump transmission/PTO shall be done in accordance with the manufacturer's instructions.

21.7.4.6

For wildland and fire apparatus compliant with the 2016 editions, or later, of NFPA 1906 and NFPA 1901, respectively, where the pump is driven by the chassis engine and automatic transmission through a split shaft PTO, compliance shall be verified that an interlock system prevents the pump drive system from being shifted out of the "Pump Engaged" mode of operation when the chassis transmission is in pump gear.

Statement of Problem and Substantiation for Public Input

In the 2016 edition of NFPA 1901 and NFPA 1906, the corresponding section (16.13.8) was revised to test more combinations of conditions, indicators, and control. The committee should consider whether the tests here should be expanded to at least test that each sensor (transmission gear, parking brake, and pump shift) disables throttle control, or the full set of combinations as in NFPA 1900 section 19.13.8.

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Public Input No. 21-NFPA 1910-2020 [Section No. 21.7.4]

21.7.4* Pump Engine Control Interlock Test .

For apparatus where the chassis engine drives the pump and electric or electronic engine throttle controls are provided, a test of the interlock that controls the advancement of the engine speed at the pump operator's panel shall be made.

21.7.4.1*

If the pump is designed to be driven through a split-shaft PTO with the apparatus in a stationary position, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.1 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.1 Stationary Pump Driven Through Split-Shaft PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Point
N	On	Road	Yes	-
N	Off	Road	No	✓
N	On	"Pump engaged"	Yes	-
N	Off	"Pump engaged"	No	-
Pump gear*	On	"Pump engaged" "OK to pump"	Yes	-
Pump gear*	Off	"Pump engaged"	No	-
Pump gear*	On	Road	No	✓
Pump gear*	Off	Road	No	-
Any gear other than N and pump gear*	On or off	Road	No	-
Any gear other than N and pump gear*	On or off	"Pump engaged"	No	-

*Chassis transmission shift selector placed in position for pumping as indicated on label provided in the driving compartment.

21.7.4.2*

If the pump is designed to be driven through a transmission-mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO with the apparatus in a stationary position, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.2 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.2 Stationary Pump Driven Through Transmission-Mounted PTO, Front-of-Engine Crankshaft PTO, or Engine Flywheel PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Point
N	On	Disengaged	Yes	-
N	Off	Disengaged	No	✓
N	On	"Pump engaged" "OK to pump"	Yes	-
N	Off	"Pump engaged"	No	-
Any gear other than N	On	"Pump engaged"	No	✓
Any gear other than N	Off	"Pump engaged"	No	-
Any gear other than N	On or off	Disengaged	No	-

21.7.4.3*

If the pump is in a fire apparatus that has both stationary and "pump-and-roll" capability, the interlock shall be tested with the chassis transmission, parking brake, and pump shift in the driving compartment as shown for the two test configurations in Table 21.7.4.3 to verify that the engine speed control at the pump operator's panel is not capable of being advanced.

Table 21.7.4.3 Stationary and "Pump-and-Roll" Pump

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Status (Driving Compartment)	Engine Speed Control at Pump Operator's Panel	Test Required
N	On	Disengaged	Yes	-
N	Off	Disengaged	No	✓
N	On	"Pump engaged" "OK to pump"	Yes	-
N	Off	"Pump engaged"	No	-
Any gear other than N	On	"Pump engaged" "OK to pump and roll"	No	✓
Any gear other than N	Off	"Pump engaged" "OK to pump and roll"	No	-
Any gear other than N	On or off	Disengaged	No	-

21.7.4.4

Testing shall be performed with a qualified person positioned in the driving compartment and a qualified person verifying engine speed control status at the pump operator's panel.

21.7.4.5

Shifting of the pump transmission/PTO shall be done in accordance with the manufacturer's instructions.

21.7.4.6

For wildland and fire apparatus compliant with the 2016 editions, or later, of NFPA 1906 and NFPA 1901, respectively, where the pump is driven by the chassis engine and automatic transmission through a split shaft PTO, compliance shall be verified that an interlock system prevents the pump drive system from being shifted out of the "Pump Engaged" mode of operation when the chassis transmission is in pump gear.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._19_S._Wilde.pdf	1911_PI No. 19_S. Wilde	

Statement of Problem and Substantiation for Public Input

add the Test to the chapter heading

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Public Input No. 33-NFPA 1910-2020 [Section No. 21.7.4.6]

21.7.4.6

For wildland and fire apparatus compliant with the 2016 editions, or later, of NFPA 1906 ~~and~~ , NFPA 1901, ~~respectively~~ or NFPA 1900 , where the pump is driven by the chassis engine and automatic transmission through a split shaft PTO, compliance shall be verified that an interlock system prevents the pump drive system from being shifted out of the “Pump Engaged” mode of operation when the chassis transmission is in pump gear.

Statement of Problem and Substantiation for Public Input

Tests apply to trucks built to 2016 NFPA 1901 or 1906 or built to 2023 or later NFPA 1900.

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Committee: FDA-AAA

Public Input No. 22-NFPA 1910-2020 [Section No. 21.7.6]

21.7.6* Vacuum ~~Test~~ Tests .

The interior of the pump shall be subjected to a vacuum test as follows:

(1) All intake valves shall be open, all intakes shall be capped or plugged, and all discharge caps shall be removed.

(2) The primer shall be operated in accordance with the manufacturer's instructions.

(3) The maximum vacuum attained shall be at least 22 in. Hg (75 kPa), unless the altitude is above 2000 ft (610 m), in which case the vacuum attained shall be permitted to be less than 22 in. Hg (75 kPa) by 1 in. Hg (3.4 kPa) for each 1000 ft (305 m) of altitude above 2000 ft (610 m).

(4) The vacuum shall not drop more than 10 in. Hg (34 kPa) in 5 minutes.

(5) The primer shall not be used after the 5-minute test period has begun.

(6) The engine shall not be operated at any speed greater than the governed speed during the test.

(7) * Close all intake valves, remove the cap or plug from each valved intake, and repeat test steps 2 through 6.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._20_S._Wilde.pdf	1911_PI No. 20_S. Wilde	

Statement of Problem and Substantiation for Public Input

since there are multiple tests in this section change the header to make test plural

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Public Input No. 24-NFPA 1910-2020 [Section No. 21.7.7]

21.7.7 Pumping System Tests.

21.7.7.1 Wildland and Ultra-High-Pressure Fire Pumps.

21.7.7.1.1

Wildland fire pumps and ultra-high-pressure fire pumps shall be subjected to a 30-minute pumping test consisting of continuous pumping at rated capacity at rated net pump pressure.

21.7.7.1.2

The flow, discharge pressure, intake pressure, and engine speed shall be recorded at least every 15 minutes but not fewer than three times for each test sequence.

21.7.7.2 Fire Pumps and Industrial Supply Pumps.

21.7.7.2.1

If the fire pump has a rated capacity of 250 gpm (1000 L/min) or greater but less than 3000 gpm (12,000 L/min), the pump shall be subjected to the pumping test consisting of the following:

(1) At least 20 minutes of pumping at 100 percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(2) Overload test

(3) If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater but less than 3000 gpm (12,000 L/min), the pump shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 5 minutes.

(4) The overload test shall immediately follow the pumping test at rated capacity at 150 psi (1100 kPa) net pump pressure.

(5) At least 10 minutes of pumping at 70 percent of rated capacity at 200 psi (1400 kPa) net pump pressure

(6) At least 10 minutes of pumping at 50 percent of rated capacity at 250 psi (1700 kPa) net pump pressure

21.7.7.2.2*

If the fire pump or industrial supply pump has a rated capacity of 3000 gpm (12,000 L/min) or greater, the pump shall be subjected to the pumping test consisting of the following:

(1) At least 20 minutes of pumping at 100 percent of rated capacity at 100 psi (700 kPa) net pump pressure

(2) At least 10 minutes of pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(3) At least 10 minutes of pumping 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure

21.7.7.2.3*

If the fire pump or industrial supply pump is a two-stage, parallel/series-type pump, the following criteria shall apply:

(1) The test at 100 percent of capacity shall be run with the pump in parallel mode.

(2) The test at 70 percent of capacity shall be permitted to be run with the pump in either series or parallel mode.

(3) The test at 50 percent of capacity shall be run with the pump in series mode.

21.7.7.2.4

A complete set of readings shall be taken and recorded a minimum of five times during the 20-minute test for 100 percent rated capacity, a minimum of twice during the overload test if performed, and a minimum of three times during each of the 10-minute tests for 70 percent capacity and 50 percent capacity.

21.7.7.3

The prescribed duration of the pumping tests shall not be started until the pump pressure and the discharge quantity are stabilized at the prescribed values.

21.7.7.4

The engine shall not be throttled down, except when the hose, a nozzle, or the position of a transfer valve is being changed.

21.7.7.5

If the flow rate or pressure readings vary by more than 5 percent during a particular test, the reason for the fluctuation shall be determined, the cause corrected, and the test continued or repeated.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._22_S._Wilde.pdf	1911_PI No. 22_S. Wilde	

Statement of Problem and Substantiation for Public Input

we should add the word "System" since there is more then one component needed to pump.

Submitter Information Verification

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Submittal Date: Wed Jul 29 10:46:41 EDT 2020
Committee: FDA-AAA

Public Input No. 23-NFPA 1910-2020 [Section No. 21.7.8]

21.7.8* Pressure Control ~~Test~~ System Tests .

21.7.8.1 Wildland Fire Pumps.

If a pressure control system is supplied on a wildland fire pump, it shall be tested as follows:

(1) The wildland fire pump shall be operated to deliver rated capacity at rated net pump pressure.

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge at rated net pump pressure ±5 percent.

(3) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(4) The rise in discharge pressure shall not exceed 60 psi (400 kPa).

(5) The rise in discharge pressure shall be recorded.

21.7.8.2 Fire Pumps Less than 3000 gpm (12,000 L/min).

If the fire pump has a rated capacity of less than 3000 gpm (12,000 L/min), the pressure control device shall be tested as specified in 21.7.8.2.1 through 21.7.8.2.3.

21.7.8.2.1

The pressure control device shall be tested at 150 psi (1000 kPa) net pump pressure as follows:

(1) The pump shall be delivering rated capacity at 150 psi (1000 kPa) net pump pressure.

(2) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 150 psi (1000 kPa) net pump pressure.

(3)* All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(5) The rise in discharge pressure shall be recorded.

21.7.8.2.2

The pressure control device shall be tested at 90 psi (620 kPa) net pump pressure as follows:

(1) The original conditions of pumping rated capacity at 150 psi (1000 kPa) net pump pressure shall be reestablished.

(2) The discharge pressure shall be reduced to 90 psi (620 kPa) net pump pressure by throttling the engine fuel supply with no change to the discharge valve setting, hose, or nozzles.

(3) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 90 psi (620 kPa) net pump pressure.

(4) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(5) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(6) The rise in discharge pressure shall be recorded.

21.7.8.2.3

The pressure control device shall be tested at 50 percent of rated capacity at 250 psi (1700 kPa) net pump pressure as follows:

(1) The pump shall be delivering 50 percent of rated capacity at 250 psi (1700 kPa) net pump pressure.

(2) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 250 psi (1700 kPa) net pump pressure.

(3) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(5) The rise in discharge pressure shall be recorded.

21.7.8.3 Pumps 3000 gpm (12,000 L/min) or Greater.

If the fire pump or industrial supply pump has a rated capacity of 3000 gpm (12,000 L/min) or greater, the pressure control device shall be tested as specified in 21.7.8.3.1 through 21.7.8.3.3.

21.7.8.3.1

The pressure control device shall be tested at rated pump capacity at 100 psi (700 kPa) net pump pressure as follows:

(1) The pump shall be delivering rated capacity at 100 psi (700 kPa) net pump pressure.

(2) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 100 psi (700 kPa) net pump pressure.

(3)* All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(5) The rise in discharge pressure shall be recorded.

21.7.8.3.2

The pressure control device shall be tested at 90 psi (620 kPa) net pump pressure as follows:

(1) The original conditions of pumping rated capacity at 100 psi (700 kPa) net pump pressure shall be reestablished.

(2) The discharge pressure shall be reduced to 90 psi (620 kPa) net pump pressure by throttling the engine fuel supply with no change to the discharge valve setting, hose, or nozzles.

(3) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 90 psi (620 kPa) net pump pressure.

(4) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(5) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(6) The rise in discharge pressure shall be recorded.

21.7.8.3.3

The pressure control device shall be tested at 50 percent of rated pump capacity at 200 psi (1400 kPa) net pump pressure as follows:

(1) The pump shall be delivering 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure.

(2) The pressure control device shall be set in accordance with the manufacturer's instructions to maintain the discharge at 200 psi (1400 kPa) net pump pressure.

(3) All discharge valves shall be closed in no fewer than 3 seconds and no more than 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa).

(5) The rise in discharge pressure shall be recorded.

21.7.8.4* Ultra-High-Pressure Fire Pumps.

The pressure control system of an ultra-high-pressure fire pump shall be tested as follows:

(1) The ultra-high-pressure fire pump shall be operated to deliver rated capacity at rated discharge gauge pressure.

(2) If a pressure control system is supplied, it shall be set in accordance with the manufacturer’s instructions.

(3) All discharge valves shall be closed.

(4) Any rise in discharge pressure shall not exceed 40 percent of the rated pump pressure.

(5) The pump shall be operated with the discharge lines closed for 3 minutes without the temperature of the pump exceeding 140°F (60°C).

(6) The final discharge pressure, any rise in discharge pressure, and the final pump temperature shall be recorded.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._21_S._Wilde.pdf	1911_PI No. 21_S. Wilde	

Statement of Problem and Substantiation for Public Input

The pressure control might be a system using engine speed, relief valves or intake and discharge relief valves. There are multiple tests in this section, we need to change the header to reflect that by changing test to tests.

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Committee: FDA-AAA

Public Input No. 198-NFPA 1910-2020 [Section No. 21.7.11.1]

21.7.11.1*

Each flowmeter shall be checked for accuracy at the test flows shown in Table 21.7.11.1.

Table 21.7.11.1 Flow-Measuring Points for Flowmeters

Pipe Size			Test Flow	
in.	mm		gpm	L/min
1	25	40	150	
1 1½	~~38~~ 40	- 90	~~128~~ 340	~~454~~
~~251~~	50 -	160 ~~180~~	600	~~682~~
2½	~~63~~ 60	- 250	~~300~~ 950	~~1135~~
~~375~~	80 -	375 ~~700~~	1400	~~2650~~
4	100	-	625	2400
5	125	1000	~~3785~~	4000
6	150	1440	5500	

Additional Proposed Changes

File Name	Description	Approved
1910_21.7.11.1_.docx	NFPA 1910 Table 21.7.11.1	

Statement of Problem and Substantiation for Public Input

Correct metric pipe sizes to actual nominal pipe sizes.
Match test points in 1910 to calibration/test points in 1900.

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Submittal Date: Wed Oct 28 15:07:17 EDT 2020
Committee: FDA-AAA

Table 21.7.11.1 Flow-measuring points for Flowmeters

Pipe Size		Flow	
in.	**mm**	**gpm**	**L/min**
1	25	40	150
1½	40	90	340
2	50	160	600
2½	60	250	950
3	80	375	1400
4	100	625	2400
5	125	1000	4000
6	150	1440	5500

Public Input No. 25-NFPA 1910-2020 [Section No. 21.7.12]

21.7.12 Tank-to-Pump Flow Rate Test .

If the apparatus is equipped with a water tank, the tank-to-pump flow rate also shall be checked using the following procedure:

(1) The water tank shall be filled until it overflows.

(2) All intakes to the pump shall be closed.

(3) The tank fill line and bypass cooling line shall be closed.

(4) Hose lines and nozzles for discharging water at the anticipated flow rate shall be connected to one or more of the discharge outlets.

(5) The tank to the pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.

(6) The engine throttle shall be adjusted until the maximum consistent pressure reading on the discharge pressure gauge is obtained.

(7) The discharge valve(s) shall be closed and the water tank refilled, with the bypass line permitted to be opened temporarily if needed to keep the water temperature in the pump within acceptable limits.

(8) The discharge valves shall be reopened fully and a pitot reading or other flow measurement shall be taken while the water is being discharged, with the engine throttle adjusted to maintain the discharge pressure noted in 21.7.12(6), if necessary.

(9) * The flow rate shall be recorded and compared with the rate designated by the manufacturer when the apparatus was new or with the rate established in previous testing.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._23_S._Wilde.pdf	1911_PI No. 23_S. Wilde	

Statement of Problem and Substantiation for Public Input

Add the word "test" to match other required tests.

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Submittal Date: Wed Jul 29 10:50:52 EDT 2020
Committee: FDA-AAA

Public Input No. 15-NFPA 1910-2020 [Section No. 21.8.4]

21.8.4

If the engine speed required to meet any of the test points during the pumping test exceeds 110 percent of the engine speed listed on the test label attached to the apparatus, the ~~pump~~ pumping system shall be repaired ~~or replaced~~ .

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._12_S._Wilde.pdf	1911_PI No. 12_S. Wilde	

Statement of Problem and Substantiation for Public Input

By not using the phrase "pumping system" someone could mistake the pump as the only reason the pump might need excessive rpm to make the flow and pressure settings.

