First Revision No. 1-NFPA 1901-2013 [Sections 1.3.1, 1.3.2]

1.3.1*

This standard shall apply to new fire apparatus that meet the following criteria:

(1) ~~That have~~ Have 10,000 lb (4, 500 kg) or greater gross vehicle weight rating (GVWR) or are trailers intended to be towed by fire apparatus under emergency response conditions

(2) ~~That are~~ Are designed for use under emergency conditions to transport personnel and equipment and to support the suppression of fires and mitigation of other hazardous situations

(3) ~~That are~~ Are contracted for on or after January 1, ~~2009~~ 2016

1.3.2

Nothing shall prevent the use of the standard prior to January 1, ~~2009~~ 2016, or for vehicles with less than 10,000 lb (4,500 kg) gross vehicle weight rating (GVWR), if the purchaser and the contractor both agree.

Supplemental Information

File Name	Description
1.3.2_FR_1_.1383675975551_1_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:19:28 EDT 2013

Committee Statement

Committee Statement: New edition effective date.
Response Message:
Public Input No. 14-NFPA 1901-2013 [Section No. 1.3.2]
Public Input No. 139-NFPA 1901-2013 [Sections 1.3.1, 1.3.2]

First Revision No. 3-NFPA 1901-2013 [Section No. 1.6]

1.6 Units ~~and Formulas~~ of Measure .

~~In this standard, values for measurement in U.S. units are followed by equivalents in SI units. Either set of values can be used, but the same set of values (either U.S. units or SI units) shall be used consistently.~~

1.6.1*

In this standard, values for measurement in U.S. customary units shall be followed an equivalent in SI units.

~~**1.6.1.1**~~

~~Either set of values can be used, but the same set of values (either U.S. customary units or SI units) shall be used consistently.~~

1.6.2

Either set of values can be used, but the same set of values (either U.S. customary units or SI units) shall be used consistently.

Supplemental Information

File Name	Description
1.6_FR_3_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:21:54 EDT 2013

Committee Statement

Committee Statement: Compliance with Manual of Style and consistency with NFPA 1906-2012. NOTE: NFPA TerraView legislative formatting is incorrect.

Response Message:

Public Input No. 108-NFPA 1901-2013 [Section No. 1.6]

First Revision No. 4-NFPA 1901-2013 [Section No. 2.2]

2.2 NFPA Publications.

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

NFPA 70®, National Electrical Code®, ~~2008~~ 2014 edition.

NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus,* ~~2007~~ 2012 edition.

NFPA 1931, *Standard for Manufacturer's Design of Fire Department Ground Ladders,* ~~2004~~ 2015 edition.

NFPA 1961, *Standard on Fire Hose,* ~~2007~~ 2013 edition.

NFPA 1963, *Standard for Fire Hose Connections,* ~~2003~~ 2014 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services,* ~~2007~~ 2013 edition.

NFPA 1983, *Standard on Life Safety Rope and Equipment for Emergency Services,* ~~2006~~ 2012 edition.

NFPA 1989, *Standard on Breathing Air Quality for Emergency Services Respiratory Protection,* ~~2008~~ 2013 edition.

Supplemental Information

File Name	Description
2.2_FR_4_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:22:20 EDT 2013

Committee Statement

Committee Statement: Updated editions.
Response Message:
Public Input No. 134-NFPA 1901-2013 [Section No. 2.2]

First Revision No. 5-NFPA 1901-2013 [Section No. 2.3.1]

2.3.1 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*, ~~2007~~ 2011 .

Supplemental Information

File Name	Description
2.3.1_FR_5_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:22:38 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 30-NFPA 1901-2013 [Section No. 2.3.1]

First Revision No. 6-NFPA 1901-2013 [Section No. 2.3.2]

2.3.2 ASME Publications.
American Society of Mechanical Engineers, ~~Three~~ Two Park Avenue, New York, NY 10016-5990~~,~~ . ~~www.ASME.org/codes~~ www.asme.org .

ASME B40.100, *Pressure Gauges and Gauge Attachments* , 2005.

Boiler and Pressure Vessel Code , Section VIII, Division 1, 2013.

~~ASME B40.100, *Pressure Gauges and Gauge Attachments* , 2005.~~

Supplemental Information

File Name	Description
2.3.2_FR_6_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:23:03 EDT 2013

Committee Statement

Committee Statement: ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 and Division 2 are two separate documents. Division 1 is the applicable document. Revised 2013.

Response Message:

Public Input No. 29-NFPA 1901-2013 [Section No. 2.3.2]

First Revision No. 7-NFPA 1901-2013 [Section No. 2.3.3]

2.3.3 ASNT Publications.
American Society for Nondestructive Testing, Inc., 1711 Arlingate Lane, Columbus, OH 43228-0518, ~~www.ASNT.org~~ www.asnt.org .

ANSI/ ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, ~~2006~~ 2011 .

Supplemental Information

File Name	Description
2.3.3_FR_7_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:23:52 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 33-NFPA 1901-2013 [Section No. 2.3.3]
Public Input No. 295-NFPA 1901-2013 [Section No. 2.3.3]

First Revision No. 8-NFPA 1901-2013 [Section No. 2.3.4]

2.3.4 ASTM Publications.

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

ASTM B 647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*, ~~1984 (reconfirmed 2006)~~ 2010 .

ASTM B 648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*, ~~1978 (reconfirmed 2006)~~ 2010 .

ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, ~~2007e1~~ 2011a .

ASTM E 6, *Standard Terminology Relating to Methods of Mechanical Testing*, ~~2007a~~ 2009be1 .

ASTM E 10, *Standard Test Method for Brinell Hardness of Metallic Materials*, ~~2007a~~ 2012 .

ASTM E 18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*, ~~2007~~ 2012 .

~~ASTM E 92, *Standard Test Method for Vickers Hardness of Metallic Materials* , 1982 (reconfirmed 2003).~~

ASTM E 114, *Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method*, ~~1995 (reconfirmed 2005)~~ 2010 .

ASTM E 165, *Standard Test Method for Liquid Penetrant Examinations*, ~~2002~~ 2012 .

ASTM E 384, *Standard Test Method for Knoop and Vickers Hardness of Metallic Materials* , 2011e1.

ASTM E 569, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*, ~~2007~~ 2013 .

ASTM E 650, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*, ~~1997 (reconfirmed 2007)~~ 2012 .

ASTM E 709, *Standard Guide for Magnetic Particle Testing*, 2008.

ASTM E 797, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*, ~~2005~~ 2010 .

ASTM E 1004, *Standard Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method*, ~~2002~~ 2009 .

Supplemental Information

File Name	Description
2.3.4_FR_8_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:24:19 EDT 2013

Committee Statement

Committee Statement: ASTM E 92 was withdrawn in 2010 and superseded by ASTM E 384.

Response Message:

Public Input No. 36-NFPA 1901-2013 [Section No. 2.3.4]
Public Input No. 38-NFPA 1901-2013 [Section No. 2.3.4]

First Revision No. 9-NFPA 1901-2013 [Section No. 2.3.5]

2.3.5 AWS Publications.
American Welding Society, 550 ~~N.W.~~ NW LeJeune Road, Miami, FL 33126, ~~www.AWSpubs.org~~ www.aws.org .

AWS B1.10, *Guide for the Nondestructive Examination of Welds*, 1999.

AWS D1.1, *Structural Welding Code — Steel*, 2006.

AWS D1.2, *Structural Welding Code — Aluminum*, 2003.

AWS D1.3, *Structural Welding Code — Sheet Steel*, ~~2007~~ 2008 .

Supplemental Information

File Name	Description
2.3.5_FR_9_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
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Submittal Date: Wed Sep 11 13:24:39 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 39-NFPA 1901-2013 [Section No. 2.3.5]

First Revision No. 10-NFPA 1901-2013 [Section No. 2.3.6]

2.3.6 CGA Publications.

Compressed Gas Association, ~~1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202,~~ 14501 George Carter Way, Suite 103, Chantilly, VA 20151-2923. ~~www.CGAnet.com~~ www.cganet.com .

G-7, *Compressed Air for Human Respiration*, 2008.

G-7.1, *Commodity Specification for Air*, ~~2004~~ 2011 .

Supplemental Information

File Name	Description
2.3.6_FR_10_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:25:00 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 40-NFPA 1901-2013 [Section No. 2.3.6]

First Revision No. 141-NFPA 1901-2013 [New Section after 2.3.7]

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 08:29:21 EDT 2013

Committee Statement

Committee Statement: Added references to FAMA documents. Add new section 2.3.8 and renumber accordingly.
Response Message:

Public Input No. 440-NFPA 1901-2013 [New Section after 2.3.7]

First Revision No. 11-NFPA 1901-2013 [Section No. 2.3.7]

2.3.7 CSA Publications.
Canadian Standards Association, 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada, ~~www.CSA.ca~~ www.csa.ca .

CSA W47.1, *Certification of Companies for Fusion Welding of Steel,*~~2003~~ 2012 .

CSA W47.2, *Certification of Companies for Fusion Welding of Aluminum,*~~1987 (reconfirmed 2008)~~ 2012 .

Supplemental Information

File Name	Description
2.3.7_FR_11_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:25:27 EDT 2013

Committee Statement

Committee Statement: Documents revised.
Response Message:
Public Input No. 41-NFPA 1901-2013 [Section No. 2.3.7]

First Revision No. 12-NFPA 1901-2013 [Section No. 2.3.8]

2.3.9 ISEA Publications.
International Safety Equipment Association, 1901 North Moore Street, Arlington, VA 22209-1762, www.safetyequipment.org.

ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, ~~2006~~ 2011 .

Supplemental Information

File Name	Description
2.3.8_FR_12_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:26:27 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 42-NFPA 1901-2013 [Section No. 2.3.8]

First Revision No. 254-NFPA 1901-2013 [Section No. 2.3.9]

2.3.10 ISO Publications.
International Standards Organization, 1 rue de Varembé, Case Postale 56, CH-1211 Genéve 20, Switzerland, www.standardsinfo.net.

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

ISO/IEC 17020, ~~*General criteria*~~ *Conformity Assessment: Requirements for the operation of various types of bodies performing inspection*, ~~1998~~ 2012 .

ISO/IEC ~~Guide 65~~ 17065 , ~~*General requirements for bodies operating product certification systems*~~ *Conformity Assessment: Requirements for bodies certifying products, processess and services* , ~~1996~~ 2012 .

Submitter Information Verification

Submitter Full Name: Ryan Depew
Organization: National Fire Protection Assoc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 04 09:05:48 EST 2013

Committee Statement

Committee Statement: Updating to current edition and adding document which revised ISO/IEC Guide 65.
Response Message:

First Revision No. 142-NFPA 1901-2013 [Section No. 2.3.11]

2.3.12 SAE Publications.
Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096, www.SAE.org.

SAE J156, *Fusible Links*, ~~2005~~ 2012 .

SAE J541, *Voltage Drop for Starting Motor Circuits*, 1996.

SAE J551/1, *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*, ~~2006~~ 2010 .

SAE J553, *Circuit Breakers*, 2004.

SAE J554, *Electric Fuses (Cartridge Type)*, 1987.

SAE J560, *Primary and Auxiliary Seven Conductor Electrical Connector for Truck-Trailer Jumper Cable*, ~~2004~~ 2009 .

SAE J575, *Test Methods and Equipment for Lighting Devices and Components for Use on Vehicles Less Than 2032 mm in Overall Width*, ~~2007~~ 2012 .

SAE J578, *Color Specification*, ~~2006~~ 2012 .

SAE J595, *Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles*, ~~2005~~ 2008 .

SAE J683, *Tire Chain Clearance — Trucks, Buses (Except Suburban, Intercity, and Transit Buses), and Combinations of Vehicles*, ~~1985~~ Stabilized 2011 .

~~SAE J833, *Human Physical Dimensions* , 1989.~~

SAE J845, *Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles*, 2007.

SAE J994, *Alarm — Backup — Electric, Laboratory Performance Testing*, ~~2003~~ 2009 .

SAE J1127, *Low Voltage Battery Cable*, ~~2005~~ 2012 .

SAE J1128, *Low Voltage Primary Cable*, ~~2005~~ 2012 .

~~SAE J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring* , 1981.~~

~~SAE J1318, *Gaseous Discharge Warning Lamp for Authorized Emergency, Maintenance, and Service Vehicles* , 1998.~~

SAE J1330, *Photometry Laboratory Accuracy Guidelines*, 2007.

SAE J1690, *Flashers*, 1996.

SAE J1849, *Emergency Vehicle Sirens*, ~~2008~~ Stabilized 2012 .

SAE J1888, *High Current Time Lag Electric Fuses*, 1990.

SAE J1889, *L.E.D. Signal and Marking Lighting Devices*, ~~2005~~ 2011 .

SAE J2077, *Miniature Blade Type Electrical Fuses*, 1990.

SAE J2174, *Heavy-Duty Wiring Systems for Trailers 2032 mm or More in Width* , 2009.

SAE J2180, *A Tilt Table Procedure for Measuring the Static Rollover Threshold for Heavy Trucks,* ~~1998~~ Stabilized 2011 .

SAE J2202, *Heavy-Duty Wiring Systems for On-Highway Trucks* , 2003.

SAE J2394, *Seven-Conductor Cable for ABS Power — Truck and Bus*, ~~2007~~ 2013 .

SAE J2418, *Occupant Restraint System Evaluation — Frontal Impact Component-Level Heavy Trucks* , 2003.

SAE J2420, *COE Frontal Strength Evaluation — Dynamic Loading Heavy Trucks*, ~~2003~~ 2010 .

SAE J2422, *Cab Roof Strength Evaluation — Quasi-Static Loading Heavy Trucks*, ~~2003~~ 2010 .

Supplemental Information

File Name	Description
2.3.11_FR_142_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 08:35:37 EDT 2013

Committee Statement

Committee Statement: Documents revised.
Response Message:
Public Input No. 21-NFPA 1901-2013 [Section No. 2.3.11]
Public Input No. 23-NFPA 1901-2013 [Section No. 2.3.11]
Public Input No. 25-NFPA 1901-2013 [Section No. 2.3.11]
Public Input No. 32-NFPA 1901-2013 [Section No. 2.3.11]

First Revision No. 13-NFPA 1901-2013 [Section No. 2.3.12]

2.3.13 TRA Publications.
~~The~~ Tire and Rim Association, Inc., 175 Montrose West Ave., Copley, OH 44321, www.US-TRA.org.

Tire and Rim Association — Year Book,~~2008~~ 2015 .

Supplemental Information

File Name	Description
2.3.12_FR_13_.docx	11/6/2013

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:32:01 EDT 2013

Committee Statement

Committee Statement: Yearbook revised annually.
Response Message:
Public Input No. 43-NFPA 1901-2013 [Section No. 2.3.12]

First Revision No. 14-NFPA 1901-2013 [Section No. 2.3.13]

2.3.14 UL Publications.
Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096, ~~www.UL.com~~ www.ul.com .

ANSI/UL 153, *Standard for Portable Electric Luminaires,* ~~2005~~ 2002 , with revisions through ~~May 10, 2006~~ March 15, 2013 .

ANSI/UL 498, *Standard for Safety Attachment Plugs and Receptacles*, ~~2007~~ 2013 with revisions through November 16, 2012 .

ANSI/UL 969, *Standard for Marking and Labeling Systems*, ~~2006~~ 1995 with revisions through November 24, 2008 .

ANSI/UL 1598, *Standard for Luminaires*, ~~2004~~ 2008 , with revisions through ~~May 31, 2006~~ October 17, 2012 .

Supplemental Information

File Name	Description
2.3.13_FR_14_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:32:38 EDT 2013

Committee Statement

Committee Statement: Updated editions. Information provided by Jim Johannessen of UL.
Response Message:
Public Input No. 137-NFPA 1901-2013 [Section No. 2.3.13]
Public Input No. 226-NFPA 1901-2013 [Section No. 2.3.13]

First Revision No. 15-NFPA 1901-2013 [Section No. 2.3.14]

2.3.15 UNECE Publications.
UN Economic Commission for Europe, Palais des Nations, CH – 1211, Geneva 10 Switzerland, www.UNECE.org.

ECE Regulation number 29, *Uniform Provisions Concerning the Approval of Vehicles with Regard to the Protection of the Occupants of the Cab of a Commercial Vehicle,* ~~2007~~ 2011 .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:33:09 EDT 2013

Committee Statement

Committee Statement: Document revised.
Response Message:
Public Input No. 44-NFPA 1901-2013 [Section No. 2.3.14]

First Revision No. 16-NFPA 1901-2013 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 70®, National Electrical Code®, ~~2008~~ 2014 edition.

NFPA 1150, *Standard on Foam Chemicals for Fires in Class A Fuels,* ~~2004~~ 2010 edition.

~~NFPA 1451, *Standard for a Fire Service Vehicle Operations Training Program,* 2007 edition.~~

NFPA 1932, *Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders,* ~~2004~~ 2015 edition.

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

NFPA 1989, *Standard on Breathing Air Quality for Emergency Services Respiratory Protection,* ~~2008~~ 2013 edition.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:33:27 EDT 2013

Committee Statement

Committee Statement: Updated editions.
Response Message:
Public Input No. 135-NFPA 1901-2013 [Section No. 2.4]

First Revision No. 17-NFPA 1901-2013 [Section No. 3.3.65]

3.3.65 Fire Apparatus.
A vehicle designed to be used under emergency conditions to transport personnel and equipment~~, and~~ or to support the suppression of fires ~~and~~ or mitigation of other hazardous situations.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:34:09 EDT 2013

Committee Statement

Committee Statement: With the current wording (and), the State's legal analyst states that only those apparatus that meet ALL THREE segments can be considered "fire apparatus'. By the State's ruling, only those units primarily meant for fire suppression are "fire apparatus". Thus, only pumpers meet that qualification. All other fire vehicles are considered as not permitted to be allowed under any 'fire apparatus' exemptions. Thus, in CA, if non pumper apparatus exceed 20,000 GAWR on ANY axle, they are illegal. With the changing from AND to OR, the situation would allow for CA law analysts to accept All FD Apparatus to fall under "Fire Apparatus". I understand the use of the comma as meaning OR, but CA legal people do not. They stipulate the need to change 1901 to be able to reference it in their legal documents and accept all apparatus owned by a FD as "Fire Apparatus".

Response Message:

Public Input No. 225-NFPA 1901-2013 [Section No. 3.3.65]

First Revision No. 18-NFPA 1901-2013 [Section No. 3.3.66]

3.3.66 Fire Pump.
A water pump with a rated capacity of at least 250 gpm (1000 L/min) ~~through~~ but less than 3000 gpm (12,000 L/min) at 150 psi (1000 kPa) net pump pressure, or a water pump with rated capacity ~~over~~ of 3000 gpm (12,000 L/min) or greater at 100 psi (700 kPa) net pump pressure~~,~~ that is mounted on a fire apparatus and ~~used~~ intended for fire fighting.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:35:13 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 252-NFPA 1901-2013 [Section No. 3.3.66]

First Revision No. 194-NFPA 1901-2013 [Section No. 3.3.84]

3.3.84 Ground Clearance.
The ~~clearance under a vehicle at all locations except the axles and driveshaft connections to the axle or items designed to swing clear~~ vertical distance from the vehicle component to the ground .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:37:46 EDT 2013

Committee Statement

Committee Statement: Clarifying the definition and removing specifications.
Response Message:

First Revision No. 19-NFPA 1901-2013 [Section No. 3.3.87]

3.3.87* GVWR (Gross Vehicle Weight Rating).
The final- stage manufacturer's specified maximum load-carrying capacity of a ~~vehicle having two axle systems (a multiaxle axle installation is one system)~~ single vehicle .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:36:51 EDT 2013

Committee Statement

Committee Statement: Improved and simplified definition, consistent with NFPA 1906-2012.
Response Message:
Public Input No. 109-NFPA 1901-2013 [Section No. 3.3.87]

First Revision No. 228-NFPA 1901-2013 [New Section after 3.3.89]

3.3.90 Hydrodynamic Test.
A test performed by operating a fire pump to develop pump discharge pressure to pressurize the pump discharge structure and connected discharge piping and valves to a prescribed value while the intake piping, intake valves, and intake structure of the pump are not subjected to the prescribed pump discharge pressure.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:08:06 EDT 2013

Committee Statement

Committee Statement: New definitions to define and differentiate hydrostatic and hydrodynamic tests with respect to how these terms are used within the standard.
Response Message:

First Revision No. 20-NFPA 1901-2013 [Section No. 3.3.101]

3.3.103 Line Voltage Circuit, Equipment, or System.
An ac or dc electrical circuit, equipment, or system where the voltage to ground or from line to line is greater than 30 V rms (ac), 42.4 V peak (ac), or 60 V dc~~; or greater~~ .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:37:17 EDT 2013

Committee Statement

Committee Statement: 3.3.101 and 3.3.105 overlapped and therefore were inconsistent. This change was made in NFPA 1906-2012 and is consistent with NFPA 70 (National Electrical Code) article 411.

Response Message:

Public Input No. 15-NFPA 1901-2013 [Section No. 3.3.101]

First Revision No. 21-NFPA 1901-2013 [Section No. 3.3.111]

3.3.113 Mobile Foam Fire Apparatus.
Fire apparatus with a permanently mounted fire pump, foam proportioning system, and foam concentrate tank(s) whose primary purpose is ~~for use in~~ the control and extinguishment of flammable and combustible liquid fires in storage tanks and ~~other flammable liquid~~ spills.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:37:39 EDT 2013

Committee Statement

Committee Statement: Storage Tanks are not a special case of spills, so "other" is not correct. Spills could be flammable or combustible, so either both or neither should be listed. Both are not needed since that is already specified in the same sentence.

Response Message:

Public Input No. 16-NFPA 1901-2013 [Section No. 3.3.111]

First Revision No. 143-NFPA 1901-2013 [Section No. 3.3.145]

3.3.147 Qualified Person.
A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by ~~knowledge~~ virtue of education , training, ~~and experience, has demonstrated the ability to deal with problems relating to~~ experience, or other special attributes, possesses expertise regarding a particular subject matter, work, or project. ~~[1451, 2007]~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 08:50:32 EDT 2013

Committee Statement

Committee Statement: This is preferred language that clarifies the definition.
Response Message:

First Revision No. 144-NFPA 1901-2013 [New Section after 3.3.164]

3.3.167 Suction Hose.
A hose that is designed to prevent collapse under vacuum conditions so that it can be used for drafting water from below the pump (lakes, rivers, wells, etc.). [**1961,** 2013]

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 09:03:53 EDT 2013

Committee Statement

Committee Statement: Term used in chapters 5, 6, 7, 9, 10, and 11. Add definition and renumber accordingly.
Response Message:
Public Input No. 111-NFPA 1901-2013 [New Section after 3.3.164]

First Revision No. 22-NFPA 1901-2013 [Section No. 3.3.164]

3.3.166* Standard Cubic Feet per Minute (SCFM).
An expression of airflow rate in which the airflow rate is corrected to standard temperature and pressure. Standard temperature is 60°F (15°C) and standard pressure is 14.696 psi (101.33 kPa) or 29.92 in. Hg (760 mm Hg).

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:44:01 EDT 2013

Committee Statement

Committee Statement: Improved definition, consistent with NFPA 1906-2012.
Response Message:
Public Input No. 110-NFPA 1901-2013 [Section No. 3.3.164]

First Revision No. 23-NFPA 1901-2013 [New Section after 3.3.166]

3.3.170 Supply Hose.
Hose designed for the purpose of moving water between a pressurized water source and a pump that is supplying attack lines. [**1961,** 2013]

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:44:53 EDT 2013

Committee Statement

Committee Statement: Term used in chapters 5, 6, 7, 9, 10, and 11. Add definition and renumber accordingly.
Response Message:
Public Input No. 112-NFPA 1901-2013 [New Section after 3.3.166]

First Revision No. 24-NFPA 1901-2013 [Section No. 3.3.183]

3.3.187 Wet Location.

A ~~nonsheltered~~ location ~~inside a compartment with a door or cover that, while open, exposes the electrical enclosure or panelboard to the same environmental conditions as the exterior of the fire apparatus. A location~~ on ~~a nonenclosed, exterior surface of a~~ fire apparatus ~~body or driving and crew compartment where the enclosure or panel is exposed to the environment~~ subject to saturation with water or other liquids and in unprotected locations exposed to the weather . *(See also 3.3.156 ~~3.3.154~~ ~~3.3.156~~ , Road Spray Location.)*

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:50:32 EDT 2013

Committee Statement

Committee Statement: Remove redundancy and clean up definition, consistent with NFPA 1906-2012.
Response Message:
Public Input No. 113-NFPA 1901-2013 [Section No. 3.3.183]

First Revision No. 26-NFPA 1901-2013 [Section No. 4.2.2]

4.2.2

Table 4.2.2 shows the required chapters that shall apply to the construction of the types of fire apparatus in 4.2.1.

Table 4.2.2 Chapter Requirements by Apparatus

Chapter	Pumper Fire Apparatus	Initial Attack Fire Apparatus	Mobile Water Supply Fire Apparatus	Aerial Fire Apparatus	Quint Fire Apparatus	Special Service Fire Apparatus	Mo Foam Appa
1. Administration	Required	Required	Required	Required	Required	Required	Requ
2. Referenced Publications	Required	Required	Required	Required	Required	Required	Requ
3. Definitions	Required	Required	Required	Required	Required	Required	Requ
4. General Requirements	Required	Required	Required	Required	Required	Required	Requ
5. Pumper Fire Apparatus	Required	N/A	N/A	N/A	N/A	N/A	N/
6. Initial Attack Fire Apparatus	N/A	Required	N/A	N/A	N/A	N/A	N/
7. Mobile Water Supply Fire Apparatus	N/A	N/A	Required	N/A	N/A	N/A	N/
8. Aerial Fire Apparatus	N/A	N/A	N/A	Required	N/A	N/A	N/
9. Quint Fire Apparatus	N/A	N/A	N/A	N/A	Required	N/A	N/
10. Special Service Fire Apparatus	N/A	N/A	N/A	N/A	N/A	Required	N/
11. Mobile Foam Fire Apparatus	N/A	N/A	N/A	N/A	N/A	N/A	Requ
12. Chassis and Vehicle Components	Required	Required	Required	Required	Required	Required	Requ
13. Low Voltage Electrical Systems and Warning Devices	Required	Required	Required	Required	Required	Required	Requ
14. Driving and Crew Areas	Required	Required	Required	Required	Required	Required	Requ
15. Body, Compartments, and Equipment Mounting	Required	Required	Required	Required	Required	Required	Requ
16. Fire Pumps and Associated Equipment	Required	Required	If specified	If specified	Required	If specified	Requ
17. Auxiliary Pumps and Associated Equipment	If specified	If specified	If specified	If specified	If specified	If specified	If spe
18. Water Tanks	Required	Required	Required	If specified	Required	If specified	If spe
19. Aerial Devices	If specified	If specified	N/A	Required	Required	If specified	If spe

Chapter	Pumper Fire Apparatus	Initial Attack Fire Apparatus	Mobile Water Supply Fire Apparatus	Aerial Fire Apparatus	Quint Fire Apparatus	Special Service Fire Apparatus	Mol Foam Appa
20. Foam Proportioning Systems	If specified	If specified	If specified	If specified	If specified	If specified	Requ
21. Compressed Air Foam Systems (CAFS)	If specified	If specified	If specified	If specified	If specified	If specified	If spe
22. Line Voltage Electrical Systems	If specified	If specified	If specified	If specified	If specified	If specified	If spe
23. Command and Communications	If specified	If specified	If specified	If specified	If specified	If specified	If spe
24. Air Systems	If specified	If specified	If specified	If specified	If specified	If specified	If spe
25. Winches	If specified	If specified	If specified	If specified	If specified	If specified	If spe
26. Trailers	If specified	If specified	If specified	If specified	If specified	If specified	If spe
28. Ultra-High Pressure	If specified	If specified	If specified	If specified	If specified	If specified	If spe

Supplemental Information

File Name	Description
Table_4.2.2_FR_26_1901.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:55:47 EDT 2013

Committee Statement

Committee Statement: Table 4.2.2 lists all chapters, but when chapter 26 was added, it did not get added to this table. Also includes additions for new Chapter 28 Ultra-High Pressure Fire Pumps and Associated Equipment.

Response Message:

Public Input No. 17-NFPA 1901-2013 [Section No. 4.2.2]
Public Input No. 433-NFPA 1901-2013 [Global Input]

First Revision No. 27-NFPA 1901-2013 [Sections 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.5.5, 4.5.6, 4.5.7, 4...]

~~4.5.1~~
~~If the apparatus is equipped with a fire pump, the pump and its associated equipment shall meet the requirements of Chapter 16 .~~
~~4.5.2~~
~~If the apparatus is equipped with an auxiliary pump, the pump and its associated equipment shall meet the requirements of Chapter 17 .~~
~~4.5.3~~
~~If the apparatus is equipped with a water tank, the water tank shall meet the requirements of Chapter 18 .~~
~~4.5.4~~
~~If the apparatus is equipped with an aerial device (aerial ladder, elevating platform, or water tower), the aerial device shall meet the requirements of Chapter 19 .~~
~~4.5.5~~
~~If the apparatus is equipped with a foam proportioning system, the system shall meet the requirements of Chapter 20 .~~
~~4.5.6~~
~~If the apparatus is equipped with a compressed air foam system (CAFS), the system shall meet the requirements of Chapter 21 .~~
~~4.5.7~~
~~If the apparatus is equipped with a line voltage electrical system, the system shall meet the requirements of Chapter 22 .~~
~~4.5.8~~
~~If the apparatus is equipped with a command and communications area, the area shall meet the requirements of Chapter 23 .~~
~~4.5.9~~
~~If the apparatus is equipped with an air system, the system shall meet the requirements of Chapter 24 .~~
~~4.5.10~~
~~If the apparatus is equipped with a winch system, the system shall meet the requirements of Chapter 25 .~~
~~4.5.11~~
~~If a trailer is towed as a component of an emergency vehicle, the trailer shall meet the requirements of Chapter 26 .~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:59:13 EDT 2013

Committee Statement

Committee Statement: Not needed, requirements are already shown in table 4.2.2

Response Message:

Public Input No. 327-NFPA 1901-2013 [Sections 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.5.5, 4.5.6, 4.5.7, 4...]

First Revision No. 146-NFPA 1901-2013 [Section No. 4.7.4]

4.7.4

The ~~certification~~ independent third-party organization shall witness all required tests by an in-person representative(s) at the test site or by use of verifiable automated data collection and image recording equipment. The third-party organization shall refuse to certify any test results for a system if all components of that system requiring testing do not pass the testing required by this standard.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 09:27:57 EDT 2013

Committee Statement

Committee Statement: The new language allows required third-party testing to be either witnessed in-person or remotely verified by automated or electronic means.

Response Message:

First Revision No. 28-NFPA 1901-2013 [Section No. 4.7.6]

4.7.6*

~~Appropriate forms~~ Forms or data sheets shall be provided and used during the testing.

Supplemental Information

File Name	Description
A.4.7.6_FR_28_1901.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 14:02:06 EDT 2013

Committee Statement

Committee Statement: Sample forms are available in NFPA 1911, Annex C and can have minor updates and changes made to them. Add new annex material A.4.7.6

Response Message:

Public Input No. 308-NFPA 1901-2013 [Section No. 4.7.6]

A.4.7.6 Refer to typical forms, data sheets, and test protocols for pump and aerial testing in Section C.3 of NFPA 1911. Additional forms for testing foam, CAFS, air systems, and low and line voltage are provided if the authority having jurisdiction requires third-party testing of these systems.

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First Revision No. 147-NFPA 1901-2013 [Section No. 4.8.4]

4.8.4*

~~Appropriate forms~~ Forms or data sheets shall be provided and used during the testing.

Supplemental Information

File Name	Description
A.4.8.4_FR_147_1901.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 09:37:10 EDT 2013

Committee Statement

Committee Statement: Sample forms are available in NFPA 1911, Annex C and can have minor updates and changes made to them. Add new annex material A.4.8.4.

Response Message:

Public Input No. 309-NFPA 1901-2013 [Section No. 4.8.4]

A.4.8.4 Refer to typical forms, data sheets, and test protocols for pump and aerial testing in Section C.3 of NFPA 1911. Additional forms for testing foam, CAFS, air systems, and low and line voltage are provided if the authority having jurisdiction requires third-party testing of these systems.

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First Revision No. 29-NFPA 1901-2013 [Section No. 4.9.4]

4.9.4*

Safety ~~-related (caution, warning, danger) signs shall meet the requirements of ANSI~~ signs with text shall conform to the general principles of ANSI/NEMA Z535.4, *Product Safety Signs and Labels*. Safety signs without text shall conform to the general principles for two-panel safety signs of ISO 9244, *Earth-moving machinery — Machine safety labels — General principles* .

4.9.4.1

Apparatus built for sale in the United States shall employ safety signage that complies with ANSI/NEMA Z535.4.

4.9.4.2

Apparatus built for sale outside the United States shall employ safety signage that complies with either ANSI/NEMA Z535.4 or ISO 9244.

Supplemental Information

File Name	Description
A.4.9.4_FR_29_1901.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 14:03:27 EDT 2013

Committee Statement

Committee Statement: ANSI Z535.4 describes the principles for designing safety signs that includes text. The rest of the world, and even many US manufacturers (notably Caterpillar) are converting to textless signs in conformance with International Standards Organization (ISO) guidelines. The main advantage of textless safety signs is that they can be understood by operators of any language. The FAMA safety signs whitepaper includes textless signs as options for those hazards that are of particular importance for export products. As NFPA 1901 is an international standard, this change is consistent with that principle. While there are several ISO standards written around safety signs, the two-panel yellow ISO 9244 designs are the ones that FAMA selected to base it's common signs upon, and in the experience of the author is most common with global manufacturers. The suggested change still retains the ANSI Z535.4 option (which is still probably most appropriate for the US market), but allows manufacturers to produce products for export that still meet the NFPA 1901 standard. Add new annex material A.4.9.4

Response Message:

Public Input No. 31-NFPA 1901-2013 [Section No. 4.9.4]
Public Input No. 275-NFPA 1901-2013 [Section No. 4.9.4]

A.4.9.4 Uniformity of safety signage is a desirable objective. Examples of common safety signs solutions are depicted in FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, and should be considered where deemed applicable by the manufacturer.