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Submittal Date: Wed Jul 29 10:09:54 EDT 2020
Committee: FDA-AAA

Public Input No. 199-NFPA 1910-2020 [Section No. 21.8.7]

21.8.7*

If the AHJ wishes to rerate the pump, the pump shall be tested to the complete pumping test as specified in NFPA ~~1901~~ 1900 , including having the test witnessed and certified by an accredited third-party testing organization.

Statement of Problem and Substantiation for Public Input

Document number change due to document consolidation.

Submitter Information Verification

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Submittal Date: Wed Oct 28 16:29:57 EDT 2020
Committee: FDA-AAA

Public Input No. 200-NFPA 1910-2020 [Section No. 22.6]

22.6 Bolt and Pin Inspection.

Bolts and pins that are subjected to ultrasonic testing shall contain no ultrasonic ~~cathode ray tube (CRT) indications~~ indications on a visual display that can be interpreted as cracks or elongated material.

Statement of Problem and Substantiation for Public Input

Ultrasonic testing equipment, like all computer equipment and televisions, have long since moved away from cathode ray tube (CRT) displays. I believe the requirement should call for a visual display without specifying the technology used to produce that display.

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Submittal Date: Thu Oct 29 13:15:38 EDT 2020
Committee: FDA-AAA

Public Input No. 7-NFPA 1910-2020 [Section No. 22.6]

22.6 Bolt and Pin Inspection.

Bolts and pins that are subjected to ultrasonic testing shall contain no ultrasonic ~~cathode ray tube (CRT)~~ electromagneticacoustic transducer indications that can be interpreted as cracks or elongated material.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._9_J._Fickers.pdf	1911_PI No. 9_J. Fickers	

Statement of Problem and Substantiation for Public Input

I can find no reference to cathode ray tube in any documentation for ultrasonic testing, I believe this term is an old fashioned tv monitor and not used in any form for testing. most all reference material refers to a transducer based acoustic emitter.

Submitter Information Verification

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Submittal Date: Tue Jul 28 09:48:38 EDT 2020
Committee: FDA-AAA

Public Input No. 34-NFPA 1910-2020 [Section No. 22.7]

22.7 Nondestructive Testing Procedures.

22.7.1

All test procedures shall be consistent with ASTM E1316, *Standard Terminology for Nondestructive ~~Testing~~ Examinations* .

22.7.2

All ultrasonic inspections shall be conducted in accordance with the following standards:

(1) ASTM E114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam ~~Examination by the~~ Contact ~~Method~~ Testing*

(2) ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*

22.7.3

All magnetic particle inspections shall be conducted in accordance with ASTM E709, *Standard Guide for Magnetic Particle ~~Examination~~ Testing* .

22.7.4

All liquid penetrant inspections shall be conducted in accordance with the following standards:

(1) ASTM E165/E165M, *Standard Test Method for Liquid Penetrant ~~Examination~~ Testing for General Industry*

(2) ASTM E1220, *Standard ~~Test Method~~ Practice for Visible Penetrant ~~Examination~~ Testing Using ~~the~~ Solvent-Removable Process*

(3) ASTM E1418, *Standard ~~Test Method~~ Practice for Visible Penetrant Examination Using the Water-Washable Process*

22.7.5

All hardness readings shall be conducted in accordance with the following standards:

(1) ASTM B647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*

(2) ASTM B648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*

(3) ASTM E6, *Standard Terminology Relating to Methods of Mechanical Testing*

(4) ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*

(5) ASTM E18, *Standard Test Methods for Rockwell Hardness and Rockwell ~~Superficial~~ Hardness of Metallic Materials*

(6) ASTM E92, *Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials*

22.7.6

All acoustic emission inspections shall be conducted in accordance with the following standards:

(1) ASTM E569/E569M, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*

(2) ASTM E650/E650M, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*

22.7.7

All eddy current inspections shall be conducted in accordance with ASTM E1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method*.

Statement of Problem and Substantiation for Public Input

ASTM has changed the titles of several referenced documents.

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Submittal Date: Tue Sep 01 13:23:58 EDT 2020
Committee: FDA-AAA

Public Input No. 201-NFPA 1910-2020 [Section No. 22.8.6.8]

22.8.6.8 Base Rails.

The base rails shall be inspected as follows:

(1) Inspect the base rail for straightness and any signs of wear, ironing, dents, or corrosion.

(2)* (+) Inspect the bottom of all hollow I-beam base rails to determine that the thickness of the rail is not less than the manufacturer's minimum specifications.

(3) If the ladder is constructed of aluminum, perform one of the following:

(4) (+) Take hardness readings at intervals of 28 in. (710 mm) or less along the entire length of both bottom rails and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the top rail.

(5)* (+) If heat sensors are installed on the base rails, visually inspect the heat sensors for discoloration.

(6) (+) If the aerial ladder is painted, follow the manufacturer's recommendations for inspection.

(7) (+) If there is discoloration of a heat sensor(s) or any indication of heat damage anywhere on an aluminum aerial device, take hardness readings at intervals of 12 in. (305 mm) or less between ~~the~~ the - ~~heat-affected areas and compare the results with the manufacturer's specifications for the hardness of the material used for construction of the base rail.~~

Statement of Problem and Substantiation for Public Input

Editorial. Note that TerraView did not render this well. The change proposed is to move the text starting with "heat-affected areas and compare" back to the end of the sentence under item 4.

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Committee: FDA-AAA

Public Input No. 35-NFPA 1910-2020 [Section No. 22.8.6.30]

22.8.6.30 Tip Controls.

If the aerial ladder is equipped with a secondary operating position at the tip, the controls shall be inspected as follows:

(1) Check that the control handles are not damaged or missing, functions are identified, and operating instructions and warnings are posted.

(2) Verify that the controls operate smoothly, return to neutral when released, and do not bind during operation.

(3) Verify that the turntable or lower controls will override the tip controls.

(4) Verify that any safety devices that are designed to operate in conjunction with the tip controls are fully operational.

(5) If the aerial ladder was built to the 1996 or a later edition of NFPA 1901 or to NFPA 1900 , verify that the speed of the aerial ladder, when being operated from the tip controls, does not exceed the speeds permitted in the edition of NFPA 1901 or NFPA 1900 to which the aerial ladder was manufactured.

Statement of Problem and Substantiation for Public Input

NFPA 1901 now part of NFPA 1900.

Submitter Information Verification

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Submittal Date: Tue Sep 01 13:29:55 EDT 2020
Committee: FDA-AAA

Public Input No. 36-NFPA 1910-2020 [Section No. 22.8.8.2]

22.8.8.2*

The procedure specified in 22.8.8.1 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 or NFPA 1900 in effect at the time of manufacture.

Statement of Problem and Substantiation for Public Input

NFPA 1901 now part of NFPA 1900.

Submitter Information Verification

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Submittal Date: Tue Sep 01 13:34:44 EDT 2020
Committee: FDA-AAA

Public Input No. 11-NFPA 1910-2020 [Section No. 22.9.3]

22.9.3 Hydraulic Components.

Hydraulic components shall ~~show no signs of hydraulic fluid leakage~~ not have a class Three (3) leak .

22.9.3.1

A component shall be considered to be leaking if hydraulic fluid (oil) droplets ~~are forming on the component~~ form and fall to the ground .

22.9.3.2

A film of hydraulic fluid (Class I Leak) on the component shall not be considered severe enough to categorize the component as leaking.

Note: Class Three Leak is described in Chapter 6.10.3 and it states that a Out Of Service Evaluation be performed.

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._3_A._Conkle.pdf	1911_PI No. 3_A. Conkle	

Statement of Problem and Substantiation for Public Input

Section 6 Out of Service states that a Class Three (3) leak be evaluated for Out of Service and contradicts this statement .
Oil seepage Class 1 is to be expected, however a class three leak indicates a mechanical issue that is in need of attention and may be a safety issue.

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Committee: FDA-AAA

Public Input No. 202-NFPA 1910-2020 [Section No. 22.9.4]

22.9.4 Turntable and Torque Box Inspection and Test.

The turntable and torque box components, where applicable, shall be inspected in accordance with 22.8.4.1~~,~~ ~~22.8.4.2~~ ~~,~~ ~~22.8.4.4~~ through 22.8.4.~~13~~ ~~, and~~ ~~22.8.4.18~~ ~~through~~ ~~22.8.4.~~ 29.

Statement of Problem and Substantiation for Public Input

It seems that all sections on 22.8.4 should be included in the testing of the turntable components. 22.8.4.3 only applies to tractor-drawn aerials, but a platform could be (Sutphen did it at one time) tractor-drawn and each sentence starts with "If" so for straight trucks this section is not a problem. 22.8.4.14 through 22.8.4.17 apply to elevating cylinders/ears/pins/holding valves, all of which would be applicable to elevating platforms as well as straight aerial ladders.

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Public Input No. 203-NFPA 1910-2020 [Section No. 22.9.6.7]

22.9.6.7 Elevating Platform Rated Capacity Identification.

The elevating platform rated capacity identification ~~plate~~ label or electronic display shall be checked to verify that it is present, proper, and legible.

Statement of Problem and Substantiation for Public Input

Per usage in 1900 and 1910, and the definitions, a label gives information, a Plate gives instructions.Also, 1901/1900 now allow this information to be on an electronic display rather than a printed label.

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Committee: FDA-AAA

Public Input No. 210-NFPA 1910-2020 [Section No. 22.9.6.7]

22.9.6.7 Elevating Platform Rated Capacity Identification.

The elevating platform rated capacity identification ~~plate~~ label or digital display shall be checked to verify that it is present, proper, and legible.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.
NFPA 1901/1900 now allows this information to be on a digital display instead of a label.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Submittal Date: Fri Oct 30 15:23:30 EDT 2020
Committee: FDA-AAA

Public Input No. 37-NFPA 1910-2020 [Section No. 22.9.13.3]

22.9.13.3*

The procedure specified in 22.9.13.2 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 or NFPA 1900 in effect at the time of manufacture.

Statement of Problem and Substantiation for Public Input

NFPA 1901 now part of NFPA 1900.

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Committee: FDA-AAA

Public Input No. 204-NFPA 1910-2020 [Section No. 22.10.4]

22.10.4 Turntable and Torque Box Inspection and Test.

The turntable and torque box components, where applicable, shall be inspected on all water tower apparatus in accordance with 22.8.4.1~~,~~ ~~22.8.4.2~~ ~~, and~~ ~~22.8.4.4~~ through 22.8.4.29.

Statement of Problem and Substantiation for Public Input

There is no reason to exclude 22.8.4.3. This section applies "if tractor-drawn ... ." While most of all new water tower equipment is not tractor drawn, most old water towers were tractor drawn and there is no reason that water tower apparatus, now or old, could not be tractor drawn so the inspection should include this section.

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Committee: FDA-AAA

Public Input No. 38-NFPA 1910-2020 [Section No. 22.10.10.2]

22.10.10.2*

The procedure specified in 22.10.10.1 shall be completed smoothly and without undue vibration within the time permitted by the edition of NFPA 1901 or NFPA 1900 in effect at the time of manufacture.

Statement of Problem and Substantiation for Public Input

NFPA 1901 now part of NFPA 1900.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 217-NFPA 1910-2020 [Section No. 25.3.2.2]

25.3.2.2

The test shall be permitted to be performed using a load bank.

Statement of Problem and Substantiation for Public Input

This statement, as written, conflicts with 25.3.2.1. The idea of this annual test was to be able to perform it in-station without needing a load bank, and in most cases using loads carried on the apparatus of available around the station. The 5 year Full Load Test of Power Source in section 25.7 in most cases will require a load bank to reach the necessary load, although even that test does not require that it be done with a load bank if sufficient loads and connection points are available.

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Submittal Date: Fri Oct 30 16:45:11 EDT 2020
Committee: FDA-AAA

Public Input No. 27-NFPA 1910-2020 [Chapter 27 [Title Only]]

~~General Requirements (NFPA 1912)~~

27 Performance Testing of ARFF Vehicle Water Pumps

27.1 A stop watch shall be required for this test.

27.2 The vehicle's water system shall be fully operational with all pre-connected hand lines deployed for this test.

27.3 The vehicle water supply for this test shall be supplied by the on-board storages.

27.4 The combined discharge of all nozzles shall be tested as follows:

1. Fill the water tank completely with water.

2. If the vehicle is equipped with a foam pump if shall be tested in accordance with the water pump testing and in compliance with NFPA 412.

3. Set the manual relief valve, if equipped, to the recommended OEM pressure.

4. Verify the system will maintain a set pressure.

5. Check the piping system for leaks.

6. Set the agent system to operate in water mode, set the system pressure for optimum performance, and engage the pump.

7. Initiate discharge through all turrets, ground sweeps, pre-connected hand lines, and under truck nozzles until all are discharging simultaneously in a straight stream.

8. As each nozzle is turned on, observe the range along with the system pressure.

9. Test the extendable turret in both fully bedded and fully vertically extended position.

10. Continue discharging until the system pressure has stabilized with all nozzles discharging.

27.5 To calculate the discharge rate for an ARFF vehicle the discharge rate (DR) shall equal the minimum rated tank capacity in unit volume divided by the discharge time in minutes

$$DR = \frac{\text{Minimum Rated Capacity (unit Volume)}}{\text{Discharge Time (Minutes)}}$$

27.6 All discharge rates and distances shall conform to NFPA 414 Table 4.1.1, Fully Loaded Vehicle Parameters

-

Statement of Problem and Substantiation for Public Input

This is the proposed new Chapter 27 based on the current numbering for 1911 (2017)

Submitter Information Verification

Submitter Full Name: Robert Mathis
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Submittal Date: Tue Aug 25 17:42:27 EDT 2020
Committee: FDA-AAA

Public Input No. 219-NFPA 1910-2020 [Section No. 27.1.2.1]

27.1.2.1

Apparatus that receives a Level I refurbishing is intended to meet the applicable chapters of the current edition of ~~the appropriate NFPA automotive fire apparatus standard~~ NFPA 1900 .

Statement of Problem and Substantiation for Public Input

Update reference due to NFPA document consolidation.

Submitter Information Verification

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Submittal Date: Fri Oct 30 17:10:51 EDT 2020
Committee: FDA-AAA

Public Input No. 218-NFPA 1910-2020 [Section No. 27.1.3.1]

27.1.3.1

This standard is applicable to fire apparatus contracted for refurbishing on or after July 1, ~~2006~~ 2023 ; however, nothing shall prevent the use of the standard prior to July 1, ~~2006~~ 2023 , if the purchaser and contractor agree. The standard is not intended to be applied retroactively.

Statement of Problem and Substantiation for Public Input

Update the effective date. It was incorrect in the previous edition.

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Committee: FDA-AAA

Public Input No. 39-NFPA 1910-2020 [Section No. 27.2.1]

27.2.1

Fire apparatus receiving Level I refurbishing shall meet the requirements of the applicable chapters of the current edition of NFPA ~~1901 if the apparatus is not a wildland fire apparatus, or NFPA 1906 if the apparatus is a wildland fire apparatus,~~ 1900, except as noted in Chapter 28.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 now in NFPA 1900.

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Public Input No. 40-NFPA 1910-2020 [Section No. 27.5]

27.5 Fire Apparatus Components.

All components shall be installed in accordance with that component manufacturer's installation instructions.

27.5.1 Fire Pump.

If the fire apparatus is equipped with a new fire pump, the pump and its associated equipment shall meet the requirements for fire pumps in the current edition of NFPA ~~1901~~ 1900 .

27.5.2 Auxiliary Pump.

If the fire apparatus is equipped with a new auxiliary pump, the pump and its associated equipment shall meet the requirements for auxiliary pumps in the current edition of NFPA ~~1901~~ 1900 .

27.5.3 Wildland Water Pump.

If the fire apparatus is equipped with a new wildland water pump, the pump and its associated equipment shall meet the requirements for wildland water pumps in the current edition of NFPA ~~1906~~ 1900 .

27.5.4 Water Tank.

If the fire apparatus is equipped with a new water tank, the water tank shall meet the requirements for water tanks in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.5.5 Aerial Device.

If the fire apparatus is equipped with a new aerial device (i.e., aerial ladder, elevating platform, or water tower), the aerial device shall meet the requirements for aerial devices in the current edition of NFPA ~~1901~~ 1900 .

27.5.6 Foam Proportioning System.

If the fire apparatus is equipped with a new foam proportioning system, the apparatus shall meet the requirements for foam proportioning systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.5.7 Compressed Air Foam System.

If the fire apparatus is equipped with a new compressed air foam system, the system shall meet the requirements for compressed air foam systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.5.8 Line-Voltage Electrical System.

If the fire apparatus is equipped with a new line-voltage electrical system or components, the system or components shall meet the requirements for line-voltage electrical systems in the current edition of NFPA ~~1901~~ 1900 .

27.5.9 Command and Communications.

If the fire apparatus is equipped with a new command and communications area, the area shall meet the requirements for command and communications areas in the current edition of NFPA ~~1901~~ 1900 .

27.5.10 Air System.

If the fire apparatus is equipped with a new air system, the system shall meet the requirements for air systems in the current edition of NFPA ~~1901~~ 1900 .

27.5.11 Winch System.

If the fire apparatus is equipped with a new winch system, the system shall meet the requirements for winches in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 now in NFPA 1900.

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Public Input No. 41-NFPA 1910-2020 [Section No. 27.6]

27.6 Chassis Components.

Each component shall be installed in accordance with that component manufacturer's installation instructions.

27.6.1 Engine.

If the fire apparatus is equipped with a new engine, the system shall meet the requirements for engines in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.2 Transmission/Transfer Case.

If the fire apparatus is equipped with a new transmission or transfer case, the component(s) shall meet the requirements for transmissions and transfer cases in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.3 Braking System.

If the fire apparatus is equipped with a new braking system, the system shall meet the requirements for braking systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.4 Axle(s).

If the fire apparatus is equipped with a new axle(s), the component(s) shall meet the requirements for axles in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.5 Suspension, Wheels, and Tires.

If the fire apparatus is equipped with new suspension, wheels, or tires, the component(s) shall meet the requirements for new suspension, wheels, and tires in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.6 Cooling System.

If the fire apparatus is equipped with a new cooling system, the system shall meet the requirements for cooling systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.7 Low-Voltage Electrical System.

If the fire apparatus is equipped with a new low-voltage electrical system or components, the system or components shall meet the requirements for low-voltage electrical systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.8 Frame.

If the fire apparatus is equipped with a new chassis frame, the frame shall meet the requirements for chassis frames in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.9 Driveline.

If the fire apparatus is equipped with a new driveline, the components shall meet the requirements for drivelines in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.10 Lubrication System.

If the fire apparatus is equipped with a new lubrication system, the system shall meet the requirements for lubrication systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.11 Fuel and Air System.

If the fire apparatus is equipped with a new fuel and air system, the system shall meet the requirements for fuel and air systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.12 Exhaust System.

If the fire apparatus is equipped with a new exhaust system, the system shall meet the requirements for exhaust systems in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

27.6.13 Driving and Crew Compartment.

If the fire apparatus is equipped with a new driving and crew compartment, the assembly shall meet the requirements for driving and crew compartments in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 4-NFPA 1910-2020 [New Section after 27.9.3]

4.5.14 Vehicle Data Management.

4.5.14.1 The AHJ shall specify what type of on-board vehicle data management system is required

4.5.14.2 The If no vehicle data management system is required, the AHJ shall specify that no vehicle data management system is to be furnished

Additional Proposed Changes

File Name	Description	Approved
1912_PI_No._4_J._McDonald.pdf	1912_PI No. 4_J. McDonald	

Statement of Problem and Substantiation for Public Input

All types of vehicle data management need to be addressed on modern emergency vehicles.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 42-NFPA 1910-2020 [Section No. 28.1]

28.1* General.

Fire apparatus refurbished to Level I standards shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900 for those components unless specified otherwise in this chapter.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 43-NFPA 1910-2020 [Section No. 28.3.5]

28.3.5*

A lateral acceleration indicator that is adjustable for sensitivity and that provides both visual and audio signals and warnings to the driver shall be provided as an alternative to tilt table testing, or in circumstances where the vehicle is unable to meet tilt table requirements as referenced in NFPA ~~1901~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 44-NFPA 1910-2020 [Section No. 28.4]

28.4 Frame.

The fire apparatus frame shall be replaced with a new chassis frame meeting the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 now in NFPA 1900.

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Public Input No. 45-NFPA 1910-2020 [Section No. 28.6.2 [Excluding any Sub-Sections]]

If the existing engine and/or engine system is to be replaced, it shall be replaced with one that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 46-NFPA 1910-2020 [Section No. 28.7.2]

28.7.2

If the cooling system is to be replaced, it shall be replaced with one that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, as well as the engine manufacturer's specifications.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 47-NFPA 1910-2020 [Section No. 28.8.2]

28.8.2

If the lubrication system is to be replaced, it shall be replaced with one that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, and the engine manufacturer's standards.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 48-NFPA 1910-2020 [Section No. 28.9]

28.9 Fuel and Air Systems.

The fire apparatus fuel and air intake systems shall be replaced with new fuel and air intake systems that meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, and the engine manufacturer's standards.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 49-NFPA 1910-2020 [Section No. 28.10]

28.10 Exhaust System.

The original fire apparatus exhaust system shall be replaced with a new exhaust system that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, and the engine manufacturer's standards.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Submittal Date: Tue Sep 01 15:35:14 EDT 2020
Committee: FDA-AAA

Public Input No. 50-NFPA 1910-2020 [Section No. 28.11.1.1]

28.11.1.1

The contractor shall certify that the braking system meets the performance requirements of the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 51-NFPA 1910-2020 [Section No. 28.11.2.1]

28.11.2.1

The suspension system shall be replaced with a new suspension system that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 52-NFPA 1910-2020 [Section No. 28.11.2.4]

28.11.2.4 Angle of Approach and Departure.

28.11.2.4.1

If the non-wildland fire apparatus is being refurbished to NFPA ~~1901~~ 1900 , an angle of approach and an angle of departure of at least 8 degrees shall be maintained at the front and rear of the vehicle when it is loaded to its GVWR or GCWR, if applicable.

28.11.2.4.2

If the wildland fire apparatus is being refurbished to NFPA ~~1906~~ 1900 , an angle of approach and an angle of departure of at least 20 degrees shall be maintained at the front and rear of the vehicle when it is loaded to its GVWR or GCWR, if applicable.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Public Input No. 53-NFPA 1910-2020 [Section No. 28.11.3]

28.11.3 Steering.

The fire apparatus steering system shall be replaced with a new steering system meeting the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Public Input No. 54-NFPA 1910-2020 [Section No. 28.11.5]

28.11.5 Fuel Tank.

The fire apparatus fuel tank shall be replaced with a new tank that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 55-NFPA 1910-2020 [Section No. 28.12]

28.12 Low-Voltage Electrical Systems and Warning Devices.

The fire apparatus electrical wiring system and warning devices shall be replaced with a complete new system that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1906.

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Committee: FDA-AAA

Public Input No. 56-NFPA 1910-2020 [Section No. 28.13]

28.13* Driving and Crew Compartments.

The fire apparatus driving and crew compartments shall be replaced with new driving and crew compartments that meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, and the chassis manufacturer's standards.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 57-NFPA 1910-2020 [Section No. 28.14]

28.14 Body, Compartmentation, and Hose Storage.

28.14.1

If the original fire apparatus body is to be reused, it shall be inspected for serviceability and upgraded to meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.14.2

If the fire apparatus body, compartmentation, and hose storage areas are to be replaced, they shall be replaced with components that meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.14.3

If new compartments are to be added to an existing fire apparatus body, they shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.14.4*

The fire apparatus shall comply with the current requirements for metal finish in ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of the current edition of NFPA 1900, including the application of reflective striping.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 58-NFPA 1910-2020 [Section No. 28.15.3]

28.15.3

All new or upgraded parts or components shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Committee: FDA-AAA

Public Input No. 59-NFPA 1910-2020 [Section No. 28.16.2 [Excluding any Sub-Sections]]

If a new water tank is installed, it shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Public Input No. 60-NFPA 1910-2020 [Section No. 28.17.1 [Excluding any Sub-Sections]]

If the original aerial device is to be used, a full inspection and test as defined in ~~NFPA 1911~~ chapters 11 and 22 of this standard shall be performed.

Statement of Problem and Substantiation for Public Input

NFPA 1911 is now part of this document.

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Committee: FDA-AAA

Public Input No. 61-NFPA 1910-2020 [Section No. 28.17.3]

28.17.3

After the aerial device upgrade work has been performed, a full inspection and test as defined in ~~NFPA 1911~~ chapters 11 and 22 of this standard shall be performed.

Statement of Problem and Substantiation for Public Input

NFPA 1911 now part of this document.

Submitter Information Verification

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Submittal Date: Tue Sep 01 16:04:02 EDT 2020
Committee: FDA-AAA

Public Input No. 62-NFPA 1910-2020 [Section No. 28.18.1.2]

28.18.1.2

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in NFPA ~~1901~~ 1900 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

Statement of Problem and Substantiation for Public Input

NFPA 1901 is now in NFPA 1900.

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Submittal Date: Tue Sep 01 16:05:23 EDT 2020
Committee: FDA-AAA

Public Input No. 220-NFPA 1910-2020 [Section No. 28.19.1.2.1]

28.19.1.2.1

The tests shall be conducted at the ~~manufacturer~~ contractor 's approved facility and certified by the contractor.

Statement of Problem and Substantiation for Public Input

The terminology should be consistent with the rest of the chapter, particularly 28.19.1.1.1.

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Public Input No. 63-NFPA 1910-2020 [Section No. 28.19.2]

28.19.2 Pumping Tests.

A pumping certification test shall be conducted in accordance with the test requirements defined in the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Public Input No. 221-NFPA 1910-2020 [Section No. 28.19.3.1]

28.19.3.1

If a new fire ~~pump~~ pump with a capacity of 750 gpm (3000 L/min) or greater but less that 3000 gpm (12,000 L/min) is installed, a pumping engine overload test shall be conducted in accordance with the test requirements defined in the current edition of NFPA 1901 or NFPA 1906, whichever is applicable.

Statement of Problem and Substantiation for Public Input

Pumping Overload tTest is not required for fire pumps less that 750 gpm or 3000 gpm and up.

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Public Input No. 64-NFPA 1910-2020 [Section No. 28.19.3.1]

28.19.3.1

If a new fire pump is installed, a pumping engine overload test shall be conducted in accordance with the test requirements defined in the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Submittal Date: Tue Sep 01 16:09:01 EDT 2020
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Public Input No. 65-NFPA 1910-2020 [Section No. 28.19.4]

28.19.4 Pressure Control System Test.

28.19.4.1

If the refurbished fire apparatus is equipped with a new pressure control system on the fire pump, it shall be tested in accordance with the test requirements defined in the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.19.4.2

If the original pressure control system is retained or reused, it shall be tested in accordance with the pressure control device testing requirements of ~~NFPA 1911~~ the applicable chapter of this standard .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900. NFPA 1911 is now part of this document.

Submitter Information Verification

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Public Input No. 66-NFPA 1910-2020 [Section No. 28.19.5]

28.19.5 Priming System Test.

28.19.5.1

If the refurbished fire apparatus is equipped with a new priming system on the fire pump, it shall be tested in accordance with the test requirements defined in the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.19.5.2

If the original priming system is retained or reused, it shall be tested in accordance with the priming system test requirements of ~~NFPA 1911~~ the applicable chapter of this standard .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900. NFPA 1911 is now part of this document.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 67-NFPA 1910-2020 [Section No. 28.19.6]

28.19.6 Vacuum Test.

28.19.6.1

If the refurbished fire apparatus is equipped with a new fire pump, a vacuum test shall be conducted in accordance with the test requirements defined in the current edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of the current edition of NFPA 1900 .

28.19.6.2

If the original fire pump is retained or reused, a vacuum test shall be conducted in accordance with the test requirements of ~~NFPA 1911~~ the applicable chapter of this standard .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900. NFPA 1911 is part of this document.

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Submitter Full Name: Thomas Stalnaker
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Public Input No. 68-NFPA 1910-2020 [Section No. 28.19.7.1]

28.19.7.1

If the refurbished fire apparatus has a new water tank(s), fire pump(s), or pump piping, a water tank-to-pump flow test shall be conducted in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

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Public Input No. 69-NFPA 1910-2020 [Section No. 28.19.8]

28.19.8 Engine Speed Advancement Interlock Test.

An engine speed advancement interlock test meeting the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900 shall be conducted.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 70-NFPA 1910-2020 [Section No. 28.19.9.1]

28.19.9.1

New aerial devices shall be tested according to the current edition of NFPA ~~1901~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 is now in NFPA 1900.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 71-NFPA 1910-2020 [Section No. 28.19.10.2.1]

28.19.10.2.1

If the refurbished fire apparatus has a new fire pump or pump piping system, a piping hydrostatic test shall be conducted in accordance with the test requirements in the the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 72-NFPA 1910-2020 [Section No. 28.19.10.3]

28.19.10.3 Electrical System Tests.

Electrical system tests shall be conducted in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900, on all refurbished fire apparatus.

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Public Input No. 73-NFPA 1910-2020 [Section No. 28.19.10.4.1]

28.19.10.4.1

If the refurbished fire apparatus has a newly installed foam system or system components, the system shall be tested in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 are now in NFPA 1900.

Submitter Information Verification

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Public Input No. 222-NFPA 1910-2020 [Section No. 28.19.11.1]

28.19.11.1

If the refurbished fire apparatus has any upgraded powertrain components (engine, transmission, driveline, or axles), it shall be road tested in accordance with 28.19.11.4 3 through 28.19.11.8.

Statement of Problem and Substantiation for Public Input

28.19.11.3 is also applicable to the road tests.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Public Input No. 74-NFPA 1910-2020 [Section No. 28.20.2]

28.20.2

The contractor shall supply, at the time of delivery, at least one copy of the following:

(1) Engine manufacturer's certified brake horsepower curve for a new engine installation showing the maximum governed speed

(2) Contractor's record of fire apparatus refurbishing, including, if applicable, all technical information required for inspection to comply with ~~NFPA 1911~~ chapters 1 through 26 of this standard

(3) Pump manufacturer's certification of suction capabilities for new pump installations

(4) Pump manufacturer's certification of hydrostatic test for new pump installations

(5) Certification of inspection and test

(6) If the apparatus is equipped with a pump, a copy of the chassis manufacturer's approval for stationary pumping applications

(7) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full but without personnel, equipment, and hose) to determine compliance with Section 27.9

(8) The latest edition of the FAMA *Fire Apparatus Safety Guide*

Statement of Problem and Substantiation for Public Input

NFPA 1911 now part of this document.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 209-NFPA 1910-2020 [Section No. 28.20.4]

28.20.4

If the original fire pump is replaced with a new fire pump, a new test ~~plate~~ label shall be provided on the pump operator's panel.

28.20.4.1

The new test plate shall give the rated discharges and pressures, together with the speed of the engine, as determined by the certification test for each unit; the position of the parallel–series pump as used; and the governed speed of the engines as stated by the engine manufacturer on a certified brake horsepower curve.

28.20.4.2

The test ~~plate~~ label shall be stamped with complete information at the contractor's facility and attached to the vehicle prior to delivery.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Submittal Date: Fri Oct 30 15:21:25 EDT 2020
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Public Input No. 75-NFPA 1910-2020 [Section No. 28.21]

28.21 Safety Signs.

The contractor shall ensure that the following safety signs, as appropriate to the apparatus type and features and as described and located per FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, shall be on the apparatus prior to delivery:

(1) FAMA01 — Battery Explosion
(2) FAMA02 — Rotating Shafts
(3) FAMA05 — Spinning Fan
(4) FAMA06 — Seats Without Belts Not Occupied
(5) FAMA07 — Seated and Belted
(6) FAMA10 — Cab Equipment Mounting
(7) FAMA12 — Fire Service Tire Rating
(8) FAMA14 — Cab Seating
(9) FAMA15 — Helmet Worn in Cab (~~1901~~ Municipal Apparatus)
(10) FAMA17 — Vehicle Backing
(11) FAMA18 — Intake and Discharge Cap Pressure
(12) FAMA22 — Hose Restraint Required
(13) FAMA23 — Access Step Method
(14) FAMA24 — Riding on Exterior
(15) FAMA25 — Trained Personnel Only — NFPA Required
(16) FAMA26 — No-Step
(17) FAMA28 — Rope Tie-Down 9000
(18) FAMA30 — Stabilizer Crush
(19) FAMA31 — Stabilizer Pins & Pads
(20) FAMA32 — Stabilizer Pads
(21) FAMA34 — Fall Restraint Required
(22) FAMA35 — Aerial Electrocution
(23) FAMA36 — Aerial Electrocution
(24) FAMA37 — Aerial Device Load Capacity
(25) FAMA38 — Aerial Ladder Rung Pinch
(26) FAMA39 — Aerial Inspection
(27) FAMA41 — Cab Tilt
(28) FAMA42 — Siren Noise
(29) FAMA43 — Helmet Worn in Cab (~~1906~~ Wildlands Apparatus)
(30) FAMA44 — Pump-and-Roll Fire-fighting Position Exterior
(31) FAMA45 — Pump-and-Roll Fire-fighting Position Driver
(32) FAMA46 — Aerial Device Pinch
(33) FAMA47 — Aerial Device Operator Attention Required

Statement of Problem and Substantiation for Public Input

NFPA 1901 and NFPA 1906 no longer exist.

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 76-NFPA 1910-2020 [Section No. 29.1 [Excluding any Sub-Sections]]

All new or upgraded components utilized in Level II refurbishing shall meet the requirements of the applicable chapters of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900 for those components, unless otherwise specified in this chapter.