First Revision No. 30-NFPA 1901-2013 [New Section after 4.10]

4.10.5 Controls Labeling.
Where controls will be labeled using graphical symbols, they shall conform to the common graphical symbols found in FAMA TC008, *Graphical Symbols for Automotive Fire Apparatus* .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 14:15:53 EDT 2013

Committee Statement

Committee Statement: The Fire Apparatus Manufacturer's Association completed a project to commonize graphical symbols that describe the functions of fire apparatus controls, gauges, valves, and plumbing. The document is free to the public and published on the FAMA website. It is periodically updated by FAMA as the need for new symbols is recognized. This requirement will ensure that as the use of graphical symbols catches on in the Fire industry, fire fighters will only need to learn one set of symbols rather than seeing variations as they move from one manufacturer's apparatus to the next. The wording does not require the use of symbols, but if they are used, it requires them to be the industry recognized symbols. FAMA would likely give permission to publish these symbols as an annex to 1901, but this would slow down the reaction time as new symbols are developed.

Response Message:

Public Input No. 276-NFPA 1901-2013 [New Section after 4.10]

First Revision No. 151-NFPA 1901-2013 [Section No. 4.10.1]

4.10.1*
Illumination shall be provided for controls, switches, instruction plates, labels, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it.

4.10.1.1
If external illumination is provided, it shall be a minimum of 5 fc (50 lx) on the face of the device.

4.10.1.2
If internal illumination is provided, it shall be a minimum of 4 ~~footlamberts~~ fl (14 cd/m^2).

Supplemental Information

File Name	Description
A.4.10.1_FR_151_1901.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:02:28 EDT 2013

Committee Statement

Committee Statement: Typically, operation of the drains is not required during firefighting operations; therefore illumination of the control handles may be optional between the purchaser and manufacturer. Add new annex material A.4.10.1

Response Message:

Public Input No. 425-NFPA 1901-2013 [New Section after A.4.9.1]

A.4.10.1 Drain controls for the fire pump and associated plumbing, when located below the truck body, are not required to be illuminated.

First Revision No. 239-NFPA 1901-2013 [Section No. 4.10.4]

4.10.4
The central midpoint or centerline of any control shall be no more than 72 in. (1830 mm) vertically above the ground (with vehicle at in-service weight) or the platform that is designed to serve as the operator's standing position.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:34:30 EDT 2013

Committee Statement

Committee Statement: To clarify the condition in which measurement is taken
Response Message:

First Revision No. 31-NFPA 1901-2013 [Section No. 4.15]

4.15 ~~Roadability~~ Highway Performance .

4.15.1

The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

(1) ~~From a standing start, the apparatus shall be able to attain a speed of~~ ~~Accelerate~~ Accelerating from 0 to 35 mph (55 km/hr) within 25 seconds on a ~~level road~~ 0 percent grade ~~.~~

(2)* ~~The apparatus shall be able to attain a minimum top speed~~ ~~Attain~~ Attaining a speed of 50 mph (80 km/hr) on a ~~level road~~ 0 percent grade ~~.~~

(3)* ~~The apparatus shall be able to maintain~~ ~~Maintain~~ Maintaining a speed of at least 20 mph (32 km/hr) on any grade up to and including 6 percent~~.~~

4.15.2*

The maximum top speed of fire apparatus with a GVWR over 26,000 lb (11,800 kg) shall not exceed either 68 mph (105 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

4.15.3

If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gal (4732 L), or the GVWR of the vehicle is over 50,000 lb (22,680 kg), the maximum top speed of the apparatus shall not exceed either 60 mph (85 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 14:24:55 EDT 2013

Committee Statement

Committee Statement: These changes improve the organization of the test section and allow the tests to be performed on every apparatus prior to delivery without damage to the equipment.

Response Message:

Public Input No. 161-NFPA 1901-2013 [Section No. 4.15]

First Revision No. 32-NFPA 1901-2013 [Section No. 4.16.1]

4.16.1*
The fire apparatus shall be designed so that all the manufacturer's recommended routine maintenance checks of lubricant and fluid levels can be performed by the operator without lifting the cab of a tilt-cab apparatus ~~or~~ and without the need for hand tools.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 14:26:26 EDT 2013

Committee Statement

Committee Statement: The two parallel clauses beginning with "without ..." should both be required, not either/or, thus they should be joined with "and" not "or".

Response Message:

Public Input No. 18-NFPA 1901-2013 [Section No. 4.16.1]

First Revision No. 148-NFPA 1901-2013 [Section No. 4.17]

4.17 ~~Road~~ General Pre-Delivery Tests.

4.17.1

~~Road tests shall be conducted in accordance with this section to verify that the completed apparatus is capable of compliance with Section~~ ~~4.15~~ Each apparatus shall be tested before delivery to verify that it meets the criteria in this section .

4.17.1.1

Tests shall be conducted at a location and in a manner that does not violate local, state or provincial, or federal traffic laws.

4.17.1.2

Tests shall be conducted on a dry, level, paved surface that is free of loose material, oil, or grease.

4.17.1.3

Tests shall be conducted with the water and foam tanks full (water or product).

4.17.2

~~The tests shall be conducted at a location and in a manner that does not violate local, state or provincial, or federal traffic laws~~ The apparatus shall accelerate from 0 to 35 mph (55 km/hr) within 25 seconds.

4.17.3

~~The tests shall be conducted on dry, level, paved roads that are in good condition~~ The apparatus shall attain a speed of 50 mph (80 km/hr) .

4.17.4

~~The apparatus shall be loaded to its estimated in-service weight~~ The auxiliary braking system, if so equipped, shall function as intended by the auxiliary braking system manufacturer .

4.17.5*

~~The engine shall not operate in excess of the maximum governed speed~~ The air service brakes shall bring the apparatus to a complete stop from a speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m) .

4.17.6

~~Acceleration tests shall consist of two runs in opposite directions over the same route~~ The hydraulic service brakes shall bring the apparatus to a complete stop from a speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m) .

~~**4.17.6.1**~~

~~The fire apparatus shall attain a speed of 35 mph (55 km/hr) from a standing start within 25 seconds.~~

~~**4.17.6.2**~~

~~The fire apparatus shall attain a minimum top speed of 50 mph (80 km/hr).~~

~~**4.17.7**~~

~~If the apparatus is equipped with an auxiliary braking system, the manufacturer shall road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.~~

~~**4.17.8**~~

~~If the apparatus is equipped with an air brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil, or grease.~~

~~**4.17.9**~~

~~If the apparatus is equipped with a hydraulic brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil, or grease.~~

Supplemental Information

File Name	Description
A.4.17.5_FR_148.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 10:26:39 EDT 2013

Committee Statement

Committee Statement: These changes improve the organization of the test section and allow the tests to be performed on every apparatus prior to delivery without damage to the equipment. Add new annex material A.4.17.5

Response Message:

Public Input No. 124-NFPA 1901-2013 [New Section after A.4.16.1]
Public Input No. 297-NFPA 1901-2013 [Section No. 4.17.4]

A.4.17.5 The variations in the brake performance testing requirements reflect the differences between Federal Motor Vehicle Safety Standard 105, "*Hydraulic and electric brake systems*," ", and Federal Motor Vehicle Safety Standard 121, "*Air brake systems*."".

First Revision No. 33-NFPA 1901-2013 [New Section after 4.19]

4.18.3
An official of the company that manufactures the apparatus and, if applicable, the aerial device shall designate in writing who is qualified to provide operational instructions and apparatus familiarization to the final customer.

Supplemental Information

File Name	Description
4.18.3_FR_33_1901.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 15:07:37 EDT 2013

Committee Statement

Committee Statement: We lost all the wording for training provided with the delivery of a new apparatus in the last revision cycle. This change puts the training language back into the standard.

Response Message:

Public Input No. 298-NFPA 1901-2013 [New Section after 4.19]

First Revision No. 34-NFPA 1901-2013 [Section No. 4.20.1]

4.20.1 Fire Apparatus Documentation.

The contractor shall deliver with the fire apparatus at least one copy of the following documents:

(1) The manufacturer's record of apparatus construction details, including the following information:

(a) Owner's name and address

(b) Apparatus manufacturer, model, and serial number

(c) Chassis make, model, and serial number

(d) GAWR of front and rear axles and GVWR

(e) Front tire size and total rated capacity in pounds (kilograms)

(f) Rear tire size and total rated capacity in pounds (kilograms)

(g) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)

(h) Engine make, model, serial number, rated horsepower and related speed, and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio

(i) Type of fuel and fuel tank capacity

(j) Electrical system voltage and alternator output in amps

(k) Battery make, model, and capacity in cold cranking amps (CCA)

(l) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio

(m) Ratios of all driving axles

(n) Maximum governed road speed

(o) Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), maximum discharge pressure capability rating, and serial number

(p) Pump transmission make, model, serial number, and gear ratio

(q) Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number

(r) Water tank certified capacity in gallons or liters

(s) Foam tank (if provided) certified capacity in gallons (liters)

(t) Aerial device type, rated vertical height in feet (meters), rated horizontal reach in feet (meters), and rated capacity in pounds (kilograms)

(u) Paint manufacturer and paint number(s)

(v) Company name and signature of responsible company representative

(w) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)

~~If the apparatus is a mobile foam fire apparatus, the certification of foam tank capacity *(see Section 11.5)*~~

(2) Certification of compliance of the optical warning system *(see 13.8.16)*

(3) Siren manufacturer's certification of the siren *(see 13.9.1.1)*

(4) Written load analysis and results of the electrical system performance tests *(see 13.14.1 and Section 13.15)*

(5) Certification of slip resistance of all stepping, standing, and walking surfaces *(see 15.7.4.5)*

(6) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability *(see 16.2.4.1)*

(7) If the apparatus is equipped with a fire pump and special conditions are specified by the purchaser, the pump manufacturer's certification of suction capacity under the special conditions *(see 16.2.4.2)*

(8) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications *(see 16.3.1 ~~16.3.2.2~~)*

(9) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed *(see 16.3.2.2)*

(10) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test *(see 16.5.2.2)*

(11) If the apparatus has a fire pump, the certification of inspection and test for the fire pump *(see 16.13.1.1.5 or 16.13.1.2.4 as applicable)*

(12) If the apparatus is equipped with an auxiliary pump, the apparatus manufacturer's certification of the hydrostatic test *(see Section 17.12)*

(13) When the apparatus is equipped with a water tank, the certification of water tank capacity *(see Section 18.6)*

(14) If the apparatus has an aerial device, the certification of inspection and test for the aerial device *(see Section 19.24)*

(15) If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911~~, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus*~~

(16) If the apparatus has a foam proportioning system, the foam proportioning system manufacturer's certification of accuracy *(see 20.10.4.2)* and the final installer's certification the foam proportioning system meets this standard *(see 20.11.2)*

(17) If the system has a CAFS, the documentation of the manufacturer's predelivery tests *(see Section 21.9)*

(18) If the apparatus has a line voltage power source, the certification of the test for the power source *(see 22.15.7.2)*

(19) If the apparatus is equipped with an air system, air tank certificates *(see 24.5.1.2)*, the SCBA fill station certification *(see 24.9.6)*, and the results of the testing of the air system installation *(see 24.14.5 and 24.15.4)*

(20) Any other required manufacturer test data or reports

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Committee Statement

Committee Statement: The standard requires the manufacturer to supply documentation showing the certified water capacity. Many apparatus are being built with form tanks that are less than 500 gallons in capacity. The certified size of hte foam tank is an important part of the apparatus and should be provided in the vehicle documentation. Changes to 4.20.1 (1) (o) includes information regarding the fire pump's pressure capability with the documentation provided for the fire apparatus.

Response Message:

Public Input No. 445-NFPA 1901-2013 [Section No. 4.20.1]

First Revision No. 150-NFPA 1901-2013 [Section No. 4.21]

4.21* Statement of Exceptions.

The entity responsible for final assembly of the apparatus shall deliver with the fire apparatus either a certification that the apparatus fully complies with all requirements of this standard or, alternatively, a Statement of Exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.

4.21.1

The Statement of Exceptions shall contain, for each noncompliant aspect of the apparatus or missing required item, the following information:

(1) A separate specification of the section of the applicable standard for which compliance is lacking

(2) A description of the particular aspect of the apparatus that is not in compliance therewith or required equipment that is missing

(3) A description of the further changes or modifications to the delivered apparatus that must be completed to achieve full compliance

(4) Identification of the entity that will be responsible for making the necessary postdelivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance with this standard

4.21.2

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating mutual understanding and agreement between the parties regarding the substance thereof.

4.21.3

An apparatus that is delivered subject to a Statement of Exceptions other than a certification of full compliance shall not be placed in emergency service until the apparatus has been modified as necessary to accomplish full compliance with this standard.

Supplemental Information

File Name	Description
A.4.21_FR_150_1901.1383680649987.docx	11/6/13

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A.4.21 Specifications, standards, and vehicles have become ~~gotten~~ more complex over time. Complexity, experience level, and lack of familiarity can make it difficult to know for certain if an apparatus, all its components, and the manufacturer of the component comply with all applicable NFPA standards. The fire department and/or purchasing agency mightay want to consider requiring the apparatus manufacturer to provide, from an independent third--party certification organization, a certification that the apparatus fully complies with all requirements of this standard or, alternatively, a statement of exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.

Committee Statement

Committee Statement: Specifications, standards, and vehicles have gotten more complex over time. For those departments that expereince extended periods between vehicle purchase cycles, it's difficult to comprehensively know all the standards and thus cannot know for certain if an apparatus and all its components comply with all applicable NFPA standards. An independent third party organization is one way of verifying the apparatus and all its components comply (similar to the requirements of the Canadian standard). Adding an appendix item will alert the purchaser they have this option. Add new annex material A.4.21

Response Message:

Public Input No. 289-NFPA 1901-2013 [New Section after 4.21]

First Revision No. 217-NFPA 1901-2013 [Chapter 5]

Chapter 5 Pumper Fire Apparatus

5.1 General.

If the apparatus is to function as a pumper, it shall meet the requirements of this chapter.

5.2 Fire Pump.

The apparatus shall be equipped with a fire pump that meets the requirements of Chapter 16 and that has a minimum rated capacity of 750 gpm (3000 L/min).

5.3 Aerial Device.

If the pumper is equipped with an aerial device, the requirements of 5.3.1 through 5.3.4 shall apply.

5.3.1

The aerial device shall meet the requirements of Chapter 19.

5.3.2

If the aerial device is equipped with a permanently mounted waterway, the fire pump shall be capable of supplying the flow requirements of 19.6.1, 19.12.1, or 19.16.1 with a maximum intake gauge pressure of 20 psi (138 kPa).

5.3.3

Provisions shall be made to ensure that the pump operator is not in contact with the ground.

5.3.4

Signs shall be placed to warn the pump operator of electrocution hazards.

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5.4 Foam Proportioning System.

If the pumper is equipped with a foam proportioning system, it shall meet the requirements of Chapter 20 .

5.5* Water Tank.

The~~If the~~ pumper shall be equipped with a water tank(s) that meets the requirements of Chapter 18 and that has a minimum certified capacity (combined, if applicable) of 300 gal (1100 L).

5.6* Equipment Storage.

A minimum of 40 ft^3 (1.1 m^3) of enclosed weather-resistant compartmentation that meets the requirements of Section 15.1 shall be provided for the storage of equipment.

5.7* Hose Storage.

Hose bed area(s), compartments, or reels that comply with Section 15.10 shall be provided to accommodate the following:

(1) A minimum hose storage area of 30 ft^3 (0.8 m^3) for 2½ in. (65 mm) or larger fire hose

(2) Two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1½ in. (38 mm) or larger preconnected fire hose lines

5.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in 5.8.1 ~~5.7.1~~ and 5.8.2 ~~5.7.2~~ and shall provide and install such brackets or compartments as are necessary to mount the equipment.

5.8.1 Ground Ladders.

5.8.1.1

All fire department ground ladders carried on the apparatus shall meet the requirements of NFPA 1931~~, *Standard for Manufacturer's Design of Fire Department Ground Ladders*~~ , except as permitted by 5.8.1.3 ~~5.7.1.3~~ and 5.8.1.4 ~~5.7.1.4~~ .

5.8.1.2*

At a minimum, the following fire department ground ladders shall be carried on the apparatus:

(1) One straight ladder equipped with roof hooks

(2) One extension ladder

(3) One folding ladder

5.8.1.3

Stepladders and other types of multipurpose ladders meeting ANSI A14.2, *Ladders — Portable Metal — Safety Requirements,* or ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements,* with duty ratings of Type 1A or 1AA shall be permitted to be substituted for the folding ladder required in 5.8.1.2 ~~5.7.1.2~~ (3).

5.8.1.4

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in 5.8.1.2 ~~5.7.1.2~~ provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

5.8.2 Suction Hose or Supply Hose.

5.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

5.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

5.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c).

5.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

5.8.2.2

Suction hose and supply hose shall meet the requirements of NFPA 1961~~, *Standard on Fire Hose*~~ .

5.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

5.9* Minor Equipment.

5.9.1 General.

The equipment listed in 5.9.3 ~~5.8.2~~ and 5.9.4 ~~5.8.3~~ shall be available on the pumper fire apparatus before the apparatus is placed in service.

~~**5.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**5.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

5.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

5.9.3* Fire Hose and Nozzles.

The following fire hose and nozzles shall be carried on the apparatus:

(1) 800 ft (240 m) of 2½ in. (65 mm) or larger fire hose

(2) 400 ft (120 m) of 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) fire hose

(3) One handline nozzle, 200 gpm (750 L/min) minimum

(4) Two handline nozzles, 95 gpm (360 L/min) minimum

(5) One ~~playpipe with shutoff~~ smoothbore ~~and 1 in. (25 mm), 1 ⅛ in. (29 mm), and 1 ¼ in. (32 mm) tips~~ or combination nozzle with 2 ½ in. shutoff that flows a minimum of 250 gpm

5.9.4* Miscellaneous Equipment.

The following additional equipment shall be carried on the apparatus:

(1) One 6 lb (2.7 kg) flathead axe ~~mounted in a bracket fastened to the apparatus~~

(2) One 6 lb (2.7 kg) pickhead axe ~~mounted in a bracket fastened to the apparatus~~

(3) One 6 ft (2 m) pike pole or plaster hook ~~mounted in a bracket fastened to the apparatus~~

(4) One 8 ft (2.4 m) or longer pike pole ~~mounted in a bracket fastened to the apparatus~~

(5) Two portable hand lights ~~mounted in brackets fastened to the apparatus~~

(6) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating ~~mounted in a bracket fastened to the apparatus~~

(7) One 2½ gal (9.5 L) or larger water extinguisher ~~mounted in a bracket fastened to the apparatus~~

(8) One self-contained breathing apparatus (SCBA) complying with NFPA 1981~~, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services* ,~~ for each assigned seating position, but not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(9) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space

(10) One first aid kit

(11) Four combination spanner wrenches ~~mounted in brackets fastened to the apparatus~~

(12) Two hydrant wrenches ~~mounted in brackets fastened to the apparatus~~

(13) One double female 2½ in. (65 mm) adapter with National Hose (NH) threads~~, mounted in a bracket fastened to the apparatus~~

(14) One double male 2½ in. (65 mm) adapter with NH threads~~, mounted in a bracket fastened to the apparatus~~

(15) One rubber mallet, suitable for use on suction hose connections~~, mounted in a bracket fastened to the apparatus~~

(16) Two salvage covers each a minimum size of 12 ft × 14 ft (3.7 m × 4.3 m)

(17) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(18) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(19) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(20) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(21) One automatic external defibrillator (AED)

5.9.4.1

If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.

5.9.4.2

If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

5.9.4.3

If the pumper is equipped with an aerial device with a permanently mounted ladder, four ladder belts meeting the requirements of NFPA 1983,~~*Standard on Life Safety Rope and Equipment for Emergency Services*~~ , shall be provided.

5.9.4.4

If the apparatus does not have a 2½ in. intake with NH threads, an adapter from 2½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

5.9.4.5

If the supply hose carried has other than 2½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2½ in. NH thread male discharge and to allow the hose to connect to a 2½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

Supplemental Information

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Committee Statement

Committee Statement: Chapter 5 through Chapter 11 are being reorganized to align section numbers and subject matter. Additional changes to this Chapter are as follows: Existing 5.8.2 - This change removes the playpipe requirement and reflects advances in nozzle technology. Existing 5.8.3 - This language is redundant, as section 5.8.1.1 already requires that equipment be mounted or stored in compartments. Reorganize chapter and correlate annex material accordingly.

Response Message:

Public Input No. 185-NFPA 1901-2013 [Section No. 5.8.2]
Public Input No. 187-NFPA 1901-2013 [Section No. 5.8.3]
Public Input No. 194-NFPA 1901-2013 [Section No. 5.8.3 [Excluding any Sub-Sections]]
Public Input No. 200-NFPA 1901-2013 [Section No. 5.8.3 [Excluding any Sub-Sections]]
Public Input No. 206-NFPA 1901-2013 [Section No. 5.8.3 [Excluding any Sub-Sections]]
Public Input No. 211-NFPA 1901-2013 [Section No. 5.8.3 [Excluding any Sub-Sections]]

First Revision No. 218-NFPA 1901-2013 [Chapter 6]

Chapter 6 Initial Attack Fire Apparatus

6.1 General.

If the apparatus is to function as an initial attack fire apparatus, it shall meet the requirements of this chapter.

6.2 Fire Pump.

The apparatus shall be equipped with a fire pump that meets the requirements of Chapter 16 and that has a minimum rated capacity of 250 gpm (1000 L/min).

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6.3 Aerial Device. (Reserved)

6.4 Foam Proportioning System.

If the initial attack apparatus is equipped with a foam proportioning system, it shall meet the requirements of Chapter 20.

6.5 Water Tank.

Initial attack apparatus shall be equipped with a water tank(s) that meets the requirements of Chapter 18 and that has a minimum certified capacity (combined, if applicable) of 200 gal (750 L).

6.6* Equipment Storage.

A minimum of 22 ft^3 (0.62 m^3) of enclosed weather-resistant compartmentation that meets the requirements of Section 15.1 shall be provided for the storage of equipment.

6.7* Hose Storage.

Hose bed area(s), compartments, or reels that meet the requirements of Section 15.10 shall be provided to accommodate the following:

(1) A minimum hose storage area of 10 ft^3 (0.3 m^3) for 2½ in. (65 mm) or larger fire hose

(2) Two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1½ in. (38 mm) or larger preconnected fire hose lines

6.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in ~~6.6.1~~ 6.8.1 and ~~6.6.2~~ 6.8.2 and shall provide and install such brackets or compartments as are necessary to mount the equipment.

6.8.1 Ground Ladders.

6.8.1.1

A 12 ft (3.7 m) or longer combination or extension-type fire department ground ladder shall be carried on the apparatus.

6.8.1.2

All fire department ground ladders on the apparatus shall meet the requirements of NFPA 1931, ~~*Standard for Manufacturer's Design of Fire Department Ground Ladders*~~ , except as permitted by ~~6.6.1.3~~ 6.8.1.3 .

6.8.1.3

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in ~~6.6.1.1~~ 6.8.1.1 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

6.8.2 Suction Hose or Supply Hose.

6.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

6.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

6.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c).

6.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

6.8.2.2

Suction hose and supply hose shall meet the requirements of NFPA 1961, ~~*Standard on Fire Hose*~~ .

6.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

6.9* Minor Equipment.

6.9.1 General.

The equipment listed in ~~6.7.2~~ 6.9.3 and ~~6.7.3~~ 6.9.4 shall be available on the initial attack fire apparatus before the apparatus is placed in service.

~~**6.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**6.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

6.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

6.9.3 Fire Hose and Nozzles.

The following fire hose and nozzles shall be carried on the apparatus:

(1) 300 ft (90 m) of 2½ in. (65 mm) or larger fire hose

(2) 400 ft (120 m) of 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) fire hose

(3) Two handline nozzles, 95 gpm (360 L/min) minimum

6.9.4* Miscellaneous Equipment.

The following additional equipment shall be carried on the apparatus:

(1) One 6 lb (2.7 kg) pickhead axe ~~mounted in a bracket fastened to the apparatus~~

(2) One 6 ft (2 m) pike pole or plaster hook ~~mounted in a bracket fastened to the apparatus~~

(3) Two portable hand lights ~~mounted in brackets fastened to the apparatus~~

(4) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating ~~mounted in a bracket fastened to the apparatus~~

(5) One 2½ gal (9.5 L) or larger water extinguisher ~~mounted in a bracket fastened to the apparatus~~

(6) One SCBA complying with NFPA 1981~~, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services* ,~~ for each assigned seating position, but not fewer than two, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(7) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)

(8) One first aid kit

(9) Two combination spanner wrenches ~~mounted in a bracket(s) fastened to the apparatus~~

(10) One hydrant wrench ~~mounted in a bracket fastened to the apparatus~~

(11) One double female adapter, sized to fit 2½ in. (65 mm) or larger fire hose~~, mounted in a bracket fastened to the apparatus~~

(12) One double male adapter, sized to fit 2½ in. (65 mm) or larger fire hose~~, mounted in a bracket fastened to the apparatus~~

(13) One rubber mallet, for use on suction hose connections, ~~mounted in a bracket fastened to the apparatus~~

(14) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(15) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(16) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(17) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(18) One automatic external defibrillator (AED)

6.9.4.1 Reserved.

6.9.4.2

If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

6.9.4.3 Reserved.

6.9.4.4

If the apparatus does not have a 2½ in. intake with NH threads, an adapter from 2½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

6.9.4.5

If the supply hose carried has other than 2½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2½ in. NH thread male discharge and to allow the hose to connect to a 2½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

Supplemental Information

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Committee Statement

Committee Statement: Chapter 5 through Chapter 11 are being reorganized to align section numbers and subject matter. Additional changes to this Chapter are as follows: Existing 6.7.3 - This language is redundant, as section 6.7.1.1 already requires that equipment be mounted or stored in compartments. Reorganize chapter and correlate annex material accordingly.

Response Message:

Public Input No. 188-NFPA 1901-2013 [Section No. 6.7.3 [Excluding any Sub-Sections]]
Public Input No. 195-NFPA 1901-2013 [Section No. 6.7.3 [Excluding any Sub-Sections]]
Public Input No. 201-NFPA 1901-2013 [Section No. 6.7.3 [Excluding any Sub-Sections]]
Public Input No. 207-NFPA 1901-2013 [Section No. 6.7.3 [Excluding any Sub-Sections]]
Public Input No. 212-NFPA 1901-2013 [Section No. 6.7.3 [Excluding any Sub-Sections]]

First Revision No. 219-NFPA 1901-2013 [Chapter 7]

Chapter 7 Mobile Water Supply Fire Apparatus

7.1 General.

If the apparatus is to function as a mobile water supply apparatus, it shall meet the requirements of this chapter.

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7.2 Fire Pump.

If the apparatus is equipped with a fire pump, the pump shall meet the requirements of Chapter 16 .

7.3 Aerial Device. (Reserved)

7.4 Foam Proportioning System.

If the apparatus is equipped with a foam proportioning system, it shall meet the requirements of Chapter 20 .

7.5 Water Tank.

The mobile water supply apparatus shall be equipped with a water tank(s) that meets the requirements of Chapter 18 and that has a minimum certified capacity (combined, if applicable) of 1000 gal (4000 L).

7.6* Equipment Storage.

A minimum of ~~20~~ 10 ft^3 (0.~~57~~ 0.3 m^3) of enclosed weather-resistant compartmentation meeting the requirements of Section 15.1 shall be provided for the storage of equipment.

7.7* Hose Storage.

~~**7.7.1**~~

~~A minimum hose storage area of 6 ft^3 (0.2 m^3) for 2 ½ in. (65 mm) or larger fire hose that meets the requirements of Section 15.10 shall be provided.~~

~~**7.7.2**~~

~~If the apparatus is equipped with a fire pump, two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1 ½ in. (38 mm) or larger preconnected fire hose lines shall be provided.~~

7.7.1

Hose bed area(s), compartments, or reels that comply with Section 15.10 shall be provided to accommodate a minimum hose storage area of 6 ft3 (0.8 m^3) for 2 ½ in. (65 mm) or larger fire hose.

7.7.2

If the apparatus is equipped with a pump, storage for a minimum of 100 ft (30 m) of 1 ½ in. (38 mm) or larger fire hose for a protection line shall be provided.

7.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in 7.8.1 and 7.8.2 and shall provide and install such brackets or compartments as are necessary to mount the equipment.

7.8.1 Ground Ladders.

Not required unless specified by the purchaser.

7.8.2 Suction Hose or Supply Hose.

If the mobile water supply fire apparatus is equipped with a pump, the requirements in 7.9.1 through 7.9.3 shall apply.

7.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

7.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

7.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c) .

7.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

7.8.2.2

Suction hose and supply hose shall meet the requirements of NFPA 1961 .

7.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

~~**7.9***~~ ~~Suction Hose or Supply Hose.~~

~~If the mobile water supply fire apparatus is equipped with a pump, the requirements in 7.6.1 through 7.6.3 shall apply.~~

~~**7.9.1**~~

~~A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.~~

~~**7.9.1.1**~~

~~Where suction hose is provided, a suction strainer shall be furnished.~~

~~**7.9.1.2**~~

~~Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c) .~~

~~**7.9.1.3**~~

~~Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.~~

~~**7.9.2**~~

~~Suction hose and supply hose shall meet the requirements of NFPA 1961 , *Standard on Fire Hose* .~~

~~**7.9.3***~~

~~The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.~~

7.9* Minor Equipment.

7.9.1 General.

The equipment listed in 7.9.3~~7.7.2~~ and 7.9.4~~7.7.3~~ shall be available on the ~~initial attack fire~~ mobile water supply apparatus before the apparatus is placed in service.

~~**7.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**7.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

7.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

7.9.3 Fire Hose and Nozzles.

7.9.3.1
The mobile water supply apparatus shall be equipped with at least 200 ft (60 m) of 2½ in. (65 mm) or larger fire hose.

7.9.3.2*
If the mobile water supply apparatus is equipped with a fire pump, the following shall be provided:

(1) ~~400~~ 100 ft (~~120~~ 30 m) of 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) fire hose

(2) ~~Two~~ One handline nozzle~~s~~ , 95 gpm (360 L/min) minimum

7.9.4* Miscellaneous Equipment.
Mobile water supply fire apparatus shall be equipped with at least the following equipment:

(1) Two portable hand lights

(2) One approved dry chemical portable fire extinguisher with a minimum 3A-40B:C rating

(3) One first aid kit

(4) Two combination spanner wrenches

(5) One hydrant wrench

(6) One double female adapter, sized to fit 2 ½ in. (65 mm) or larger fire hose

(7) One double male adapter, sized to fit 2 ½ in. (65 mm) or larger fire hose

(8) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(9) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests* , and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(10) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(11) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(12) One automatic external defibrillator (AED)

7.9.4.1 Reserved.
~~Mobile water supply fire apparatus shall be equipped with at least the following equipment:~~

~~One 6 lb (2.7 kg) flathead or pickhead axe mounted in a bracket fastened to the apparatus~~

~~One 6 ft (2 m) or longer pike pole or plaster hook mounted in a bracket fastened to the apparatus~~

~~Two portable hand lights mounted in brackets fastened to the apparatus~~

~~One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus~~

~~One 2 ½ gal (9.5 L) or larger water extinguisher mounted in a bracket fastened to the apparatus~~

~~One SCBA complying with NFPA 1981 , *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services* , for each assigned seating position, but not fewer than two, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer~~

~~One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)~~

~~One first aid kit~~

~~Two combination spanner wrenches mounted in a bracket fastened to the apparatus~~

~~One hydrant wrench mounted in a bracket fastened to the apparatus~~

~~One double female adapter, sized to fit 2 ½ in. (65 mm) or larger fire hose, mounted in a bracket fastened to the apparatus~~

~~One double male adapter, sized to fit 2 ½ in. (65 mm) or larger fire hose, mounted in a bracket fastened to the apparatus~~

~~Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released~~

~~One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests* , and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front~~

~~Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band~~

~~Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities~~

~~One automatic external defibrillator (AED)~~

7.9.4.2

If the mobile water supply apparatus is equipped with a fire pump and none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

7.9.4.3

If the mobile water supply apparatus is equipped with a fire pump, a rubber mallet for use on suction hose connections shall be carried ~~in a bracket fastened to the apparatus~~ .

7.9.4.4

If the apparatus does not have a 2½ in. intake with NH threads, an adapter from 2½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

7.9.4.5

If the supply hose carried has other than 2½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2½ in. NH thread male discharge and to allow the hose to connect to a 2½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

Supplemental Information

File Name	Description
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Committee Statement

Committee Statement: Chapter 5 through Chapter 11 are being reorganized to align section numbers and subject matter. Additional changes to this Chapter are as follows: Existing 7.7.1 - Editorial, refers to the wrong section. Existing 7.7.3 - This language is redundant, as section 7.7.1.1 already requires that equipment be mounted or stored in compartments. Other changes include reducing the amount of equipment required for mobile water supply apparatus. Reorganize chapter and correlate annex material accordingly.

Response Message:

Public Input No. 189-NFPA 1901-2013 [Section No. 7.7.3.1]
Public Input No. 196-NFPA 1901-2013 [Section No. 7.7.3.1]
Public Input No. 202-NFPA 1901-2013 [Section No. 7.7.3.3]
Public Input No. 208-NFPA 1901-2013 [Section No. 7.7.3]
Public Input No. 213-NFPA 1901-2013 [Section No. 7.7.3]
Public Input No. 359-NFPA 1901-2013 [Section No. 7.7.1 [Excluding any Sub-Sections]]

A.7.8 The recommended minimum equipment listed in this standard (nozzles, hose, ladders, etc.) might not maximize a community's grading by the insurance rating authority. Individual fire departments should check with the insurance rating authority for their state or jurisdiction for information on what tools and equipment should be carried to maximize their community's grading.

First Revision No. 220-NFPA 1901-2013 [Chapter 8]

Chapter 8 Aerial Fire Apparatus

8.1 General.

8.1.1

If the apparatus is to function as an aerial fire apparatus, it shall meet the requirements of this chapter.

8.1.2

If the apparatus is to function as a pumper with an aerial device, it shall meet all the requirements of Chapter 5 instead of Chapter 8.

~~**8.2** Aerial Device.~~

~~The apparatus shall be equipped with an aerial ladder, elevating platform, or water tower that meets the requirements of Chapter 19 .~~

8.2* Fire Pump.

If the apparatus is equipped with a fire pump, the pump shall meet the requirements of Chapter 16.

8.2.1

Provisions shall be made to ensure that the pump operator is not in contact with the ground.

8.2.2

Signs shall be placed to warn the pump operator of electrocution hazards.

8.2.3

If the aerial fire apparatus is equipped with a fire pump that is intended to supply water to a permanently mounted waterway, the fire pump shall be capable of supplying the flow requirements of 19.6.1, 19.12.1, or 19.16.1 with a maximum intake gauge pressure of 20 psi (138 kPa).

8.3 Aerial Device.

The apparatus shall be equipped with an aerial ladder, elevating platform, or water tower that meets the requirements of Chapter 19 .

8.4 Foam Proportioning System.

If the aerial fire apparatus is equipped with a foam proportioning system, it shall meet the requirements of Chapter 20 .

8.5 Water Tank.

If the aerial fire apparatus is equipped with a water tank, it shall meet the requirements of Chapter 18.

8.6* Equipment Storage.

A minimum of 40 ft^3 (1.1 m^3) of enclosed weather-resistant compartmentation meeting the requirements of Section 15.1 shall be provided for the storage of equipment.

8.7 Hose Storage.

8.7.1*

Any space on the aerial fire apparatus designed to carry fire hose shall meet the requirements of Section 15.10.

8.7.2

If the apparatus is equipped with a fire pump and a water tank, two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1½ in. (38 mm) or larger preconnected fire hose lines shall be provided.

8.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in 8.8.1 and shall provide and install such brackets or compartments as are necessary to mount the equipment.

8.8.1 Ground Ladders.

8.8.1.1

All fire department ground ladders carried on the apparatus shall meet the requirements of NFPA 1931 , except as permitted by 8.8.1.4 and 8.8.1.5 .

8.8.1.2*

A minimum of 115 ft (35 m) of fire department ground ladders shall be supplied and installed by the contractor.

8.8.1.3*

As a minimum, the following types of ladders shall be provided:

(1) One folding ladder

(2) Two straight ladders (with folding roof hooks)

(3) Two extension ladders

8.8.1.4

Stepladders and other types of multipurpose ladders meeting ANSI A14.2, *Ladders — Portable Metal — Safety Requirements*, or ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements*, with duty ratings of Type 1A or 1AA shall be permitted to be substituted for the folding ladder required in 8.8.1.3(1) .

8.8.1.5

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in 8.8.1.3 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

8.8.2 Reserved.

~~**8.9** Ground Ladders.~~

~~**8.9.1**~~

~~A minimum of 115 ft (35 m) of fire department ground ladders shall be supplied and installed by the contractor.~~

~~**8.9.2**~~

~~As a minimum, the following types of ladders shall be provided:~~

~~(1) One folding ladder~~

~~(2) Two straight ladders (with folding roof hooks)~~

~~(3) Two extension ladders~~

~~**8.9.3**~~

~~The contractor shall provide such brackets or compartments as are necessary to mount the equipment.~~

~~**8.9.4**~~

~~The fire department ground ladders shall meet the requirements of NFPA 1931 , *Standard for Manufacturer's Design of Fire Department Ground Ladders* , except as permitted by 8.7.5 and 8.7.6 .~~

~~**8.9.5**~~

~~Stepladders and other types of multipurpose ladders meeting ANSI A14.2, *Ladders — Portable Metal — Safety Requirements,* or ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements,* with duty ratings of Type 1A or 1AA shall be permitted to be substituted for the folding ladder required in 8.7.2 (1).~~

~~**8.9.6**~~

~~Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in 8.7.2 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.~~

8.9* Minor Equipment.

8.9.1

The equipment listed in ~~8.9.5~~ 8.9.3 and ~~8.9.6~~ 8.9.4 shall be available on the aerial fire apparatus before the apparatus is placed in service.

~~**8.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**8.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

8.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

8.9.3*

Aerial fire apparatus shall be equipped with at least the following equipment:

(1) Two 6 lb (2.7 kg) flathead axes

(2) Three 6 lb (2.7 kg) pickhead axes

(3) Four pike poles

(4) Two 3 ft to 4 ft (1 m to 1.2 m) plaster hooks with D handles

(5) Two crowbars

(6) Two claw tools

(7) Two 12 lb (5 kg) sledgehammers

(8) Four portable hand lights

(9) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating

(10) One 2 ½ gal (9.5 L) or larger water extinguisher

(11) One SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(12) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)

(13) One first aid kit

(14) Six salvage covers, each a minimum size of 12 ft × 18 ft (3.6 m × 5.5 m)

(15) Four combination spanner wrenches

(16) Two scoop shovels

(17) One pair of bolt cutters, 24 in. (0.6 m) minimum

(18) Four ladder belts meeting the requirements of NFPA 1983

(19) One 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983

(20) One 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983

(21) Two 150 ft (45 m) utility ropes having a breaking strength of at least 5000 lb (2300 kg)

(22) One box of tools to include the following:

(a) One hacksaw with three blades

(b) One keyhole saw

(c) One 12 in. (0.3 m) pipe wrench

(d) One 24 in. (0.6 m) pipe wrench

(e) One ballpeen hammer

(f) One pair of tin snips

(g) One pair of pliers

(h) One pair of lineman's pliers

(i) Assorted types and sizes of screwdrivers

(j) Assorted adjustable wrenches

(k) Assorted combination wrenches

(23) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(24) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests* , and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(25) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(26) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(27) One automatic external defibrillator (AED)

8.9.4

If the aerial fire apparatus is equipped with a fire pump, the requirements of 8.9.4.1 through 8.9.4.3 shall apply.

8.9.4.1

The following equipment shall be provided:

(1) One double female 2½ in. (65 mm) adapter with National Hose (NH) threads

(2) One double male 2½ in. (65 mm) adapter with NH threads

(3) One rubber mallet, for use on suction hose connections

(4) Two hydrant wrenches

8.9.4.2

If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.

8.9.4.3

If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6 .

8.9.4.4

If the apparatus does not have a 2 ½ in. intake with NH threads, an adapter from 2 ½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

8.9.4.5

If the supply hose carried has other than 2 ½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2 ½ in. NH thread male discharge and to allow the hose to connect to a 2 ½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

~~**8.9.5***~~

~~Aerial fire apparatus shall be equipped with at least the following equipment:~~

~~Two 6 lb (2.7 kg) flathead axes mounted in brackets fastened to the apparatus~~

~~Three 6 lb (2.7 kg) pickhead axes mounted in brackets fastened to the apparatus~~

~~Four pike poles mounted in brackets fastened to the apparatus~~

~~Two 3 ft to 4 ft (1 m to 1.2 m) plaster hooks with D handles mounted in brackets fastened to the apparatus~~

~~Two crowbars mounted in brackets fastened to the apparatus~~

~~Two claw tools mounted in brackets fastened to the apparatus~~

~~Two 12 lb (5 kg) sledgehammers mounted in brackets fastened to the apparatus~~

~~Four portable hand lights mounted in brackets fastened to the apparatus~~

~~One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus~~

~~One 2 ½ gal (9.5 L) or larger water extinguisher mounted in a bracket fastened to the apparatus~~

~~One SCBA complying with NFPA 1981 , *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services* , for each assigned seating position, but not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer~~

~~One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)~~

~~One first aid kit~~

~~Six salvage covers, each a minimum size of 12 ft × 18 ft (3.6 m × 5.5 m)~~

~~Four combination spanner wrenches mounted in brackets fastened to the apparatus~~

~~Two scoop shovels mounted in brackets fastened to the apparatus~~

~~One pair of bolt cutters, 24 in. (0.6 m) minimum, mounted in a bracket fastened to the apparatus~~

Four ladder belts meeting the requirements of NFPA 1983 , *Standard on Life Safety Rope and Equipment for Emergency Services*

One 150 ft (45 m) light use life safety rope meeting the requirements of NFPA 1983

One 150 ft (45 m) general use life safety rope meeting the requirements of NFPA 1983

Two 150 ft (45 m) utility ropes having a breaking strength of at least 5000 lb (2300 kg)

One box of tools to include the following:

- One hacksaw with three blades
- One keyhole saw
- One 12 in. (0.3 m) pipe wrench
- One 24 in. (0.6 m) pipe wrench
- One ballpeen hammer
- One pair of tin snips
- One pair of pliers
- One pair of lineman's pliers
- Assorted types and sizes of screwdrivers
- Assorted adjustable wrenches
- Assorted combination wrenches

Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests* , and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

One automatic external defibrillator (AED)

8.9.6

If the aerial fire apparatus is equipped with a fire pump, the requirements of 8.8.3.1 through 8.8.3.3 shall apply.

8.9.6.1

The following equipment shall be provided:

- One double female 2 ½ in. (65 mm) adapter with National Hose (NH) threads, mounted in a bracket fastened to the apparatus
- One double male 2 ½ in. (65 mm) adapter with NH threads, mounted in a bracket fastened to the apparatus

~~One rubber mallet, for use on suction hose connections, mounted in a bracket fastened to the apparatus~~

~~Two hydrant wrenches mounted in brackets fastened to the apparatus~~

~~8.9.6.2~~

~~If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.~~

~~8.9.6.3~~

~~If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6 .~~

~~8.9.6.4~~

~~If the apparatus does not have a 2 ½ in. intake with NH threads, an adapter from 2 ½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.~~

~~8.9.6.5~~

~~If the supply hose carried has other than 2 ½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2 ½ in. NH thread male discharge and to allow the hose to connect to a 2 ½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.~~

8.9.5*

If the aerial fire apparatus does not have a prepiped waterway provided, the following equipment shall be furnished:

(1) Manual ladder pipe with 1¼ in. (32 mm), 1⅜ in. (35 mm), and 1½ in. (38 mm) tips or electric ladder pipe with automatic nozzle that can be attached to the aerial ladder

(2) Sufficient length(s) of 3 in. (75 mm) or larger attack hose complying with the requirements of NFPA 1961~~, *Standard on Fire Hose* ~~ , to reach between the installed ladder pipe and the ground with at least 10 ft (3 m) of hose available on the ground with the ladder at full extension

(3) One hose strap for each ladder section

(4) Halyards to control the ladder pipe from ground level (for manual ladder pipe only)

8.9.5.1

A bracket for carrying the detachable ladder pipe shall be provided on the apparatus and shall be designed so that the ladder pipe clamps will not have to be readjusted to secure the pipe to the aerial ladder.

8.9.5.2

The horizontal traverse of the detachable ladder pipe shall not exceed the aerial ladder manufacturer's recommendations.

8.9.5.3

The ladder pipe shall be capable of swiveling 135 degrees from a line parallel to the ladder and down.

Supplemental Information

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Committee Statement

Committee Statement: Chapter 5 through Chapter 11 are being reorganized to align section numbers and subject matter. Additional changes to this Chapter are as follows: Existing 8.8.2 - This language is redundant, as section 8.8.1.1 already requires that equipment be mounted or stored in compartments. Existing 8.8.3 - This language is redundant, as section 8.8.1.1 already requires that equipment be mounted or stored in compartments. Reorganize chapter and correlate annex material accordingly.

Response Message:

Public Input No. 190-NFPA 1901-2013 [Section No. 8.8.2]
Public Input No. 197-NFPA 1901-2013 [Section No. 8.8.2]
Public Input No. 203-NFPA 1901-2013 [Section No. 8.8.3.1]
Public Input No. 215-NFPA 1901-2013 [Section No. 8.8.2]

A.8.8 The recommended minimum equipment listed in this standard (nozzles, hose, ladders, etc.) might not maximize a community's grading by the insurance rating authority. Individual fire departments should check with the insurance rating authority for their state or jurisdiction for information on what tools and equipment should be carried to maximize their community's grading.

First Revision No. 221-NFPA 1901-2013 [Chapter 9]

Chapter 9 Quint Fire Apparatus

9.1 General.

If the apparatus is to function as a quint, it shall meet the requirements of this chapter.

9.2 Fire Pump.

9.2.1

The apparatus shall be equipped with a fire pump that meets the requirements of Chapter 16 and has a minimum rated capacity of 1000 gpm (4000 L/min).

9.2.2

The fire pump shall be capable of supplying the flow requirements of 19.6.1 or 19.12.1 with a maximum intake gauge pressure of 20 psi (138 kPa).

9.2.3

Provisions shall be made to ensure that the pump operator is not in contact with the ground.

9.2.4

Signs shall be placed to warn the pump operator of electrocution hazards.

9.3 Aerial Device.

The apparatus shall be equipped with an aerial ladder or an elevating platform with a permanently installed waterway that meets the requirements of Chapter 19.

9.4 Foam Proportioning System.

If the apparatus is equipped with a foam proportioning system, it shall meet the requirements of Chapter 20 .

9.5 Water Tank.

The apparatus shall be equipped with a water tank(s) that meets the requirements of Chapter 18 and that has a minimum certified capacity (combined, if applicable) of 300 gal (1100 L).

9.6* Equipment Storage.

A minimum of 40 ft^3 (1.1 m^3) of enclosed weather-resistant compartmentation that meets the requirements of Section 15.1 shall be provided for the storage of equipment.

9.7* Hose Storage.

Hose bed area(s), compartments, or reels that comply with Section 15.10 shall be provided to accommodate the following:

(1) A minimum hose storage area of 30 ft^3 (0.8 m^3) for 2½ in. (65 mm) or larger fire hose

(2) Two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1½ in. (38 mm) or larger preconnected fire hose lines

9.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in 9.8.1 ~~9.8.1~~ ~~9.7.1~~ and 9.8.2 ~~9.8.2~~ ~~9.7.2~~ and shall provide and install such brackets or compartments as are necessary to mount the equipment.

9.8.1 Ground Ladders.

9.8.1.1

The quint shall carry a minimum of 85 ft (26 m) of fire department ground ladders to include at least one extension ladder, one straight ladder equipped with roof hooks, and one folding ladder.

9.8.1.2

All ground ladders carried on the apparatus shall meet the requirements of NFPA 1931~~, *Standard for Manufacturer's Design of Fire Department Ground Ladders*~~ , except as permitted by 9.8.1.3 ~~9.8.1.3~~ ~~9.7.1.3~~ and 9.8.1.4 ~~9.8.1.4~~ ~~9.7.1.4~~ .

9.8.1.3

Stepladders and other types of multipurpose ladders meeting ANSI A14.2, *Ladders — Portable Metal — Safety Requirements,* or ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements,* with duty ratings of Type 1A or 1AA shall be permitted to be substituted for the folding ladder required in 9.8.1.1 ~~9.8.1.1~~ ~~9.7.1.1~~ .

9.8.1.4

Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in 9.8.1.1 ~~9.8.1.1~~ ~~9.7.1.1~~ provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

9.8.2 Suction Hose or Supply Hose.

9.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

9.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

9.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c).

9.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

9.8.2.2

Suction hose and supply hose shall meet the requirements of NFPA 1961~~, *Standard on Fire Hose*~~ .

9.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

9.9* Minor Equipment.

9.9.1

The equipment listed in 9.9.3 ~~9.9.3~~ ~~9.8.2~~ and 9.9.4 ~~9.9.4~~ ~~9.8.3~~ shall be available on the quint fire apparatus before the apparatus is placed in service.

~~**9.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**9.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

9.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

9.9.3* Fire Hose and Nozzles.

The following fire hose and nozzles shall be carried on the apparatus:

(1) 800 ft (240 m) of 2½ in. (65 mm) or larger fire hose, in any combination

(2) 400 ft (120 m) of 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) fire hose, in any combination

(3) One handline nozzle, 200 gpm (750 L/min) minimum

(4) Two handline nozzles, 95 gpm (360 L/min) minimum

(5) One playpipe with shutoff and 1 in. (25 mm), 1⅛ in. (29 mm), and 1¼ in. (32 mm) tips

9.9.4* Miscellaneous Equipment.

The following additional equipment shall be carried on the apparatus:

(1) One 6 lb (2.7 kg) flathead axe ~~mounted in a bracket fastened to the apparatus~~

(2) One 6 lb (2.7 kg) pickhead axe ~~mounted in a bracket fastened to the apparatus~~

(3) One 6 ft (2 m) pike pole or plaster hook ~~mounted in a bracket fastened to the apparatus~~

(4) One 8 ft (2.4 m) or longer pike pole ~~mounted in a bracket fastened to the apparatus~~

(5) Two portable hand lights ~~mounted in brackets fastened to the apparatus~~

(6) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating ~~mounted in a bracket fastened to the apparatus~~

(7) One 2½ gal (9.5 L) or larger water extinguisher ~~mounted in a bracket fastened to the apparatus~~

(8) One SCBA complying with NFPA 1981~~, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*~~ , for each assigned seating position, but not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(9) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)

~~One spare SCBA cylinder for each SCBA carried~~

(10) One first aid kit

(11) Four combination spanner wrenches ~~mounted in brackets fastened to the apparatus~~

(12) Two hydrant wrenches ~~mounted in brackets fastened to the apparatus~~

(13) One double female 2½ in. (65 mm) adapter with National Hose (NH) threads~~, mounted in a bracket fastened to the apparatus~~

(14) One double male 2½ in. (65 mm) adapter with NH threads~~, mounted in a bracket fastened to the apparatus~~

(15) One rubber mallet, for use on suction hose connections~~, mounted in a bracket fastened to the apparatus~~

(16) Four salvage covers, each a minimum size of 12 ft × 14 ft (3.7 m × 4.3 m)

(17) Four ladder belts meeting the requirements of NFPA 1983~~, *Standard on Life Safety Rope and Equipment for Emergency Services*~~

(18) One 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983

(19) One 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983

(20) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(21) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(22) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(23) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(24) One automatic external defibrillator (AED)

9.9.4.1

If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.

9.9.4.2

If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

9.9.4.3 Reserved.

9.9.4.4

If the apparatus does not have a 2½ in. intake with NH threads, an adapter from 2½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

9.9.4.5

If the supply hose carried has other than 2½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2½ in. NH thread male discharge and to allow the hose to connect to a 2½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

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Response Message:

Public Input No. 19-NFPA 1901-2013 [Section No. 9.8.3 [Excluding any Sub-Sections]]
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Public Input No. 198-NFPA 1901-2013 [Section No. 9.8.3 [Excluding any Sub-Sections]]
Public Input No. 204-NFPA 1901-2013 [Section No. 9.8.3 [Excluding any Sub-Sections]]
Public Input No. 209-NFPA 1901-2013 [Section No. 9.8.3 [Excluding any Sub-Sections]]
Public Input No. 216-NFPA 1901-2013 [Section No. 9.8.3 [Excluding any Sub-Sections]]

First Revision No. 222-NFPA 1901-2013 [Chapter 10]

Chapter 10 Special Service Fire Apparatus

10.1 General.

If the apparatus is to function as a special service fire apparatus, it shall meet the requirements of this chapter.

10.2 Fire Pump.

If the apparatus is equipped with a fire pump, the pump shall meet the requirements of Chapter 16.

10.3 Reserved.

10.4 Reserved.

10.5 Reserved.

10.6* Equipment Storage.

A minimum of 120 ft^3 (3.4 m^3) of enclosed weather-resistant compartmentation meeting the requirements of Section 15.1 shall be provided for the storage of equipment.

10.7 Reserved.

10.8* Equipment Supplied by the Contractor.

If the apparatus is designed to carry ground ladders or has a pump, the contractor shall supply the equipment listed in 10.8.1 ~~10.8.1~~ ~~10.4.1~~ and 10.8.2 ~~10.8.2~~ ~~10.4.2~~ and shall provide and install such brackets or compartments as are necessary to mount the equipment.

10.8.1 Ground Ladders.

10.8.1.1

If fire department ground ladders are carried on the apparatus, they shall meet the requirements of NFPA 1931, ~~*Standard for Manufacturer's Design of Fire Department Ground Ladders*~~ , except as permitted by 10.8.1.2 ~~10.8.1.2~~ ~~10.4.1.2~~ .

10.8.1.2

Stepladders and other types of multipurpose ladders shall be permitted to be carried provided they meet either ANSI A14.2, *Ladders — Portable Metal — Safety Requirements,* or ANSI A14.5, *Ladders — Portable Reinforced Plastic — Safety Requirements,* with duty ratings of Type 1A or 1AA.

10.8.2 Suction Hose or Supply Hose.

If the special service fire apparatus is equipped with a pump, the requirements in 10.8.2.1 ~~10.8.2.1~~ ~~10.4.2.1~~ through 10.8.2.3 ~~10.8.2.3~~ ~~10.4.2.3~~ shall apply.

10.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

10.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

10.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c).

10.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

10.8.2.2

Suction and supply hose shall meet the requirements of NFPA 1961~~, *Standard on Fire Hose*~~ .

10.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

10.9* Minor Equipment.

10.9.1 General.

The equipment listed in 10.9.3 ~~10.9.3~~ ~~10.5.2~~ shall be available on the special service fire apparatus before the apparatus is placed in service.

~~**10.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**10.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

10.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

10.9.3*

The following equipment shall be carried on the apparatus:

(1) Two portable hand lights ~~mounted in brackets fastened to the apparatus~~

(2) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating ~~mounted in a bracket fastened to the apparatus~~

(3) One 2½ gal (9.5 L) or larger water extinguisher ~~mounted in a bracket fastened to the apparatus~~

(4) One SCBA complying with NFPA 1981~~, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*~~ , for each assigned seating position, but not fewer than two, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(5) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s)

(6) One first aid kit

(7) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(8) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(9) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(10) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(11) One automatic external defibrillator (AED)

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Response Message:

Public Input No. 192-NFPA 1901-2013 [Section No. 10.5.2]

First Revision No. 223-NFPA 1901-2013 [Chapter 11]

Chapter 11 Mobile Foam Fire Apparatus

11.1 General.

If the apparatus is to function as a mobile foam fire apparatus, it shall meet the requirements of this chapter.

11.2 Fire Pump.

The apparatus shall be equipped with a fire pump that has a minimum rated capacity of 750 gpm (3000 L/min) and meets the requirements of Chapter 16.

11.3 Aerial Device.

If the mobile foam fire apparatus is equipped with an aerial device, the requirements of 11.3.1 through 11.3.4 shall apply.

11.3.1

The aerial device shall meet the requirements of Chapter 19.

11.3.2

The aerial device shall be equipped with a permanently mounted waterway, and the fire pump shall be capable of supplying the flow requirements of 19.6.1, 19.12.1, or 19.16.1 with a maximum intake gauge pressure of 20 psi (138 kPa).

11.3.3

Provisions shall be made to ensure that the pump operator is not in contact with the ground.

11.3.4

Signs shall be placed to warn the pump operator of electrocution hazards.

11.4 Foam Proportioning System.

The apparatus shall be equipped with a foam proportioning system that meets the requirements of Chapter 20.

11.5 Foam Tank.

The mobile foam fire apparatus shall be equipped with a foam concentrate tank(s) that meets the requirements of Section 20.6 and that has a minimum certified capacity (combined, if applicable) of 500 gal (2000 L).

11.6* Equipment Storage.

A minimum of 40 ft^3 (1.13 m^3) of enclosed weather-resistant compartmentation that meets the requirements of Section 15.1 shall be provided for the storage of equipment.

11.7* Hose Storage.

Hose bed area(s), compartments, or reels that comply with Section 15.10 shall be provided to accommodate the following:

(1) A minimum hose storage area of 30 ft^3 (0.8 m^3) for 2½ in. (65 mm) or larger fire hose

(2) Two areas, each a minimum of 3.5 ft^3 (0.1 m^3), to accommodate 1½ in. (38 mm) or larger preconnected fire hose lines

11.8* Equipment Supplied by the Contractor.

The contractor shall supply the equipment listed in 11.8.2 ~~11.8.2~~ ~~11.8.1~~ and shall provide and install such brackets or compartments as are necessary to mount the equipment.

11.8.1 Reserved.

11.8.2 Suction Hose or Supply Hose.

11.8.2.1

A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

11.8.2.1.1

Where suction hose is provided, a suction strainer shall be furnished.

11.8.2.1.2

Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1(b) or Table 16.2.4.1(c).

11.8.2.1.3

Where supply hose is provided, it shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

11.8.2.2

Suction hose and supply hose shall meet the requirements of NFPA 1961, ~~*Standard on Fire Hose*~~ .

11.8.2.3*

The purchaser shall specify whether suction hose or supply hose is to be provided, the length and size of the hose, the type and size of the couplings, the manner in which the hose is to be carried on the apparatus, and the style of brackets desired.

11.9* Minor Equipment.

11.9.1 General.

The equipment listed in 11.9.3 ~~11.9.2~~ ~~11.9.3~~ and 11.9.4 ~~11.9.3~~ ~~11.9.4~~ shall be available on the mobile foam fire apparatus before the apparatus is placed in service.

~~**11.9.1.1**~~

~~Brackets or compartments shall be furnished so as to organize and mount the specified equipment.~~

~~**11.9.1.1**~~

~~A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.~~

11.9.2

A detailed list of who is to furnish the items and the method for organizing and mounting these items shall be supplied by the purchasing authority.

11.9.3* Fire Hose and Nozzles.

The following fire hose and nozzles shall be carried on the apparatus:

(1) 800 ft (240 m) of 2½ in. (65 mm) or larger fire hose, in any combination

(2) 400 ft (120 m) of 1½ in. (38 mm), 1¾ in. (45 mm), or 2 in. (52 mm) fire hose, in any combination

(3) Four foam or water handline nozzles, 200 gpm (750 L/min) minimum

(4) Two foam or water handline nozzles, 95 gpm (360 L/min) minimum

(5) One preconnected monitor, rated to discharge a minimum of 1000 gpm (4000 L/min), mounted on top of the fire apparatus with a spray or foam nozzle rated at a minimum of 1000 gpm (4000 L/min)

11.9.4* Miscellaneous Equipment.

The following additional equipment shall be carried on the apparatus:

(1) One 6 lb (2.7 kg) pickhead axe ~~mounted in a bracket fastened to the apparatus~~

(2) One 6 ft (2 m) pike pole or plaster hook ~~mounted in a bracket fastened to the apparatus~~

(3) Two portable hand lights ~~mounted in brackets fastened to the apparatus~~

(4) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating ~~mounted in a bracket fastened to the apparatus~~

(5) One SCBA complying with NFPA 1981~~,~~ ~~*Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*~~ ~~,~~ for each assigned seating position, but not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer

(6) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space

(7) One first aid kit

(8) Four combination spanner wrenches ~~mounted in brackets fastened to the apparatus~~

(9) Two hydrant wrenches ~~mounted in brackets fastened to the apparatus~~

(10) One double female 2½ in. (65 mm) adapter with National Hose (NH) threads~~,~~ ~~mounted in a bracket fastened to the apparatus~~

(11) One double male 2½ in. (65 mm) adapter with NH threads~~, mounted in a bracket fastened to the apparatus~~

(12) One rubber mallet, suitable for use on suction hose connections~~, mounted in a bracket fastened to the apparatus~~

(13) Two or more wheel chocks, mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released

(14) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High-Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front

(15) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band

(16) Five illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities

(17) One automatic external defibrillator (AED)

11.9.4.1

If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.

11.9.4.2

If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

11.9.4.3

If the mobile foam fire apparatus is equipped with an aerial device with a permanently mounted ladder, four ladder belts meeting the requirements of NFPA 1983~~,~~ ~~*Standard on Life Safety Rope and Equipment for Emergency Services*~~ ~~,~~ shall be provided.

11.9.4.4

If the apparatus does not have a 2½ in. intake with NH threads, an adapter from 2½ in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

11.9.4.5

If the supply hose carried has other than 2½ in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2½ in. NH thread male discharge and to allow the hose to connect to a 2½ in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

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Public Input No. 205-NFPA 1901-2013 [Section No. 11.9.3 [Excluding any Sub-Sections]]
Public Input No. 210-NFPA 1901-2013 [Section No. 11.9.3 [Excluding any Sub-Sections]]
Public Input No. 217-NFPA 1901-2013 [Section No. 11.9.3 [Excluding any Sub-Sections]]

First Revision No. 191-NFPA 1901-2013 [Section No. 12.1.2]

12.1.2

The estimated in-service weight shall include the following:

(1) The chassis, body, and tank(s)

(2) Full fuel, lubricant, and other chassis or component fluid tanks or reservoirs

(3) Full water and other agent tanks

(4)* 250 lb (114 kg) in each seating position

(5)* Fixed equipment such as pumps, aerial devices, generators, reels, and air systems as installed

(6) Ground ladders, suction hose, designed hose load in their hose beds and on their reels

(7) An allowance for miscellaneous equipment that is the greatest of the ~~values shown in~~ Table 12.1.2 ~~, a purchaser-provided list of equipment to be carried with weights, or a purchaser-specified miscellaneous equipment allowance~~ the following:

(a) The values shown in Table 12.1.2

(b) A purchaser-provided list of equipment to be carried with weights

(c) A purchaser-specified miscellaneous equipment allowance

Table 12.1.2 Miscellaneous Equipment Allowance

		Equipment Allowance	
Apparatus Type	**Apparatus Size**	**lb**	**kg**
Pumper fire apparatus	Less than 250 ft^3 (7 m^3) compartment space*	2,000	910
	250 ft^3 (7 m^3) or more of compartment space*	2,500	1,135
Initial attack fire apparatus	10,000 lb to 15,000 lb (4,500 kg to 7,000 kg) GVWR	900	410
	15,001 lb to 20,000 lb (7,001 kg to 9,000 kg) GVWR	1,500	680
	20,001 lb (9,000 kg) and up GVWR	2,000	910
Mobile water supply fire apparatus	All	1,000	455
Aerial fire apparatus	All	2,500	1,135
Quint fire apparatus	All	2,500	1,135
Special service fire apparatus	10,000 lb to 15,000 lb (4,500 kg to 7,000 kg) GVWR	2,000	910
	15,001 lb to 20,000 lb (7,001 kg to 9,000 kg) GVWR	2,500	1,135
	20,001 lb to 30,000 lb (9,001 kg to 14,000 kg) GVWR	3,000	1,350
	30,001 lb to 40,000 lb (14,001 kg to 18,000 kg) GVWR	4,000	1,800
	40,001 lb to 50,000 lb (18,001 kg to 23,000 kg) GVWR	6,000	2,700
	50,001 lb to 60,000 lb (23,001 kg to 27,000 kg) GVWR	8,000	3,600
	60,001 lb (27,001 kg) and up GVWR	10,000	4,500
Mobile foam fire apparatus	All	2,000	910

*Compartment space for pumpers is calculated based on the inside dimensions of the enclosed compartment.

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Committee Statement

Committee Statement: If the manufacturer installs this equipment then 12.1.2(5) defines that it is included in the weight calculation for the apparatus outside of the miscellaneous equipment allowance. If it will be installed later, it also should be included in the manufacturer's weight calculation but outside of the miscellaneous equipment allowance which is intended for removable equipment on the apparatus or in compartments. In order to do this, the purchaser must inform the manufacturer of the plans to install fixed equipment after the manufacturer delivers the apparatus. Add new annex material A.12.1.2(5)

Response Message:

Public Input No. 343-NFPA 1901-2013 [Section No. 12.1.2]

A.12.1.2(5) If the purchaser or dealer will be installing generators, reels, air systems, or other fixed equipment, the purchaser should notify the manufacturer, and allowance for this weight should be provided by the manufacturer in addition to the miscellaneous equipment allowance.

First Revision No. 196-NFPA 1901-2013 [Section No. 12.1.4]

12.1.4*
A final manufacturer's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.

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Committee Statement: Annex material added to clarify requirement and be consistent with NFPA 1906. Add new annex material A.12.1.4
Response Message:

A.12.1.4 ~~A motor vehicle sold in the United States requires the affixing of a certification label or tag by the final-stage manufacturer of the motor vehicle~~Final-stage manufacturers of motor vehicles are required to affix certification labels or tags to all motor vehicles sold in the United States, stating that the vehicle meets all applicable Federal Motor Vehicle Safety Standards (49 CFR 571) and Federal Theft Prevention Standards (49 CFR 541). The location for affixing the certification label on the motor vehicle is a requirement of the federal standard requiring this label. See 49 CFR 567, "Certification," for more information.

First Revision No. 37-NFPA 1901-2013 [Section No. 12.1.5.1]

12.1.5.1*
The label shall show the unladen height of the completed unequipped fire apparatus in feet and inches ~~or in~~ (meters) , the length of the completed fire apparatus in feet and inches ~~or in~~ (meters) , and the GVWR in tons ~~or~~ (metric tons) .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:22:13 EDT 2013

Committee Statement

Committee Statement: Due to variation in suspension height related to vehicle weight the operating condition at which the height is measured should be specified.