Statement of Problem and Substantiation for Public Input

Updates due to documentation consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 77-NFPA 1910-2020 [Section No. 29.7.2]

29.7.2

If the cooling system or cooling system components are upgraded, the contractor shall certify that the upgraded cooling system meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of NFPA 1900 and the engine manufacturer.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 78-NFPA 1910-2020 [Section No. 29.9.3]

29.9.3

The contractor shall certify that the upgraded fuel system or air intake system meets the ~~current requirements~~ the applicable chapter of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900 and the engine manufacturer.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 79-NFPA 1910-2020 [Section No. 29.10.3]

29.10.3

The contractor shall certify that the upgraded exhaust system meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of NFPA 1900 and the engine manufacturer.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Committee: FDA-AAA

Public Input No. 80-NFPA 1910-2020 [Section No. 29.11.3.3]

29.11.3.3

The contractor shall certify that the upgraded steering system meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of NFPA 1900 and the component manufacturer.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 81-NFPA 1910-2020 [Section No. 29.11.4.2]

29.11.4.2

If an upgraded transmission is installed in the fire apparatus, the contractor shall certify that the installation meets the transmission manufacturer's specifications for installation in the specific type of apparatus, as well as the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 82-NFPA 1910-2020 [Section No. 29.11.5.3]

29.11.5.3

Fuel tanks that are replaced shall be replaced with new tanks that meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 83-NFPA 1910-2020 [Section No. 29.13.2 [Excluding any Sub-Sections]]

If a new driving and/or crew compartment is installed, it shall be a fully enclosed design that meets the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 84-NFPA 1910-2020 [Section No. 29.13.5]

29.13.5 Fully Enclosed Crew Compartment Conversions.

If an existing two-door open canopy–style crew compartment is converted into a fully enclosed crew compartment, the added-on portion of the crew compartment shall comply with all applicable requirements of NFPA ~~1901~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 85-NFPA 1910-2020 [Section No. 29.14.2]

29.14.2*

If a new body, compartmentation, or hose storage area is installed, it shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

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Committee: FDA-AAA

Public Input No. 86-NFPA 1910-2020 [Section No. 29.14.3]

29.14.3

If additional compartments are added to an existing body, they shall meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapter of NFPA 1900 .

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 87-NFPA 1910-2020 [Section No. 29.14.4.1]

29.14.4.1

The fire apparatus, when refinished, shall comply with the current requirements for metal finish in ~~NFPA 1901 or NFPA 1906~~ the applicable chapter of NFPA 1900 , including the application of reflective striping.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 88-NFPA 1910-2020 [Section No. 29.16.2]

29.16.2*

If a new water tank is installed, it shall meet the applicable chapter of the current ~~requirements~~ edition of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the NFPA 1900 .

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 89-NFPA 1910-2020 [Section No. 29.17.2]

29.17.2

If a replacement aerial device is installed, the new device shall meet the current requirements of NFPA ~~1901~~ 1900 and shall be so certified by the contractor.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 90-NFPA 1910-2020 [Section No. 29.17.3]

29.17.3

After the aerial device upgrade work has been performed, a full inspection and test as defined in ~~NFPA 1911~~ chapters 1 through 26 of this standard shall be performed.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 91-NFPA 1910-2020 [Section No. 29.18.1.2]

29.18.1.2

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in NFPA ~~1901~~ 1900 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

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Public Input No. 92-NFPA 1910-2020 [Section No. 29.19.2.1]

29.19.2.1

If the refurbished fire apparatus is equipped with a new or upgraded fire pump, the pumping test shall be conducted in accordance with the test requirements defined in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 93-NFPA 1910-2020 [Section No. 29.19.3.1]

29.19.3.1

If the refurbished fire apparatus is equipped with a new or upgraded fire pump, a pumping engine overload test meeting the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900 shall be conducted.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 94-NFPA 1910-2020 [Section No. 29.19.4.1]

29.19.4.1

If the refurbished fire apparatus is equipped with a new or upgraded pressure control device on the fire pump, the pressure control device shall be tested in accordance with the test requirements defined in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

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Public Input No. 95-NFPA 1910-2020 [Section No. 29.19.4.2]

29.19.4.2

If the original pressure control device is retained, it shall be tested in accordance with the pressure control system test requirements of ~~NFPA 1911~~ chapters 1 through 26 of this standard if it has not been tested within the previous 12 months, or if any work has been done to the pressure control device.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 96-NFPA 1910-2020 [Section No. 29.19.5.1]

29.19.5.1

If the refurbished fire apparatus is equipped with a new or upgraded priming system on the fire pump, the priming system shall be tested in accordance with the test requirements defined in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 97-NFPA 1910-2020 [Section No. 29.19.5.2]

29.19.5.2

If the original priming system is retained, it shall be tested in accordance with the priming system test requirements of ~~NFPA 1911,~~ chapters 1 through 26 of this standard if the priming system has not been tested within the previous 12 months, or if any work has been done to the priming system.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 98-NFPA 1910-2020 [Section No. 29.19.6.1]

29.19.6.1

If the refurbished fire apparatus has a new or upgraded fire pump or pump piping, a vacuum test shall be conducted in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

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Public Input No. 99-NFPA 1910-2020 [Section No. 29.19.6.2]

29.19.6.2

If the original fire pump and pump piping are retained, a vacuum test shall be conducted in accordance with the vacuum test requirements of ~~NFPA 1911,~~ chapters 1 through 26 of this standard if that test has not been conducted within the previous 12 months, or if any work has been done to the pump or piping.

Statement of Problem and Substantiation for Public Input

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Public Input No. 100-NFPA 1910-2020 [Section No. 29.19.7.1]

29.19.7.1

If the refurbished apparatus has a new or upgraded water tank(s), pump(s), or pump piping, a water tank-to-pump flow test shall be conducted in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
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Submittal Date: Mon Sep 07 13:42:48 EDT 2020
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Public Input No. 101-NFPA 1910-2020 [Section No. 29.19.7.2]

29.19.7.2

If the original water tank(s), pump(s), and pump piping are reused, a water tank-to-pump flow test shall be conducted in accordance with the water tank-to-pump flow test requirements of ~~NFPA 1911,~~ chapters 1 through 26 of this standard if that test has not been conducted within the previous 12 months, or if any work has been done to the pump(s), water tank(s), and pump piping.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Public Input No. 102-NFPA 1910-2020 [Section No. 29.19.8]

29.19.8 Engine Speed Advancement Interlock Test.

An engine speed advancement interlock test meeting the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900 shall be conducted.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
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Committee: FDA-AAA

Public Input No. 103-NFPA 1910-2020 [Section No. 29.19.9.1]

29.19.9.1

If a new or upgraded aerial device is installed on the refurbished fire apparatus, the completed apparatus shall be tested according to the test requirements of NFPA ~~1901~~ 1900 at the manufacturer's approved facility and certified by an independent testing organization approved by the purchaser.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
City:
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Submittal Date: Mon Sep 07 13:55:26 EDT 2020
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Public Input No. 104-NFPA 1910-2020 [Section No. 29.19.9.2]

29.19.9.2

If the original aerial device is reused, the completed apparatus shall be inspected and tested in accordance with the complete requirements of ~~NFPA 1911,~~ chapters 1 through 26 of this standard if the aerial device has not been tested to the complete requirements of ~~NFPA 1911~~ chapters 1 through 26 of this standard within the previous 12 months, or if any work has been done to the aerial device or related systems.

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Committee: FDA-AAA

Public Input No. 105-NFPA 1910-2020 [Section No. 29.19.10.1.1]

29.19.10.1.1

A water tank capacity test meeting the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of NFPA 1900 shall be conducted on all refurbished fire apparatus having newly installed water tanks.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 106-NFPA 1910-2020 [Section No. 29.19.10.2.1]

29.19.10.2.1*

If any work is conducted that substantially changes the original low-voltage electrical system of the fire apparatus or adds new loads (such as adding a load management system, new lights, new relay boards, etc.), the apparatus shall be tested according to the requirements of the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Committee: FDA-AAA

Public Input No. 107-NFPA 1910-2020 [Section No. 29.19.10.3.1]

29.19.10.3.1*

If a new line-voltage electrical system is added or any work is conducted that substantially changes the original line-voltage electrical system on the fire apparatus or adds new line-voltage electrical loads such as lights, permanently connected equipment, receptacles, cord reels, and so forth, the apparatus shall be tested according to the applicable requirements of the current edition of NFPA ~~1901~~ 1900 .

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 108-NFPA 1910-2020 [Section No. 29.19.10.4.1]

29.19.10.4.1

If the refurbished fire apparatus has a new foam system, the system shall be tested in accordance with the test requirements in the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

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Street Address:
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Committee: FDA-AAA

Public Input No. 109-NFPA 1910-2020 [Section No. 29.20.1]

29.20.1

If applicable, the contractor shall supply, at the time of delivery, at least one copy of the following:

(1) Engine manufacturer's certified brake horsepower curve for a new engine installation showing the maximum governed speed

(2) Contractor's record of fire apparatus refurbishing including, if applicable, all technical information required for inspection to comply with ~~NFPA 1911~~ chapters 1 through 26 of this standard

(3) Pump manufacturer's certification of suction capabilities for new pump installations

(4) Pump manufacturer's certification of hydrostatic test for new pump installations

(5) Certification of required inspections and tests

(6) If equipped with a pump, a copy of the chassis manufacturer's approval for stationary pumping applications

(7) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full but without personnel, equipment, and hose) supplied with the completed vehicle to determine compliance with Section 27.8

(8) The latest edition of the FAMA *Fire Apparatus Safety Guide*

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Committee: FDA-AAA

Public Input No. 208-NFPA 1910-2020 [Section No. 29.20.3]

29.20.3

If the original fire pump is replaced with a new fire pump, a new test ~~plate~~ label shall be provided on the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine, as determined by the certification tests required by 6.19.1, the position of the parallel-series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve.

29.20.3.1

The test ~~plate~~ label shall be stamped with complete information at the contractor's facility and attached to the vehicle prior to delivery.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
City:
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Submittal Date: Fri Oct 30 15:19:56 EDT 2020
Committee: FDA-AAA

Public Input No. 110-NFPA 1910-2020 [Section No. 29.21]

29.21 Safety Signs.

The contractor shall ensure that the following safety signs, as appropriate to the apparatus type and features and as described and located per FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, shall be on the apparatus prior to delivery:

(1) FAMA01 — Battery Explosion
(2) FAMA02 — Rotating Shafts
(3) FAMA05 — Spinning Fan
(4) FAMA06 — Seats Without Belts Not Occupied
(5) FAMA07 — Seated and Belted
(6) FAMA10 — Cab Equipment Mounting
(7) FAMA12 — Fire Service Tire Rating
(8) FAMA14 — Cab Seating
(9) FAMA15 — Helmet Worn in Cab (~~1901~~ Municipal Apparatus)
(10) FAMA17 — Vehicle Backing
(11) FAMA18 — Intake and Discharge Cap Pressure
(12) FAMA22 — Hose Restraint Required
(13) FAMA23 — Access Step Method
(14) FAMA24 — Riding on Exterior
(15) FAMA25 — Trained Personnel Only — NFPA Required
(16) FAMA26 — No-Step
(17) FAMA28 — Rope Tie-Down 9000
(18) FAMA30 — Stabilizer Crush
(19) FAMA31 — Stabilizer Pins & Pads
(20) FAMA32 — Stabilizer Pads
(21) FAMA34 — Fall Restraint Required
(22) FAMA35 — Aerial Electrocution
(23) FAMA36 — Aerial Electrocution
(24) FAMA37 — Aerial Device Load Capacity
(25) FAMA38 — Aerial Ladder Rung Pinch
(26) FAMA39 — Aerial Inspection
(27) FAMA41 — Cab Tilt
(28) FAMA42 — Siren Noise
(29) FAMA43 — Helmet Worn in Cab (~~1906~~ Wildlands Apparatus)
(30) FAMA44 — Pump-and-Roll Fire-fighting Position Exterior
(31) FAMA45 — Pump-and-Roll Fire-fighting Position Driver
(32) FAMA46 — Aerial Device Pinch
(33) FAMA47 — Aerial Device Operator Attention Required

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
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Submittal Date: Mon Sep 07 14:28:52 EDT 2020
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Public Input No. 224-NFPA 1910-2020 [Section No. A.3.3.84]

A.3.3.84 Emergency Vehicle.

Title 49, CFR 301 defines a motor vehicle, in part, as a vehicle driven or drawn by mechanical power and manufactured primarily for use on public streets, roads, and highways. ~~Nothing in this standard prevents the AHJ from applying these requirements to any vehicle with a GVWR of less than 5001 lb (2268 kg).~~

Statement of Problem and Substantiation for Public Input

There should not be a minimum weight on an emergency vehicle. A car used as a chief's vehicle with a GVWR of 4500 pounds is still an emergency vehicle as defined by state law if it is authorized to display lights and siren and responds subject to those state laws. Likewise it should be maintained by professional emergency vehicle technicians. While many sections of 1917 would not apply to a 4500 pound, or 6000 pound, chief's vehicle, the applicable sections of 1917 are still important. NFPA 1901 and 1906 (now 1900) apply to vehicles over 10,000 pounds, so if the intent is to match this, the statement should be 10,000 or less.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 223-NFPA 1910-2020 [Section No. 3.3.84]	
Public Input No. 223-NFPA 1910-2020 [Section No. 3.3.84]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Submittal Date: Sun Nov 01 10:41:08 EST 2020
Committee: FDA-AAA

Public Input No. 225-NFPA 1910-2020 [Section No. A.6.3.1(4)]

A.6.3.1(4)

Tread depth should be checked with a tread depth gauge. When inserted into the tire tread, the amount of tread left is indicated in 1/32 in. (~~0.8~~ 1 mm).

Statement of Problem and Substantiation for Public Input

On a mechanical (analog) tire gauge, metric measurements are in units of 1 mm, not multiples of 0.8 mm. Digital tire tread gauges measure both imperial and metric measurements digitally in much smaller units.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 226-NFPA 1910-2020 [Section No. A.6.11.1(7)]	
Public Input No. 226-NFPA 1910-2020 [Section No. A.6.11.1(7)]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
City:
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Submittal Date: Sun Nov 01 11:08:02 EST 2020
Committee: FDA-AAA

Public Input No. 135-NFPA 1910-2020 [Section No. A.6.9.1(6)]

A.6.9.1(6)

Beginning with the 1991 edition of NFPA 1901 and then NFPA 1900 , fire apparatus equipped with electronic or electric engine throttle controls are required to include an interlock system to prevent engine speed advancement, unless the chassis transmission is in neutral with the parking brake engaged; or unless the parking brake is engaged, the fire pump is engaged, and the chassis transmission is in pumping gear; or unless the apparatus is in the “okay to pump” mode.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 226-NFPA 1910-2020 [Section No. A.6.11.1(7)]

A.6.11.1(7)

Tread depth should be checked with a tread depth gauge. When inserted into the tire tread, the amount of tread left is indicated in 1⁄32 in. (~~0.8~~ 1 mm) increments.

Statement of Problem and Substantiation for Public Input

On a mechanical (analog) tire gauge, metric measurements are in units of 1 mm, not multiples of 0.8 mm. Digital tire tread gauges measure both imperial and metric measurements digitally in much smaller units.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 1910-2020 [Section No. A.6.3.1(4)]	
Public Input No. 225-NFPA 1910-2020 [Section No. A.6.3.1(4)]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
City:
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Submittal Date: Sun Nov 01 11:16:48 EST 2020
Committee: FDA-AAA

Public Input No. 136-NFPA 1910-2020 [Section No. A.8.14.6]

A.8.14.6

For the safety of personnel riding in the driving or crew area, the equipment specified in 8.14.6 should be mounted in accordance with the requirements of NFPA ~~1901~~ 1900 .

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
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Committee: FDA-AAA

Public Input No. 137-NFPA 1910-2020 [Section No. A.8.15.4]

A.8.15.4

If the emergency vehicle does not have the reflective striping, consideration should be given to adding the striping in accordance with applicable sections of the current ~~editions~~ edition of NFPA ~~1901, NFPA 1906, NFPA 1917,~~ 1900, or other applicable documents.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Submittal Date: Tue Sep 08 15:44:33 EDT 2020
Committee: FDA-AAA

Public Input No. 138-NFPA 1910-2020 [Section No. A.8.15.5]

A.8.15.5

If the emergency vehicle does not have the warning labels, consideration should be given to adding the warning labels in accordance with applicable sections of the current ~~editions~~ edition of NFPA ~~1901, NFPA 1906, NFPA 1917,~~ 1900, or other applicable documents.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 216-NFPA 1910-2020 [Section No. A.8.15.5]

A.8.15.5

If the emergency vehicle does not have the warning ~~labels~~ signs , consideration should be given to adding the warning ~~labels~~ signs in accordance with applicable sections of the current editions of NFPA 1901, NFPA 1906, NFPA 1917, or other applicable documents.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

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Organization: Goshen Fire Company
Street Address:
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Submittal Date: Fri Oct 30 16:09:08 EDT 2020
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Public Input No. 139-NFPA 1910-2020 [Section No. A.10.2.4.2]

A.10.2.4.2

Pump shift controls can include electrical, pneumatic, or mechanical components working individually or in combination to shift the pump drive system into and out of pump mode. Some pumps have manual backup shift controls. Pump shift indicators in-cab and on the operator's panel on split-shaft PTO pump drive systems typically require an electromechanical device, such as a switch mounted on the pump transmission, to sense pump shift status. The controls need to be inspected, diagnostically checked, and lubricated as part of a preventive maintenance program.