Response Message:

Public Input No. 328-NFPA 1901-2013 [Section No. 12.1.5.1]

First Revision No. 192-NFPA 1901-2013 [Section No. 12.2.2.2.2]

12.2.2.2.2*
Drain valves shall be designed or positioned such that they will not open accidentally ~~due to vibration~~ .

Supplemental Information

File Name	Description
A.12.2.2.2.2_FR_192_1901.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:27:42 EDT 2013

Committee Statement

Committee Statement: This language encompasses all causes of accidental openings. Add new annex material A.12.2.2.2.2
Response Message:

Public Input No. 147-NFPA 1901-2013 [Section No. 12.2.2.2.2]

A.12.2.2.2.2 It is important to have drain valves on the coolant systems of the apparatus for routine maintenance and repairs. The drain valve(s) should be located at low points in the system for complete drainage of the coolant. The design of the valve should be such that the valve will not inadvertently open from vehicle or engine vibration. It is also critical, especially on wild-land vehicles or other vehicles subject to go off-road, that the drain valves are located out of the angle of approach or angle of departure or other areas where the valve could be subjected to damage. Accidental opening of or damage to the coolant drain valve could allow sudden loss of the engine coolant, causing severe or catastrophic damage to the engine.

First Revision No. 38-NFPA 1901-2013 [Section No. 12.2.2.4]

~~12.2.2.4~~
~~Radiator cores shall be compatible with commercial antifreeze solutions.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:25:20 EDT 2013

Committee Statement

Committee Statement: There is no need for this paragraph. The chassis engine will obviously have a radiator and therefore the need for antifreeze.
Response Message:
Public Input No. 354-NFPA 1901-2013 [Section No. 12.2.2.4]

First Revision No. 149-NFPA 1901-2013 [Section No. 12.3.1.4]

12.3.1.4* Auxiliary Brake.

~~All apparatus with a GVWR of 36,000 lb (16,330 kg) or greater shall be equipped with an auxiliary braking system.~~

12.3.1.4.1

All apparatus with a GVWR of 36,000 lb (16,330 kg) or greater shall be equipped with an auxiliary braking system.

12.3.1.4.2

Auxiliary brakes shall have a switch to turn them off during adverse road conditions.

12.3.1.4.3

The DOT brake lights shall illuminate when the auxiliary brake is applied.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 10:38:52 EDT 2013

Committee Statement

Committee Statement: This change improves the organization of the brake section and improves safety by mandating that the brake lights illuminate when the auxiliary brake is applied.

Response Message:

Public Input No. 230-NFPA 1901-2013 [New Section after 4.17.7]

First Revision No. 193-NFPA 1901-2013 [Section No. 12.3.2.2]

12.3.2.2
Axle housings and any components other than wheels, ~~and~~ tires, automatic tire chains, and items designed to swing clear shall clear the road surface by at least 8 in. (203 mm).

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:35:03 EDT 2013

Committee Statement

Committee Statement: When automatic tire chains are installed per manufacturer's recommendations for proper angle and contact with the tires, the assembly protrudes below the minimum 8 in. clearance

Response Message:

Public Input No. 13-NFPA 1901-2013 [Section No. 12.3.2.2]
Public Input No. 231-NFPA 1901-2013 [Section No. 12.3.2.2]
Public Input No. 320-NFPA 1901-2013 [Section No. 12.3.2.2]

First Revision No. 195-NFPA 1901-2013 [New Section after 12.3.3.2]

12.3.3.3*
Apparatus with a front drive axle (4 × 4 or 6 × 6 configuration) shall include a visual indicator that is illuminated whenever the front drive axle is engaged.

Supplemental Information

File Name	Description
A.12.3.3.3.docx	

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:40:55 EDT 2013

Committee Statement

Committee Statement: Vehicles with front drive axles should have a visual indicator. Add new section and new annex material A.12.3.3.3
Response Message:
Public Input No. 148-NFPA 1901-2013 [New Section after 12.3.3.2]

A.12.3.3.3 The purchaser can consider adding a device that will shift the transfer case from all-wheel drive back to standard 4 × 2 or 6 × 4 drive when the vehicle speed exceeds the manufacturer's recommended maximum speed for all-wheel drive operations.

First Revision No. 39-NFPA 1901-2013 [Section No. 12.3.6.1]

12.3.6.1
For hydraulic brake–equipped, ~~or~~ electric brake–equipped, or non-brake-equipped trailer towing capability, a primary electrical receptacle shall be provided near the hitch point and shall match the umbilical cable specified in 26.10.4.5.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:32:37 EDT 2013

Committee Statement

Committee Statement: Small trailers (under 3000 pounds) typically do not have brakes.
Response Message:
Public Input No. 114-NFPA 1901-2013 [Section No. 12.3.6.1]

First Revision No. 45-NFPA 1901-2013 [Section No. 13.2.1.3]

13.2.1.3

All circuits shall otherwise be wired in conformance with SAE ~~J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring.*~~ J2202, *Heavy-Duty Wiring Systems for On-Highway Trucks* , or for trailer wiring, SAE J2174, *Heavy-Duty Wiring Systems for Trailers 2032 mm or More in Width* .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:08:39 EDT 2013

Committee Statement

Committee Statement: Per the SAE web site: SAE J1292 was "revised to remove the references made to Truck, Truck Tractor and Trailer per the agreement between the SAE Truck and Bus Electrical Systems Subcommittee and the SAE Electrical Distribution System Standards Committee. The Truck and Bus committee has replaced the referenced documents with newer SAE documents. The documents that supersede SAE J1292 are SAE 2174 'Heavy Duty Wiring Systems for Trailers more than 2032 MM or More in Width' and SAE J2202 'Heavy Duty Wiring Systems For On Highway Trucks.'"

Response Message:

Public Input No. 22-NFPA 1901-2013 [Section No. 13.2.1.3]

First Revision No. 208-NFPA 1901-2013 [Section No. 13.2.4.2]

13.2.4.2*
All ungrounded electrical terminals shall have protective covers ~~or be in enclosures~~ , enclosures, or a means to protect from accidental shorting .

Supplemental Information

File Name	Description
A.13.2.4.2_FR_208_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:28:37 EDT 2013

Committee Statement

Committee Statement: Editorial changes and new annex material to clarify section requirements. Add new annex material A.13.2.4.2
Response Message:
Public Input No. 322-NFPA 1901-2013 [Section No. 13.2.4.2]

A.13.2.4.2 If the terminals are ~~only~~ accessed only during normal maintenance operations, ~~then~~ they are considered protected.

Good engineering practices should be followed to ensure that electrical connections and components are protected from physical and environmental damage.

First Revision No. 204-NFPA 1901-2013 [Section No. 13.4.6 [Excluding any Sub-Sections]]

~~A~~ One of the following master ~~load~~ disconnect ~~switch~~ switches shall be provided: ~~between the starter solenoid(s) and the remainder of the electrical loads on the apparatus.~~

(1) A master body disconnect switch that disconnects all electrical loads not provided by the chassis manufacturer

(2) A master load disconnect switch that disconnects all electrical loads on the apparatus except the starter

Supplemental Information

File Name	Description
A.13.4.6_FR_204_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:12:27 EDT 2013

Committee Statement

Committee Statement: This language utilizes consistent terminology and provides disconnect options to the user. New annex material included as the purchaser may want to consider this light to alert firefighters that the body disconnect was left on. Add new annex material A.13.4.6

Response Message:

A.13.4.6 The purchaser might want to consider a second pilot light on the outside of the apparatus to warn that the master disconnect is on when the apparatus is parked in the fire station.

First Revision No. 205-NFPA 1901-2013 [Section No. 13.4.6.3]

13.4.6.3
The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master ~~load~~ disconnect switch.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:18:07 EDT 2013

Committee Statement

Committee Statement: This is an editorial change to keep language consistent.
Response Message:

First Revision No. 207-NFPA 1901-2013 [New Section after 13.4.6.4]

13.4.6.5
Rechargeable handlights, radios, and other similar devices shall be permitted to be connected to the electrical system ahead of the master load disconnect switch.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:26:02 EDT 2013

Committee Statement

Committee Statement: These devices violate 13.4.6 but must be connected this way, so the exception is needed.

Response Message:

Public Input No. 115-NFPA 1901-2013 [New Section after 13.4.7]
Public Input No. 149-NFPA 1901-2013 [New Section after 13.4.7]

First Revision No. 46-NFPA 1901-2013 [Section No. 13.5.2]

13.5.2

~~Where~~ 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*.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:10:54 EDT 2013

Committee Statement

Committee Statement: Better word. The section applies to a particular condition (when) not a particular configuration (where).

Response Message:

Public Input No. 45-NFPA 1901-2013 [Section No. 13.5.2]

First Revision No. 47-NFPA 1901-2013 [Sections 13.8.7.1, 13.8.7.2]

13.8.7.1
When the master optical warning system switch is ~~closed~~ on and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized.

13.8.7.2
When the master optical warning system switch is ~~closed~~ on and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:11:44 EDT 2013

Committee Statement

Committee Statement: The word "closed" assumes a specific technology (hard wired switch). The control can be through a touch screen or other technology. The importance here is that the control function is on, not the specific technology used to control the function. This change was already made in NFPA 1906-2012.

Response Message:

Public Input No. 46-NFPA 1901-2013 [Sections 13.8.7.1, 13.8.7.2]

First Revision No. 48-NFPA 1901-2013 [New Section after 13.8.13.3.3]

13.8.13.3.4*
It shall be permitted for red zone C lower flashing lights to switch to steady-on lights when the service brakes are applied and the optical warning light system is on in the “Clearing Right-of-Way” mode.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:18:01 EDT 2013

Committee Statement

Committee Statement: For a vehicle following a fire truck (usually too close), the information problem is not typically knowing that the vehicle in front is a fire truck, but that it is slowing down. This is a frequent problem and results in near misses and probably contributes to some of the 15,000 fire truck accidents per year as well. With rear lower lights flashing directly towards the driver, it is easy for the following driver to not notice that an additional light has flashed on signifying that the fire truck has applied its brakes. Having the lights go steady on would increase the impression of lights brightening, much like stop/tail combined lights brightening when the brake lights come on. Since these would be emergency warning lights, not brake lights, and would not substitute for brake lights, the NHTSA brake light requirements would not apply. We already allow steady burning lights; we just don’t count them in the candela seconds/minute measurements. The NHTSA was consulted and the Chief Counsel provided a letter that this option would not be a violation of FMVSS 108. I will be sending this letter to the NFPA. All this change does is allow (but not require) a change to the requirements for zone C lower optical power only while applying brakes while in the “Clearing Right-Of-Way” mode. This mode of operation is already being used on emergency vehicles, with some manufacturers offering it as a standard option.

Response Message:

Public Input No. 47-NFPA 1901-2013 [New Section after 13.8.13.3.3]

First Revision No. 49-NFPA 1901-2013 [New Section after 13.8.14.3.3]

13.8.14.3.4*
It shall be permitted for red zone C lower flashing lights to switch to steady-on lights when the service brakes are applied and the optical warning light system is on in the “Clearing Right-of-Way” mode.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:18:25 EDT 2013

Committee Statement

Committee Statement: For a vehicle following a fire truck (usually too close), the information problem is not typically knowing that the vehicle in front is a fire truck, but that it is slowing down. This is a frequent problem and results in near misses and probably contributes to some of the 15,000 fire truck accidents per year as well. With rear lower lights flashing directly towards the driver, it is easy for the following driver to not notice that an additional light has flashed on signifying that the fire truck has applied its brakes. Having the lights go steady on would increase the impression of lights brightening, much like stop/tail combined lights brightening when the brake lights come on. Since these would be emergency warning lights, not brake lights, and would not substitute for brake lights, the NHTSA brake light requirements would not apply. We already allow steady burning lights; we just don’t count them in the candela seconds/minute measurements. The NHTSA was consulted and the Chief Counsel provided a letter that this option would not be a violation of FMVSS 108. I will be sending this letter to the NFPA. All this change does is allow (but not require) a change to the requirements for zone C lower optical power only while applying brakes while in the “Clearing Right-Of-Way” mode. This mode of operation is already being used on emergency vehicles, with some manufacturers offering it as a standard option.

Response Message:

Public Input No. 48-NFPA 1901-2013 [New Section after 13.8.14.3.3]

First Revision No. 50-NFPA 1901-2013 [Section No. 13.8.15.1.1]

13.8.15.1.1

All optical warning devices shall be tested to the requirements of SAE J595, *Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles*; SAE J845, *Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles*; ~~SAE J1318, *Gaseous Discharge Warning Lamp for Authorized Emergency, Maintenance, and Service Vehicles* ;~~ or SAE J1889, *L.E.D. Signal and Marking Lighting Devices*.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:18:54 EDT 2013

Committee Statement

Committee Statement: SAE J1318 was canceled January 2009. The applicable tests are in SAE J845 and SAE J545. Also, Strobes are almost non-existent in the fire truck market.

Response Message:

Public Input No. 24-NFPA 1901-2013 [Section No. 13.8.15.1.1]

First Revision No. 209-NFPA 1901-2013 [Section No. 13.10.1.1]

13.10.1.1* Rear Work Area.

~~The work area immediately behind the vehicle shall be illuminated to a level of at least 3 fc (30 lx) within a 10 ft × 10 ft (3 m × 3 m) square to the rear of the vehicle.~~

13.10.1.1.1

The work area immediately behind the vehicle shall be illuminated to an average level of at least 3 fc (30 lx), measured at 25 equally spaced points on a 2.5 ft (762 mm) grid within a 10 ft × 10 ft (3 m × 3 m) square to the rear of the vehicle.

13.10.1.1.2

At least 80 percent of the 25 measurements shall meet or exceed 3 fc (30 lx).

13.10.1.1.3

If the apparatus includes an aerial platform stowed over the rear work area, the measurements shall be made with the aerial raised.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:35:21 EDT 2013

Committee Statement

Committee Statement: The intent of this standard is to provide adequate illumination around the vehicle so that firefighters can see the terrain while they are working around the vehicle. Using even a large number of lights the specified area will not be illuminated uniformly such that every point across the surface will meet or exceed the specification. Results can also vary depending on the color and texture of the surface behind the truck. Given the fact that each vehicle has a finite amount of electrical capacity, it is necessary to balance the load with the need. The best way to do this is to establish a repeatable standard that ensures the intent of the standard is met using a reasonable amount of electrical draw while clarifying if the minimal level is to be an average or at 100% coverage.

Response Message:

Public Input No. 277-NFPA 1901-2013 [Section No. 13.10.1.1]

First Revision No. 210-NFPA 1901-2013 [Section No. 13.10.2.1]

13.10.2.1
If a hose bed is provided, lighting on the hose bed floor shall be at ~~a~~ an average level of 3 fc (30 lx) or higher measured at 30 in. equally spaced intervals along the center of the hose bed floor .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:38:01 EDT 2013

Committee Statement

Committee Statement: The intent of the standard is to provide lighting for personnel unloading or packing hose in the hose bed. Each department requests varying configurations of shoe bed dividers and many are adjustable and/or removeable. It would be impractical to provide lighting what would illuminate every corner of the hose bed with dividers installed. Given the fact that each vehicle has a finite amount of electrical capacity, it is necessary to balance the load with the need. The best way to do this is to establish a repeatable standard that ensures the intent of the standard is met using a reasonable amount of electrical draw.

Response Message:

Public Input No. 280-NFPA 1901-2013 [Section No. 13.10.2.1]

First Revision No. 211-NFPA 1901-2013 [Section No. 13.10.3]

13.10.3* Surface Lighting.
The apparatus shall have sufficient lighting to provide a minimum level of 2 fc (20 lx) on all work surfaces, steps, and walkways.

Supplemental Information

File Name	Description
A.13.10.3_FR_211_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:40:38 EDT 2013

Committee Statement

Committee Statement: This new annex material clarifies that backlighting can create shadow areas and glare to the user in low ambient light conditions. Recent apparatus construction has included backlighting of open step. Add new annex material A.13.10.3

Response Message:

Public Input No. 426-NFPA 1901-2013 [New Section after A.13.10.1.1]
Public Input No. 427-NFPA 1901-2013 [New Section after 13.10.3]

A.13.10.3 Lighting should be directed at working surfaces, steps, and walkways. Backlighting can create shadow areas and glare to the user in low ambient light conditions and does not meet the requirement of the standard.

First Revision No. 51-NFPA 1901-2013 [Section No. 13.10.4]

13.10.4* Interior Lighting.
The apparatus shall have sufficient lighting to provide an average level of 2 fc (20 lx) at each seating surface ~~in the~~ when measured at the center and at each corner of the seat cushion in the driving and crew compartments.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:33:06 EDT 2013

Committee Statement

Committee Statement: The intent of this standard is to provide adequate illumination Using even a large number of lights the specified area may not illuminate uniformly such that every point across the surface will meet or exceed the specification. Results can also vary depending on the color and texture of the surface behind the truck. Given the fact that each vehicle has a finite amount of electrical capacity, it is necessary to balance the load with the need. The best way to do this is to establish a repeatable standard that ensures the intent of the standard is met using a reasonable amount of electrical draw.

Response Message:

Public Input No. 282-NFPA 1901-2013 [Section No. 13.10.4]

First Revision No. 52-NFPA 1901-2013 [Section No. 13.11.1]

13.11.1
A red flashing or rotating light, located in the driving compartment, shall be illuminated automatically whenever the apparatus's parking brake is not fully engaged and any of the following conditions exist:

(1) Any driver, passenger, or equipment compartment door is not closed.

(2) Any ladder or equipment rack is not in the stowed position.

(3) Stabilizer system is not in its stowed position.

(4) Powered light tower is not stowed.

(5) Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

Supplemental Information

File Name	Description
13.11.1_FR_52_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:34:34 EDT 2013

Committee Statement

Committee Statement: The driver door should be connected to this system as well. The door could be ajar and the driver would not be aware of this condition. Most vehicles that have open door indicators already include this door.

Response Message:

Public Input No. 49-NFPA 1901-2013 [Section No. 13.11.1]

First Revision No. 53-NFPA 1901-2013 [Section No. 13.14.1]

13.14.1*

The fire apparatus low voltage electrical system shall be tested as required by ~~this section,~~ Section 13.14 and its subsections. ~~the test results shall be certified by the apparatus manufacturer, and the certified test results shall be delivered with the fire apparatus.~~

13.14.1.1

The test results shall be certified by the apparatus manufacturer.

13.14.1.2

The certification shall be delivered with the apparatus.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:35:08 EDT 2013

Committee Statement

Committee Statement: "This section" is 13.14.1. All of 13.14 applies Break up requirements per Manual of Style. Consistent with NFPA 1906-2012. TerraView legislative formatting is incorrect.

Response Message:

Public Input No. 116-NFPA 1901-2013 [Section No. 13.14.1]

First Revision No. 212-NFPA 1901-2013 [Section No. 13.14.3.4]

13.14.3.4* Alternator Performance Test at Full Load.

13.14.3.4.1

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

13.14.3.4.2

The test duration shall be a minimum of 2 hours.

13.14.3.4.3

Activation of the load management system shall be permitted during this test.

13.14.3.4.4

An alarm sounded by excessive battery discharge, as detected by the warning system required in 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system, 23.6 V dc for a 24 V nominal system, or 35.4 V dc for a 42 V nominal system for more than 120 seconds shall be considered a test failure.

Supplemental Information

File Name	Description
A.13.14.3.4_FR_212_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:45:55 EDT 2013

Committee Statement

Committee Statement: This new annex material clarifies that part or all of the test can be run concurrently with the pump test. Add new annex material A.13.14.3.4

Response Message:

Public Input No. 420-NFPA 1901-2013 [New Section after 13.14.3.4.2]

A.13.14.3.4 This test can be run concurrently with the pump test.

First Revision No. 178-NFPA 1901-2013 [Section No. 14.1.3.1]

~~**14.1.3.1**~~

~~Seat belt assemblies shall conform to the Federal Motor Vehicle Safety Standard (FMVSS) No. 209, "Seat belt assemblies."~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:36:27 EDT 2013

Committee Statement

Committee Statement: This removed redundant language as FMVSS is already required by law and referenced within chapter 2. Delete and renumber accordingly.
Response Message:

First Revision No. 116-NFPA 1901-2013 [Sections 14.1.3.2, 14.1.3.3]

14.1.3.1*

The effective seat belt web length for a Type 1 lap belt for pelvic restraint shall be a minimum of 60 in. (1525 mm) with the seat adjusted all the way back and down when measured using the following procedure:

(1) Locate an imaginary line where the plane of the center of the seat back surface intersects the plane of the center of the seat cushion surface (line 1 in Figure 14.1.3.1 ~~Figure 14.1.3.1~~Figure 14.1.3.1 ~~Figure 14.1.3.2~~). For seats with an SCBA seat back, use a plane that simulates the position of an SCBA back pad installed in the SCBA holder.

(2) Locate point A on line 1 at the outside of the seat on the retractor side of the seat.

(3) Locate point C on line 1 at the outside of the seat on the ~~receiver~~ buckle side of the seat.

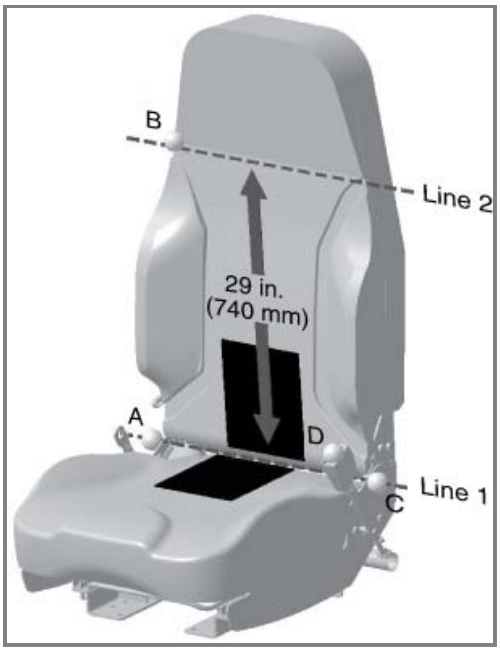
(4) Locate point D at the tip of the ~~receiver~~ buckle .

(5) Pull the seat belt webbing entirely out of the retractor and measure along the webbing between point A and the ~~male~~ seat belt ~~buckle~~ latch plate (tongue) . Record this length as AD.

(6) Measure from point C to point D and record this length as CD.

(7) The effective seat belt web length equals AD + CD.

Figure 14.1.3.1 Dimension Lines for Measuring Seat Belt Effective Length.



14.1.3.2*

~~The effective seat belt web length for a Type 2 pelvic and upper torso restraint-style seat belt assembly shall be a minimum of 110 in. (2800 mm) with the seat adjusted all the way back and down when measured using the following procedure:~~ A Type 2 seat belt shall have either a single retractor or dual retractors. A single retractor, Type 2 pelvic and upper torso restraint-style seat belt assembly shall have a minimum effective seat belt web length of 110 in. (2800 mm) with the seat adjusted all the way back and down and when measured in accordance with 14.1.3.2.1 . A dual retractor Type 2 pelvic and upper torso restraint-style seat belt assembly shall have a minimum effective shoulder belt web length of 50 in. (1270 mm) and a minimum effective lap belt web length of 60 in. (1530 mm) with the seat all the way back and down and as measured in 14.1.3.2.2 .

~~Locate an imaginary line where the plane of the center of the seat back surface intersects the plane of the center of the seat cushion surface (line 1 in Figure 14.1.3.2). For seats with an SCBA seat back, use a plane that simulates the position of an SCBA back pad installed in the SCBA holder.~~

~~Locate an imaginary line parallel with line 1 and lying on the center of the seat back surface 29 in. (740 mm) from line 1 (line 2 in Figure 14.1.3.2).~~

~~Locate point A on line 1 at the outside of the seat on the retractor side of the seat.~~

~~Locate point B on line 2 at the shoulder strap edge of the seat back.~~

~~Locate point C on line 1 at the outside of the seat on the receiver side of the seat.~~

~~Locate point D at the tip of the receiver.~~

~~Pull the seat belt webbing entirely out of the retractor and measure along the webbing between points A and B. Record this length as AB.~~

~~Measure from point C to point D and record this length as CD.~~

~~The effective seat belt web length equals AB + 2CD.~~

14.1.3.2.1

Effective seat belt web length for a single retractor Type 2 seat belt shall be measured according to the following procedure:

(1) Locate an imaginary line where the plane of the center of the seat back surface intersects the plane of the center of the seat cushion surface (line 1 in Figure 14.1.3.1). For seats with an SCBA seat back, use a plane that simulates the position of an SCBA back pad installed in the SCBA holder.

(2) Locate an imaginary line parallel with line 1 and lying on the center of the seat back surface 29 in. (740 mm) from line 1 (line 2 in Figure 14.1.3.1).

(3) Locate point A on line 1 at the outside of the seat on the retractor side of the seat.

(4) Locate point B on line 2 at the shoulder strap edge of the seat back.

(5) Locate point C on line 1 at the outside of the seat on the buckle side of the seat.

(6) Locate point D at the tip of the buckle.

(7) Pull the seat belt webbing entirely out of the retractor and measure along the webbing between points A and B. Record this length as AB.

(8) Measure from point C to Point D and record this length as CD.

(9) The effective lap belt web length equals AB + 2CD.

14.1.3.2.2

Effective seat belt web length for a dual retractor Type 2 seat belt shall be measured according to the following procedure:

(1) Locate an imaginary line where the plane of the center of the seat back surface intersects the plane of the center of the seat cushion surface (line 1 in Figure 14.1.3.1). For seats with an SCBA seat back, use a plane that simulates the position of an SCBA back pad installed in the SCBA holder.

(2) Locate point A on line 1 at the outside of the seat on the retractor side of the seat.

(3) Locate point C on line 1 at the outside of the seat on the buckle side of the seat.

(4) Locate point D at the tip of the buckle.

(5) Pull the lap belt webbing entirely out of the lap belt retractor and measure along the webbing between point A and the seat belt latch plate (tongue). Record this length as AD.

(6) Locate an imaginary line parallel with line 1 and lying on the center of the seat back surface 29 in. (740 mm) from line 1 (line 2 in Figure 14.1.3.1).

(7) Locate point B on line 2 at the shoulder strap edge of the seat back.

(8) Pull the shoulder belt webbing entirely out of the shoulder belt retractor and measure along the webbing between point B and the seat belt latch plate (tongue). Record this length as BD.

(9) Measure from point C to Point D and record this length as CD.

(10) The effective lap belt web length equals AD + CD.

(11) The effective shoulder belt web length equals BD + CD.

14.1.3.2.3

The distance from the buckle anchorage to point D in Figure 14.1.3.1 (buckle tip) shall be no more than 2 in. (51 mm) longer than the distance from the buckle anchorage to the seating reference point (H-Point) of the seat when the seat is adjusted to its lowest and most rearward position.

14.1.3.2.4

Alternatively, for ease of measurement, the distance CD in Figure 14.1.3.1 shall be no longer than 8 in. (203 mm) with the seat adjusted to its lowest and most rearward position.

Submitter Information Verification

Submitter Full Name: Ryan Depew
Organization: National Fire Protection Assoc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 18 13:53:41 EDT 2013

Committee Statement

Committee Statement:	This change allows the manufacturer to properly measure the belt length on a dual retractor restraint. The current standard is ambiguous as it was written before dual retractors were common in the fire service. It also provides a maximum buckle stalk length to ensure that the buckle does not end up over the occupants belly, nor will it create a “tenting” action that can keep the web from being snug against the torso as it should.
Response Message:	

First Revision No. 179-NFPA 1901-2013 [Section No. 14.1.3.4]

14.1.3.3
The seat belt webbing shall be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semirigid stalk such that the buckle remains positioned in an accessible location.

Supplemental Information

File Name	Description
A.14.1.3.5_FR_179_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:44:31 EDT 2013

Committee Statement

Committee Statement: Dodge and Ford do not offer red or bright orange seat belts in some or all of their commercial truck cabs with a GVWR of less than 19,500 lbs (8,845 kg). Aftermarket belts may not meet FMVSS requirements and could be a liability risk if not properly installed. Also, there are limitations on what a body builder can legally do to modify an incomplete vehicle (chassis cab) and retain FMVSS compliance. The annex wording provides a method to add color compliant seat belts when they are commercially available. Add new section 14.1.3.5 and new annex material A.14.1.3.5 and renumber accordingly.

Response Message:

Public Input No. 397-NFPA 1901-2013 [Section No. 14.1.3.4]
Public Input No. 446-NFPA 1901-2013 [Section No. 14.1.3.4]

A.14.1.3.5 Some models of commercial vehicles with a GVWR of 19,500 lb~~s~~ (8,845 kg~~-~~) or less do not have bright red or bright orange seat belts available. However, if seat belts meeting these requirements are commercially available on the required cab model, purchasers should consider specifying the bright red or bright orange color. Alternatively, a patch or slip~~-~~cover might~~may~~ be available to make the seat belts more visible.

First Revision No. 180-NFPA 1901-2013 [Section No. 14.1.3.6]

~~14.1.3.7~~

~~All seat belt assembly anchorages shall conform to the Federal Motor Vehicle Safety Standard (FMVSS) No. 210, "Seat belt assembly anchorages."~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:50:57 EDT 2013

Committee Statement

Committee Statement: This removes redundant language as FMVSS is already required by US federal law and in the required references within Chapter 2.

Response Message:

Public Input No. 329-NFPA 1901-2013 [Section No. 14.1.3.6]

First Revision No. 100-NFPA 1901-2013 [Section No. 14.1.3.8]

14.1.3.7

~~Signs that read "Occupants Must be Seated and Belted When Apparatus Is in Motion" shall be visible from each seated position~~ Safety signs warning of the importance of seat belt use substantially similar to FAMA07 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible from each seat that is intended to be occupied while the vehicle is in motion .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:49:33 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 407-NFPA 1901-2013 [Section No. 14.1.3.8]

First Revision No. 99-NFPA 1901-2013 [Section No. 14.1.3.9]

14.1.3.8

~~Each seating position that is not intended to be used during transit shall be individually labeled as follows:~~

~~**WARNING:** THIS SEAT IS NOT TO BE OCCUPIED WHILE VEHICLE IS IN MOTION~~ Safety signs substantially similar to FAMA06 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible from each seat that is not equipped with occupant restraint and is therefore not intended to be occupied while the vehicle is in motion .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:49:07 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 408-NFPA 1901-2013 [Section No. 14.1.3.9]

First Revision No. 181-NFPA 1901-2013 [Section No. 14.1.4]

~~14.1.4~~
~~Materials used within the driving and crew compartment shall comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 302, "Flammability of interior materials."~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:54:36 EDT 2013

Committee Statement

Committee Statement: This removes redundant language as FMVSS is already required by US federal law and in the required references within Chapter 2.

Response Message:

Public Input No. 383-NFPA 1901-2013 [Section No. 14.1.4]

First Revision No. 101-NFPA 1901-2013 [Section No. 14.1.8.4.3]

14.1.7.4.3

~~A label stating "DO NOT WEAR HELMET WHILE SEATED" shall be visible from each seating location~~ Safety signs warning not to wear helmets while the vehicle is in motion that are substantially similar to FAMA15 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible from each seat that is intended to be occupied while the vehicle is in motion .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 11:13:19 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 410-NFPA 1901-2013 [Section No. 14.1.8.4.3]

First Revision No. 175-NFPA 1901-2013 [Section No. 14.1.10]

14.1.9 SCBA Mounting.

14.1.9.1*

Where SCBA ~~units~~ holders are mounted within a driving or crew compartment, ~~a positive latching mechanical means of holding the SCBA device in its stowed position shall be provided such that the SCBA unit cannot be retained in the mount unless the positive latch is engaged~~ they shall comply with the following: .

(1) The SCBA holder shall retain a pack and bottle combination for the published weight rating of the holder when subjected to the dynamic force pulse per SAE J2418, Occupant Restraint System Evaluation — Frontal Impact Component-Level Heavy Trucks.

(2) If the SCBA unit is mounted in a seatback, the release mechanism shall be accessible to the user while seated.

(3) Brackets that lock automatically either in the event of impact or when the parking brake is released, but are not locked at other times, shall be permitted.

(4)* The SCBA holder shall retain the bottle when subjected to the deceleration pulse at 0, 30, 90, and 180 degrees with respect to the direction of bottle extraction and in the horizontal plane.

(5) The SCBA holder shall retain the bottle when subjected to a deceleration pulse that exceeds 2 g for at least 60 ms in the vertical direction.

(6) The deceleration pulse shall meet the SAE J2418 deceleration profile with an accuracy of ±10 percent within the 35 to 95 ms range.

(7) The deceleration pulse shall be measured on a rigid portion of the base of the test fixture.

(8) The test component shall be retained in the holder during and after the dynamic test.

(9) The force required to extract the bottle after each test shall be no more than 125 percent of the initial extraction force.

(10) The SCBA holder shall be attached to the fixture in the same manner that it will be fastened to the seat or vehicle.

(11) The test bottle shall not move more than 3 in. relative to the frame of the holder during each test.

(12) The test fixture shall not allow the holder frame to move more than 3 in. relative to the base of the test sled.

(13) Each holder shall bear a label affixed by the holder manufacturer certifying compliance to these specifications.