Beginning with the 1991 edition of NFPA 1901 and then NFPA 1900 , fire apparatus equipped with electronic or electric engine throttle controls are required to include an interlock system to prevent engine speed advancement, unless the chassis transmission is in neutral with the parking brake engaged; or unless the parking brake is engaged, the fire pump is engaged, and the chassis transmission is in pumping gear; or unless the apparatus is in the "okay to pump" mode.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Committee: FDA-AAA

Public Input No. 140-NFPA 1910-2020 [Section No. A.12.1]

A.12.1

It is important for the operator, maintenance personnel, and fire apparatus technician to understand the types and properties of mechanical foam and its application to maintain a foam proportioner system. Specific information regarding foam concentrates, their corrosive characteristics, their biodegradability, and their application is available in NFPA 11. Information on foam concentrates for Class A fires is available in NFPA 1150. A thorough knowledge of foam and foam systems will enhance the ability to maintain systems in peak operating conditions at all times.

There are many designs for foam proportioning systems. These systems include, but are not limited to, the following:

(1) Eductor systems

(2) Self-educting master stream nozzles

(3) Intake-side foam proportioning systems

(4) Around-the-pump foam proportioning systems

(5) Balanced pressure foam proportioning systems

(6) Direct injection foam proportioning systems

Annex A of NFPA ~~1901~~ 1900 describes these systems and variations thereof. A review of that material will assist with the understanding of foam proportioning systems.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Affiliation: Admin Task Group
Street Address:
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Committee: FDA-AAA

Public Input No. 141-NFPA 1910-2020 [Section No. A.15.8]

A.15.8

There are refill stations currently on emergency vehicles that were never designed to the current requirements of NFPA ~~1901~~ 1900 and whose design has never been certified by an independent third-party certification organization. These include open-top fragmentation tubes and closed systems that have never been tested to determine if they will contain all fragments of a failed cylinder so as to protect the operator. If a commercial refill station is on the emergency vehicle, it might be possible to confirm with the manufacturer whether the design of the unit meets current standards. Older refill stations should be considered for replacement with refill stations that meet the current NFPA ~~1901~~ 1900 standard.

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 142-NFPA 1910-2020 [Section No. A.19.4.1]

A.19.4.1

The parking brake should be tested to the chassis manufacturer's recommendations. NFPA 1901 ~~has~~ and now NFPA 1900 have required a parking brake system to hold a fully loaded emergency vehicle on at least a 20 percent grade since 1991. If the emergency vehicle parking brake system was not designed to perform up to these or applicable federal standards, or if the AHJ operates the emergency vehicle beyond these standards, the AHJ should develop a standard operating guideline to supplement the emergency vehicle parking brake system.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
City:
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Committee: FDA-AAA

Public Input No. 227-NFPA 1910-2020 [Section No. A.21.5.3.3]

A.21.5.3.3

Square-edged round orifice and pressure gauge is a very accurate method of measuring low pump flows found on wildland fire apparatus. Flow through a square-edged round orifice shall be determined using the following formula:

$$Q = 29.8 \cdot C \cdot d^2 \cdot \sqrt{P} \qquad \textbf{[A.21.5.3.3]}$$

where:

Q = flow (gpm)

C = orifice discharge coefficient (0.62 recommended)

d = orifice diameter (in.)

P = pressure (psi)

For best accuracy, the line to the square-edged round orifice should be three times the diameter of the orifice.

If the nozzle diameter is measured in millimeters, the diameter should be ~~multiplied~~ divided by 25.4 to convert the measurement to inches. If the pressure is measured in kilopascals (kPa), the pressure should be ~~multiplied~~ divided by 6.895 to convert the measurement to pounds per square inch (psi). The resulting flow can be converted from gallons per minute (gpm) to liters per minute (L/min) by multiplying by 3.785.

Statement of Problem and Substantiation for Public Input

The arithmetic as defined is incorrect. 25.4 mm=1 inch, 6.895 kPa=1psi.

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Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
Street Address:
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Public Input No. 143-NFPA 1910-2020 [Section No. A.21.6.2.2.1]

A.21.6.2.2.1

The 1996 edition of NFPA 1901, now NFPA 1900, added a requirement stipulating that, if the engine that drives the pump also drives a fixed power source, that engine needs to be able to power the fixed power source at a minimum of 50 percent of its rated capacity while the pump is operating at rated capacity. Older fire apparatus might or might not have the engine horsepower to run both simultaneously. It is recommended that, where the same engine drives both the pump and the fixed power source, the capability to run both should be investigated so the operator will know the capability of the apparatus.

Statement of Problem and Substantiation for Public Input

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Committee: FDA-AAA

Public Input No. 144-NFPA 1910-2020 [Section No. A.21.7.4]

A.21.7.4

Beginning with the 1991 edition of NFPA 1901, and now NFPA 1900, fire apparatus equipped with electronic or electric engine throttle controls are required to include an interlock system to prevent engine speed advancement, unless the chassis transmission is in neutral with the parking brake engaged; or unless the parking brake is engaged, the fire pump is engaged and the chassis transmission is in pumping gear; or unless the apparatus is in the “okay to pump” mode.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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Street Address:
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Public Input No. 228-NFPA 1910-2020 [Section No. A.21.7.7.2.2]

~~A.21.7.7.2.2~~ —

~~If the pump is a two-stage, parallel/series-type unit, then operation of the transfer (that is, changeover) valve should be checked thoroughly. Conducting the pumping test with the transfer valve positioned as specified in 21.7.7.2.2 will ensure that the valve is exercised. If a comparison with the original engine speeds shows a significant difference for any of the tests, one of the problems could be with the transfer valve.~~

Statement of Problem and Substantiation for Public Input

This section is a duplicate of A.21.7.7.2.3 which is the correct place for the text since it is the section talking about parallel/series pumps.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Street Address:
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Submittal Date: Sun Nov 01 17:50:57 EST 2020
Committee: FDA-AAA

Public Input No. 6-NFPA 1910-2020 [Section No. A.21.8.1]

A.21.8.1

When operating at or near full engine power while stationary, the generated heat can raise the temperature of certain chassis components, pumping system components, or both above the level that can be touched without extreme discomfort or injury. However, as long as the apparatus can be operated and used satisfactorily for the required duration of the test under such conditions and the engine coolant temperature is within normal range, the rise in temperature should be considered acceptable.

~~For the pumping test, normal wear in the pumping system can require speeds greater than those required at the time of delivery. Such variances are acceptable as long as the apparatus passes the pumping test without exceeding the governed engine speed.~~

Additional Proposed Changes

File Name	Description	Approved
1911_PI_No._7_M._Thorn.pdf	1911_PI No. 7_M. Thorn	

Statement of Problem and Substantiation for Public Input

Second chapter of A.21.8.1 appears to be out of place and is in direct conflict with both 21.8.4 and A.21.8.4.
Recommend removing chapter from annex.

Submitter Information Verification

Submitter Full Name: Michael Thorn
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Street Address:
City:
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Zip:
Submittal Date: Tue Jul 28 09:46:13 EDT 2020
Committee: FDA-AAA

Public Input No. 145-NFPA 1910-2020 [Section No. A.22.8.8.2]

A.22.8.8.2

The time within which an aerial device is required to be raised from the bedded position to maximum elevation and extension and rotated 90 degrees after the stabilizers are set is shown in Table A.22.8.8.2. Two or more of these functions are permitted to be performed simultaneously.

Table A.22.8.8.2 Maximum Time to Elevate, Rotate, and Extend an Aerial Device

Edition of NFPA 1901/1900	Aerial Ladder	Elevating Platform	Water Tower
~~2003~~ 2023	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
	180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)	
2016	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
	180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)	
2009	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
	180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)	
2003	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
	180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)	
1999	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
		180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)
1996	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds
		180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)
1991	120 seconds for rated vertical height of 110 ft (34 m) or less	150 seconds for rated vertical height of 110 ft (34 m) or less	105 seconds

Edition of NFPA 1901/1900	Aerial Ladder	Elevating Platform	Water Tower
		180 seconds for rated vertical height over 110 ft (34 m)	No time limit for rated vertical height over 110 ft (34 m)
1985*	60 seconds	150 seconds	105 seconds
1979	60 seconds	150 seconds	105 seconds
1975	60 seconds	150 seconds	150 seconds
1973	60 seconds	150 seconds	120 seconds
1971	60 seconds	150 seconds	120 seconds

*Prior to 1991, there was no differentiation in time related to the length of the aerial device.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.
Add lines for document editions since last updated.
Note that this did not render well in TerraView.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Submittal Date: Tue Sep 08 16:23:45 EDT 2020
Committee: FDA-AAA

Public Input No. 146-NFPA 1910-2020 [Section No. A.27.1.1]

A.27.1.1

This document is designed to be used to aid in developing specifications for the refurbishing of fire apparatus. It is the intent of this standard to ensure that refurbished fire apparatus meet all applicable federal motor vehicle regulations as well as the applicable portions of NFPA ~~1901 or NFPA 1906, whichever is applicable~~ 1900 .

This standard will do the following:

(1) Identify minimum levels of refurbishing

(2) Establish minimum requirements for inspection and/or replacement of all vehicle components

(3) Create informational checklists that will identify areas on the vehicle that should be addressed when considering refurbishing

(4) Create a guideline for any personnel engaged in preparing specifications for fire department or municipal agency emergency vehicle refurbishing

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

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Public Input No. 147-NFPA 1910-2020 [Section No. A.27.2]

A.27.2

It is recommended that upgraded components or systems meeting current NFPA standards be installed whenever possible for enhanced safety and serviceability. Replacement parts, components, or systems should meet the current requirements of ~~NFPA 1901 or NFPA 1906, whichever is applicable~~ the applicable chapters of NFPA 1900 . Meeting the requirements will help to make the fire apparatus as safe as possible, in addition to making for easier availability of parts for maintenance and repair.

Where local operating conditions necessitate apparatus of unusual design, the purchaser should carefully define the special requirements in the specifications. Height, width, under-vehicle clearance, wheelbase, turning radius, length, and so forth, can occasionally need special attention. For example, a community having low overpasses needs to have a refurbished apparatus capable of traveling underneath these overpasses. The specifications for the refurbished apparatus should state the maximum travel height that is allowable.

Statement of Problem and Substantiation for Public Input

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Public Input No. 5-NFPA 1910-2020 [New Section after A.27.9.2(4)]

A.4.5.14.1 There are many types of vehicle data management system available. Some examples are:

Vehicle Data Recorders

Telematics

Vehicle to Vehicle communications (V2V)

Traffic preemption

Additional Proposed Changes

File Name	Description	Approved
1912_PI_No._5_J._McDonald.pdf	1912_PI No. 5_J. McDonald	

Statement of Problem and Substantiation for Public Input

Examples of vehicle data management systems for new section.

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Public Input No. 148-NFPA 1910-2020 [Section No. A.28.3.5]

A.28.3.5

NFPA ~~1901~~ 1900 requires electronic stability control for those apparatus that fail to pass the established roll stability criteria. The following items impact the roll stability safety of the apparatus and should be considered when making decisions on how to refurbish the apparatus.

Custom fire apparatus cab. The nature of the custom fire apparatus cab makes it much stronger in rollovers than typical conventional commercial chassis cabs. There is much anecdotal evidence to indicate that the crashworthiness of a typical custom fire apparatus cab is significantly greater than a typical commercial cab, and most custom chassis manufacturers can provide test data on cab integrity.

Lateral acceleration alert device. There are both mechanical and electronic devices available that will measure the lateral acceleration of a vehicle. Although these devices will not prevent rollover, they can be used effectively as a driver training tool to indicate when the vehicle is approaching the roll threshold and as a reminder to the driver that excessive lateral acceleration can lead to a rollover event.

Side roll protection. Many custom fire apparatus manufacturers offer side air bags or curtains that inflate during a roll event and that are usually combined with seat belt pretensioning devices and suspension seat pull-down devices. This option can reduce injury during a rollover as long as the occupants are seated and belted.

Roll stability control. This technology electronically senses the lateral acceleration of the vehicle and takes action by depowering the engine and applying the brakes if the vehicle approaches a roll threshold. The effectiveness of this product is limited to events on relatively flat pavement, since it cannot do much to help the situation once a vehicle is off the road and leaning into a ditch.

Electronic stability control (ESC). ESC uses a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer, and individual wheel brake controls in conjunction with the antilock brake system (ABS). The system tracks the direction that the driver intends to steer and uses brake application at individual wheels to help straighten out the vehicle.

Driver skill and experience. While the design and features of the vehicle are important to safe driving, the most important aspect of crash prevention is the skill and experience of the operator. The operator's attitude, training, experience, and qualifications, and the application of those qualities, are the most important elements in crash prevention. The operator must ensure that the physical limits of the vehicle are not exceeded. Driver skill is developed only through training and practice.

Statement of Problem and Substantiation for Public Input

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Public Input No. 149-NFPA 1910-2020 [Section No. A.29.12.2]

A.29.12.2

All components that are upgraded should be replaced with components meeting the applicable chapters of the current edition of NFPA ~~1901 or NFPA 1906, as appropriate~~ 1900 . The current standard provides additional lighting for safety and makes provision for two modes of operation: responding and blocking the right-of-way. Consideration should also be given to having the contractor furnish a wiring schematic of the rewired areas of the apparatus to enable vehicle repair technicians to more easily troubleshoot the electrical system or make additions to the system.

Statement of Problem and Substantiation for Public Input

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Public Input No. 150-NFPA 1910-2020 [Section No. A.29.12.3.4.1]

A.29.12.3.4.1

Reduced crew sizes have forced the apparatus operator to assume many new fireground tasks besides that of operating the apparatus. Even if the operator is at the apparatus, he is too busy with higher priority tasks to pay much attention to monitoring the condition of the electrical system.

Electrical loads on modern fire apparatus frequently exceed the alternator capacity and can be supplied only by the deep discharge of the apparatus batteries. The high-cycle batteries that are designed to provide the large amount of amperage to crank modern diesel engines are severely damaged when deeply discharged. The automatic load management is intended to protect the electrical system from needless damage while maintaining the operation of essential devices.

It is important that the priority of all managed loads be specified by the purchaser so that, as electrical loads are disconnected from the apparatus' electrical system, they are shed in an order least likely to affect emergency operations. Optical warning devices in excess of the minimum required in ~~NFPA 1901 or NFPA 1906, whichever is applicable,~~ the applicable chapter of NFPA 1900, can and should be load managed.

Statement of Problem and Substantiation for Public Input

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Public Input No. 151-NFPA 1910-2020 [Section No. A.29.12.4]

A.29.12.4

Consideration should be given to upgrading the optical warning devices to the applicable chapter of the current edition of NFPA ~~1901 or NFPA 1906, whichever is applicable,~~ 1900, both for improved safety during emergency responses, as well as to minimize current draw when operating at the scene. The upgraded lighting should provide an increased measure of safety, as well as minimize loads to the low-voltage electrical system.

Statement of Problem and Substantiation for Public Input

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Public Input No. 230-NFPA 1910-2020 [Section No. B.3]

B.3 Calculating the Results.

If nozzles and pitot tubes have been used to measure pump capacity, the values of capacity in gallons per minute are determined by the following formula:

$$\text{gpm} = 29.83\ c(d)^2\sqrt{p} \qquad \textbf{[B.3a]}$$

where:

c = coefficient of discharge of the nozzle used

d = diameter of nozzle (in.)

p = pressure at pitot gauge (psi)

If the nozzle diameter is measured in millimeters, the diameter should be ~~multiplied~~ divided by 25.4 to convert the measurement to inches. If the pressure is measured in kilopascals (kPa), the pressure should be ~~multiplied~~ divided by 6.895 to convert the measurement to pounds per square inch (psi). The resulting flow can be converted from gallons per minute (gpm) to liters per minute (L/min) by multiplying by 3.785.

The pitot pressure should be the average of several readings and should be corrected for gauge error.

For nozzles sized from ¼ in. to 2½ in. (6.3 mm to 63 mm), values of capacity can be approximated from Table B.3(a), Table B.3(b), Table B.3(c), and Table B.3(d); however, because these values are based on certain assumed coefficients of discharge, they can be considerably at variance with the actual values. For nozzles larger than 2½ in. (63 mm), approximate values of capacity in gallons per minute can be determined by the following formula:

$$\text{gpm} = F\sqrt{p} \qquad \textbf{[B.3b]}$$

where:

F = nozzle factor from Table B.3(e)

p = pressure at pitot gauge (psi)

Table B.3(a) Discharge Table for Smooth Nozzles — ¼ Inch Through 7⁄16 Inch — in Gallons per Minute (Nozzle Pressure Measured by Pitot Gauge)

Nozzle Pressure	Nozzle Diameter (in.)*				Nozzle Pressure	Nozzle Diameter (in.)*			
(psi)	¼	5⁄16	⅜	7⁄16	(psi)	¼	5⁄16	⅜	7⁄16
5	4	6	9	13	**62**	14	22	32	44
6	4	6	10	14	**64**	14	22	32	45
7	4	7	11	15	**66**	14	23	33	46
8	5	7	11	16	**68**	14	23	33	46
9	5	8	12	17	**70**	15	24	34	47
10	6	9	13	18	**72**	15	24	34	48
12	6	10	15	19	**74**	15	24	35	48
14	7	11	15	21	**76**	15	24	35	49
16	7	12	16	22	**78**	15	24	36	50
18	7	12	17	24	**80**	16	25	36	50
20	8	13	18	25	**82**	16	25	37	51
22	8	13	19	26	**84**	16	25	37	51
24	8	13	20	27	**86**	16	26	37	52
26	9	14	21	29	**88**	16	26	38	53

Nozzle Pressure	Nozzle Diameter (in.)*				Nozzle Pressure	Nozzle Diameter (in.)*			
(psi)	¼	5/16	⅜	7/16	(psi)	¼	5/16	⅜	7/16
28	9	14	21	30	**90**	17	27	39	53
30	10	15	22	31	**92**	17	27	39	54
32	10	15	23	32	**94**	17	27	39	54
34	11	16	23	33	**96**	17	27	40	55
36	11	16	24	34	**98**	17	27	40	55
38	11	17	25	35	**100**	18	28	41	56
40	11	18	26	35	**105**	18	29	42	57
42	11	18	26	36	**110**	19	29	43	59
44	12	18	27	37	**115**	19	30	43	60
46	12	19	28	38	**120**	19	31	44	61
48	12	19	28	39	**125**	20	31	45	63
50	13	20	29	40	**130**	20	32	46	64
52	13	20	29	40	**135**	21	33	47	65
54	13	20	30	41	**140**	21	33	48	66
56	13	21	30	42	**145**	21	34	49	68
58	13	21	31	43	**150**	22	34	50	69
60	14	22	31	43	-	-	-	-	-

Note: 1 mm = 0.03937 in.; 1 kPa = 0.1450 psi; 1 gpm = 3.785 L/min.

*Assumed coefficient of discharge = 0.983, 0.983, 0.985, 0.9856.

Table B.3(b) Discharge Table for Smooth Nozzles — ½ Inch Through 1 Inch — in Gallons per Minute (Nozzle Pressure Measured by Pitot Gauge)

Nozzle Pressure	Nozzle Diameter (in.)*					Nozzle Pressure	Nozzle Diameter (in.)*				
(psi)	½	⅝	¾	⅞	1	(psi)	½	⅝	¾	⅞	1
5	16	26	37	50	66	**62**	58	90	132	177	233
6	18	28	41	55	72	**64**	59	92	134	180	237
7	19	30	44	59	78	**66**	60	93	136	182	240
8	21	32	47	64	84	**68**	60	95	138	185	244
9	22	34	50	67	89	**70**	61	96	140	188	247
10	23	36	53	71	93	**72**	62	97	142	191	251
12	25	40	58	78	102	**74**	63	99	144	193	254
14	27	43	63	84	110	**76**	64	100	146	196	258
16	29	46	67	90	118	**78**	65	101	148	198	261
18	31	49	71	95	125	**80**	66	103	150	201	264
20	33	51	75	101	132	**82**	66	104	152	204	268
22	34	54	79	105	139	**84**	67	105	154	206	271
24	36	56	82	110	145	**86**	68	107	155	208	274
26	37	59	85	115	151	**88**	69	108	157	211	277
28	39	61	89	119	157	**90**	70	109	159	213	280

Nozzle Pressure (psi)	Nozzle Diameter (in.)*					Nozzle Pressure (psi)	Nozzle Diameter (in.)*				
	½	⅝	¾	⅞	1		½	⅝	¾	⅞	1
30	40	63	92	123	162	**92**	70	110	161	215	283
32	41	65	95	127	167	**94**	71	111	162	218	286
34	43	67	98	131	172	**96**	72	113	164	220	289
36	44	69	100	135	177	**98**	73	114	166	223	292
38	45	71	103	138	182	**100**	73	115	168	225	295
40	46	73	106	142	187	**105**	75	118	172	230	303
42	47	74	109	146	192	**110**	77	121	176	236	310
44	49	76	111	149	196	**115**	79	123	180	241	317
46	50	78	114	152	200	**120**	80	126	183	246	324
48	51	80	116	156	205	**125**	82	129	187	251	331
50	52	81	118	159	209	**130**	84	131	191	256	337
52	53	83	121	162	213	**135**	85	134	195	262	343
54	54	84	123	165	217	**140**	87	136	198	266	350
56	55	86	125	168	221	**145**	88	139	202	271	356
58	56	87	128	171	225	**150**	90	141	205	275	362
60	57	89	130	174	229	-	-	-	-	-	-

Note: 1 mm = 0.03937 in.; 1 kPa = 0.1450 psi; 1 gpm = 3.785 L/min.

*Assumed coefficient of discharge = 0.985, 0.988, 0.988, 0.99.

Table B.3(c) Discharge Table for Smooth Nozzles — 1⅛ Inch Through 1⅝ Inch — in Gallons per Minute (Nozzle Pressure Measured by Pitot Gauge)

Nozzle Pressure (psi)	Nozzle Diameter (in.)*					Nozzle Pressure (psi)	Nozzle Diameter (in.)*				
	1⅛	1¼	1⅜	1½	1⅝		1⅛	1¼	1⅜	1½	1⅝
5	84	103	125	149	175	**62**	295	363	441	525	617
6	92	113	137	163	192	**64**	299	369	448	533	627
7	99	122	148	176	207	**66**	304	375	455	542	636
8	106	131	158	188	222	**68**	308	381	462	550	646
9	112	139	168	200	235	**70**	313	386	469	558	655
10	118	146	177	211	248	**72**	318	391	475	566	665
12	130	160	194	231	271	**74**	322	397	482	574	674
14	140	173	210	249	293	**76**	326	402	488	582	683
16	150	185	224	267	313	**78**	330	407	494	589	692
18	159	196	237	283	332	**80**	335	413	500	596	700
20	167	206	250	298	350	**82**	339	418	507	604	709
22	175	216	263	313	367	**84**	343	423	513	611	718
24	183	226	275	327	384	**86**	347	428	519	618	726
26	191	235	286	340	400	**88**	351	433	525	626	735
28	198	244	297	353	415	**90**	355	438	531	633	743
30	205	253	307	365	429	**92**	359	443	537	640	751
32	212	261	317	377	443	**94**	363	447	543	647	759

Nozzle Pressure (psi)	Nozzle Diameter (in.)*					Nozzle Pressure (psi)	Nozzle Diameter (in.)*				
	1⅛	1¼	1⅜	1½	1⅝		1⅛	1¼	1⅜	1½	1⅝
34	218	269	327	389	457	**96**	367	452	549	654	767
36	224	277	336	400	470	**98**	370	456	554	660	775
38	231	285	345	411	483	**100**	374	461	560	667	783
40	237	292	354	422	496	**105**	383	473	574	683	803
42	243	299	363	432	508	**110**	392	484	588	699	822
44	248	306	372	442	520	**115**	401	495	600	715	840
46	254	313	380	452	531	**120**	410	505	613	730	858
48	259	320	388	462	543	**125**	418	516	626	745	876
50	265	326	396	472	554	**130**	427	526	638	760	893
52	270	333	404	481	565	**135**	435	536	650	775	910
54	275	339	412	490	576	**140**	443	546	662	789	927
56	280	345	419	499	586	**145**	450	556	674	803	944
58	285	351	426	508	596	**150**	458	565	686	817	960
60	290	357	434	517	607	-	-	-	-	-	-

Note: 1 mm = 0.03937 in.; 1 kPa = 0.1450 psi; 1 gpm = 3.785 L/min.

*Assumed coefficient of discharge = 0.99, 0.99, 0.993, 0.995, 0.995.

Table B.3(d) Discharge Table for Smooth Nozzles — 1¾ Inch Through 2½ Inch — in psi (Nozzle Pressure Measured by Pitot Gauge)

Nozzle Pressure (psi)	Nozzle Diameter (in.)*					Nozzle Pressure (psi)	Nozzle Diameter (in.)*				
	1¾	1⅞	2	2¼	2½		1¾	1⅞	2	2¼	2½
5	203	234	266	337	416	**62**	716	823	936	1187	1464
6	223	256	292	369	455	**64**	727	836	951	1206	1487
7	241	277	315	399	492	**66**	738	850	965	1224	1510
8	257	296	336	427	526	**68**	750	862	980	1242	1533
9	273	314	357	452	558	**70**	761	875	994	1260	1555
10	288	330	376	477	588	**72**	771	887	1008	1278	1577
12	315	362	412	522	644	**74**	782	900	1023	1296	1599
14	340	391	445	564	695	**76**	792	911	1036	1313	1620
16	364	418	475	603	744	**78**	803	924	1050	1330	1642
18	386	444	504	640	789	**80**	813	935	1063	1347	1663
20	407	468	532	674	831	**82**	823	946	1076	1364	1683
22	427	490	557	707	872	**84**	833	959	1089	1380	1704
24	446	512	582	739	911	**86**	843	970	1102	1396	1724
26	464	533	606	769	948	**88**	853	981	1115	1412	1744
28	481	554	629	799	984	**90**	862	992	1128	1429	1763
30	498	572	651	826	1018	**92**	872	1002	1140	1445	1783
32	514	591	673	854	1051	**94**	881	1012	1152	1460	1802
34	530	610	693	880	1084	**96**	890	1022	1164	1476	1821
36	546	627	713	905	1115	**98**	900	1032	1176	1491	1840
38	561	645	733	930	1146	**100**	909	1043	1189	1506	1859

Nozzle Pressure (psi)	Nozzle Diameter (in.)*					Nozzle Pressure (psi)	Nozzle Diameter (in.)*				
	1¾	1⅞	2	2¼	2½		1¾	1⅞	2	2¼	2½
40	575	661	752	954	1176	**105**	932	1070	1218	1542	1905
42	589	678	770	978	1205	**110**	954	1095	1247	1579	1950
44	603	694	788	1000	1233	**115**	975	1120	1275	1615	1993
46	617	710	806	1021	1261	**120**	996	1144	1303	1649	2036
48	630	725	824	1043	1288	**125**	1016	1168	1329	1683	2078
50	643	740	841	1065	1314	**130**	1036	1191	1356	1717	2119
52	656	754	857	1087	1340	**135**	1056	1213	1382	1750	2160
54	668	769	873	1108	1366	**140**	1076	1235	1407	1780	2199
56	680	782	889	1129	1391	**145**	1095	1257	1432	1812	2238
58	692	796	905	1149	1416	**150**	1114	1279	1456	1843	2277
60	704	810	920	1166	1440	-	-	-	-	-	-

Note: 1 mm = 0.03937 in.; 1 kPa = 0.1450 psi; 1 gpm = 3.785 L/min.

*Assumed coefficient of discharge = 0.995, 0.996, 0.997, 0.997, 0.997.

Table B.3(e) Nozzle Factors

Diameter of the Nozzle (in.)	Factors (*F*)	
	Freshwater	Saltwater (Seawater)
2	119	117
2¼	150	148
2½	186	183
2¾	225	222
3	267	264
3¼	314	310
3½	364	359
3¾	418	413
4	476	470
4¼	537	530
4½	602	594
4¾	671	662
5	743	734
6	1070	1057

Note: 1 mm = 0.03937 in.

Statement of Problem and Substantiation for Public Input

The arithmetic as defined is incorrect. 25.4 mm=1 inch, 6.895 kPa=1psi.

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Committee:	FDA-AAA

Public Input No. 156-NFPA 1910-2020 [Section No. D.1]

D.1 General.

To maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities.

In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatus more than 15 years old might include only a few of the safety upgrades required by the recent editions of the NFPA fire department apparatus standards or the equivalent Underwriters Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine tuning to NFPA 1901/1906 (now 1900) have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first-line service.

It is recommended that apparatus more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status; be upgraded in accordance with NFPA ~~1912~~ 1910 ; and incorporate as many features as possible of the current fire apparatus standard *(see Section D.3)*. This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available to the firefighters who use the apparatus.

Apparatus that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.
Reference 1901/1906 to make this annex universal so a second copy is not needed.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 159-NFPA 1910-2020 [Chapter G]	

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
Organization: Goshen Fire Company
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City:
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Submittal Date: Wed Sep 09 13:31:13 EDT 2020
Committee: FDA-AAA

Public Input No. 157-NFPA 1910-2020 [Section No. D.3]

D.3 Upgrading Fire Apparatus.

Any apparatus, whether in first-line or reserve service, should be upgraded in accordance with ~~NFPA 1912~~ chapters 27 through 29 of this standard , as necessary, to ensure that the following features are included as a minimum:

(1) Seat belts with seat belt warning systems are available for every seat and are new or in serviceable condition.

(2) Warning lights meet or exceed the current standard.

(3) Reflective striping meets or exceeds the current standard.

(4) Slip resistance of walking surfaces and handrails meets the current standard.

(5) A low-voltage electrical system load manager is installed if the total connected load exceeds the alternator output.

(6) The alternator output is capable of meeting the total continuous load on the low voltage electrical system.

(7) Where the gross vehicle weight rating (GVWR) is 36,000 lb (16,000 kg) or more, an auxiliary braking system is installed and operating correctly.

(8) Ground and step lighting meets or exceeds the current standard.

(9) Noise levels in the driving and crew compartment(s) meet the current standard, or appropriate hearing protection is provided.

(10) All horns and sirens are relocated to a position as low and as far forward as possible.

(11) Signs are present stating that no riding is allowed on open areas.

(12) A pump shift indicator system is present and working properly for vehicles equipped with an automatic chassis transmission.

(13) For vehicles equipped with electronic or electric engine throttle controls, an interlock system is present and working properly to prevent engine speed advancement at the operator's panel, unless either the chassis transmission is in neutral with the parking brake engaged, or the parking brake is engaged, the fire pump is engaged, and the chassis transmission is in pumping gear.

(14) All loose equipment in the driving and crew areas is securely mounted in accordance with the current standard.

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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Public Input No. 158-NFPA 1910-2020 [Section No. D.5]

D.5 Refurbishing or Replacing Fire Apparatus.

Fire department administrators and fire chiefs should exercise special care when evaluating the cost of refurbishing or updating an apparatus versus the cost of a new fire apparatus. Apparatus that are refurbished should comply with the requirements of ~~NFPA 1912~~ chapters 27 through 29 of this standard . A thorough cost–benefit analysis of the value of upgrading or refurbishing a fire apparatus should be conducted. In many instances, it will be found that refurbishing costs will greatly exceed the current value of similar apparatus.

Some factors to consider and evaluate when determining whether to refurbish or replace a fire apparatus include the following:

(1) What is the true condition of the existing apparatus? Has it been in a major accident, or has something else happened to it that would make spending significant money on it ill advised?

(2) What advancements in design, safety, and technology have improved the efficiency and safety of personnel?

(3) Does the current apparatus meet the program needs of the area it is serving? Is it designed for the way the fire department operates today and is expected to operate in the foreseeable future, or is the apparatus functionally obsolete? Can it carry everything that is needed to do the job without being overloaded?

(4) If the apparatus is refurbished, will it provide the level of safety and operational capability of a new fire apparatus? It should be kept in mind that in many cases, refurbishing does not mean increasing the GVWR, so it is not possible to add a larger water tank or additional foam agent tanks or to carry massive amounts of additional equipment. Enclosing personnel riding areas might add enough weight to the chassis that existing equipment loads need to be reduced to avoid overloading the chassis.

(5) What is the anticipated cost per year to operate the apparatus if it were refurbished? What would the cost per year be for a new apparatus? Insurance costs, downtime costs, maintenance costs, depreciation, reliability, and the safety of the users and the public all have to be considered. At what rate are those costs rising each year? Are parts still readily available for all the components on the apparatus? A refurbished 15-year-old apparatus still has 15-year-old parts in it. How long could the fire department operate without the apparatus if it suddenly needed major repairs?

(6) Is there a current trade-in value that will be gone tomorrow?

Statement of Problem and Substantiation for Public Input

Update due to document consolidation.

Submitter Information Verification

Submitter Full Name: Thomas Stalnaker
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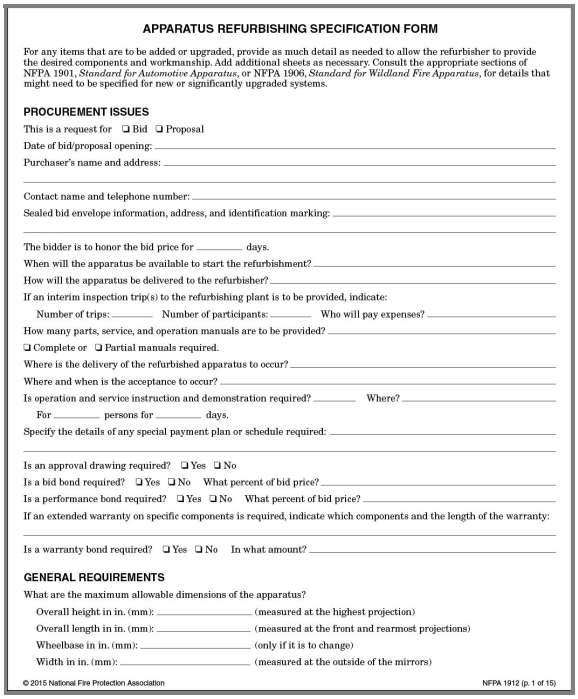
Public Input No. 231-NFPA 1910-2020 [Section No. E.1 [Excluding any Sub-Sections]]

Fire apparatus refurbishing can range from simple cosmetic–type restorations to complete Level I refurbishing. Therefore, the amount of information that the contractor and purchaser require can vary greatly. Depending on the scope of the proposed work, consideration should be given to the details discussed in some or all of the following paragraphs. It is recommended that the form in Figure E.1 be used to identify the information needed to properly develop specifications for those portions of the fire apparatus that are to be modified or upgraded during the refurbishing.