Global FR-175 Hide Deleted

~~**14.1.9.2**~~

~~The bracket holding device and its mounting shall retain the SCBA unit when subjected to a 9-G force and shall be installed in accordance with the bracket manufacturer's requirements.~~

~~**14.1.9.3**~~

~~If the SCBA unit is mounted in a seatback, the release mechanism shall be accessible to the user while seated.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:22:45 EDT 2013

Committee Statement

Committee Statement: The current specification is not specific enough to ensure that the intended level of safety is met. A “9 g force” does not specify whether this is to be applied statically or dynamically, and does not indicate any duration of time that the force is to be applied. If the time interval of the force application is brief enough, this specification can be met without any type of substantial bracket at all. A bottle struck with a light hammer blow can register a deceleration well over 9 g’s, but this would not ensure that the bottle would be retained in a sustained deceleration. It was the committee’s intent that the 9 g specification would hold against a steady force equivalent to 9 times the weight of the bottle and pack (315 lbs for a 35 lb SCBA). Yet there are certain holders being offered for sale that claim to be NFPA compliant but will deform and release the bottle at much lower forces. The advent of “hands-free” holder designs that retain the bottle and pack in a dynamic situation also need a good specification to test to. The proposed wording describes a dynamic test using a profile specifically tailored by the Society of Automotive Engineers for retaining objects heavy trucks during a crash. This criteria will ensure an adequate level of safety and will eliminate the current loophole in the test requirements.

Response Message:

Public Input No. 117-NFPA 1901-2013 [New Section after 14.1.10.3]
Public Input No. 243-NFPA 1901-2013 [Section No. 14.1.10.3]
Public Input No. 443-NFPA 1901-2013 [Section No. 14.1.10]

First Revision No. 183-NFPA 1901-2013 [New Section after 14.1.11.2]

14.1.10.3 Cab Equipment Mounting.
One safety sign warning of the need to secure items in the cab that is substantially similar to FAMA10 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible inside the cab.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:07:12 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 416-NFPA 1901-2013 [New Section after 14.1.11.2]

First Revision No. 182-NFPA 1901-2013 [New Section after 14.3.2]

14.3.2.1
Tiller cabs shall meet the requirements of SAE J2422, *Cab Roof Strength Evaluation — Quasi-Static Loading Heavy Trucks* .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:57:38 EDT 2013

Committee Statement

Committee Statement: This adds the same cab integrity standard as that of the standard cab. Add new section and renumber accordingly.
Response Message:

First Revision No. 177-NFPA 1901-2013 [Section No. 14.3.3.2]

~~**14.3.3.2**~~

~~The seat shall be arranged to accommodate a person conforming to at least the fifth percentile female through 95th percentile male as defined in SAE J833, *Human Physical Dimensions.*~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:33:16 EDT 2013

Committee Statement

Committee Statement: Accommodations for human dimensions are already covered by other prescriptive requirements within this standard.

Response Message:

Public Input No. 27-NFPA 1901-2013 [Section No. 14.3.3.2]

First Revision No. 206-NFPA 1901-2013 [Section No. 14.3.6.1]

14.3.6.1
The following instrumentation and controls shall be mounted in the driving compartment and shall be identified and visible to the driver while seated:

(1) Speedometer
(2) Tachometer
(3) Odometer
(4) Oil pressure indicator or gauge
(5) Coolant temperature indicator or gauge
(6) Automatic transmission temperature indicator or gauge, if applicable
(7) Voltmeter
(8) Hazard indicator light *(see Section 13.11)*
(9) Air pressure gauge(s), if applicable
(10) Turn signal control and indicator lights
(11) Headlight/DOT light switch
(12) High-beam headlight switch and indicator
(13) Fuel level gauge(s)
(14) Master ignition switch (if a key is provided, it shall be unable to be removed from the driving compartment interior)
(15) Heater/defroster controls
(16) Warning lights and siren switches
(17) Master ~~electrical load~~ disconnect switch
(18) "~~Battery~~ Master disconnect on" indicator light
(19) Windshield wipers and windshield washer control
(20) PTO-engaged indicator, if applicable
(21) Pump engagement controls, if applicable

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:21:46 EDT 2013

Committee Statement

Committee Statement: Editorial consistent language.
Response Message:

First Revision No. 102-NFPA 1901-2013 [Section No. 15.4.2]

15.4.2

A ~~lock~~ means shall be provided that will retain the equipment rack in the road travel position when the vehicle is in motion unless the equipment rack is powered by a self-contained device that will eliminate the system from deploying unintentionally .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 11:21:13 EDT 2013

Committee Statement

Committee Statement: The primary purpose of a lock on the powered equipment rack is to prevent a failure of equipment that will result in injury and/or damage. An equipment rack which is powered by a self-contained device does not have hoses which may disconnect leading to the rack dropping and injuring personnel. This means a locking system on an equipment rack which is powered by a self-contained device is redundant and merely increasing costs for fire departments.

Response Message:

Public Input No. 244-NFPA 1901-2013 [Section No. 15.4.2]

First Revision No. 184-NFPA 1901-2013 [New Section after 15.7.1]

15.7.1.5 Climbing Method Instruction.
A safety sign warning of the proper climbing method that is substantially similar to FAMA23 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible to personnel entering the cab and at each designated climbing location on the body.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:15:58 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 421-NFPA 1901-2013 [New Section after 15.7.1]

First Revision No. 253-NFPA 1901-2013 [Section No. 15.7.1.1 [Excluding any Sub-Sections]]

The maximum stepping height shall not exceed 18 in. (460 mm), with the exception of the ground to first step, which shall not exceed 24 in. (610 mm) when the vehicle is loaded to its estimated in-service weight.~~The maximum horizontal offset between steps shall not exceed 18 in.~~

Submitter Information Verification

Submitter Full Name: Ryan Depew
Organization: National Fire Protection Assoc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 25 11:13:28 EDT 2013

Committee Statement

Committee Statement: Steps with a vertical distance of 18 inches between steps that also involve stepping horizontally (i.e. from top folding step into the hose bed) can provide an unsafe access or egress to walking surfaces on the fire apparatus.

Response Message:

Public Input No. 401-NFPA 1901-2013 [Section No. 15.7.1.1 [Excluding any Sub-Sections]]

First Revision No. 185-NFPA 1901-2013 [New Section after 15.7.1.4]

15.7.1.6

Designated horizontal standing or walking surfaces higher than 48 in. (1220 mm) from the ground and not guarded by a railing, when measured with the apparatus at curb weight, shall have a safety yellow line at least 1 in. (25 mm) wide marking the outside perimeter of the surface, excluding steps and ladders.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:19:26 EDT 2013

Committee Statement

Committee Statement: The nature of fire apparatus in most cases precludes the use of railings or other features to guard against falls from the top of apparatus. The addition of a yellow line on the edge of the horizontal surfaces of the body may reduce the risk of operators in advertently stepping off the edge. Clearly marking those areas where the manufacture has designed the apparatus with the intention of allowing fire fighters to stand or walk will remove the ambiguity from the term “designated standing or walking surfaces” found in paragraph 15.7.4.

Response Message:

First Revision No. 186-NFPA 1901-2013 [Section No. 15.7.4.1]

15.7.4.1*
All materials used for exterior surfaces designated as stepping, standing, and walking areas and all interior steps shall have a minimum slip resistance in any orientation of 0.68 when tested wet using the English XL tester in accordance with the manufacturer's instructions or 0.52 when tested wet using the Brungraber Mark II tester in accordance with the manufacturer's instructions.

Supplemental Information

File Name	Description
A.15.7.4.1_fR_186_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:23:14 EDT 2013

Committee Statement

Committee Statement: Language added to clarify requirement. Add new annex A.15.7.4.1
Response Message:
Public Input No. 223-NFPA 1901-2013 [New Section after 15.7.4.1]

A.**15.7.4.1 Slip Resistance.** When selecting stepping, standing, and walking surfaces, the purchaser should take into consideration the long-term use. The slip resistance of certain surfaces might deteriorate over time. It is also important for the fire department to properly maintain or replace slip-resistant materials as they deteriorate.

First Revision No. 187-NFPA 1901-2013 [Section No. 15.7.5]

15.7.5

~~A sign~~ Safety signs substantially similar to FAMA24 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be located on the vehicle at the rear step areas and at any cross walkways to warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

Supplemental Information

File Name	Description
15.7.5_FR_187_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:30:13 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 411-NFPA 1901-2013 [Section No. 15.7.5]

First Revision No. 188-NFPA 1901-2013 [Section No. 15.9.3.1 [Excluding any Sub-Sections]]

A retroreflective stripe(s) shall be affixed to ~~at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of~~ the apparatus. ~~both of the following~~ as follows: :

(1) The side of the apparatus, covering at least 50 percent of the cab and 50 percent of the body on each side, excluding the pump panel areas

(2) At least 25 percent of the width of the front of the apparatus, measured at the front of the vehicle, not including mirrors or other protrusions

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:31:25 EDT 2013

Committee Statement

Committee Statement: The existing wording could be interpreted this way or as 50 of the total cab and body length. This wording is unambiguous.

Response Message:

Public Input No. 50-NFPA 1901-2013 [Section No. 15.9.3.1 [Excluding any Sub-Sections]]

First Revision No. 189-NFPA 1901-2013 [Sections 15.10.1, 15.10.2]

~~**15.10.1***~~
~~The hose storage area(s) shall be reinforced at the corners.~~
~~**15.10.2**~~
~~The bottom shall be made of removable sections fabricated from noncorrosive materials.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 14:45:19 EDT 2013

Committee Statement

Committee Statement: Modern mobile water supply apparatus and some municipal pumpers utilize water tanks that are wet side or otherwise part of the body structure. Technology now allows for the hose storage area of these tanks to be configured with grooves and texture integral with the tank construction to meet all of the requirements of 15.10 with the exception of 15.10.2. Since the tank itself is made of a noncorrosive material and the hose bed area does not inhibit access to any tank or body maintenance components, there is no need for the hose bed bottom to be removable. Delete section 15.10.1* Annex material associated with 15.10.1 will now be associated with 15.10 Move A.15.10.1 to the end of A.15.10

Response Message:

Public Input No. 321-NFPA 1901-2013 [Section No. 15.10.2]

First Revision No. 104-NFPA 1901-2013 [New Section after 15.10.7]

15.10.6 Hose Restraint Safety Sign.

~~One~~ A safety sign warning of the need to secure hose that is substantially similar to FAMA22 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible to personnel at each hose storage area.

Submitter Information Verification

Submitter Full Name: [Not Specified]
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Submittal Date: Thu Sep 12 11:38:44 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 417-NFPA 1901-2013 [New Section after 15.10.7]

First Revision No. 105-NFPA 1901-2013 [Section No. 15.12.3]

15.12.3

~~A label shall be placed~~ Safety signs substantially similar to FAMA28 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be located on or near each receiver or ~~anchor that states the~~ anchor stating the maximum straight line pull rating ~~of the anchor~~ .

Submitter Information Verification

Submitter Full Name: [Not Specified]
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Street Address:
City:
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Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 412-NFPA 1901-2013 [Section No. 15.12.3]

First Revision No. 61-NFPA 1901-2013 [Sections 16.2.3.1, 16.2.3.2]

16.2.3.1

If the pumping system is rated at less than 3000 gpm (12,000 L/min) ~~or less~~ , it shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure

(3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

16.2.3.2*

If the pumping system is rated at ~~over~~ 3000 gpm (12,000 L/min) or greater , it shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure

(2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

Submitter Information Verification

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Organization: [Not Specified]
Street Address:
City:
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Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 253-NFPA 1901-2013 [Sections 16.2.3.1, 16.2.3.2]

First Revision No. 243-NFPA 1901-2013 [Section No. 16.2.3.3 [Excluding any Sub-Sections]]

When dry, the pump system shall be capable of meeting the requirements of 16.2.3.3.1 through 16.2.3.3.4.

Supplemental Information

File Name	Description
A.16.2.3.3_FR_243_.docx	11/5/13

Submitter Information Verification

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Committee Statement

Committee Statement: Additional annex material to clarify requirement in 16.2.3.3 Add new annex material A.16.2.3.3

Response Message:

Public Input No. 131-NFPA 1901-2013 [New Section after A.16.2.3.2]

A.16.2.3.3 High points in the suction plumbing should be avoided. If there are high points in the intake plumbing, a prime or suction should also be taken at the top of the high point as well as at the top of the pump suction inlet.

First Revision No. 62-NFPA 1901-2013 [Section No. 16.2.3.3.1]

16.2.3.3.1
Where pumps are rated at less than 1500 gpm (6000 L/min), they shall be capable of taking suction through 20 ft (6 m) of suction hose under the conditions specified in ~~Table 16.2.4.1(a)~~ 16.2.4.1 for the rated capacity of the pump and shall begin discharging water in not more than 30 seconds.

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Committee Statement

Committee Statement: Clarification of the intended requirement for pumping system capability. Current text cites conditions specificed in Table 16.2.4.1 (a). The table doesn't include the conditions. Section 16.2.4.1 does include the conditions. Also, clarified that that the pump system just needs to start discharging water within the allotted time. Some confusion has existed that the full rated capacity of the pump at the specified net pump pressure needed to be achieved in the allotted time.

Response Message:

Public Input No. 319-NFPA 1901-2013 [Section No. 16.2.3.3.1]

First Revision No. 63-NFPA 1901-2013 [Section No. 16.2.3.3.2]

16.2.3.3.2
Where pumps are of 1500 gpm (6000 L/min) or larger capacity, they shall be capable of taking suction through 20 ft (6 m) of suction hose under the conditions specified in ~~Table 16.2.4.1(a)~~ 16.2.4.1 for the rated capacity of the pump and shall begin discharging water in not more than 45 seconds.

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Committee Statement

Committee Statement: Clarification of the intended requirement for pumping system capability. Current text cites conditions specificed in Table 16.2.4.1 (a). The table doesn't include the conditions. Section 16.2.4.1 does include the conditions. Also, clarified that that the pump system just needs to start discharging water within the allotted time. Some confusion has existed that the full rated capacity of the pump at the specified net pump pressure needed to be achieved in the allotted time.

Response Message:

Public Input No. 325-NFPA 1901-2013 [Section No. 16.2.3.3.2]

First Revision No. 64-NFPA 1901-2013 [Section No. 16.2.4.1]

16.2.4.1*

The pump manufacturer shall certify that the fire pump is capable of pumping 100 percent of rated capacity at 150 psi (1000 kPa) net pump pressure for pumps rated at less than 3000 gpm (12,000 L/min) or ~~less or~~ at 100 psi (700 kPa) for pumps rated ~~greater than~~ at 3000 gpm (12,000 L/min) or greater from draft through 20 ft (6 m) of suction hose with a strainer attached under the following conditions:

(1) An altitude of 2000 ft (600 m) above sea level

(2) Atmospheric pressure of 29.9 in. Hg (101 kPa) (corrected to sea level)

(3) Water temperature of 60°F (15.6°C)

(4) Suction hose size and number of hose not to exceed those indicated in Table 16.2.4.1(a)

(5) Lift as indicated in Table 16.2.4.1(a)

(6) Friction and entrance loss in suction hose, including strainer, as given in Table 16.2.4.1(b) or Table 16.2.4.1(c)

Table 16.2.4.1(a) Suction Hose Size, Number of Suction Lines, and Lift for Pump Manufacturer's Suction Capability Certification

Rated Capacity		Suction Hose Size			Lift	
gpm	L/min	in.	mm	Number of Suction Lines	ft	m
250	1,000	3	75	1	10	3
300	1,100	3	75	1	10	3
350	1,300	4	100	1	10	3
500	2,000	4½	100	1	10	3
750	3,000	4½	110	1	10	3
1000	4,000	6	150	1	10	3
1250	5,000	6	150	1	10	3
1500	6,000	6	150	2	10	3
1750	7,000	6	150	2	8	2.4
2000	8,000	6	150	2	6	1.8
2000	8,000	8	200	1	6	1.8
2250	9,000	6	150	3	6	1.8
2250	9,000	8	200	1	6	1.8
2500	10,000	6	150	3	6	1.8
2500	10,000	8	200	1	6	1.8
3000	12,000	6	150	4	6	1.8
3000	12,000	8	200	2	6	1.8
3500	14,000	6	150	4	6	1.8
3500	14,000	8	200	2	6	1.8
4000	16,000	6	150	4	6	1.8
4000	16,000	8	200	2	6	1.8

Table 16.2.4.1(b) Friction and Entrance Loss in 20 ft of Suction Hose, Including Strainer (inch-pound units)

Flow Rate (gpm)	Number of Suction Hose and Size (inside diameter)									
	One 3 in.		One 4 in.		One 4½ in.		One 5 in.		One 6 in.	
	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg
250	5.2 (1.2)	4.6								
175	2.6 (0.6)	2.3								
125	1.4 (0.3)	1.2								
300	7.5 (1.7)	6.6								
210	3.8 (0.8)	3.4								
150	1.9 (0.4)	1.7								
350			2.5 (0.7)	2.1						
245			1.2 (0.3)	1.1						
175			0.7 (0.1)	0.6						
500			5.0 (1.3)	4.4	3.6 (0.8)	3.2				
350			2.5 (0.7)	2.1	1.8 (0.4)	1.6				
250			1.3 (0.4)	1.1	0.9 (0.3)	0.8				
750			11.4 (2.9)	9.8	8.0 (1.6)	7.1	4.7 (0.9)	4.2	1.9 (0.4)	1.7
525			5.5 (1.5)	4.9	3.9 (0.8)	3.4	2.3 (0.5)	2.0	0.9 (0.2)	0.8
375			2.8 (0.7)	2.5	2.0 (0.4)	1.8	1.2 (0.2)	1.1	0.5 (0.1)	0.5
1000					14.5 (2.8)	12.5	8.4 (1.6)	7.4	3.4 (0.6)	3.0
700					7.0 (1.4)	6.2	4.1 (0.8)	3.7	1.7 (0.3)	1.5
500					3.6 (0.8)	3.2	2.1 (0.4)	1.9	0.9 (0.2)	0.8

Flow Rate (L/min)	One 5 in.		One 6 in.		Two 4½ in.		Two 5 in.		Two 6 in.	
	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg
1250	13.0 (2.4)	11.5	5.2 (0.9)	4.7	5.5 (1.2)	4.9				
875	6.5 (1.2)	5.7	2.6 (0.5)	2.3	2.8 (0.7)	2.5				
625	3.3 (0.7)	2.9	1.3 (0.3)	1.1	1.4 (0.3)	1.2				
1500			7.6 (1.4)	6.7	8.0 (1.6)	7.1	4.7 (0.9)	4.2	1.9 (0.4)	1.7
1050			3.7 (0.7)	3.3	3.9 (0.8)	3.4	2.3 (0.5)	2.0	0.9 (0.3)	0.8
750			1.9 (0.4)	1.7	2.0 (0.4)	1.8	1.2 (0.2)	1.1	0.5 (0.1)	0.5
1750			10.4 (1.8)	9.3	11.0 (2.2)	9.7	6.5 (1.2)	5.7	2.6 (0.5)	2.3
1225			5.0 (0.9)	4.6	5.3 (1.1)	4.7	3.1 (0.7)	2.7	1.2 (0.3)	1.1
875			2.6 (0.5)	2.3	2.8 (0.6)	2.5	1.6 (0.3)	1.4	0.7 (0.2)	0.6
2000					14.5 (2.8)	12.5	8.4 (1.6)	7.4	3.4 (0.6)	3.0
1400					7.0 (1.4)	6.2	4.1 (0.8)	3.7	1.7 (0.3)	1.5
1000					3.6 (0.8)	3.2	2.1 (0.4)	1.9	0.9 (0.2)	0.8
2250							10.8 (2.2)	9.5	4.3 (0.8)	3.8
1575							5.3 (1.1)	4.7	2.2 (0.4)	1.9
1125							2.8 (0.5)	2.5	1.1 (0.2)	1.0
2500							13.0 (2.4)	11.5	5.2 (0.9)	4.7
1750							6.5 (1.2)	5.7	2.6 (0.5)	2.3
1250							3.3 (0.7)	2.9	1.3 (0.3)	1.1

	Two 6 in.		Three 6 in.		Four 6 in.		One 8 in.		Two 8 in.	
Flow Rate (L/min)	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg	ft water	in. Hg
2000	3.4 (0.6)	3.0					4.3 (1.1)	3.8		
1400	1.7 (0.3)	1.5					2.0 (0.6)	1.8		
1000	0.9 (0.2)	0.8					1.0 (0.3)	0.9		
2250	4.3 (0.8)	3.8	2.0 (0.5)	1.8			5.6 (1.4)	5.0	1.2 (0.4)	1.1
1575	2.2 (0.4)	1.9	1.0 (0.2)	0.9			2.5 (0.9)	2.2	0.6 (0.2)	0.5
1125	1.1 (0.2)	1.0	0.5 (0.1)	0.5			1.2 (0.4)	1.1	0.3 (0.1)	0.3
2500	5.2 (0.9)	4.7	2.3 (0.6)	2.0			7.0 (1.7)	6.2	1.5 (0.4)	1.3
1750	2.6 (0.5)	2.3	1.2 (0.2)	1.1			3.2 (1.0)	2.8	0.8 (0.2)	0.7
1250	1.3 (0.3)	1.1	0.6 (0.1)	0.5			1.5 (0.4)	1.3	0.4 (0.1)	0.4
3000	7.6 (1.4)	6.9	3.4 (0.6)	3.0			10.1 (3.0)	9.0	2.3 (0.6)	2.1
2100	3.7 (0.7)	3.4	1.7 (0.3)	1.5			4.7 (1.3)	4.2	1.0 (0.3)	0.9
3500	10.4 (1.8)	9.3			2.6 (0.5)	2.3			3.2 (0.8)	2.8
2450	5.0 (0.9)	4.6			1.2 (0.3)	1.1			1.5 (0.4)	1.3
4000			4.8 (0.9)	4.3	3.4 (0.6)	3.0			4.3 (1.1)	3.8
2800			2.8 (0.5)	2.5	1.7 (0.3)	1.5			2.0 (0.6)	1.8

Note: Figures in parentheses indicate increment to be added or subtracted for each 10 ft of hose greater than or less than 20 ft.

Table 16.2.4.1(c) Friction and Entrance Loss in 6 m of Suction Hose, Including Strainer (SI units)

Flow Rate (L/min)	Number of Suction Hose and Size (inside diameter)									
	One 75 mm		One 100 mm		One 110 mm		One 125 mm		One 150 m	
	m water	kPa	m water	kPa	m water	kPa	m water	kPa	m water	kPa
1,000	1.6 (0.04)	16								
700	0.8 (0.02)	8								
500	0.4 (0.01)	4								
1,100	2.2 (0.05)	22								
770	1.1 (0.02)	12								
550	0.6 (0.01)	6								
1,300			0.7 (0.02)	7						
910			0.4 (0.01)	4						
650			0.2 (0.01)	2						
2,000			1.5 (0.04)	15	1.1 (0.02)	11				
1,400			0.7 (0.02)	7	0.5 (0.01)	5				
1,000			0.4 (0.01)	4	0.3 (0.01)	3				
3,000			3.5 (0.09)	33	2.4 (0.05)	24	1.4 (0.03)	14	0.6 (0.01)	6
2,100			1.7 (0.05)	17	1.2 (0.02)	11	0.7 (0.01)	7	0.3 (0.01)	3
1,500			0.9 (0.02)	8	0.6 (0.01)	6	0.4 (0.01)	4	0.2 (0.01)	2
4,000					4.4 (0.08)	42	2.6 (0.05)	25	1.0 (0.02)	10
2,800					2.1 (0.04)	21	1.2 (0.02)	13	0.5 (0.01)	5
2,000					1.1 (0.02)	11	0.6 (0.01)	6	0.3 (0.01)	3

Flow Rate (L/min)	One 125 mm		One 150 mm		Two 110 mm		Two 125 mm		Two 150 mm	
	m water	kPa	m water	kPa	m water	kPa	m water	kPa	m water	kPa
5,000	4.0 (0.07)	39	1.6 (0.03)	16	1.7 (0.04)	17				
3,500	2.0 (0.04)	19	0.8 (0.02)	8	0.9 (0.02)	8				
2,500	1.0 (0.02)	10	0.4 (0.01)	4	0.4 (0.01)	4				
6,000			2.3 (0.04)	23	2.4 (0.05)	24	1.4 (0.03)	14	0.6 (0.01)	6
4,200			1.1 (0.02)	11	1.2 (0.02)	12	0.7 (0.02)	7	0.3 (0.01)	3
3,000			0.6 (0.01)	6	0.6 (0.01)	6	0.4 (0.01)	4	0.2 (0.01)	2
7,000			3.2 (0.05)	31	3.6 (0.07)	33	2.0 (0.04)	19	0.8 (0.02)	8
4,900			1.5 (0.03)	16	1.6 (0.03)	16	0.9 (0.02)	9	0.4 (0.01)	4
3,500			0.8 (0.02)	8	0.9 (0.02)	8	0.5 (0.01)	5	0.2 (0.01)	2
8,000					4.4 (0.08)	42	2.6 (0.05)	25	1.0 (0.02)	10
5,600					2.1 (0.04)	21	1.2 (0.02)	13	0.5 (0.01)	5
4,000					1.1 (0.02)	11	0.6 (0.01)	6	0.3 (0.01)	3
9,000							3.3 (0.07)	32	1.3 (0.02)	13
6,300							1.6 (0.03)	16	0.7 (0.01)	6
4,500							0.9 (0.02)	8	0.3 (0.01)	3
10,000							4.0 (0.07)	39	1.6 (0.03)	16
7,000							2.0 (0.04)	19	0.8 (0.02)	8
5,000							1.0 (0.02)	10	0.4 (0.01)	4

Flow Rate (L/min)	Two 150 mm		Three 150 mm		Four 150 mm		One 200 mm		Two 200 mm	
	m water	kPa	m water	kPa	m water	kPa	m water	kPa	m water	kPa
8,000	1.0 (0.02)	10					1.3 (0.03)	13		
5,600	0.5 (0.01)	5					0.6 (0.02)	6		
4,000	0.3 (0.01)	3					0.3 (0.01)	3		
9,000	1.3 (0.02)	13	0.6 (0.01)	6			1.7 (0.05)	17	0.4 (0.01)	4
6,300	0.7 (0.01)	6	0.3 (0.01)	3			0.7 (0.03)	7	0.2 (0.01)	2
4,500	0.3 (0.01)	3	0.2 (0.01)	2			0.4 (0.01)	4	0.1 (0.01)	1
10,000	1.6 (0.03)	16	0.7 (0.02)	7			2.1 (0.05)	21	0.5 (0.01)	4
7,000	0.8 (0.02)	8	0.4 (0.01)	4			1.0 (0.03)	9	0.2 (0.01)	2
5,000	0.4 (0.01)	4	0.2 (0.01)	2			0.5 (0.01)	4	0.1 (0.01)	1
12,000	2.3 (0.04)	23	1.0 (0.02)	10			3.0 (0.09)	30	0.7 (0.02)	7
8,400	1.1 (0.02)	12	0.5 (0.01)	5			1.4 (0.04)	14	0.3 (0.01)	3
14,000	3.2 (0.05)	31			0.8 (0.2)	8			1.0 (0.2)	9
9,800	1.5 (0.03)	16			0.4 (0.1)	4			0.5 (0.1)	4
16,000			1.5 (0.3)	15	1.0 (0.2)	10			1.3 (0.3)	13
11,200			0.9 (0.2)	8	0.5 (0.1)	5			0.6 (0.2)	6

Note: Figures in parentheses indicate increment to be added or subtracted for each 3 m of hose greater than or less than 6 m.

Supplemental Information

File Name	Description
16.2.4.1_FR_64_.docx	11/5/13

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Submittal Date: Wed Sep 11 19:23:02 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 255-NFPA 1901-2013 [Section No. 16.2.4.1]

First Revision No. 226-NFPA 1901-2013 [New Section after 16.2.4.2]

16.2.5 Fire Pump Maximum Discharge Pressure Capability Rating.

16.2.5.1

The fire pump manufacturer shall establish the maximum discharge gauge pressure capability rating of the pump.

16.2.5.2

The fire pump manufacturer shall certify the maximum discharge gauge pressure capability rating of the pump if it exceeds the hydrostatic test gauge pressure in 16.5.2.1 .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 11:59:56 EDT 2013

Committee Statement

Committee Statement: Establishes basis for identifying to fire apparatus manufacturers and end users those fire pumps whose maximum discharge pressure capability exceeds the hydrostatic test requirement of NFPA 1901.

Response Message:

First Revision No. 65-NFPA 1901-2013 [Section No. 16.2.4.2]

16.2.4.2*

The pump manufacturer shall certify that the pump is capable of pumping rated capacity at 150 psi (1000 kPa) net pump pressure for pumps rated at less than 3000 gpm (12,000 L/min) or ~~less or~~ at 100 psi (700 kPa) for pumps rated ~~greater than~~ at 3000 gpm (12,000 L/min) or greater at any of the following special conditions when these conditions are specified by the purchaser:

(1) At an elevation above 2000 ft (600 m)

(2) At lifts higher than those listed in Table 16.2.4.1(a), through more than 20 ft (6 m) of suction hose, or both

(3) For pumps having a rated capacity of 1500 gpm (6000 L/min) or larger, through a single suction hose only, or through the number of hose listed in Table 16.2.4.1(a) attached to one side of the apparatus only

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:23:50 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 256-NFPA 1901-2013 [Section No. 16.2.4.2]

First Revision No. 225-NFPA 1901-2013 [Section No. 16.3.1]

16.3.1*
The apparatus manufacturer shall approve the use of the pumping engine for stationary pumping applications based on the size of the fire apparatus and the rating of the pump being furnished.

Supplemental Information

File Name	Description
A.16.3.1_FR_225_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 11:56:08 EDT 2013

Committee Statement

Committee Statement: Add new annex material that addresses old requirements being deleted from 16.3.5 through 16.3.5.3. Add new annex material A.16.3.1

Response Message:

A.16.3.1 The purchaser might~~may~~ want to consider a supplementary heat exchanger cooling system for the pump drive engine. -If utilized, valving should be installed to permit water from the discharge side of the pump to cool the coolant circulating through the engine cooling system without intermixing. -The heat exchanger should maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer's temperature rating under all pumping conditions. -A drain(s) should be provided to allow draining of the heat exchanger ~~so as~~ to prevent damage from freezing.

First Revision No. 66-NFPA 1901-2013 [Section No. 16.3.3]

16.3.3
If the fire pump is rated at 750 gpm (3000 L/min) or greater but ~~not greater~~ less than 3000 gpm (12,000 L/min), the engine/pump combination shall be capable of delivering the rated pump capacity at 165 psi (1100 kPa) net pump pressure.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:24:16 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 257-NFPA 1901-2013 [Section No. 16.3.3]

First Revision No. 224-NFPA 1901-2013 [Section No. 16.3.5]

~~**16.3.5**~~

~~A supplementary heat exchanger cooling system shall be provided for the pump drive engine.~~

~~**16.3.5.1**~~

~~Valving shall be installed to permit water from the discharge side of the pump to cool the coolant circulating through the engine cooling system without intermixing.~~

~~**16.3.5.2**~~

~~The heat exchanger shall maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer's temperature rating under all pumping conditions.~~

~~**16.3.5.3**~~

~~A drain(s) shall be provided to allow draining of the heat exchanger so as to prevent damage from freezing.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 11:54:19 EDT 2013

Committee Statement

Committee Statement: This is a minimum standard and is not required since modern engines may not need additional cooling. New annex material added in new A.16.3.1 to address these items.

Response Message:

Public Input No. 183-NFPA 1901-2013 [Section No. 16.3.5]
Public Input No. 288-NFPA 1901-2013 [Section No. 16.3.5]

First Revision No. 67-NFPA 1901-2013 [Sections 16.4.1, 16.4.2]

16.4.1

All components in the power train from the engine to the fire pump shall be capable of transmitting the torque necessary to power the pump, as installed in the apparatus, for the pump performance points specified in 16.2.3.1 ~~and~~ or 16.2.3.2, ~~if~~ as applicable, without exceeding the component manufacturer's continuous duty torque rating.

16.4.2

When pumping continuously at each of the pump performance points specified in 16.2.3.1 ~~and~~ or 16.2.3.2, ~~if~~ as applicable, lubricant temperatures in any power train component installed in the apparatus from the engine to the pump shall not exceed the component manufacturer's recommendation for maximum temperature.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:26:07 EDT 2013

Committee Statement

Committee Statement: Correct grammar. One of these pump performance points is always applicable, but never both.

Response Message:

Public Input No. 52-NFPA 1901-2013 [Sections 16.4.1, 16.4.2]

First Revision No. 227-NFPA 1901-2013 [Sections 16.5.2, 16.5.3, 16.5.4, 16.5.5]

16.5.2 Hydrostatic Test.

16.5.2.1

The pump body shall be subjected to a hydrostatic test to a minimum gauge pressure of 500 psi (3400 kPa) for a minimum of 10 minutes.

16.5.2.2

The pump manufacturer shall provide a certificate of completion for the hydrostatic test.

16.5.3

The entire discharge and intake piping system, valves, drain cocks and lines, and intake and outlet closures, excluding the tank fill and tank-to-pump lines on the tank side of the valves in those lines, shall be capable of withstanding a minimum hydrostatic gauge pressure of 500 psi (3400 kPa).

16.5.4 ~~Pulsation-Free Fire Streams~~ Hydrodynamic Test .

16.5.4.1

~~The pump shall be capable of producing fire streams that are free from pulsations~~ If the maximum discharge gauge pressure capability rating of the pump identified in 16.2.5.1 exceeds the hydrostatic test pressure performed in 16.5.2.1 , the pump shall be subjected to a hydrodynamic test during which the discharge pressure equals or exceeds the maximum discharge gauge pressure capability rating for a minimum of 5 minutes .

16.5.4.2

~~When an accumulator is used to provide pulsation free fire streams, the accumulator shall be constructed and tested in accordance with the ASME *Boiler and Pressure Vessel Code* , Section VIII, Division 2~~ When the hydrodynamic test is required to be performed, the pump manufacturer shall provide a certificate of completion for the hydrodynamic test .