The local fire chief and fire department staff know the conditions under which the apparatus will be used. However, competent advice should also be obtained from knowledgeable and informed sources such as other experienced fire service personnel, trade journals, training instructors, maintenance personnel, and fire equipment and component manufacturers. The fire insurance rating authority should also be consulted.

The study should look not only at current operations and risks protected but also at how these might change over the life of the fire apparatus.

Figure E.1 Specification Form for Fire Apparatus Refurbishing.



APPARATUS REFURBISHING SPECIFICATION FORM

For any items that are to be added or upgraded, provide as much detail as needed to allow the refurbisher to provide the desired components and workmanship. Add additional sheets as necessary. Consult the appropriate sections of NFPA 1901, *Standard for Automotive Apparatus*, or NFPA 1906, *Standard for Wildland Fire Apparatus*, for details that might need to be specified for new or significantly upgraded systems.

PROCUREMENT ISSUES

This is a request for ❑ Bid ❑ Proposal

Date of bid/proposal opening: _____

Purchaser's name and address: _____

_____

Contact name and telephone number: _____

Sealed bid envelope information, address, and identification marking: _____

_____

The bidder is to honor the bid price for _____ days.

When will the apparatus be available to start the refurbishment? _____

How will the apparatus be delivered to the refurbisher? _____

If an interim inspection trip(s) to the refurbishing plant is to be provided, indicate:

Number of trips: _____ Number of participants: _____ Who will pay expenses? _____

How many parts, service, and operation manuals are to be provided? _____

❑ Complete or ❑ Partial manuals required.

Where is the delivery of the refurbished apparatus to occur? _____

Where and when is the acceptance to occur? _____

Is operation and service instruction and demonstration required? _____ Where? _____

For _____ persons for _____ days.

Specify the details of any special payment plan or schedule required: _____

_____

Is an approval drawing required? ❑ Yes ❑ No

Is a bid bond required? ❑ Yes ❑ No What percent of bid price? _____

Is a performance bond required? ❑ Yes ❑ No What percent of bid price? _____

If an extended warranty on specific components is required, indicate which components and the length of the warranty:

_____

Is a warranty bond required? ❑ Yes ❑ No In what amount? _____

GENERAL REQUIREMENTS

What are the maximum allowable dimensions of the apparatus?

Overall height in in. (mm): _____ (measured at the highest projection)

Overall length in in. (mm): _____ (measured at the front and rearmost projections)

Wheelbase in in. (mm): _____ (only if it is to change)

Width in in. (mm): _____ (measured at the outside of the mirrors)

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APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Maximum weight on the front axle in lb (kg): _____ (only if it is different from current front GAWR)

Maximum weight on the rear axle in lb (kg): _____ (only if it is different from current rear GAWR)

What is the maximum wall-to-wall turning radius allowable? _____ ft (m)

Maximum elevation at which the apparatus will operate if over 2000 ft (600 m): _____

Maximum grade that the apparatus will climb if over 6 percent (across 20 percent, up/down 25 percent, stationary 10 percent grades for wildland fire apparatus): _____

Specify the minimum ambient air temperature in which the apparatus is to operate: _____ (°F) (°C)

Specify the maximum ambient air temperature in which the apparatus is to operate: _____ (°F) (°C)

Specify the apparatus road performance if it is to exceed the minimum specified in this standard: _____

Specify maximum road speed required (only if upgrading engine, transmission, drive axle, or tires): _____

Specify the maximum number of persons to ride on the apparatus: _____

Hose Thread Size Information (required if changing or upgrading intakes or discharges)

TPI x OD or size and type (e.g., 2½ in. NH or 4 in. Storz)	
1 in. =	1½ in. =
2 in. =	2½ in. =
3 in. =	3½ in. =
4 in. =	4½ in. =
5 in. =	6 in. =
Hydrant =	

Testing and Acceptance

If independent certification of tests is required for the pump system, aerial device, line-voltage power source, or other systems, what independent testing organization is to certify the tests? _____

Is anyone representing the purchaser to witness the refurbisher's pre-delivery tests? ❑ Yes ❑ No

If yes, who? _____

Where are the road tests to be conducted? _____

What tests will the contractor be required to perform on delivery? _____

APPARATUS TYPE

This apparatus is to be used as a(n):

- ❑ Pumper
- ❑ Initial attack apparatus
- ❑ Mobil water supply apparatus
- ❑ Aerial fire apparatus
- ❑ Quint fire apparatus
- ❑ Special service apparatus
- ❑ Mobil foam fire apparatus
- ❑ Wildland fire suppression apparatus
- ❑ Wildland mobile water supply fire apparatus
- ❑ Wildland fire crew carrier apparatus

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

What functions or services is this apparatus to perform? _____

Suction Hose

Hose: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new

Soft or hard: _____

Size and length: _____

Connection type and size: _____

Mounting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new

Arrangement, bracket style, and location: _____

Ground Ladders

Number	Length	Type	Mounting Location and Bracket	Source
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition
				❑ Use existing ❑ Replace ❑ Addition

Indicate whether a specific type or make of ladder is desired for replacements and additions: _____

Breathing Apparatus

Quantity	Make/Model	Mounting Location	Source
			❑ Use existing ❑ Contractor supply ❑ Purchaser supply
			❑ Use existing ❑ Contractor supply ❑ Purchaser supply
			❑ Use existing ❑ Contractor supply ❑ Purchaser supply
			❑ Use existing ❑ Contractor supply ❑ Purchaser supply
			❑ Use existing ❑ Contractor supply ❑ Purchaser supply

Special requirements for breathing apparatus or its mounting, including diameters of SCBA cylinders to be utilized: _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Equipment Carried on Apparatus

Miscellaneous equipment allowance if it exceeds the standard's minimum weight: _____ lb (kg)

Attach a list of equipment and tools to be supplied by the contractor with the apparatus, stating the item, quantity, where it is to be mounted or carried, the weight of each item, and its dimensions (L × W × D).

Attach a list of equipment and tools to be supplied by the fire department to be carried on the apparatus, stating the item, quantity, where it is to be mounted or carried, contractor's responsibility for mounting, the weight of each item, and its dimensions (L × W × D).

Attach a list of equipment and tools that might be carried on the apparatus in the future, stating the item, quantity, the desired mounting location or compartment where it is likely to be carried, the weight of each item, and its dimensions (L × W × D).

Attach a list of fixed equipment and permanent components required on the apparatus, stating the item, quantity, where it is to be mounted or carried, the weight of each item, and its dimensions (L × W × D).

If additional compartment space is required in addition to what is necessary to store the equipment on the attached four lists, indicate space requirements: _____

CHASSIS AND VEHICLE COMPONENTS

Engine:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Transmission:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Traction control system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Antilock braking system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Drive shaft(s) :	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Front axle:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Rear axle:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Braking system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Auxiliary braking system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Parking brakes:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Suspension:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Wheels:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Tires:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Cooling system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Engine speed control:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Lubrication system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Air intake system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Fuel system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Fuel tank:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Exhaust system:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Steering:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Tow hooks/eyes:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Automatic tire chains:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

Are rear fender liners required? _____

Specify whether the apparatus is designed to operate off paved roads: _____

Specify whether an increased angle of approach is required: _____

Specify whether an increased angle of departure is required: _____

Specify whether a specific ramp breakover angle is required: _____

LOW-VOLTAGE ELECTRICAL SYSTEMS AND WARNING DEVICES

Alternator:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Alternator wiring:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Batteries:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Battery wiring:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Starter:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Starter wiring:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Chassis wiring harness:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Body wiring harness:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Load manager:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Low-voltage alarm:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Warning lights:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Headlights:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Stop, taillights:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Turn signal lights:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Cab handlights or mounted adjustable spotlights:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Traffic horn:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade _____
Air horns:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Siren(s):	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Ground lighting:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Hose bed lighting:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Surface lighting:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Interior lighting:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____
Compartment lighting:	❑ No change	❑ Inspect	❑ Replace	❑ Upgrade ❑ Add new _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Hazard light: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Backup alarm: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Battery charger/conditioner: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

Specify any electrical loads beyond those defined in the standard that are to be part of the minimum continuous electrical load: _____

If a load management system is being replaced, upgraded, or added, specify the sequence of load shedding: _____

Warning Lights To Be Upgraded or Added

Location	Make and Model	Color
Upper level, forward-facing		
Upper level, side-facing, front		
Upper level, side-facing, midship		
Upper level, side-facing, rear		
Upper level, rear-facing		
Lower level, forward-facing		
Lower level, side-facing, front		
Lower level, side-facing, midship		
Lower level, side-facing, rear		
Lower level, rear-facing		

DRIVING AND CREW COMPARTMENTS

Cab: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Doors: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Personnel enclosure: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Seat belts: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Seats: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
SCBA mounting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Equipment mounting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Cab tilt: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Mirrors: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Rear view camera system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Instrumentation: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Intercom system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Heating: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Air conditioning: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Steps or handrails: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Steering wheel/column: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Maximum number of seating positions in the apparatus: _____
Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

BODY, COMPARTMENTS, AND EQUIPMENT MOUNTING

Entire body: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Compartment doors: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Door stays: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Door latches/locks: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Compartment floors: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Pump enclosure: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Compartment lighting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Body trim: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Steps/walkways/ladders: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Handrails: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Hose bed(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Hose bed covers: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Equipment storage: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Suction hose storage: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Powered equipment racks: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Radio compartment: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Computer equip. provisions: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
SCBA storage: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

SCBA bottle storage: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Pump panel(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Receivers/anchors: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

Body material: _____
Tread plate material: _____
Color scheme of apparatus: _____
Paint number(s) and manufacturer, if known: _____
Striping, decoration, and lettering required: _____
List any areas not to be painted: _____
Is rustproof treatment required? ❑ Yes ❑ No
Provide details of locations to be treated: _____

Hose To Be Carried for Preconnected Lines

Length	Size	Location	Bed or Reel

Hose To Be Carried in Hose Bed or on Reels

Length	Size	Location	Bed or Reel

Specify any requirements for anchoring and lifting a slip-on fire-fighting unit: _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

FIRE PUMP, WATER PUMP, OR INDUSTRIAL SUPPLY PUMP

Pump: ❑ Use existing pump ❑ Overhaul ❑ Replace ❑ Upgrade _____
Pump drive engine: ❑ Not applicable ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Discharges: ❑ No changes
❑ Add new discharges _____
❑ Remove discharges _____
❑ Upgrade discharges _____
Deck gun: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Booster reel(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Intakes: ❑ No changes
❑ Add new intakes _____
❑ Remove intakes _____
❑ Upgrade intakes _____
Valves: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Valve controls: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Intake relief system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Pressure control system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Priming system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Gauges: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Flowmeters: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

Pump-rated capacity: _____ gpm (L/min) at _____ psi (kPa) with _____ stages
Pump-and-roll capacity, if required: _____ gpm (L/min) at _____ psi (kPa) at vehicle speed _____ mph (km/hr)
Specify pump performance requirements:
If altitude over 2000 ft (600 m), specify altitude: _____
If lift over 10 ft (3 m) (less for large pumps, see NFPA 1901), specify lift: _____
If through more than 20 ft (6 m) of suction hose, specify length: _____
Do local water conditions require special materials for pump and related piping? _____
Is pump panel color-coding required? _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

AUXILIARY PUMP

Pump: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Pump drive engine: ❑ Not applicable ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Discharges: ❑ No changes

❑ Add new discharges _____

❑ Remove discharges _____

❑ Upgrade discharges _____

Booster reel(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Intakes: ❑ No changes

❑ Add new intakes _____

❑ Remove intakes _____

❑ Upgrade intakes _____

Valves: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Valve controls: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Intake relief system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Pressure control system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Drains: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Priming system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Gauges: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Flowmeters: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

Pump-rated capacity: _____ gpm (L/min) at _____ psi (kPa)

Pump-and-roll capacity, if required: _____ gpm (L/min) at _____ psi (kPa) at vehicle speed _____ mph (km/hr)

Specify pump performance requirements:

If altitude over 2000 ft (600 m), specify altitude: _____

WATER TANK

Water tank: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Baffles: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Foam cell: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Tank level gauge: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Tank-to-pump line: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Tank fill line: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Direct tank fill: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Tank fill/vent: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

AERIAL DEVICES

Aerial device: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Ladder sections: ❑ No change ❑ Inspect ❑ Replace ❑ Repair _____

Booms: ❑ No change ❑ Inspect ❑ Replace ❑ Repair _____

Rung covers: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Ladder tip steps: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Turntable access: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Turntable access handrails: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Turntable railings: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Breathing air system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Stabilizers/outriggers: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Waterway: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Deluge gun: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Pressure relief valve: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Waterway drains: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Waterway flowmeter: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Hydraulic pump: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Hydraulic reservoir: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Auxiliary hydraulic pump: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Rotation system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Elevation system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Extension system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Communication system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Turntable controls: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Platform: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Water curtain system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Platform heat shield: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Platform controls: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Platform leveling system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____
Work lighting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Ladder/boom lighting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Spotlight(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Signs and labeling: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

FOAM PROPORTIONING SYSTEMS

Foam system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Type of foam system: _____
Type(s) of foam to be used: _____
Foam concentrate capacity: _____ gal (L)

Discharge Outlets To Be Used with Foam and Their Performance

Discharge Location	Required Flow	Proportioning Rate	Hose Length	Hose Diameter

Is an outside foam system inlet of pickup required? ❑ Yes ❑ No
Type: _____
Is a foam tank refill system required? ❑ Yes ❑ No
If yes, performance requirements: _____

APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

COMPRESSED AIR FOAM SYSTEM (CAFS)

Compressed air foam system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
What is the total SCFM (SCMM) required? _____
What type of compressor and driver are required? _____
What is the total water pump capacity required? _____
Specify the type of system controls and interlocks required: _____

Discharge Outlets To Be Used with the CAFS and Their Performance

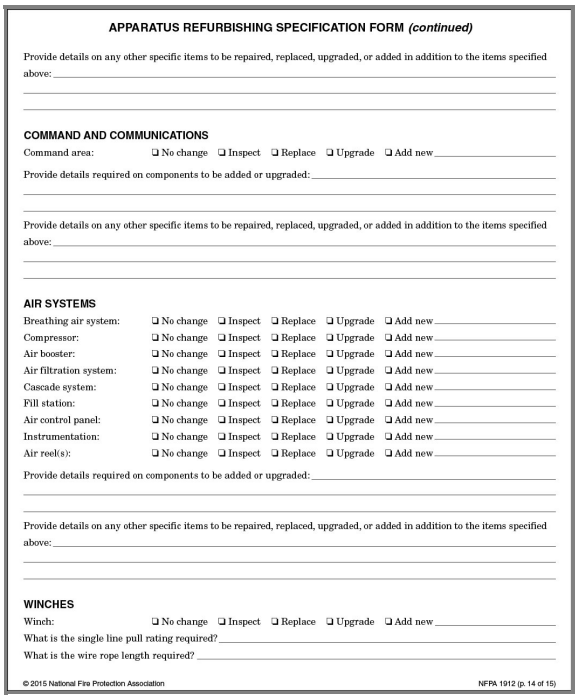
Discharge Location	Required Flow	Hose Length	Hose Diameter

Is automatic water and air pressure tracking required? ❑ Yes ❑ No
If yes, type of system: _____
Is an airflow meter required [SCFM (SCMM)]? ❑ Yes ❑ No
Specify the type of wet/dry control required: _____

LINE-VOLTAGE ELECTRICAL SYSTEM

Line-voltage system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Power source: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Instrumentation: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Panelboard: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Transfer switch: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Wiring: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Receptacles: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Cord reels: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Scene lighting: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Light tower: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Appliances: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____



APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

COMMAND AND COMMUNICATIONS

Command area: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

AIR SYSTEMS

Breathing air system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Compressor: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Air booster: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Air filtration system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Cascade system: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Fill station: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Air control panel: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Instrumentation: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Air reel(s): ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

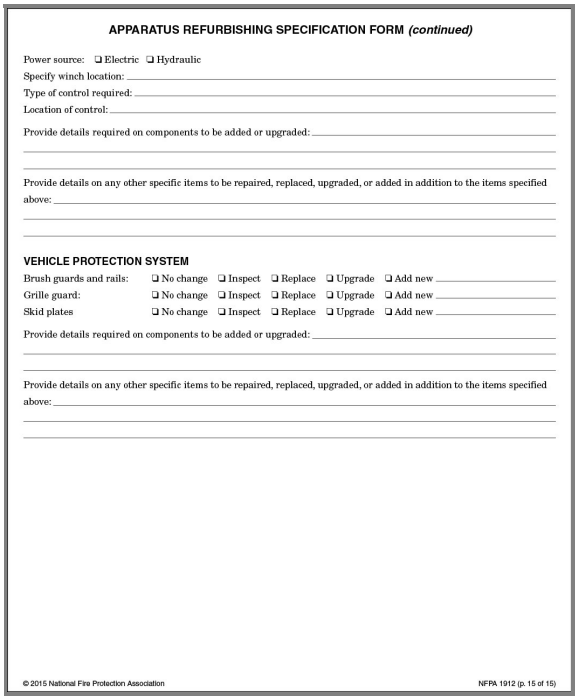
Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

WINCHES

Winch: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
What is the single line pull rating required? _____
What is the wire rope length required? _____

 NFPA 1912 (p. 14 of 15)



APPARATUS REFURBISHING SPECIFICATION FORM *(continued)*

Power source: ❑ Electric ❑ Hydraulic
Specify winch location: _____
Type of control required: _____
Location of control: _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

VEHICLE PROTECTION SYSTEM

Brush guards and rails: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Grille guard: ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____
Skid plates ❑ No change ❑ Inspect ❑ Replace ❑ Upgrade ❑ Add new _____

Provide details required on components to be added or upgraded: _____

Provide details on any other specific items to be repaired, replaced, upgraded, or added in addition to the items specified above: _____

 NFPA 1912 (p. 15 of 15)

[ADD THE FOLLOWING TO THE END OF FIGURE E.1]

ULTRA-HIGH PRESSURE FIRE PUMP

Ultra-high pressure fire pump: ā? ā? ā?ā? No change ā?ā? Inspect ā?ā? Replace ā?ā? Upgrade ā? ā?ā? Add new _____

What is the rated flow capacity and rated discharge pressure required?_____gpm (L/min) at _____ psi (kPa)

Is drafting capability required? ā?ā? Yes ā? ā?ā? No Type of primer system: _____

_____

Pump Type:

Statement of Problem and Substantiation for Public Input

This chapter was added to NFPA 1901 and NFPA 1906 (and thus NFPA 1900) but did not get added to this table in NFPA 1911 (now NFPA 1910).
NOTE that TerraView did not render the check boxes correctly. The format should match other sections in the table, or see NFPA 1901 figure B.2.12

Submitter Information Verification

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Committee: FDA-AAA

Public Input No. 233-NFPA 1910-2020 [Section No. F.1]

F.1

The Fire Apparatus Manufacturers Association (FAMA) provides the worksheet for use by the purchaser in calculating the portable equipment load anticipated to be carried on the apparatus. To ensure that the apparatus chassis is capable of carrying the installed equipment (pump, tank, aerial device, etc.) plus the specified portable equipment load with an appropriate margin of safety, the purchaser should use this worksheet to provide apparatus vendors with the weight of the equipment they anticipate carrying when the apparatus is placed in service. [~~1901~~ **1900** :~~C~~ F .1]

F.1.1

The approximate measurements and weights of equipment that are commonly available and used during fire department operations are listed on the worksheet. The purchaser should fill in the number of units of each piece of anticipated equipment in the column titled “Quantity” and multiply that by the weight per unit to get the total weight. The dimensions of each piece of equipment are given to assist in planning compartment size or the location on the fire apparatus. Where the purchaser wants to carry specific equipment in a specific compartment, that compartment designation should be shown in the column titled “Compartment Location.” [~~1901~~ **1900** :~~C~~ F .1.1]

F.1.2

The worksheet can be downloaded as an Excel spreadsheet from the FAMA website, *www.fama.org*, and customized to show only the equipment a department expects to carry. There are additional columns on the spreadsheet to assist the fire department in maintaining records of the equipment it carries on the apparatus. [~~1901~~ **1900** :~~C~~ F .1.2]

Statement of Problem and Substantiation for Public Input

Update cross references. Note that these may change again as the first draft of NFPA 1900 is prepared.

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Submittal Date: Mon Nov 02 13:59:38 EST 2020
Committee: FDA-AAA

Public Input No. 232-NFPA 1910-2020 [Section No. F.1.1]

F.1.1

The approximate measurements and weights of equipment that are commonly available and used during fire department operations are listed on the worksheet. The purchaser should fill in the number of units of each piece of anticipated equipment in the column titled “Quantity” and multiply that by the weight per unit to get the total weight. The dimensions of each piece of equipment are given to assist in planning compartment size or the location on the fire apparatus. Where the purchaser wants to carry specific equipment in a specific compartment, that compartment designation should be shown in the column titled ~~“Compartment Location~~ “ID .” [~~**1901**~~ **1900** :~~C~~ **F** .1.1]

Statement of Problem and Substantiation for Public Input

Correct instructions to match the tool.

Submitter Information Verification

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Submittal Date: Mon Nov 02 13:56:03 EST 2020
Committee: FDA-AAA

Public Input No. 159-NFPA 1910-2020 [Chapter G]

Annex G – Guidelines for First Line and Reserve Apparatus (NFPA 1912)

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

G.1 – General.

To maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities. In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatus more than 15 years old might include only a few of the safety upgrades required by the 1991 and subsequent editions of the NFPA fire department apparatus standards or the equivalent Underwriters' Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine tuning to NFPA 1901 since 1991 have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to firefighters by keeping fire apparatus more than 15 years old in first-line service.

It is recommended that apparatus more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status, be upgraded in accordance with NFPA 1912, and incorporate as many features as possible of the current fire apparatus standard (see Section D.3). This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available for the firefighters who use the apparatus.

Apparatus that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced.

G.2 – Evaluating Fire Apparatus.

It is a generally accepted fact that fire apparatus, like all types of mechanical devices, have a finite life. The length of that life depends on many factors, including vehicle mileage and engine hours, quality of the preventative maintenance program, quality of the driver training program, whether the fire apparatus was used within the design parameters, whether the apparatus was manufactured on a custom or commercial chassis, quality of workmanship by the original manufacturer, quality of the components used, and availability of replacement parts, to name a few.

In the fire service, there are fire apparatus with 8 to 10 years of service that are simply worn out. There are also fire apparatus that were manufactured with quality components, that have had excellent maintenance, and that have responded to a minimum number of incidents that are still in serviceable condition after 20 years. Most would agree that the care of fire apparatus while it is being used and the quality and timeliness of maintenance are perhaps the most significant factors in determining how well a fire apparatus ages.

Critical enhancements in design, safety, and technology should also play a key role in the evaluation of an apparatus' life cycle. Previous editions of the fire department apparatus standards featured many requirements advancing the level of automotive fire apparatus safety and friendliness. Contained within the 2009 edition were requirements for rollover stability; tire pressure indicators; seat belt warning systems requiring all occupants be properly seated and belted; extended seat belt length requirements resulting from an in-depth anthropometric study evaluating the average size of today's fully dressed firefighter; roadability, including minimum accelerations and top speed limitations; enhanced step and work surface lighting; cab integrity testing; increased use of retroreflective striping in the rear of the apparatus, providing a consistent identifiable set of markings for all automotive fire apparatus; and enhanced aerial control technologies, enabling short jacking and envelope controls.

G.3 – Upgrading Fire Apparatus.

Any apparatus, whether in first-line or reserve service, should be upgraded in accordance with NFPA 1912, as necessary to ensure that the following features are included at a minimum:

(1) Seat belts with seat belt warning systems are available for every seat and are new or in serviceable condition.

(2) Warning lights meet or exceed the current standard.

(3) Reflective striping meets or exceeds the current standard.

(4) Slip resistance of walking surfaces and handrails meets the current standard.

(5) A low-voltage electrical system load manager is installed if the total connected load exceeds the alternator output.

(6) The alternator output is capable of meeting the total continuous load on the low-voltage electrical system.

(7) Where the gross vehicle weight rating (GVWR) is 36,000 lb (16,000 kg) or more, an auxiliary braking system is installed and operating correctly.

(8) Ground and step lighting meets or exceeds the current standard.

(9) Noise levels in the driving and crew compartment(s) meet the current standard, or appropriate hearing protection is provided.

(10) All horns and sirens are relocated to a position as low and as far forward as possible.

(11) Sign plates are present stating no riding on open areas.

(12) A pump shift indicator system is present and working properly for vehicles equipped with an automatic chassis transmission.

(13) For vehicles equipped with electronic or electric engine throttle controls, an interlock system is present and working properly to prevent engine speed advancement at the operator's panel, unless the chassis transmission is in neutral with the parking brake engaged, or the parking brake is engaged, the fire pump is engaged, and the chassis transmission is in pumping gear.

(14) All loose equipment in the driving and crew areas is securely mounted in accordance with the current standard.

G.4 – Proper Maintenance of Fire Apparatus.

In addition to needed upgrades to older fire apparatus, it is imperative that all fire apparatus be checked and maintained regularly to ensure that they will be reliable and safe to use. The manufacturers' instructions should always be followed when maintaining the fire apparatus. Special attention should be paid to ensure that the following conditions, which are particularly critical to maintaining a reliable unit, exist:

(1) Engine belts, fuel lines, and filters have been replaced in accordance with the manufacturers' maintenance schedule(s).

(2) Brakes, brake lines, and wheel seals have been replaced or serviced in accordance with the manufacturers' maintenance schedule.

(3) Tires and suspension are in serviceable condition, and tires are not more than 7 years old.

(4) The radiator has been serviced in accordance with the manufacturers' maintenance schedule, and all cooling system hoses are new or in serviceable condition.

(5) The alternator output meets its rating.

(6) A complete weight analysis shows the fire apparatus is not over individual axle or total GVWR.

(7) The fire pump meets or exceeds its original pump rating.

(8) Water tank and baffles are not corroded or distorted.

(9) If the apparatus is equipped with an aerial device, a complete test to original specifications has been conducted and certified by a certified testing laboratory.

(10) If so equipped, the generator and line-voltage accessories have been tested and meet the current standard.

~~G.5~~ ~~– Refurbishing or Replacing Fire Apparatus.~~

~~Fire department administrators and fire chiefs should exercise special care when evaluating the cost of refurbishing or updating an apparatus versus the cost of a new fire apparatus. Apparatus that are refurbished should comply with the requirements of NFPA 1912. A thorough cost-benefit analysis of the value of upgrading or refurbishing a fire apparatus should be conducted. In many instances, it will be found that refurbishing costs will greatly exceed the current value of similar apparatus.~~

~~Some of the factors to evaluate when determining whether to refurbish or replace a fire apparatus include the following:~~

(1) ~~What is the true condition of the existing apparatus? Has it been in a major accident, or has something else happened to it that would make spending significant money on it ill advised?~~

(2) ~~What advancements in design, safety, and technology have improved the efficiency and safety of personnel?~~

(3) ~~Does the current apparatus meet the program needs of the area it is serving? Is it designed for the way the fire department operates today and is expected to operate in the foreseeable future, or is it functionally obsolete? Can it carry everything that is needed to do the job without being overloaded?~~

(4) ~~If the apparatus is refurbished, will it provide the level of safety and operational capability of a new fire apparatus? It should be kept in mind that in many cases, refurbishing does not mean increasing the GVWR, so it is not possible to add a larger water tank or additional foam agent tanks, or to plan to carry massive amounts of additional equipment. Enclosing personnel riding areas might add enough weight to the chassis that existing equipment loads need to be reduced to avoid overloading the chassis.~~

(5) ~~What is the anticipated cost per year to operate the apparatus if it were refurbished? What would the cost per year be for a new apparatus? Insurance costs, downtime costs, maintenance costs, depreciation, reliability, and the safety of the users and the public all have to be considered. At what rate are those costs rising each year? Are parts still readily available for all the components on the apparatus? A refurbished 15-year-old apparatus still has 15-year-old parts in it. How long can the fire department operate without the apparatus if it suddenly needed major repairs?~~

(6) ~~Is there a current trade-in value that will not be there tomorrow? Most apparatus over 12 years old have little trade-in value. Are there creative financing plans or leasing options that can provide a new fire apparatus for little more than the cost of refurbishing or maintaining an older apparatus?~~

~~G.6~~ ~~– Conclusion.~~

~~A fire apparatus is an emergency vehicle that must be relied on to transport firefighters safely to and from an incident and to operate reliably and properly to support the mission of the fire department. A piece of fire apparatus that breaks down at any time during an emergency operation not only compromises the success of the operation but might jeopardize the safety of the firefighters relying on that apparatus to support their role in the operation. An old, worn out, or poorly maintained fire apparatus has no role in providing emergency services to a community.~~

[UPDATE 1.3 TO POINT TO ANNEX D INSTEAD OF ANNEX G.]

Statement of Problem and Substantiation for Public Input

Annex G is a duplicate of Annex D. By changing the reference in 1.3(2) from G to D, this duplicate annex can be removed.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 235-NFPA 1910-2020 [Section No. 1.3]	
Public Input No. 156-NFPA 1910-2020 [Section No. D.1]	
Public Input No. 235-NFPA 1910-2020 [Section No. 1.3]	

Submitter Information Verification

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Submittal Date: Thu Sep 10 16:10:39 EDT 2020
Committee: FDA-AAA

Public Input No. 206-NFPA 1910-2020 [Section No. G.3]

G.3 Upgrading Fire Apparatus.

Any apparatus, whether in first-line or reserve service, should be upgraded in accordance with NFPA 1912, as necessary to ensure that the following features are included at a minimum:

(1) Seat belts with seat belt warning systems are available for every seat and are new or in serviceable condition.

(2) Warning lights meet or exceed the current standard.

(3) Reflective striping meets or exceeds the current standard.

(4) Slip resistance of walking surfaces and handrails meets the current standard.

(5) A low-voltage electrical system load manager is installed if the total connected load exceeds the alternator output.

(6) The alternator output is capable of meeting the total continuous load on the low-voltage electrical system.

(7) Where the gross vehicle weight rating (GVWR) is 36,000 lb (16,000 kg) or more, an auxiliary braking system is installed and operating correctly.

(8) Ground and step lighting meets or exceeds the current standard.

(9) Noise levels in the driving and crew compartment(s) meet the current standard, or appropriate hearing protection is provided.

(10) All horns and sirens are relocated to a position as low and as far forward as possible.

(11) ~~Sign plates~~ Signs are present stating no riding on open areas.

(12) A pump shift indicator system is present and working properly for vehicles equipped with an automatic chassis transmission.

(13) For vehicles equipped with electronic or electric engine throttle controls, an interlock system is present and working properly to prevent engine speed advancement at the operator's panel, unless the chassis transmission is in neutral with the parking brake engaged, or the parking brake is engaged, the fire pump is engaged, and the chassis transmission is in pumping gear.

(14) All loose equipment in the driving and crew areas is securely mounted in accordance with the current standard.

Statement of Problem and Substantiation for Public Input

Per the definitions and consistent usage in NFPA 1901/1906/1917/1900, the NFPA Glossary of Terms, and other NFPA documents:
A Label gives identification or information
An Instruction Plate gives instructions
A Sign gives a warning.
NFPA 1910 should use the same terminology as NFPA 1900 and other NFPA documents use about these items when the apparatus is built.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 213-NFPA 1910-2020 [Section No. 19.2.1]	

Submitter Information Verification

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Submittal Date: Fri Oct 30 15:16:57 EDT 2020
Committee: FDA-AAA

Public Input No. 161-NFPA 1910-2020 [Section No. M.1.1]

M.1.1 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, ~~2016~~ 2021 edition.

NFPA 70®, *National Electrical Code®*, 2020 edition.

NFPA 70B, *Recommended Practice for Electrical Equipment Maintenance*, ~~2019~~ 2023 edition.

NFPA 70E®, *Standard for Electrical Safety in the Workplace®*, ~~2018~~ 2021 edition.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, ~~2013~~ 2019 edition.

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 2017 edition.

NFPA 1035, *Standard for Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager*, 2015 edition.

NFPA 1150, *Standard on Foam Chemicals for Fires in Class A Fuels*, ~~2017~~ 2022 edition.

NFPA ~~1901~~ 1900 , Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus , ~~2016 edition.NFPA 1906, Standard for~~ Wildland Fire Apparatus , ~~2016 edition.NFPA 1911, Standard for the Inspection, Maintenance, Testing,~~ and ~~Retirement of In-Service Emergency Vehicles, 2017 edition.~~

~~NFPA 1912, *Standard for Fire Apparatus Refurbishing* , 2016 edition.~~

~~NFPA 1917, Standard for~~ Automotive Ambulances , ~~2016~~ 2023 edition.

NFPA 1961, *Standard on Fire Hose* , ~~2013~~ 2020 edition.

NFPA 1962, *Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances*, ~~2013~~ 2023 edition.

NFPA 1989, *Standard on Breathing Air Quality for Emergency Services Respiratory Protection*, 2019 edition.

Statement of Problem and Substantiation for Public Input

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Submitter Information Verification

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M.1.2.3 FAMA Publications.

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www.fama.org

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M.2.1 ABYC Publications.

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M.3 References for Extracts in Informational Sections.

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