16.5.5

The pump shall allow a positive pressure water source to directly add to the pump's discharge pressure.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:03:03 EDT 2013

Committee Statement

Committee Statement: The requirements existing 16.5.4 through 16.5.5 are being removed as this is outdated technology. Addition of “minimum” modifier to the hydrostatic test pressure in recognition that manufacturers typically perform the test at pressures that may exceed 500 psi. Creation of hydrodynamic test requirements provides means to test those pumps with maximum discharge capability greater than the hydrostatic test requirements.

Response Message:

Public Input No. 28-NFPA 1901-2013 [Section No. 16.5.4.2]
Public Input No. 166-NFPA 1901-2013 [Section No. 16.5.2.1]
Public Input No. 167-NFPA 1901-2013 [Section No. 16.5.3]
Public Input No. 177-NFPA 1901-2013 [Section No. 16.13.10.2]
Public Input No. 305-NFPA 1901-2013 [Section No. 16.5.2.1]

First Revision No. 230-NFPA 1901-2013 [Section No. 16.6.1.1]

16.6.1.1*
The intakes specified in 16.6.1 shall have male National Hose (NH) threads if the apparatus is to be used in the United States.

Supplemental Information

File Name	Description
A.16.6.1.1_FR_230_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:17:39 EDT 2013

Committee Statement

Committee Statement: This new annex clarifies requirements in 16.6.1.1 Add new annex material A.16.6.1.1
Response Message:
Public Input No. 168-NFPA 1901-2013 [Section No. 16.6.1.1]
Public Input No. 169-NFPA 1901-2013 [New Section after A.16.6.1.3]

A.16.6.1.1 Apparatus used outside ~~of~~ the United States can~~may~~ have intake connections other than NH if specified by the authority having jurisdiction.~~AHJ~~

First Revision No. 68-NFPA 1901-2013 [Section No. 16.6.1.3]

16.6.1.3*

~~A sign shall be provided on the pump operator's panel that states the following:~~

~~**WARNING:** Death or serious injury might occur if proper operating procedures are not followed. The pump operator as well as individuals connecting supply or discharge hoses to the apparatus must be familiar with water hydraulics hazards and component limitations~~ A safety sign warning of the need for training prior to operating the apparatus that is substantially similar to FAMA25 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be located on the pump operator's panel .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:45:49 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 415-NFPA 1901-2013 [Section No. 16.6.1.3]

First Revision No. 69-NFPA 1901-2013 [Sections 16.6.8, 16.6.9]

16.6.8 Intake Covers.

All intakes shall be provided with caps, plugs, or closures capable of withstanding a hydrostatic gauge pressure of 500 psi (3400 kPa).

16.6.8.1

Intakes having male threads shall be equipped with caps; . ~~intakes having female threads shall be equipped with plugs.~~

16.6.8.2

Intakes having female threads shall be equipped with plugs.

16.6.8.3

Where adapters for special threads or other means for hose attachment are provided on the intakes, closures shall be provided for the adapters in lieu of caps or plugs.

16.6.8.4

Caps, plugs, or closures for 3 ½ in. (90 mm) and smaller intakes shall remain secured to the apparatus when removed from the intakes.

~~**16.6.9**~~

~~Caps or closures for intake connections smaller than 4 in. (100 mm) shall remain secured to the apparatus when removed from the connection.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:55:32 EDT 2013

Committee Statement

Committee Statement: Break requirements into separate sections. Minor changes to wording to move toward wording consistency with NFPA 1906-2012 and improve wording. Add plugs to requirement to be attached. No change in actual requirements.

Response Message:

Public Input No. 120-NFPA 1901-2013 [Sections 16.6.8, 16.6.9]

First Revision No. 70-NFPA 1901-2013 [Section No. 16.7.1 [Excluding any Sub-Sections]]

Discharge ~~outlets~~ outlet connections of 2½ in. (65 mm) or larger shall be provided to discharge the rated capacity of the pump at the flow rates shown in Table 16.7.1.

Table 16.7.1 Discharge Rates by Outlet Size

Outlet Size		Flow Rates	
in.	mm	gpm	L/min
2½	65	250	1000
3	75	375	1400
4	100	625	2400
5	125	1000	4000
6	150	~~1440~~ 1500	~~5500~~ 6000

Supplemental Information

File Name	Description
Table_16.7.1_FR_70_.doc	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:56:10 EDT 2013

Committee Statement

Committee Statement: this section is one of the hardest for most people to understand, this is one of several changes i am proposing to clean it up I also moved to 1440gpm to 1500gpm for ease of calculating with out sacrificing safety

Response Message:

Public Input No. 178-NFPA 1901-2013 [Section No. 16.7.1 [Excluding any Sub-Sections]]

First Revision No. 71-NFPA 1901-2013 [Section No. 16.7.2.1]

16.7.2.1*
All 2½ in. (65 mm) or larger discharge outlet connections shall be equipped with male National Hose (NH) threads if the apparatus is to be used in the United States .

Supplemental Information

File Name	Description
A.16.7.2.1_FR_71_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 19:56:52 EDT 2013

Committee Statement

Committee Statement: This makes the standard uniform between intakes and outlets outside of USA many times they use other connections than NH. Added annex material to clarify. Add new annex material A.16.7.2.1.

Response Message:

Public Input No. 170-NFPA 1901-2013 [Section No. 16.7.2.1]
Public Input No. 171-NFPA 1901-2013 [New Section after A.16.7.2.2]

A.16.7.2.1 Apparatus intended for use outside ~~of~~ the United States can~~may~~ have outlet connections other than NH if specified by the authority having jurisdiction.~~AHJ.~~

First Revision No. 249-NFPA 1901-2013 [Section No. 16.7.4.2]

16.7.4.2
Caps or closures for outlet connections smaller than 4 in. (100 mm) shall remain secured to the apparatus when removed from the connection.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 14:18:11 EDT 2013

Committee Statement

Committee Statement: Safety improvement to bleed stored pressure.
Response Message:

First Revision No. 233-NFPA 1901-2013 [Section No. 16.7.5]

16.7.5

Each discharge outlet shall be equipped with a valve that can be opened and closed ~~smoothly~~ by the operator with a maximum force of 55 lbf (240 N) from full open to full closed or from full closed to full open with 250 psi (1700 kPa) pump discharge gauge pressure and at the flows shown in Table 16.7.1 ~~at pump discharge gauge pressures of 250 psi (1700 kPa)~~ when the valve is in the full open position .

16.7.5.1

The flow-regulating element of each valve shall not change its position under any condition of operation that involves discharge pressures to the maximum pressure of the pump~~;~~ . ~~the means to prevent a change in position shall be incorporated in the operating mechanism and shall be permitted to be manually or automatically controlled.~~

16.7.5.2

The means to prevent a change in position shall be incorporated in the operating mechanism and shall be permitted to be manually or automatically controlled.

16.7.5.3*

Any 3 in. (75 mm) or larger discharge valve shall be a slow-operating valve.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:37:10 EDT 2013

Committee Statement

Committee Statement: The NFPA Manual of Style requires that only a single requirement be stated in each numbered section. This change just adds a new section number (no new words are added in spite of the NFPA generated legislative format text). Cleaned up language from submission and validated maximum force.

Response Message:

Public Input No. 53-NFPA 1901-2013 [Sections 16.7.5.1, 16.7.5.2]
Public Input No. 172-NFPA 1901-2013 [Section No. 16.7.5 [Excluding any Sub-Sections]]

First Revision No. 73-NFPA 1901-2013 [Section No. 16.10.1.3]

16.10.1.3

~~A~~ Where the pump is driven by the chassis engine, a label indicating the chassis transmission shift selector position to be used for pumping shall be provided in the driving compartment and located so that it can be read from the driver's position.

Supplemental Information

File Name	Description
16.10.1.3_FR_73_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 20:16:12 EDT 2013

Committee Statement

Committee Statement: This requirement is only applicable if the pump is driven by the chassis engine. This is usually, but not always, true. This change is identical to NFPA 2012-12.

Response Message:

Public Input No. 54-NFPA 1901-2013 [Section No. 16.10.1.3]

First Revision No. 74-NFPA 1901-2013 [Section No. 16.10.1.4]

~~16.10.1.4~~

~~Where the pump is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the pump drive system is engaged.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 20:17:28 EDT 2013

Committee Statement

Committee Statement: All modern commercial trucks utilize digital electronic speedometers that display the speed from a electronic signal provided by the Vehicle Speed Signal. The vehicle VSS is a digital broadcast signal that is used by other vehicle systems such as engine emission control, ABS system, Electronic Stability Control, Compression brakes, axle differentials and a long list of safety interlocks such as door locks that use vehicle speed as a parameter of function. On some vehicle this VSS comes from the transmission on other the signal comes from a front wheel sensor. All modern commercial truck electronic use logic to determine they are not moving and do not produce a VSS until the vehicle is actually moving. It it very difficult to produce a VSS signal and tell all systems but the speedometer to not read it. Asking to create a “false” VSS to make the speedometer read when the vehicle is not move creates a lot of problems with other systems see a vehicle speed without wheel movement. This is a big engineering effort to do this and I question the value of a false speedometer signal. Do people really set pump by watching the speedo with a hand throttle today? Some manufacture that use a wheel ABS sensor to produce a speed signal and can’t produce the VSS signal when not motion. For those system you would have to read engine speed, transmission gear and calculate a “Phantom Speed” VSS and tell every other system but the speedo not to react to it. Not a easy task. I don’t think the intent of this was to create a very complex, costly engineering project. Please remove the standard.

Response Message:

Public Input No. 235-NFPA 1901-2013 [Section No. 16.10.1.4]

First Revision No. 234-NFPA 1901-2013 [Section No. 16.10.1.5]

16.10.1.4
Where ~~chassis transmission retarders are furnished~~ the power train from engine to pump includes auxiliary braking devices , they shall be automatically disengaged for pumping operations.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:45:14 EDT 2013

Committee Statement

Committee Statement: Clarifies what shall be automatically disengaged during pumping operations.

Response Message:

Public Input No. 55-NFPA 1901-2013 [Section No. 16.10.1.5]

First Revision No. 75-NFPA 1901-2013 [New Section after 16.10.11.3]

16.10.11.4
An interlock system shall be provided to prevent advancement of the engine speed at the pump operator's panel unless the apparatus has "Throttle Ready" indication.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 20:37:27 EDT 2013

Committee Statement

Committee Statement: The requirements for throttle advancement ("Throttle Ready") should be met before throttle advancement is allowed. For example, if the parking brake is not engaged, the pump operator's panel throttle should not advance the engine speed. That is the meaning of the throttle ready light.

Response Message:

Public Input No. 56-NFPA 1901-2013 [New Section after 16.10.11.3]

First Revision No. 76-NFPA 1901-2013 [Section No. 16.12.2.2.2]

16.12.2.2.2
Analog gauges displaying the vacuum portion in ~~45~~ 120 degrees of arc or less shall have an accuracy complying with Grade 1A as defined by ASME B40.100, *Pressure Gauges and Gauge Attachments*.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:08:08 EDT 2013

Committee Statement

Committee Statement: As currently written, a gauge with the vacuum portion between 45 and 120 degrees have no requirements for accuracy. This change is identical to NFPA 1906-2012.

Response Message:

Public Input No. 57-NFPA 1901-2013 [Section No. 16.12.2.2.2]

First Revision No. 77-NFPA 1901-2013 [Section No. 16.13.1.1.2]

16.13.1.1.2
If the fire pump is rated at 750 gpm (3000 L/min) or greater but ~~not greater~~ less than 3000 gpm (12,000 L/min), the pumping engine overload test *(see 16.13.3)* shall be included.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:17:38 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 258-NFPA 1901-2013 [Section No. 16.13.1.1.2]

First Revision No. 248-NFPA 1901-2013 [Section No. 16.13.1.1.5]

16.13.1.1.5

~~An~~ The independent third-party ~~certification~~ organization shall witness ~~the tests and certify the test results~~ all required tests by an in-person representative(s) at the test site or by use of verifiable automated data collection and image recording equipment .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 14:13:41 EDT 2013

Committee Statement

Committee Statement: This language is consistent with changes made in 4.7.4
Response Message:

First Revision No. 78-NFPA 1901-2013 [Section No. 16.13.2.2.4.2]

~~16.13.2.2.4.2~~
~~A mercury manometer shall be permitted to be used in lieu of a pump intake gauge.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:23:18 EDT 2013

Committee Statement

Committee Statement: These days we should not be suggesting the use of a mercury filled piece of equipment. This is identical to NFPA 1906-2012.
Response Message:
Public Input No. 59-NFPA 1901-2013 [Section No. 16.13.2.2.4.2]

First Revision No. 79-NFPA 1901-2013 [Section No. 16.13.2.3.3.2]

~~**16.13.2.3.3.2**~~

~~If the engine speed is not within 2 percent of the rated no-load governed speed as recorded on the manufacturer engine curve, the manufacturer shall adjust the engine speed to within acceptable limits.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:24:08 EDT 2013

Committee Statement

Committee Statement: The condition in which the rated no load speeds are record on the data sheets cannot be reproduced with an engine installed in a vehicle with accessories attached to the engine.

Response Message:

Public Input No. 245-NFPA 1901-2013 [Section No. 16.13.2.3.3.2]

First Revision No. 80-NFPA 1901-2013 [Sections 16.13.2.3.4, 16.13.2.3.5]

16.13.2.3.4

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but ~~not greater~~ less than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3-hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by ½ hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and ½ hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure.

16.13.2.3.4.1

The pump shall not be stopped until after the 2-hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

16.13.2.3.4.2

The pump shall be permitted to be stopped between tests in order to change the hose or nozzles, clean the strainer, or add fuel for the pump drive engine.

16.13.2.3.4.3

The ~~capacity~~ 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.

16.13.2.3.4.4

The average net pump pressure shall be calculated and recorded based on the average values for discharge and intake pressure.

16.13.2.3.5

If the apparatus is equipped with a fire pump rated at ~~greater than~~ 3000 gpm (12,000 L/min) or greater , the pump shall be subjected to a 3-hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 100 psi (700 kPa) net pump pressure, followed by ½ hour of continuous pumping at 70 percent of rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure and ½ hour of continuous pumping at 50 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure.

16.13.2.3.5.1

The pump shall not be stopped until after the 2-hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

16.13.2.3.5.2

The pump shall be permitted to be stopped between tests in order to change the hose or nozzles, clean the strainer, or add fuel for the pump drive engine.

16.13.2.3.5.3

The ~~capacity~~ 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.

16.13.2.3.5.4

The average net pump pressure shall be calculated and recorded based on the average values for discharge and intake pressure.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:24:36 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 60-NFPA 1901-2013 [Section No. 16.13.2.3.4.3]
Public Input No. 61-NFPA 1901-2013 [Section No. 16.13.2.3.5.3]
Public Input No. 259-NFPA 1901-2013 [Sections 16.13.2.3.4, 16.13.2.3.5]

First Revision No. 82-NFPA 1901-2013 [Section No. 16.13.2.3.6.3]

16.13.2.3.6.3
The ~~capacity~~ flow , discharge pressure, intake pressure, and engine speed shall be recorded at least every 10 minutes but not fewer than three times for each test sequence.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:27:19 EDT 2013

Committee Statement

Committee Statement: The capacity is a fixed number (such as 1500 GPM). The flow is what is measured and can change during the test.

Response Message:

Public Input No. 62-NFPA 1901-2013 [Section No. 16.13.2.3.6.3]

First Revision No. 83-NFPA 1901-2013 [Section No. 16.13.3]

16.13.3 Pumping Engine Overload Test.

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but ~~not greater~~ less than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

16.13.3.1

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

16.13.3.2

The ~~capacity~~ flow , discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:27:37 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 63-NFPA 1901-2013 [Section No. 16.13.3.2]

Public Input No. 260-NFPA 1901-2013 [Section No. 16.13.3]

First Revision No. 84-NFPA 1901-2013 [Sections 16.13.4.1, 16.13.4.2]

16.13.4.1

If the pump is rated at less than 3000 gpm (12,000 L/min) ~~or less~~ , the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ± 5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

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

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be re-established.

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

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ± 5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).

(11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ± 5 percent.

(12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

16.13.4.2

If the pumping system is rated at ~~greater than~~ 3000 gpm (12,000 L/min) or greater , the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ± 5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

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

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be re-established.

(6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).

(7) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ± 5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:30:46 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 261-NFPA 1901-2013 [Sections 16.13.4.1, 16.13.4.2]

First Revision No. 85-NFPA 1901-2013 [Section No. 16.13.7.3]

16.13.7.3
The rated tank-to-pump flow rate as defined in 18.3.2 shall be maintained until 80 percent of the rated capacity of the tank has been discharged.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:31:23 EDT 2013

Committee Statement

Committee Statement: The definition of "rated tank-to-pump flow rate" depends on factors only defined in 18.3.2. It is not in the definitions or chapter 16. This reference provides the link to the information.

Response Message:

Public Input No. 64-NFPA 1901-2013 [Section No. 16.13.7.3]

First Revision No. 235-NFPA 1901-2013 [Section No. 16.13.8.3]

16.13.8.3

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-and-roll, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when ~~either~~ any of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is ~~on~~ off , and the pump shift status in the driving compartment is disengaged.

(2) The chassis transmission is in any gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the ~~"Pump Engaged" or the "OK to Pump & Roll" position~~ pump engaged position .

(3) The chassis transmission is in any gear other than neutral, the parking brake is off, the pump shift in the driving compartment is in the pump engaged position and the "OK to Pump-and-Roll" indicator is on.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:58:36 EDT 2013

Committee Statement

Committee Statement: These edits provide clarification for requirements regarding engage speed control interlock systems.

Response Message:

Public Input No. 331-NFPA 1901-2013 [Section No. 16.13.8.3]
Public Input No. 338-NFPA 1901-2013 [Section No. 16.13.8.3]
Public Input No. 340-NFPA 1901-2013 [Section No. 16.13.8.1]
Public Input No. 341-NFPA 1901-2013 [Section No. 16.13.8.2]
Public Input No. 342-NFPA 1901-2013 [Section No. 16.13.8.4]

First Revision No. 86-NFPA 1901-2013 [Section No. 16.13.9.1]

16.13.9.1
Pump intake and discharge pressure gauges shall be checked for accuracy while pumping at rated capacity of the pump at 150 psi (1000 kPa) or 100 psi (700 kPa) for pumps rated 3000 gpm (12,000 L/min) or greater .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:34:07 EDT 2013

Committee Statement

Committee Statement: This change clarifies the test conditions for testing these gauges.
Response Message:
Public Input No. 65-NFPA 1901-2013 [Section No. 16.13.9.1]

First Revision No. 87-NFPA 1901-2013 [Section No. 16.13.9.3]

16.13.9.3
Each flowmeter shall be checked for accuracy while pumping water at ~~rated capacity~~ the flow listed in Table 16.12.3.9 at 100 psi (700 kPa).

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:35:10 EDT 2013

Committee Statement

Committee Statement: Rated Capacity is defined as the rated capacity of the pump. If not this definition, it might be referring to discharge rates from table 16.7.1, the capacity of the gauge (which might fit several different pipe sizes and flows), or some other rating. Referring to table 16.12.3.9 gives specific values for each gauge unambiguously.

Response Message:

Public Input No. 66-NFPA 1901-2013 [Section No. 16.13.9.3]

First Revision No. 229-NFPA 1901-2013 [Section No. 16.13.10.2]

16.13.10.2

The test shall be conducted as follows:

(1) The pump and its connected piping system shall be hydrostatically tested to a gauge pressure of ~~250~~ 500 psi (~~1700~~ 3400 kPa).

(2) The hydrostatic test shall be conducted with the tank fill line valve, the bypass line valve if so equipped, and the tank-to-pump valve closed.

(3) All discharge valves shall be open and the outlets capped.

(4) All intake valves shall be closed, and nonvalved intakes shall be capped.

(5) This pressure shall be maintained for 3 minutes.

Supplemental Information

File Name	Description
A.16.13.10.3.3_FR_229_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:10:11 EDT 2013

Committee Statement

Committee Statement: Requirement of 500 psi hydrostatic test is per PI-177 substantiation. Provision for performing hydrodynamic tests or elevated hydrostatic test pressure added to adequately test the completed pump and connected piping system to pressures attainable by those pumping systems that exceed the hydrostatic test requirement of 16.13.10.2. Add new sections and add new annex material A.16.13.10.3.3

Response Message:

A.16.13.10.3.3 The maximum discharge gauge pressure of the pumping system might be limited by the use or the combination of the pressure control system in 16.10.14, intake relief valve devices- in 16.6.6 or 16.6.7, and/or selection of engine speed capability, ratio of any speed increaser in the pump power train, and pump performance characteristics.

First Revision No. 88-NFPA 1901-2013 [Section No. 17.5.2.3]

17.5.2.3
Caps or ~~closures~~ plugs for intake connections smaller than 4 in. (100 mm) shall remain secured to the apparatus when removed from the connection.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:36:43 EDT 2013

Committee Statement

Committee Statement: Per 17.5.2.2.1, the closures are called Caps and Plugs. 17.5.2.3 should refer to "caps or plugs" or 'closures", or all three.
Response Message:
Public Input No. 67-NFPA 1901-2013 [Section No. 17.5.2.3]

First Revision No. 89-NFPA 1901-2013 [Section No. 17.9.4]

17.9.4 Indicator or Light.

~~Where a separate engine is used to drive the auxiliary pump, an amber indicator light marked with a label that reads "Pump Engine Running" shall be provided in the driving compartment and shall be energized when the pump engine is running.~~

17.9.4.1

Where a separate engine is used to drive the auxiliary pump, an indicator or light that is energized when the pump engine is running shall be provided in the driving compartment.

17.9.4.2

The indicator or light shall be marked with a label that reads "Pump Engine Running."

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:37:18 EDT 2013

Committee Statement

Committee Statement: Per the NFPA Manual of Style, each requirement is to be in a separate numbered section. This revision is a duplicate of 16.3.6-16.3.6.2.

Response Message:

Public Input No. 68-NFPA 1901-2013 [Section No. 17.9.4]

First Revision No. 90-NFPA 1901-2013 [Section No. 17.11.2.6.1]

17.11.2.6.1

Each flowmeter shall be checked for accuracy while pumping water at ~~rated capacity~~ the flow listed in Table 16.12.3.9 at 100 psi (700 kPa) . ~~Any flowmeter that is off by more than 10 percent shall be recalibrated, repaired, or replaced.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 21:40:51 EDT 2013

Committee Statement

Committee Statement: Rated Capacity is defined as the rated capacity of the pump. If not this definition, it might be referring to discharge rates from table 16.7.1, the capacity of the gauge (which might fit several different pipe sizes and flows), or some other rating. Referring to table 16.12.3.9 gives specific values for each gauge unambiguously. The NFPA Manual of Style requires that each requirement be in a separate numbered section.

Response Message:

Public Input No. 69-NFPA 1901-2013 [Section No. 17.11.2.6.1]

First Revision No. 240-NFPA 1901-2013 [New Section after 18.2.1]

18.2.2
Water tanks exposed to sunlight shall be opaque to prevent light from entering, with the exception of the water level visual indicator panel, if equipped.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:37:24 EDT 2013

Committee Statement

Committee Statement: Algae can develop inside a poly tank if light is present.
Response Message:

First Revision No. 241-NFPA 1901-2013 [Section No. 18.2.3]

18.2.4*
If the water tank is independent of the body and compartments, it shall be equipped with a method for ~~lifting~~ removing the tank(s) ~~off~~ from the chassis.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:39:04 EDT 2013

Committee Statement

Committee Statement: It may not be necessary to lift the tank to remove.
Response Message:

First Revision No. 238-NFPA 1901-2013 [Section No. 18.2.6.2]

18.2.7.2
A means of access 3 in. (75 mm) diameter or larger ~~removable pipe plug~~ shall be furnished ~~in~~ for each sump to facilitate cleaning .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:25:46 EDT 2013

Committee Statement

Committee Statement: Adding language to clarify requirement.
Response Message:
Public Input No. 355-NFPA 1901-2013 [Section No. 18.2.6.2]
Public Input No. 391-NFPA 1901-2013 [Section No. 18.2.6.3]

First Revision No. 118-NFPA 1901-2013 [Section No. 19.2.11 [Excluding any Sub-Sections]]

The apparatus shall be equipped with steps that meet the skid resistance requirements of 15.7.4 or with rungs ~~that~~ , either of which provides a path at any degree of elevation from the bottom rung of the aerial ladder to the ground.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 14:38:44 EDT 2013

Committee Statement

Committee Statement: The comma is necessary to make the following clause apply both to steps and rungs.
Response Message:

Public Input No. 70-NFPA 1901-2013 [Section No. 19.2.11 [Excluding any Sub-Sections]]

First Revision No. 119-NFPA 1901-2013 [Section No. 19.2.13 [Excluding any Sub-Sections]]

Where a breathing air system is provided, it shall meet the requirements of 19.2.13.1 through 19.2.13.9~~19.2.13.8~~ .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 14:42:09 EDT 2013

Committee Statement

Committee Statement: This heading is consistent with the format of this Chapter.
Response Message:

First Revision No. 120-NFPA 1901-2013 [New Section after 19.2.13.1]

19.2.13.2
If a secondary operator's position is provided, the purchaser shall specify where on the aerial device the air supply outlet is to be located.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 14:43:48 EDT 2013

Committee Statement

Committee Statement: The new text is provided to clarify that the breathing outlet directly services the secondary operator's position. Add new section and renumber accordingly.

Response Message:

Public Input No. 363-NFPA 1901-2013 [Section No. 19.2.13.1]

First Revision No. 121-NFPA 1901-2013 [Section No. 19.3.2]

19.3.2

The ~~rated capacity of the~~ aerial ladder shall be ~~a minimum load of 250 lb (114 kg) carried~~ able to carry its rated capacity on the outermost rung of the outermost fly section with the aerial ladder at 45 degrees to the horizontal and at maximum extension while discharging water at rated capacity through the full range of monitor or nozzle movements as permitted by the aerial manufacturer.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 14:46:45 EDT 2013

Committee Statement

Committee Statement: Clarifies and simplifies ladder capacity while flowing water.
Response Message:
Public Input No. 71-NFPA 1901-2013 [Section No. 19.3.2]

First Revision No. 138-NFPA 1901-2013 [Section No. 19.3.4]

19.3.4*

If the aerial ladder is rated in multiple configurations, the manufacturer shall describe these configurations, including the rated capacity ~~of each, in both~~ at each operating position. This information shall be provided in the operations manual and on a ~~label at~~ capacity label or on an electronic display at the operator's control station.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 16:13:34 EDT 2013

Committee Statement

Committee Statement: Aerial electronic control systems can now limit the range of motion of the aerial device (envelope control) while carrying its rated capacity based on the position of the aerial, outrigger extension. An aerial ladder should have a minimum capacity rating established with the stabilizers fully deployed and the ladder extended horizontally to its maximum limit recommended by the manufacturer.

Response Message:

First Revision No. 122-NFPA 1901-2013 [Section No. 19.5.2.1]

19.5.2.1*
The turntable rotation bearing shall be accessible for lubrication and ~~retorquing~~ torque verification of bolts.

Supplemental Information

File Name	Description
19.5.2.1_FR_122_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 14:50:57 EDT 2013

Committee Statement

Committee Statement: As was correctly accomplished in NFPA 1911, 2009 Edition, the word re-torque refers to the backing off of a fastener and then "retorquing" the fastener. The result of this process is to reduce the clamping force by as much as 50% which is unacceptable in the required application. The proper terminology for the process is to use a properly calibrated torque wrench and "verify" the manufacturer's original torque specification value.

Response Message:

Public Input No. 246-NFPA 1901-2013 [Section No. 19.5.2.1]

First Revision No. 123-NFPA 1901-2013 [New Section after 19.6.4.5]

19.6.4.6
For ladders that have a waterway design that allows the monitor to be connected to different ladder sections, a secondary means, not requiring operator intervention, shall be provided to prevent the monitor from being ejected from the ladder.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:00:00 EDT 2013

Committee Statement

Committee Statement: Note: This Proposal originates from Tentative Interim Amendment 1901-09-2 (TIA 954) issued by the Standards Council on August 6, 2009. In May 2008 NIOSH published a safety advisory regarding the improper set-up of an aerial ladder with a locking pin-anchored waterway resulting in a fire fighter fatality. In the advisory NIOSH recommended aerial ladder manufacturers retrofit existing aerial ladder trucks with secondary stops or other engineering controls to prevent a waterway launch in the event the waterway is improperly anchored. NIOSH also recommended that standards setting organizations should establish standards that include engineering safeguards to prevent inadvertent waterway separation. The Fire Department Apparatus Technical Committee Task Group met to address the issue of locking pin-anchored waterways and monitors and decided a TIA was appropriate to add to NFPA 1901, 2009 edition. After the NIOSH safety advisory was published, the committee discovered multiple reports of similar circumstances not involving injury. A task group developed text in June of 2008 and was later approved by the full committee at their meeting in January 2009.

Response Message:

Public Input No. 262-NFPA 1901-2013 [New Section after 19.6.4.5]
Public Input No. 267-NFPA 1901-2013 [New Section after 19.6.10]
Public Input No. 268-NFPA 1901-2013 [New Section after 19.6.10]

First Revision No. 124-NFPA 1901-2013 [Section No. 19.7.6.2 [Excluding any Sub-Sections]]

A continuous guard railing, a minimum of 42 in. (1070 mm) high, shall be provided on all sides.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:06:51 EDT 2013

Committee Statement

Committee Statement: Currently no standard exists for the aerial platform guard rails. This proposal brings the platform guardrails in line with Section 19.18.1.2 turntable guardrail design, and in line with ISO 16653-1-2008 Mobile Elevating Work Platforms, Section 4.1.2.4. Add new section and renumber accordingly.

Response Message:

Public Input No. 72-NFPA 1901-2013 [New Section after 19.7.6.2.4]
Public Input No. 249-NFPA 1901-2013 [New Section after 19.7.6.2.2]
Public Input No. 296-NFPA 1901-2013 [New Section after 19.7.6.2.4]
Public Input No. 324-NFPA 1901-2013 [Section No. 19.7.6.2 [Excluding any Sub-Sections]]
Public Input No. 364-NFPA 1901-2013 [Section No. 19.7.6.2 [Excluding any Sub-Sections]]

First Revision No. 125-NFPA 1901-2013 [New Section after 19.7.6.2.4]

19.7.6.2.6
Each gate shall be capable of withstanding a 1000 lb force (4000 N) applied at the least favorable position in the least favorable direction, without opening outward.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:11:19 EDT 2013

Committee Statement

Committee Statement: Currently no standard exists for the structural capability of inward opening gates or doors. This proposal reflects a load of two 250 lb (114 kg) personnel thrown against the door with a 1 G acceleration load and maintaining a 2 to 1 (50% of yield) safety factor.

Response Message:

Public Input No. 326-NFPA 1901-2013 [Section No. 19.7.6.2.4]
Public Input No. 365-NFPA 1901-2013 [Section No. 19.7.6.2.4]
Public Input No. 366-NFPA 1901-2013 [Section No. 19.7.6.2.3]

First Revision No. 126-NFPA 1901-2013 [Section No. 19.7.6.8]

~~**19.7.6.9**~~
~~Provisions shall be made so that personnel working on the platform can attach fall protection harnesses.~~

Supplemental Information

File Name	Description
A.19.7.6.6_FR_126_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:16:24 EDT 2013

Committee Statement

Committee Statement: Current standard does not define the number, or the capacity of tie off points for fall protection This material belongs under 19.7.6 Platform Construction. Relocate existing 19.7.6.8 and new text to new 19.7.6.6 and place above Existing 19.7.6.6 Heat Shield. Renumber accordingly. Add new annex material A.19.7.6.6

Response Message:

Public Input No. 337-NFPA 1901-2013 [Section No. 19.7.6.8]
Public Input No. 339-NFPA 1901-2013 [New Section after A.19.6.9]
Public Input No. 362-NFPA 1901-2013 [Section No. 19.7.6.8]

A.19.7.6.6 Anchorage systems for fall protection systems exist in several different classes, and the purchaser should be aware of the following differences in fall protection harnesses:~~.~~

1. Travel restraint system. Used to limit movement in the confines of the aerial platform and uses a belt hook and 450 lb (205 kg)~~-~~ rated anchorage point~~.~~
2. Fall restraint system. Similar to item 1 with more freedom of movement in the platform and uses a belt, 18 in. to ~~-~~24 in. (45.7 cm to 60.96 cm) ~~"~~ lanyard, and 900 lb (408 kg) rated anchorage point
3. Fall arrest system. Used to arrest an occupant in a fall from a working level. System uses a body harness, shock absorbing lanyard, and an 1800 lb (815 kg) rated anchorage point ~~and~~

The rating of the fall protection harness~~es~~ is a rating of the anchorage itself. The rated capacity of the aerial is not to be exceeded because of the fall protection harness attachment rating.

First Revision No. 127-NFPA 1901-2013 [Section No. 19.7.7]

19.7.7 Breathing Air System.

Where a breathing air system is provided, it shall supply breathing air for a minimum of two persons on the platform and shall meet the requirements of 19.7.7.1 through 19.7.7.7.

19.7.7.1

The system shall include storage for at least 400 ft^3 (11,320 L) of breathing air and shall meet the requirements of Section 24.5.

19.7.7.2 Piping System.

19.7.7.2.1

All components of the piping system shall be designed for a pressure rating of three times the working pressure that they are expected to carry.

19.7.7.2.2

The piping system shall be arranged with a high pressure regulator at the air supply that shall limit the air pressure in the piping up the aerial device to the pressure required to supply 125 psi (862 kPa) at the outlet point.

19.7.7.2.3

All piping, valves, and components shall be fabricated of corrosion-resistant materials and shall be sized for the number of outlets provided in the platform.

19.7.7.2.4

A pressure relief valve set to relieve the pressure at 1½ times the working pressure of the piping system in the event of regulator failure shall be provided on the downstream side of the high pressure regulator.

19.7.7.3 Damage Prevention.

19.7.7.3.1

All valves, pressure regulators, and gauges shall be protected from accidental damage.

19.7.7.3.2

The piping or hose system between the air cylinder(s) and the platform shall be installed so as to prevent damage due to abrasion, bending, pinching, or exposure to excessive heat.

19.7.7.4

Holders shall be provided for the storage of the breathing air equipment when it is not in use.

19.7.7.5

A low air warning system shall be provided that monitors the air volume and provides an audible and visual warning at both the upper and lower control stations when the air volume is at or below 20 percent.

19.7.7.6

The quality of the breathing air shall meet the requirements of NFPA 1989~~,~~ ~~*Standard on Breathing Air Quality for Emergency Services Respiratory Protection*~~ .

19.7.7.7

All components of the system that the breathing air will be in contact with shall be cleaned of oil, grease, contaminants, and foreign material.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:31:08 EDT 2013

Committee Statement

Committee Statement: Needs a section title to be consistant with format style
Response Message:
Public Input No. 361-NFPA 1901-2013 [Section No. 19.7.7]

First Revision No. 136-NFPA 1901-2013 [Section No. 19.8.6]

19.8.6*

If the elevating platform is rated in multiple configurations, the manufacturer shall describe these configurations, including the rated capacity ~~of each,~~ at each operating position. This information shall be provided in the operations manual and on ~~the labels~~ a capacity label or on an electronic display at the turntable and platform operator's control stations.

Supplemental Information

File Name	Description
A.19.8.6_FR_136_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 16:04:56 EDT 2013

Committee Statement

Committee Statement: Elevating platform electronic control systems can now limit the range of motion of the aerial device (envelope control) while carrying its rated capacity based on the position of the aerial, outrigger extension, applied loads, etc. An aerial ladder should have a minimum capacity rating established with the outriggers fully deployed and the ladder extended horizontally to its maximum limit. Add new annex material A.19.8.6

Response Message:

A.19.8.6 Platform **c**apacity ratings can be established in many different operating positions other than full extension and zero degrees elevation. Platforms are often rated at higher capacities as elevation angles increase or when the device ~~-~~is not fully extended. Most manufacturers provide distributed load capacities (several persons), depending on the aerial's extension and elevation. Combination ratings that include capacity at the tip while discharging water are normally provided. These can vary with elevation and extension and are examples of multiple configurations. It is important that the manufacturer clearly define for the user the ladder's rated capacity in various positions and operation modes.

Aerial control systems can now limit the motion of the aerial device based on the following conditions:

1. ~~1.~~Geometric position of the aerial device
2. Weights and loads (ice, wind, nozzle reactions, slope conditions, etc.) applied to the aerial device that create overturning loads
3. Stabilizer extension at each location
4. Position of the aerial device with respect to the centerline of the truck~~.~~

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These geometric conditions are complex, and the electronic systems should ~~must~~ clearly monitor the required inputs and validate the range of motion with the loads applied while maintaining the required safety factors for vehicle stability and structural safety.

First Revision No. 128-NFPA 1901-2013 [Section No. 19.10.3.1]

19.10.3.1*
The turntable rotation bearing shall be accessible for lubrication and ~~retorquing~~ torque verification of bolts.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:39:38 EDT 2013

Committee Statement

Committee Statement: As was correctly accomplished in NFPA 1911, 2009 Edition, the word re-torque refers to the backing off of a fastener and then "retorquing" the fastener. The result of this process is to reduce the clamping force by as much as 50% which is unacceptable in the required application. The proper terminology for the process is to use a properly calibrated torque wrench and "verify" the manufacturer's original torque specification value.

Response Message:

Public Input No. 248-NFPA 1901-2013 [Section No. 19.10.3.1]

First Revision No. 129-NFPA 1901-2013 [New Section after 19.21.2]

19.21.2.1

The worst case for stability test shall be the greater of the following:

(1) Rated capacity with no water in the waterway system.

(2) Rated capacity while flowing the aerial waterway's rated flow. This test shall include 1.33 times the rated capacity plus the equivalent weight of the water in the aerial waterway and the downward load caused by nozzle reaction force applied at the aerial tip.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:42:11 EDT 2013

Committee Statement

Committee Statement: The worst case for stability testing is defined by either of these conditions

Response Message:

Public Input No. 428-NFPA 1901-2013 [Section No. 19.21.2]
Public Input No. 429-NFPA 1901-2013 [New Section after 19.21.2]
Public Input No. 432-NFPA 1901-2013 [New Section after 19.21.3.1]

First Revision No. 130-NFPA 1901-2013 [Sections 19.22.2.4, 19.22.2.5]

19.22.2.4

All testing shall be performed by Level II or Level III NDT technicians or by Level 1 NDT technicians or trainees under the direct supervision of an onsite Level II or Level III NDT technician, all of whom have been certified in the test methods used in accordance with ANSI/ ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*.

19.22.2.5

Personnel certified under ANSI/ ASNT CP-189 shall be permitted to conduct NDT with limited certifications, so long as the certifications meet the training and experience requirements listed in Table 19.22.2.5 and any applicable requirements in Appendix B of ANSI/ ASNT CP-189. The personnel shall be certified as Limited Level II, and the certification card shall indicate that a limited certification has been issued in the given technique.

Table 19.22.2.5 Training and Experience Hours for Conducting Limited Level II Inspections

Evaluation Technique	Required Training (hr)	Minimum Required Experience in Method (hr)
Magnetic particle — ac yoke, visible dry powder	8	120
Liquid penetrant — water washable or solvent removable, visible dye, penetrant	8	100
Visual inspection — eye, aided by magnifiers and measuring tools	8	100
Ultrasonic straight beam (A-scan) flaw detection	40	60

Supplemental Information

File Name	Description
19.22.2.4_FR_130_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:45:18 EDT 2013

Committee Statement

Committee Statement: Document revised.

Response Message:

Public Input No. 35-NFPA 1901-2013 [Sections 19.22.2.4, 19.22.2.5]

First Revision No. 131-NFPA 1901-2013 [Section No. 19.22.5.5]

19.22.5.5
All hardness readings shall be conducted in accordance with the following ASTM standards:

(1) ASTM E 6, *Standard Terminology Relating to Methods of Mechanical Testing*

(2) ASTM E 10, *Standard Test Method for Brinell Hardness of Metallic Materials*

(3) ASTM E 18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*

(4) ASTM E ~~92~~ 384 , *Standard Test Method for Knoop and Vickers Hardness of Metallic Materials*

(5) ASTM B 647, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Webster Hardness Gage*

(6) ASTM B 648, *Standard Test Method for Indentation Hardness of Aluminum Alloys by Means of a Barcol Impressor*

Supplemental Information

File Name	Description
19.22.5.5_FR_131_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:46:19 EDT 2013

Committee Statement

Committee Statement: ASTM E 92 was withdrawn in 2010 and superseded by ASTM E 384.
Response Message:
Public Input No. 37-NFPA 1901-2013 [Section No. 19.22.5.5]

First Revision No. 132-NFPA 1901-2013 [Section No. 19.23.1.2]

19.23.1.2

~~Warning and caution signs shall indicate hazards inherent in the operation of the aerial device, including, but not limited to, the following:~~ Safety signs warning of hazards that are substantially similar to the following found in FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be provided where applicable:

(1) ~~Electrical hazards where the aerial device does not provide protection to the personnel from contact with or proximity to an electrically charged conductor~~ FAMA 25 (Training Required): One sign visible to the operator at the main aerial controls

(2) ~~Electrical hazards where the aerial device does not provide protection to ground personnel who contact the apparatus when it is in contact with energized electrical conductors~~ FAMA 30 (Stabilizer Crush): One sign visible to personnel near each stabilizer and one sign at the stabilizer deployment control(s)

(3) ~~Hazards from stabilizer motion~~ FAMA 31 (Stabilizers with Pins) or FAMA 32 (Stabilizers without Pins): One sign in a location visible to personnel at the stabilizer deployment control(s)

(4) ~~Hazards that can result from failure to follow manufacturer's operating instructions~~ FAMA 34 (Fall Restraint Required): One sign in a location visible to personnel at the base of any aerial device with a ladder capable of being climbed and one sign visible to personnel in any aerial platform

(5) FAMA 35 (Electrocution): One sign in a location visible to the aerial operator and one sign in a location visible to the pump operator

(6) FAMA 36 (Electrocution): One sign on each side of the vehicle and one sign on the back

(7) FAMA 37 (Aerial Device Load Capacity): One sign visible to operators at any location where the aerial can be controlled

(8) FAMA 38 (Aerial Ladder Rung Pinch): One sign visible to operators at any location where the aerial can be controlled

(9) FAMA 38 (Aerial Inspection and Maintenance): One sign visible to the operator at the main aerial controls

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:48:36 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format.

Response Message:

Public Input No. 367-NFPA 1901-2013 [Section No. 19.23.1.2]

Public Input No. 414-NFPA 1901-2013 [Section No. 19.23.1.2]

First Revision No. 140-NFPA 1901-2013 [Section No. 19.24.2.4]

19.24.2.4
Systems that allow the aerial device to be operated ~~over the side~~ with the stabilizers not fully deployed shall be tested in three positions:

(1) Stabilizers at the minimum extension as defined by the manufacturer

(2) Stabilizers extended to midpoint of the minimum extension and full extension

(3) Stabilizers fully deployed

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 16:20:34 EDT 2013

Committee Statement

Committee Statement: In certain vehicle configurations the condition of worst stability may not be over the side of the truck
Response Message:

First Revision No. 133-NFPA 1901-2013 [New Section after 19.24.2.5]

19.24.2.5.1
For aerial devices that have computer controlled or electronically controlled limitations to the range of aerial movement, a test as defined by the manufacturer shall be performed to validate the proper operation of the control system.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 15:52:31 EDT 2013

Committee Statement

Committee Statement: Note: This Proposal originates from Tentative Interim Amendment 1901-09-3 (TIA 958) issued by the Standards Council on August 6, 2009. In the 2009 NFPA 1901 standard, a significant change was made to the sections of the standard that establishes the rated capacity for aerial ladders and platforms. The new standard allows for essentially two types of rating systems, the first being a relatively simple method of rating the ladder in the worst case position. This requires the ladder to be fully extended, in a horizontal position and sustain a minimum rated capacity of 250 pounds for aerial ladders and 750 pounds for elevating platforms. In this position, structural safety factors and vehicle stability factors are established. Since 1991, this has been the rating systems for aerials in the United States. The second aerial rating method is called an envelope control system. These systems utilize electronic control technologies to determine the safe working capacity and range of motion of the aerial device. These systems are widely used in many parts of the world and are derived largely from the German DIN standards and are also reflected in the current EN 14043 standards for aerial ladders. In response to committee requests, aerial task group meetings were held to better understand the differences in two rating systems. As a result of these meetings and in committee discussions with Fire Apparatus Manufacturer's Association members this TIA was developed. Justification: Due to the design of the envelope control systems, the range of operation of the aerial device is determined by the electronic control systems and these need to be verified by the manufacturer. The 1901 technical committee feels that the addition of the tests in the new vehicle standard (NFPA 1901) and the testing standard (NFPA 1911) is an important validation of the envelope control systems.

Response Message:

Public Input No. 263-NFPA 1901-2013 [New Section after 19.24.2.5]

First Revision No. 139-NFPA 1901-2013 [Section No. 19.24.2.9.3]

19.24.2.9.3

Systems that allow the aerial device to be operated ~~over the side~~ with the stabilizers not fully deployed shall be tested in three positions:

(1) Stabilizers at the minimum extension as defined by the manufacturer

(2) Stabilizers extended to midpoint of the minimum extension and full extension

(3) Stabilizers fully deployed

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 19 16:16:54 EDT 2013

Committee Statement

Committee Statement: In certain vehicle configurations , the condition of worst stability may not be over the side of the truck
Response Message:

First Revision No. 107-NFPA 1901-2013 [Section No. 20.6.3.3]

20.6.3.3*
The fill opening shall incorporate a removable screen with a mesh not to exceed 0.25 in. (6 mm) ~~and shall be arranged so that foam concentrate from a 5 gal (19 L) container can be dumped directly to the bottom of the tank to minimize aeration without the use of funnels or other special devices~~ .

Supplemental Information

File Name	Description
A.20.6.3.3_FR_107_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 11:59:06 EDT 2013

Committee Statement

Committee Statement: The NFPA Manual of Style requires each requirement to be in a separate numbered section. In Europe, standard foam pails are various sizes up to 25 liters. Dumping directly to the bottom of the foam tank maximizes, not minimizes, aeration. This exact change was made in NFPA 1906-2012. New annex language suggests that a refill system from the ground level can increase safety and can be specified by the purchaser. Add new annex material A.20.6.3.3

Response Message:

Public Input No. 73-NFPA 1901-2013 [Section No. 20.6.3.3]
Public Input No. 133-NFPA 1901-2013 [New Section after A.20.6.3.2]
Public Input No. 250-NFPA 1901-2013 [Section No. 20.6.3]
Public Input No. 403-NFPA 1901-2013 [New Section after A.20.6.8]

A.20.6.3.3 The purchaser might~~may~~ want to consider a foam tank refill system to allow refilling the foam tank with a pump, so fire fighters do not need to climb on top of the apparatus and lift foam pails to the top of the apparatus. It should discharge to the bottom of the tank to minimize aeration.

First Revision No. 199-NFPA 1901-2013 [Sections 20.10.2, 20.10.3]

20.10.2
Systems ~~designed to~~ that produce foam solution at ratios of less than 1 percent shall proportion foam concentrate to an accuracy of -0/+40 percent.

20.10.3
Systems ~~designed to~~ that produce foam solution at ratios of 1 percent or greater shall proportion foam concentrate to an accuracy of -0/+30 percent or 1 percentage point, whichever is less.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 16:29:53 EDT 2013

Committee Statement

Committee Statement: The accuracy is based on proportioning rate.
Response Message:
Public Input No. 332-NFPA 1901-2013 [Sections 20.10.2, 20.10.3]

First Revision No. 201-NFPA 1901-2013 [Section No. 21.2.2.1]

21.2.2.1*
The airflow shall be expressed in standard cubic feet per minute (SCFM) [~~L/min at standard temperature and pressure~~ standard cubic meters per minute (SCMM)] and shall be based on the continuous flow capacity of the compressed air source(s) at a minimum gauge pressure of 125 psi (862 kPa).

Supplemental Information

File Name	Description
A.21.2.2.1_FR_201_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 16:37:15 EDT 2013

Committee Statement

Committee Statement: Editorial changes and addition of annex material that clarifies that systems operate under different conditions and pressures. Add new annex A.21.2.2.1

Response Message:

Public Input No. 75-NFPA 1901-2013 [Section No. 21.2.2.1]
Public Input No. 384-NFPA 1901-2013 [Section No. 21.2.2.1]
Public Input No. 385-NFPA 1901-2013 [Section No. 21.2.2.2]

A.21.2.2.1 The airflow in standard cubic feet per minute (SCFM) [stand cubic meters per minute (SCCM)] at 125 psi (862 kPa) represents a rating of the air compressor capacity. Air compressor capacity varies according to the delivery pressure of the compressor. The basis for rating air compressors for CAF systems in NFPA 1901 and NFPA 1906 is 125 psi (862 kPa). It is recognized that in actual operation~~,~~ the air pressure of the CAF stream mightmay vary from this rating basis due to operational characteristics of the CAF system.

~~[**1901**:A.21.2.2.1]~~

The 125 psi~~PSI~~ (862 kPa) rating point utilized in determining the pressure rating for a~~A~~ir compressors used in c~~C~~ompressed a~~A~~ir f~~F~~oam s~~S~~ystems (CAFS) has been identified as a minimum requirement based on significant testing by multiple fire-fighting agencies. The ability of the compressor to perform at 125 psi (862 kPa) ~~PSI~~ ensures that the CAFS will ~~;~~ perform in instances where long hose lays are used, ensures a safe amount of reach in fire-fighting activities, and allows for lines to be safely charged without risk of kinking during interior attack or other instances where hoses mightmay be wrapped around obstructions.

First Revision No. 202-NFPA 1901-2013 [Section No. 21.3.4 [Excluding any Sub-Sections]]

~~If a~~ If an air receiver or holding, surge, or separator tank ~~(DOT tank or ASME pressure vessel) is provided, it shall comply with 29 CFR 1910.169, "Air receivers," or equal for the rated pressure~~ is provided and is 6 in. nominal pipe size or less, the tank shall be subjected to a hydrostatic test to a gauge pressure of 500 psi (3400 kPa) for a minimum of 10 minutes .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 16:41:59 EDT 2013

Committee Statement

Committee Statement: New text provides clarification on the description of the type of air receivers, holding, surge, or separator tanks, and how they are tested.

Response Message:

Public Input No. 121-NFPA 1901-2013 [Section No. 21.3.4 [Excluding any Sub-Sections]]
Public Input No. 353-NFPA 1901-2013 [Section No. 21.3.4 [Excluding any Sub-Sections]]

First Revision No. 108-NFPA 1901-2013 [Section No. 21.7.5.1]

21.7.5.1
Flowmeter displays shall be located at the pump operator's panel and shall indicate the airflow in standard cubic feet per minute (SCFM) [~~L/min at standard temperature and pressure~~ standard cubic meters per minute (SCMM)] and indicate the waterflow in gallons per minute (gpm) [liters per minute (L/min)].

Supplemental Information

File Name	Description
21.7.5.1_FR_108_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 12:22:12 EDT 2013

Committee Statement

Committee Statement: Editorial correction.
Response Message:
Public Input No. 76-NFPA 1901-2013 [Section No. 21.7.5.1]

First Revision No. 203-NFPA 1901-2013 [Section No. 21.9.1.1.1]

21.9.1.1.1*
The compressed air system shall be operated at its flow capacity at a minimum gauge pressure of 125 psi (862 kPa), and the water pump shall discharge a minimum of 2 gpm (7.6 L/min) of water at 125 psi (862 kPa) net pump pressure for every 1 SCFM [28.3 L/min at standard temperature and pressure] of compressed air discharge.

Supplemental Information

File Name	Description
A.21.9.1.1.1_FR_203_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 16:46:21 EDT 2013

Committee Statement

Committee Statement: New annex material clarifies that in actual service, the ratio of waterflow rate to airflow rate may vary from the ratio required for the CAFS Capacity Rating Test. This will address confusion in the fire service. Add new annex material A.21.9.1.1.1

Response Message:

Public Input No. 386-NFPA 1901-2013 [Section No. 21.9.1.1.1]
Public Input No. 387-NFPA 1901-2013 [New Section after 21.9.1.1.1]

A.21.9.1.1.1 The CAFS cCapacity rRating tTest is performed with the system discharging 2 gpm (7.6 L/min) of water for every 1 SCFM [28.3 L/min at standard temperature and pressure] of compressed air discharge. This test verifies that the system is capable of these capacities without failure of any component of the CAFS. It is recognized that in actual fire -fighting use, the ratio of waterflow to airflow mightmay vary depending on how wet or dry the CAF stream is desired for a particular application.

First Revision No. 109-NFPA 1901-2013 [Section No. 21.9.1.3.1]

21.9.1.3.1
The airflow shall be measured in standard cubic feet per minute (SCFM) [~~L/min at standard temperature and pressure~~ standard cubic meters per minute (SCMM)] at a minimum gauge pressure of 125 psi (862 kPa).

Supplemental Information

File Name	Description
21.9.1.3.1_FR_109_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 12:28:09 EDT 2013

Committee Statement

Committee Statement: Editorial correction.
Response Message:
Public Input No. 77-NFPA 1901-2013 [Section No. 21.9.1.3.1]

First Revision No. 213-NFPA 1901-2013 [Section No. 22.4.8.2]

~~22.4.8.2~~

~~Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:50:37 EDT 2013

Committee Statement

Committee Statement: This requirement is no longer necessary with electronically controlled engines.

Response Message:

Public Input No. 78-NFPA 1901-2013 [Section No. 22.4.8.2]

First Revision No. 57-NFPA 1901-2013 [Section No. 22.5.1.2]

~~22.5.1.2~~

~~Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:47:55 EDT 2013

Committee Statement

Committee Statement: All modern commercial trucks utilize digital electronic speedometers that display the speed from a electronic signal provided by the Vehicle Speed Signal. The vehicle VSS is a digital broadcast signal that is used by other vehicle systems such as engine emission control, ABS system, Electronic Stability Control, Compression brakes, axle differentials and a long list of safety interlocks such as door locks that use vehicle speed as a parameter of function. On some chassis the VSS comes from the transmission on other chassis the signal comes from a front wheel sensor. All modern commercial truck electronic use computer logic to determine they are not moving and do not produce a VSS until the vehicle is actually moving. It is very difficult to produce a transmission VSS signal and tell all systems but the speedometer to not read it. It is impossible to produce a VSS if the chassis uses a wheel end sensor and the wheel is not moving. Asking to create a “false” VSS to make the speedometer read when the vehicle is not move is very costly and creates a lot of problems with other systems see a vehicle speed without wheel movement. This is a big engineering effort to do this and I question the value of a false speedometer signal. Do people really set a generator speed manually by watching the speedo with a hand throttle today? No, not allowed I don’t think the intent of this was to create a very complex, costly engineering project. Please remove the standard.

Response Message:

Public Input No. 237-NFPA 1901-2013 [Section No. 22.5.1.2]

First Revision No. 214-NFPA 1901-2013 [Section No. 22.5.1.3]

~~22.5.1.3~~

~~Where the generator is driven by the chassis engine and transmission through a split shaft PTO and a chassis transmission retarder is furnished, it shall be automatically disengaged for generator operations.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:52:01 EDT 2013

Committee Statement

Committee Statement: This requirement is no longer necessary with electronically controlled engines.
Response Message:

First Revision No. 215-NFPA 1901-2013 [Section No. 22.10.5]

22.10.5*

Splices shall be made ~~only~~ in a listed junction box or in accordance with Section 110.14(B) of *NFPA 70* , and they shall be in an accessible location that can be exposed without damaging the structure or finish of the vehicle .

Supplemental Information

File Name	Description
A.22.10.5_FR_215_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 08:53:53 EDT 2013

Committee Statement

Committee Statement: Certain devices such as brow mounted lights do not always allow for the mounting of a junction box in the overhead of the apparatus. This change would allow flexibility for connecting to the device in tight spaces. Add new annex material A.22.10.5

Response Message:

Public Input No. 323-NFPA 1901-2013 [Section No. 22.10.5]

A.22.10.5 Some apparatus manufacturing processes do not allow for initial installation of flexible cord in continuous runs. These processes also might ~~may~~ inhibit the installation of junction boxes in locations easily accessible. In those cases, splicing outside a junction box ~~-~~might be necessary~~may need to occur~~. If splices are used, the manufacturer should follow section Section 110.14(B) of *NFPA 70, National Electrical Code*. : **"110.14(B)Splices.** Conductors shall be spliced or joined with splicing devices identified for the use or by brazing, welding or soldering with a fusible metal alloy. Soldered splices shall first be spliced or joined so as to be mechanically and electrically secured without solder and then be soldered. All splices and joints and the free ends of the conductors shall be covered with an insulation equivalent to the conductors or with an insulating device identified for the purpose."

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First Revision No. 113-NFPA 1901-2013 [Section No. 23.5.2]

23.5.2*
Lighting levels during command operations shall provide a continuous ~~100~~ 25 fc (~~1000 lx~~ 269 lx) in the command area.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 15:37:05 EDT 2013

Committee Statement

Committee Statement: The 100 fc requirement is too high for command center lighting, and office lighting in general. In measuring the lighting levels in an office environment with computer workstations we found that values ranged from approximately 18 fc to approximately 40 fc depending on the distance from the light source. In no case was the light insufficient for effective work. Recommend that paragraph 23.5.2 be changed as identified above to more closely match what is necessary.

Response Message:

Public Input No. 356-NFPA 1901-2013 [Section No. 23.5.2]

First Revision No. 197-NFPA 1901-2013 [Section No. 23.6]

23.6* Command Working Surfaces and Countertop.
Horizontal working surfaces shall be smooth and shall have corners and edges that will not cause injury or damage when rubbed up against.

~~**23.6.1***~~
~~Horizontal working surfaces shall be smooth and shall have corners and edges that will not cause injury or damage when rubbed up against.~~

~~**23.6.2**~~
~~Chair-level work surfaces shall be 28 in. to 30 in. (710 mm to 760 mm) above the floor.~~

~~**23.6.3**~~
~~Standup work surfaces shall be 36 in. to 40 in. (900 mm to 1000 mm) above the floor.~~

Supplemental Information

File Name	Description
A.23.6_FR_197_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:59:19 EDT 2013

Committee Statement

Committee Statement: These requirements do not need to be part of a minimum standard and should be relocated as informational material to the annex. Delete section 23.6.2 and 23.6.3 and add to existing annex material for 23.6.1 Annex material associated with 23.6.1 will now be associated with 23.6 See attachment

Response Message:

Public Input No. 346-NFPA 1901-2013 [Section No. 23.6.2]
Public Input No. 349-NFPA 1901-2013 [Section No. 23.6.3]

A.23.6.~~1~~ Removable Plexiglas® or wired safety glass–type surfaces can be added to the top of work surfaces.

~~23.6.2~~ Chair-level work surfaces ~~shall~~ should be 28 in. to 30 in. (710 mm to 760 mm) above the floor.

~~23.6.3~~ Standup work surfaces ~~shall~~ should be 36 in. to 40 in. (900 mm to 1000 mm) above the floor.

First Revision No. 114-NFPA 1901-2013 [Section No. 23.7.3]

23.7.3

~~A visible label shall be attached to each nonpermanently mounted seat indicating that the seat is not to be used while the fire apparatus is in transit and is to be stored during that time~~ Safety signs substantially similar to FAMA06 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus* , shall be visible from each seat that is not equipped with occupant restraint and is therefore not intended to be occupied while the vehicle is in motion .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 15:38:12 EDT 2013

Committee Statement

Committee Statement: This change will establish common safety signs for apparatus regardless of make or model. This commonality should improve the recognition of the warning by fire fighters who work with apparatus from various manufacturers. The FAMA safety sign artwork is published by the Fire Apparatus Manufacturer's Association on their website and is available free of charge to any manufacturer. This change also resolves the current conflict in the standard where every safety sign must be in compliance with ANSI Z535 but the specified wording does not fit the ANSI Z535 format. This change will also be consistent with 14.1.3.9

Response Message:

Public Input No. 409-NFPA 1901-2013 [Section No. 23.7.3]

First Revision No. 60-NFPA 1901-2013 [Section No. 23.11.3.2]

~~**23.11.3.2**~~

~~The outlets shall be tested by the apparatus builder to ensure that they meet the voltage and amperage specified on the label.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:55:20 EDT 2013

Committee Statement

Committee Statement: This test is not well defined and not necessary. The outlet wiring has already been checked under 22.15.3 and 22.15.4 as well as the test of the power source itself. Testing the "amperage" (ampacity?) of the outlet is complex and very subject to interpretation.

Response Message:

Public Input No. 79-NFPA 1901-2013 [Section No. 23.11.3.2]
Public Input No. 390-NFPA 1901-2013 [Section No. 23.11.3.2]

First Revision No. 198-NFPA 1901-2013 [New Section after 23.12.5]

23.13 Power Operated Masts.

Where power operated masts are supplied, the requirements in 23.13.1 through 23.13.7 shall apply.

23.13.1

The mast shall be designed to sustain the intended tip load with at least a 125 percent safety factor.

23.13.2

The mast shall withstand a minimum of a 50 mph (80 kph) wind in a raised, unguyed position.

23.13.3

In the event of a failure of the tower's raising system while the tower is deployed or being deployed, a means shall be provided to limit the rate of descent in order to prevent injury to equipment or personnel.

23.13.4

A secondary means of control shall be provided to allow for emergency lowering of the mast.

23.13.5

Where the tower is powered by the chassis air brake system, the air supply shall be from an auxiliary air circuit that is equipped with a pressure protection valve and an auxiliary air tank(s).

23.13.6

The hazard warning light required in Section 13.11 shall be illuminated whenever the tower is not in the stowed position.

23.13.7

The operational envelope of the mast shall be automatically illuminated whenever the mast assembly is being raised, lowered, or rotated.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 16:11:51 EDT 2013

Committee Statement

Committee Statement: Add new Section 23.13 to cover requirements for power operated masts.

Response Message:

Public Input No. 265-NFPA 1901-2013 [New Section after 23.12.5]

First Revision No. 157-NFPA 1901-2013 [Section No. 24.2.7.9]

24.2.7.9

All ~~rigid~~ exposed piping compressed air lines shall be clamped to a rigid body or chassis component at a minimum of every ~~16~~ 24 in. (~~400~~ 610 mm) and within 4 6 in. (~~100~~ 152 mm) on each side of a coupling or elbow.

24.2.7.9.1

~~Rigid piping~~ Piping shall run in an orderly manner ~~with a minimum of bends and elbows~~ in accordance with the air system manufacturer's installation requirements .

24.2.7.9.2

The piping installation shall provide room for maintenance and repairs with access panels provided where applicable.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:55:12 EDT 2013

Committee Statement

Committee Statement: Not practical to secure rigid piping behind panels or along frame rails at a specified distance. Requirement was changed from 16" to 24" and 4" to 6" to reflect accepted practice. The term "minimum" was not defined. The responsibility of proper air system performance is the responsibility of the air system manufacturer.

Response Message:

First Revision No. 152-NFPA 1901-2013 [Section No. 24.2.13.1]

24.2.13.1*

If a breathing air system without a compressor/purification system is provided, the final installer of the air system shall supply a qualified person to provide operational training to ~~fire department~~ the purchaser's designated personnel that includes the following:

(1) A complete system component familiarization/walkaround

(2) A complete review of the system and its safety features

(3) A review of all operation, service, and maintenance documentation

(4) Hands-on familiarization of the safe operation of the fill station and air management panel, including actual SCBA filling, air reel operations, and other pertinent operations of the system

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:30:38 EDT 2013

Committee Statement

Committee Statement: This language clarifies who the training is to be provided to.
Response Message:
Public Input No. 81-NFPA 1901-2013 [Section No. 24.2.13.1]

First Revision No. 153-NFPA 1901-2013 [Section No. 24.2.13.2]

24.2.13.2*

If a breathing air system that includes a compressor/purification system is provided, a person certified by the breathing air compressor manufacturer in the operation of the specified air compressor system shall provide training ~~to fire department~~ to the purchaser's designated personnel.

24.2.13.2.1

The training shall include the items listed in 24.2.13.1.

24.2.13.2.2

The training shall also include the following:

(1) A review of the compressor/purification system operations and maintenance, including the operations and maintenance documentation and the name, address, and phone number of the local distributor

(2) Procedures to change purification cartridges

(3) Hands-on familiarization of the safe operation of the compressor and purification system

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:33:02 EDT 2013

Committee Statement

Committee Statement: This language clarifies who the training is to be provided too.
Response Message:
Public Input No. 82-NFPA 1901-2013 [Section No. 24.2.13.2]

First Revision No. 110-NFPA 1901-2013 [Sections 24.2.13.3, 24.2.13.4]

24.2.13.3
The ~~fire department~~ purchaser shall designate one or two individuals to be the resource persons for all the breathing air system training and equipment indoctrination.

24.2.13.4
The ~~fire department~~ purchaser shall designate where the training is to take place.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 14:54:45 EDT 2013

Committee Statement

Committee Statement: The purchaser might not be a fire department. Purchaser is consistent with the rest of NFPA 1901.

Response Message:

Public Input No. 80-NFPA 1901-2013 [Sections 24.2.13.3, 24.2.13.4]

First Revision No. 158-NFPA 1901-2013 [Section No. 24.3.3.2 [Excluding any Sub-Sections]]

Provisions shall be made by the final installer to ensure there is adequate cooling to keep the air compressor within the compressor manufacturer's operating temperature range while ~~it~~ the vehicle is operating in an ambient temperature range between 32°F and 110°F (0°C and 43°C).

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:01:00 EDT 2013

Committee Statement

Committee Statement: Editorial clarification.
Response Message:

First Revision No. 159-NFPA 1901-2013 [Section No. 24.3.3.4]

24.3.3.4
The air compressor compartment shall be equipped with a temperature sensing device that will actuate an audible and visual alarm at the fill station operator's panel when the ~~ambient~~ compartment temperature ~~in the compartment exceeds 140°F (60°C)~~ exceeds the compressor manufacturer's requirements .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:02:26 EDT 2013

Committee Statement

Committee Statement: Maximum operating temperatures is determined by each compressor manufacturer.
Response Message:

First Revision No. 160-NFPA 1901-2013 [Section No. 24.3.6.1]

24.3.6.1

All compressors shall have automatic audible and visual alarms and controls at the main operator's panel that shut down the compressor and prevent automatic restart when any of the following conditions occurs:

(1) Oil level or oil pressure is low.

(2) Discharge air temperature is higher than recommended by the manufacturer.

(3) Moisture in the compressed air at the purification system outlet exceeds ~~24 ppm~~ the allowances established in NFPA 1989 .

(4) Carbon monoxide level within the processed air exceeds ~~10 ppm~~ the allowances established in NFPA 1989 .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:04:48 EDT 2013

Committee Statement

Committee Statement: NFPA 1989 is standard controlling moisture and Carbon Monoxide.
Response Message:

First Revision No. 161-NFPA 1901-2013 [Section No. 24.3.6.2]

24.3.6.2*

All compressors shall be equipped with the following:

(1) An air pressure switch that controls the maximum operating pressure

(2) Interstage pressure gauges after each compression stage

(3) Final stage pressure gauge

(4) Oil pressure gauge on pressure lubricated compressors or an oil level indicator or device on nonpressure ~~oil-type~~ lubricated compressors

(5) Electric, nonresettable hourmeter(s)

~~Air quality monitoring system~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:06:27 EDT 2013

Committee Statement

Committee Statement: Editorial. Requirement already established in 24.3.6.1
Response Message:

First Revision No. 162-NFPA 1901-2013 [Section No. 24.3.6.3]

24.3.6.3*

Compressors with electric motors shall be equipped with the following:

(1) Magnetic motor starter with motor overload protection

(2) Protective control to prevent automatic restart after power loss has been restored

~~A shorepower connection to permit external electric power to supply the air compressor's electric motor when the vehicle is in a fire station~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:08:40 EDT 2013

Committee Statement

Committee Statement: Minimum standard, not every fire station is equipped with the necessary electrical capacity to power larger compressors. Appendix wording changed to reflect optional shore power.

Response Message:

First Revision No. 164-NFPA 1901-2013 [Section No. 24.3.7 [Excluding any Sub-Sections]]

The compressor and driver assembly shall be mounted ~~to a subassembly with shock mounts to provide vibration dampening~~ in accordance with the compressor manufacturer's requirements .

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:12:32 EDT 2013

Committee Statement

Committee Statement: Not all compressor and driver assembly installations require a sub-assembly with shock mounts for proper operation of their components.
Response Message:

First Revision No. 154-NFPA 1901-2013 [Section No. 24.5.1]

24.5.1 Transportable Air Tanks.

24.5.1.1

Transportable air tanks shall comply with 49 CFR 178.37, “Specification 3AA and 3AAX seamless steel cylinders,” or 29 CFR 1910.169, “Air receivers.”

24.5.1.2*

~~The air tank manufacturer shall provide a copy of either the U.S. Department of Transportation (DOT) certificate Report of Inspection of Gas Cylinders or the ASME certificate Manufacturers Data Report for Pressure Vessels, and the certificate shall be delivered with the fire apparatus~~ The cylinders shall have the data required by the UN/DOT or ASME permanently stamped or labeled (composite cylinders cannot be stamped) according to the regulating agency they are certified under. This data shall include but not be limited to the working pressure, date of manufacture, and date of the most recent test. Cylinders that are not new shall be verified by the supplier that they are acceptable for breathing air use .

24.5.1.3

Relief valves on transportable air tanks shall be of the ASME type on ASME cylinders and of the UN/ DOT type on UN/ DOT cylinders or equal for the rated pressure.

Supplemental Information

File Name	Description
A.24.5.1.2_FR_154_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:36:19 EDT 2013

Committee Statement

Committee Statement: Section revised to include reference to UN. Delete requirement for acceptance certificate, cylinders are marked with required information. Add new annex material A.24.5.1.2

Response Message:

Public Input No. 350-NFPA 1901-2013 [Section No. 24.5.1.2]
Public Input No. 351-NFPA 1901-2013 [Section No. 24.5.1.3]

A.24.5.1.2 The purchaser might want to request the cylinder manufacturer to supply an a~~A~~cceptance c~~C~~ertificate for ~~a~~ UN/DOT cylinders or a "Form U1A Manufacturer's Data Report for Pressure Vessels" for ASME cylinders. ~~The following wording is recommended for use of used cylinders:~~

A statement on the invoice, such as the following, is recommended for used cylinders and is adequate to verify that the cylinders are acceptable for breathing air use: ~~equivalent to:~~ "These used cylinders have been in breathing air service or have been cleaned to be acceptable for breathing air service."

~~is adequate to verify that the cylinders are acceptable for breathing air use.~~ If the purchaser is supplying the cylinders, ~~then~~ they should include~~provide~~ this statement on their form or letter head and sign and date it.

First Revision No. 155-NFPA 1901-2013 [Section No. 24.8.1]

24.8.1

The air control panel and system piping arrangement for a compressor-supplied breathing air system shall allow the operator to perform the following functions:

(1) Fill the storage system directly from the compressor/purification system

(2) Fill SCBA cylinders directly from the compressor/purification system

(3) Fill SCBA cylinders directly from the storage system~~/air booster~~ (and air booster, if equipped)

(4) Utilize the cascade method (if system is capable) or bulk fill method of filling SCBA cylinders~~, as desired~~

(5) Bypass filling of the storage system to top off SCBA directly from the compressor/purification system

(6) Regulate the maximum SCBA fill pressure

(7) ~~Meter airflow to control~~ Control the SCBA fill rate with a slow-operating valve

~~Take an air sample to check air quality (at panel or at end of air reel hose, if applicable)~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:44:45 EDT 2013

Committee Statement

Committee Statement: The requirements in 24.8.1(8) is covered by requirements in section 24.14.4 Breathing Air Quality.

Response Message:

Public Input No. 83-NFPA 1901-2013 [Section No. 24.8.1]
Public Input No. 84-NFPA 1901-2013 [Section No. 24.8.1]
Public Input No. 85-NFPA 1901-2013 [Section No. 24.8.1]
Public Input No. 266-NFPA 1901-2013 [Section No. 24.8.1]

First Revision No. 165-NFPA 1901-2013 [Section No. 24.9.4]

~~**24.9.4**~~
~~A separate flow restriction device shall be provided on each SCBA fill hose.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:14:08 EDT 2013

Committee Statement

Committee Statement: Flow restriction device not required on each hose since the hose is contained in the fill station.
Response Message:

First Revision No. 170-NFPA 1901-2013 [Section No. 24.9.6]

24.9.5*
The SCBA or SCUBA fill enclosure shall be installed in accordance with requirements of the fill enclosure manufacturer.

Supplemental Information

File Name	Description
A.24.9.6_FR_170_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:25:29 EDT 2013

Committee Statement

Committee Statement: Added new annex material that provides helpful information on the importance of providing external vent provisions for fill stations. Add new annex material A.24.9.6

Response Message:

A.24.9.6 Exterior venting provisions should be ~~-~~considered to provide proper venting of pressure in the event of a cylinder failure during filling. T~~, t~~his allows debris to be directed away from the operator.

If the fill station is installed in an interior ~~“~~walk-in~~”~~ compartment, the department should establish procedures to keep this compartment door open while filling.

First Revision No. 166-NFPA 1901-2013 [Section No. 24.9.7.1.1]

24.9.6.1.1
If the enclosed air fill station is for SCBA cylinders, the test shall include pressurizing ~~an~~ a composite SCBA cylinder that is capable of holding at least ~~88 ft^3 (2492 L~~ 111 SCF (3143) of air at ~~4500~~ 5500 psi (~~31~~ 37 ,~~025~~ 921 kPa) to failure. The failure shall occur when the pressure in the cylinder is not less than ~~4500~~ 5500 psi (~~31~~ 37 ,~~025~~ 921 kPa).

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:15:16 EDT 2013

Committee Statement

Committee Statement: Higher capacity SCBA cylinders are available. Composite SCBA cylinder specified for testing as these cylinders have different rupture characteristics than a low pressure cylinder does when the cylinder is ruptured at 5500 psi, this reflects most severe failure mode.

Response Message:

First Revision No. 156-NFPA 1901-2013 [Section No. 24.14.4.1]

24.14.4.1*
Prior to delivery of the apparatus equipped with a breathing air ~~compressor~~ system to the end user, the final system installer shall draw an air sample from the breathing air ~~system at each SCBA or SCUBA fill station and at the end of each air hose on an air reel and~~ system and submit the sample~~(s)~~ to be tested in accordance with NFPA 1989.

Supplemental Information

File Name	Description
A.24.14.4.1_FR_156_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 11:49:08 EDT 2013

Committee Statement

Committee Statement: A single air system test is adequate to confirm the quality of the air. An appendix item was added explaining that additional “point of use” air quality testing can be performed if specified by the authority having jurisdiction. Add new annex material A.24.14.4.1

Response Message:

A.24.14.4.1 Prior to delivery of the apparatus equipped with a breathing air system to the end user, the authority having jurisdiction might ~~may~~ wish to require additional ~~"~~point of use~~"~~ air quality testing. ~~—~~This could include SCBA fill stations, additional auxiliary air outlets, or at the end of breathing air reels (high or low pressure). ~~—~~The final system installer should draw an air sample from the specified outlets and submit the sample(s) to be tested in accordance with NFPA 1989. ~~—~~The results of such testing should be included in the required delivery documentation and as required by ~~section #~~24.14.5.

First Revision No. 172-NFPA 1901-2013 [Section No. 25.4.1]

25.4.1* Controls.

Operation of the winch shall be from a remote location at least 12 ft from the winch or within an enclosed area.

~~**25.4.1.1**~~

~~Operation of the electric motor shall be by means of a handheld control with forward, neutral, and reverse positions.~~

~~**25.4.1.1**~~

~~The control shall be located at the end of an electrical cord that is a minimum 25 ft (7.6 m) long and that plugs into a receptacle near the winch location or shall be integrated into a handheld transmitter operating on an approved radio frequency for the winch control device.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:06:40 EDT 2013

Committee Statement

Committee Statement: This is performance criteria rather than design specific. Annex A material associated with 25.4.1.1 now becomes associated with 25.4.1

Response Message:

First Revision No. 171-NFPA 1901-2013 [Section No. 25.5.2]

25.5.2

~~The forward-neutral-reverse hydraulic control for the winch shall be electrically operated to permit remote control of the hydraulic winch operations.~~ Operation of the hydraulic winch shall be from a remote location at least 12 ft from the winch or within an enclosed area.

~~**25.5.2.1**~~

~~Operation of the hydraulic winch shall be by means of a handheld control with forward, neutral, and reverse positions.~~

~~**25.5.2.2**~~

~~The control shall be located at the end of an electrical cord that is a minimum 25 ft (7.6 m) long and that plugs into a receptacle near the winch location or shall be integrated into a handheld transmitter operating on an approved radio frequency for the winch control device.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:02:30 EDT 2013

Committee Statement

Committee Statement: The changes make this a performance standard as opposed to design specific.

Response Message:

Public Input No. 122-NFPA 1901-2013 [Section No. 25.5.2 [Excluding any Sub-Sections]]
Public Input No. 333-NFPA 1901-2013 [Section No. 25.5.2.1]
Public Input No. 334-NFPA 1901-2013 [Section No. 25.5.2.2]

First Revision No. 173-NFPA 1901-2013 [Sections 25.5.3, 25.5.4]

25.5.3 Hydraulic ~~Tanks~~ Reservoir .

25.5.3.1

The hydraulic ~~fluid tank~~ system components shall be ~~sized to prevent overheating of the fluid or cavitation of the hydraulic pump at its maximum output level~~ capable of maintaining, under all operating conditions, oil cleanliness and temperature that comply with the manufacturer's recommendations .

~~**25.5.3.2**~~

~~The tank shall permit visual checking of the fluid level and easy refilling.~~

~~**25.5.3.3**~~

~~The fill point shall have a label permanently attached near the fill point stating the hydraulic oil quantity and type.~~

25.5.3.2

~~A drain plug shall be installed to permit complete draining of the tank~~ A means for checking and filling the hydraulic reservoir shall be readily accessible .

~~**25.5.3.5**~~

~~A tank return line diffuser shall be installed in the tank.~~

25.5.3.3

~~A tank swash partition shall be installed in the tank between the suction and return lines~~ The fill location shall be conspicuously marked with a label that reads "Hydraulic Oil Only. "

25.5.3.4

The manufacturer shall provide instructions for checking and filling the hydraulic reservoir.

~~**25.5.3.7**~~

~~A vent shall be supplied and shall be designed to prevent dirt and moisture from entering the tank.~~

25.5.3.4

The manufacturer shall provide instructions for checking and filling the hydraulic reservoir.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:10:50 EDT 2013

Committee Statement

Committee Statement: These changes are consistent with requirements in Chapter 19. The changes make this a performance standard as opposed to design specific.

Response Message:

Public Input No. 123-NFPA 1901-2013 [Section No. 25.5.4]
Public Input No. 335-NFPA 1901-2013 [Section No. 25.5.3.5]
Public Input No. 336-NFPA 1901-2013 [Section No. 25.5.3.6]

First Revision No. 112-NFPA 1901-2013 [Sections 25.5.5.2, 25.5.5.3]

~~**25.5.5.2**~~

~~An "OK to Operate Winch" indicator shall be provided in the driving compartment to indicate that the winch is engaged, that the transmission is in the proper gear (automatic transmissions only), and that the parking brake is engaged.~~

~~**25.5.5.3**~~

~~An interlock system shall be provided to prevent advancement of the engine speed in the driving compartment or at any operator's panel unless the transmission is in neutral and the parking brake is engaged, or the apparatus is in the "OK to Operate Winch" mode.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 15:34:48 EDT 2013

Committee Statement

Committee Statement: These are not needed for a hydraulic winch (they were copied from stationary pump controls). They also prevent using the winch for self-rescue. They are not in the electric winch section. They were removed in NFPA 1906-2012.

Response Message:

Public Input No. 86-NFPA 1901-2013 [Sections 25.5.5.2, 25.5.5.3]

First Revision No. 44-NFPA 1901-2013 [Section No. 26.10.4.5]

26.10.4.5
For trailers using electric or hydraulic brakes~~,~~ or small trailers without brakes, the umbilical cable for the federally required lighting and brake system shall be connected using a seven-wire heavy duty cable and a seven-way flat blade recreational vehicle connector.

Supplemental Information

File Name	Description
26.10.4.5_FR_44_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:42:48 EDT 2013

Committee Statement

Committee Statement: Trailers under 3000 pounds typically do not have brakes at all. (see 26.4.3)
Response Message:
Public Input No. 87-NFPA 1901-2013 [Section No. 26.10.4.5]

First Revision No. 242-NFPA 1901-2013 [New Section after 26.11.3]

Chapter 28 Ultra-High Pressure Fire Pumps and Associated Equipment

28.1 Application.

If the apparatus is equipped with an ultra-high pressure fire pump, the provisions of this chapter shall apply.

28.2 Pump Performance.

28.2.1*

An ultra-high pressure fire pump shall have a minimum rated capacity of 6 gpm (25 L/min) and shall have a rated discharge pressure greater than or equal to 1100 psi (7600 kPa).

28.2.2

The rating for ultra-high pressure fire pumps shall be based on the pump taking water from the apparatus water tank.

28.2.3

If the completed pumping system is capable of taking suction, it shall do so within 30 seconds under the following conditions:

(1) At an altitude of 2000 ft (600 m) above sea level

(2) Through 10 ft (3 m) of suction hose of the size specified in Table 28.2.3 and equipped with a suction hose strainer

(3) With a lift of 3 ft (1 m)

(4) At 29.9 in. Hg (101 kPa) atmospheric pressure (corrected to sea level)

(5) At a water temperature of 60°F (16°C)

Table 28.2.3 Suction Hose Size by Rated Capacity

Flow Rate		Suction Hose Size	
gpm	L/min	in.	mm
20 and less	75	1	25
30	115	1½	38
50	190	2	51
100	375	2½	65
150	568	2½	65
200	750	2½	75
250	950	3	75
300	1100	3	75

28.2.4*

The pump manufacturer shall certify for each ultra-high pressure fire pump the rated capacity in gpm (L/min), rated discharge pressure in psi (kPa) and Net Positive Suction Head Required (NPSHR) in ft (m) of water at 60°F (16°C) and 29.9 in. Hg (101 kPa) atmospheric pressure (corrected to sea level).

28.2.5 Vacuum.

28.2.5.1

If the completed pumping system is capable of taking suction per 28.2.3 , it shall be capable of developing a vacuum of 17 in. Hg (57.4 kPa) at altitudes up to 2000 ft (600 m) by means of the pump priming system and sustaining the vacuum for at least 5 minutes with a loss not to exceed 10 in. Hg (34 kPa).

28.2.5.2

The requirements of 28.2.5.1 shall be met with all intake valves open, with all intakes capped or plugged, with all discharge caps removed, and without the use of the pump primer during the 5-minute period.

28.3 Power Train Capability.

28.3.1

All components in the power train from the engine to the pump shall be capable of transmitting the continuous duty power required by the pump for at least 30 minutes at the pump's rated capacity and pressure.

28.3.2

When pumping rated capacity and pressure, lubricant temperatures in any power train component shall not exceed the component manufacturer's recommendation for maximum temperature.

28.4 Construction Requirements.

28.4.1

The pump body, discharge piping excluding tank fill line, and valves shall be capable of withstanding a minimum hydrostatic pressure of 1.4 times the rated discharge pressure.

28.4.2

The pump, piping, and valves shall be capable of delivering the rated capacity at rated discharge pressure of the pump and withstanding closure of all discharges within 3 to 7 seconds.

28.4.3 Pump Body Integrity Test.

The pump body shall be subjected to either a hydrostatic test per 28.4.3.1 or a hydrodynamic test per 28.4.3.2 .

28.4.3.1

If the pump body is subjected to a hydrostatic test, it shall be hydrostatically tested to a gauge pressure of 1.4 times the rated discharge pressure for a minimum of 10 minutes.

28.4.3.2

If the pump body is subjected to a hydrodynamic test, it shall be hydrodynamically tested to a gauge pressure of 1.4 times the rated discharge pressure for a minimum of 10 minutes.

28.4.3.3

The pump manufacturer shall provide a certificate of completion for the hydrostatic or hydrodynamic test.

28.5 Pump Intakes.

28.5.1

Each pump intake shall be sized to permit the full rated performance of the pump.

28.5.2*

For any pump intake equipped with a valve, the valve shall be controlled from the pump operator's position.

28.5.3*

Each external intake shall be equipped with National Hose (NH) threads on the connection with a removable or accessible strainer.

28.5.3.1

Adapters with special threads or other means for hose attachment shall be permitted on any intake connection.

28.5.3.2

Each external valved intake shall be equipped with a bleeder valve to bleed off air or water from a hose connected to the intake.

28.5.3.3
All intake connections shall be provided with closures, caps, or plugs capable of withstanding a hydrostatic gauge pressure of 250 psi (1730 kPa).
28.5.3.3.1
Intake connections having male threads shall be equipped with caps.
28.5.3.3.2
Intake connections having female threads shall be equipped with plugs.
28.5.3.3.3
Where adapters for special threads or other means for hose attachment are provided on the intake connections, closures shall be provided for the adapters in lieu of caps or plugs.
28.5.3.4
Caps or closures for intake connections 3 in. (75 mm) and smaller shall remain secured to the apparatus when removed from the connection.
28.6 Pump Discharges.
28.6.1*
Each pump discharge shall be equipped with a valve that can be controlled from the pump operator's position.
28.6.2
Any discharge that can be supplied from another pump system on the apparatus shall have check valves in both supply lines to prevent backflow into either pump.
28.6.3 Discharge Outlet Connections.
28.6.3.1
All discharge outlets, except connections to which a hose will be preconnected, shall be equipped with connectors that permit hose attachment or removal within 30 seconds.
28.6.3.2
Adapters with special threads or other means for hose attachment shall be permitted to be attached to any discharge outlet connection.
28.6.3.3
Discharge outlet connections shall not be permitted to be equipped with NH threads.
28.6.4
All discharge outlet connections, except connections to which a hose will be preconnected, shall be equipped with caps or closures capable of withstanding a hydrostatic gauge pressure of 1.4 times the rated discharge pressure.
28.6.4.1
If the apparatus has more than one discharge, the caps or closures shall be capable of withstanding closure of all discharges when initial pump controls are set to deliver rated capacity at rated discharge pressure.
28.6.4.2
Where adapters are provided on the discharge outlet connection, the closures shall fit on the adapters.
28.6.4.3
Caps or closures for outlet connections 3 in. (75 mm) and smaller shall remain secured to the apparatus when removed from the connection.
28.6.5
All preconnected hose connections and preconnected hoses shall be capable of withstanding a hydrostatic gauge pressure of 1.4 times the maximum pump close-off pressure.
28.6.6
All preconnected hose connections and preconnected hoses shall be capable of withstanding closure of all discharges when initial pump controls are set to deliver rated capacity at rated discharge pressure.

28.6.7

All 1 ½ in. (38 mm) or larger discharge outlets shall be equipped with a drain or bleeder valve having a minimum ¾ in. (19 mm) pipe thread connection for draining or bleeding off pressure from a hose connected to the outlet.

28.6.8*

If a water tank fill line is provided, the line shall be connected from the pump discharge manifold directly to the water tank.

28.6.9

If a water tank fill line is provided, the line shall include a valve that can be controlled from the pump operator's position.

28.6.10*

All 1 in. (25 mm) or larger discharge outlets, except outlets to which a hose will be preconnected, shall be equipped with a drain or bleeder valve for draining or bleeding off pressure connected to the outlet.

28.7 Pump Operator's Panel.

28.7.1

Each pump control, gauge, and other instrument necessary to operate the ultra-high pressure fire pump shall be marked with a label as to its function.

28.7.2

All gauges, instruments, and controls located on the ultra-high pressure fire pump operator's panel shall be illuminated to a minimum lighting level of 5 fc (54 lx).

28.7.3

One safety sign warning of the need for training prior to operating the apparatus that is substantially similar to FAMA2 from FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus,* shall be located on the pump operator's panel.

28.8 Pump Controls.

28.8.1

Controls shall be provided for placing the pump in operation.

28.8.2

If the pump requires engagement to operate, the control for the pump engagement mechanism shall be marked with a label to indicate when the pump is properly engaged in pumping position.

28.8.3 Parallel/Series Control.

28.8.3.1

With parallel/series pumps, the positions for parallel operation (volume) and series operation (pressure) shall be indicated.

28.8.3.2

The control for changing the pump from series to parallel and vice versa shall be located on the pump operator's panel.

28.8.4 Pressure Control System.

28.8.4.1

A system shall be provided or the pump shall have operating characteristics that are capable of limiting the increase of net pump pressure to a maximum pressure rise of 10 percent over the rated pump pressure when all discharges are closed when engine and pump controls are set to produce the rated capacity at the rated net pump pressure of the pump.

28.8.4.2

If the pump is equipped with a governor system that controls engine speed, an indicator shall show when the system is turned on and whether it is controlling the engine speed or pump pressure.

28.8.4.3

If the pump is equipped with a governor system, it shall be controllable by one person at the pump operator position.

28.8.5

All pump controls and devices shall be installed so as to be protected against mechanical damage or the effects of adverse weather conditions on their operation.

28.8.6 Drain Valve(s).

28.8.6.1

An accessible drain valve(s) that is marked with a label as to its function shall be provided to allow the pump and all water-carrying lines and accessories to be drained.

28.8.6.2

The drain valve(s) shall be operational without the operator having to get under the apparatus.

28.8.7*

A pump cooling/recirculation line of sufficient size to prevent the pump from overheating when no discharge lines are open shall be provided between the pump discharge and the water tank.

28.9 Pump Drive Systems.

28.9.1

Where the pump is driven by a split-shaft PTO transmission, chassis transmission-mounted (SAE) PTO, front-of-engine crankshaft PTO, or flywheel PTO, the provisions of 16.10.2 through 16.10.7 shall apply as applicable.

28.9.2

Where the pump is driven by a chassis transmission-mounted (SAE) PTO and the pump system does not conform to 16.4.2 , a visible or audible warning device shall be provided on the pump operator's panel that is actuated if the temperature of the lubricant in the chassis transmission exceeds the transmission manufacturer's recommended maximum temperature.

28.9.3

If a separate pumping engine is provided, it shall meet the requirements of 12.2.1.1 , 12.2.1.2 , 12.2.1.7 , 12.2.2 , 12.2.3.1 , 12.2.3.2 , 12.2.4 , 12.2.5 , 13.2 , 13.4.3 , 13.4.4 , 13.4.4.1 , 13.4.4.3 , 13.4.4.4 , 13.4.5 , and 13.5 .

28.10 Engine Controls.

28.10.1

A throttle control shall be provided to control the engine speed.

28.10.2

This throttle control shall be permitted to be the same throttle control that is used for the main fire pump.

28.11 Gauges and Instruments.

28.11.1 Master Pump Discharge Pressure Gauge.

A master discharge pressure gauge shall be provided.

28.11.1.1

The master discharge pressure gauge shall read from a gauge pressure of 0 to not less than 500 psi (3500 kPa) higher than the maximum pressure that can be developed by the pump when it is operating with zero intake pressure.

28.11.1.2

Where an analog pressure gauge is used, it shall have a minimum accuracy of Grade 1A as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments* .

28.11.1.2.1

Numerals for master gauges shall be a minimum 0.25 in. (6.4 mm) high.

28.11.1.2.2

There shall be graduation lines showing at least every 50 psi (350 kPa), with major and intermediate graduation lines emphasized and figures at least every 500 psi (700 kPa).

28.11.1.2.3

Analog pressure gauges shall be vibration and pressure pulsation dampened; be resistant to corrosion, condensation, and shock; and have internal mechanisms that are factory lubricated for the life of the gauge.

28.11.1.3

If a digital pressure gauge is used, the digits shall be at least 0.25 in. (6.4 mm) high.

28.11.1.3.1

Digital pressure gauges shall display pressure in increments of not more than 10 psi (70 kPa).

28.11.1.3.2

Digital master pressure gauges shall have an accuracy of ±3 percent over the full scale.

28.11.2 Discharge Outlet Instrumentation.

If the apparatus is equipped with two or more discharge outlets that are 1 ½ in. (38 mm) or larger and that can be supplied only by the ultra-high pressure fire pump, these discharge outlets shall be equipped with pressure gauges or flowmeters.

28.11.2.1

The pressure gauge or flowmeter display shall be located adjacent to the corresponding valve control with no more than 6 in. (150 mm) separating the pressure gauge or flowmeter bezel and the valve control centerline.

28.11.2.2

Pressure gauges shall be connected to the outlet side of the valve.

28.11.2.3

Flowmeters shall display flow in increments not greater than 5 gpm (19 L/min).

28.11.2.4

Where an analog pressure gauge is used, the gauge shall have a minimum accuracy of Grade B as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments* .

28.11.2.4.1

Numerals for gauges shall be a minimum 5⁄32 in. (4 mm) high.

28.11.2.4.2

There shall be graduation lines showing at least every 50 psi (70 kPa), with major and intermediate graduation lines emphasized and figures at least every 500 psi (3500 kPa).

28.11.2.4.3

Analog pressure gauges shall be vibration and pressure pulsation dampened; be resistant to corrosion, condensation, and shock; and have internal mechanisms that are factory lubricated for the life of the gauge.

28.11.2.5

If a digital pressure gauge is used, the digits shall be at least 0.25 in. (6.4 mm) high.

28.11.2.5.1

Digital pressure gauges shall display pressure in increments of not more than 10 psi (70 kPa).

28.11.2.5.2

Digital pressure gauges shall have an accuracy of ±3 percent over the full scale.

28.11.3 Protection of Gauges and Instruments.

Each pressure gauge or flowmeter and its respective display shall be mounted and attached so it is protected from accidental damage and excessive vibration.

28.11.4* Cab Gauges.

If the pump on the apparatus is driven by the chassis engine through a PTO, and the apparatus is designed for pump-and-roll operations using that chassis engine-driven pump, a second gauge that meets the same requirements as the discharge pressure gauge required by 28.11.1 shall be mounted in the driving compartment in view of the driver.

28.12 Required Testing.

28.12.1 Apparatus Pump System Certification.

28.12.1.1 General.

The pump shall be tested after the pump and all its associated piping and equipment have been installed on the fire apparatus.

28.12.1.1.1

The testing shall include at least the water tank–to–pump flow test in 28.12.5 , the 30-minute pumping test in 28.12.6 , priming system test in 28.12.8 , the vacuum test in 28.12.9 , the gauge and flowmeter test in 28.12.11 , the piping integrity test in 28.12.12.1 , and the water tank capacity test in 28.12.13 .

28.12.1.1.2

If the fire pump is driven by the chassis engine, the engine speed advancement interlock test in 28.12.10 shall be included.

28.12.1.1.3

The test results shall be certified by the manufacturer.

28.12.1.2* Test Label.

28.12.1.2.1

A test label shall be provided at the pump operator's position that gives the rated discharges and pressures and, if so equipped, the position of the parallel/series pump control.

28.12.1.2.2

If powered by an engine, the speed of the engine as determined by the certification test for each unit and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve shall be provided on the test label.

28.12.1.2.3

The label shall be stamped with all information at the factory and attached to the vehicle prior to shipping.

28.12.2 Conditions for Tests.

28.12.2.1

Tests shall be performed when conditions are as follows:

(1) Air temperature: 0°F to 110°F (-18°C to 43°C)

(2) Water temperature: 35°F to 90°F (2°C to 32°C)

(3) Barometric pressure: 29 in. Hg (98.2 kPa), minimum (corrected to sea level)

28.12.2.2

If it is necessary to perform the test outside the air or water temperature ranges or the minimum barometric pressure stated in 28.12.2.1 and the pump passes the certification test, the test results shall be acceptable.

28.12.2.3

Engine-driven accessories shall not be functionally disconnected or otherwise rendered inoperative during the tests.

28.12.2.3.1

If the chassis engine drives the pump, the total continuous electrical loads, excluding those loads associated with the equipment defined in 28.12.2.3.3 , shall be applied for the entire pumping portion of this test.

28.12.2.3.2

If the vehicle is equipped with a fixed power source driven by the same engine that drives the ultra-high pressure fire pump, it shall be running at a minimum of 50 percent of its rated capacity throughout the pumping portion of the pump test.

28.12.2.3.3

The following devices shall be permitted to be turned off or not operating during the pump test:

(1) Foam pump

(2) Hydraulically driven equipment (other than hydraulically driven line voltage generator)

(3) Winch

(4) Windshield wipers

(5) Four-way hazard flashers

(6) Compressed air foam system (CAFS) compressor

28.12.2.3.4

All structural enclosures, such as floorboards, gratings, grilles, and heat shields not furnished with a means for opening them in normal service shall be kept in place during the tests.

28.12.3 Equipment.

28.12.3.1

One or more lines of fire hose of sufficient diameter shall be provided to allow discharge of the rated capacity of the pump without exceeding a flow velocity of 35 ft/sec (10.7 m/sec) through the hose.

28.12.3.2

Discharge rate shall be measured using equipment such as flowmeters, volumetric tanks, or weigh tanks.

28.12.3.3 Test Gauges.

28.12.3.3.1

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100 and shall be at least size 3 ½ per ASME B40.100, *Pressure Gauges and Gauge Attachments* .

28.12.3.3.2

The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge.

28.12.3.3.3

The discharge pressure gauge shall have a gauge pressure range of 0 psi (0 kPa) to not less than 500 psi (3500 kPa) over the rated pump discharge pressure.

28.12.3.3.4

All gauges shall have been calibrated in the year preceding the tests using a deadweight gauge tester or a master gauge meeting the requirements for Grade 3A or Grade 4A gauges, as defined in ASME B40.100, that has been calibrated within the preceding year.

28.12.3.3.5

Each test gauge connection shall include a means for snubbing, such as a needle valve to damp out rapid needle movements.

28.12.3.4

Speed-measuring equipment shall consist of a tachometer or other device for measuring revolutions per minute.

28.12.4 Procedure.

28.12.4.1*

The ambient air temperature, water temperature, elevation of test site, and atmospheric pressure (corrected to sea level) shall be determined and recorded prior to the pump test.

28.12.4.2*

The engine, pump, transmission, and all parts of the fire apparatus shall exhibit no undue heating, loss of power, overspeed, leaks, or other defect during the entire test.

28.12.5 Water Tank–to–Pump Flow Test.

28.12.5.1

The water tank–to–pump flow test shall be performed with water being supplied from the apparatus water tank to verify the rated capacity and rated discharge pressure capability of the apparatus.

28.12.5.2

The water tank–to–pump flow test shall be conducted as follows:

(1) The apparatus shall be placed on level ground and the water tank filled until it overflows.

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

(3) The tank fill line shall be closed.

(4) A hose line(s) and nozzle(s) for discharging water at the rated pump capacity flow rate shall be connected to one or more discharge outlets.

(5) The water tank–to–pump valve(s) and the discharge valve(s) leading to the hose line(s) and nozzle(s) shall be opened.

(6) The pumping system shall be operated and adjusted as required until the rated pump capacity flow rate, -0/+5 percent, at the rated discharge pressure is established.

(7) The discharge pressure shall be recorded.

(8) The discharge valves shall be closed and the water tank refilled.

(9) The bypass cooling line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.

(10) The discharge valves shall be reopened and the time noted.

(11) If necessary, the pumping system shall be adjusted to maintain the discharge pressure recorded as noted in 28.12.5.2(6) .

(12) The pumping system shall be operated at these conditions for 30 minutes or the discharge pressure drops by 100 psi (700 kPa) or more, at which time the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

28.12.5.3 Volume Discharge Calculation.

28.12.5.3.1

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 100 psi (700 kPa).

28.12.5.3.2

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

28.12.5.3.3

The flow rate shall be maintained for 30 minutes or until 80 percent of the rated capacity of the tank has been discharged.

28.12.6 30-Minute Pumping Test.

28.12.6.1
The pump shall be subjected to a 30-minute pumping test consisting of continuous pumping at rated capacity at rated pump discharge pressure.

28.12.6.2
The 30-minute pumping test shall be permitted to be performed from the apparatus water tank with provisions to maintain tank level during the duration of the test.

28.12.6.3
The 30-minute pumping test shall be permitted to be performed with water supplied to the pump intake from separate water supply that provides a positive pressure to the pump intake.

28.12.6.4
If the 30-minute pumping test is performed with water supplied to the pump that provides a positive pressure at the pump intake, the net pump pressure shall be equal to the rated pump discharge pressure.

28.12.6.5
The 30-minute pumping test shall be permitted to be run at a test site that provides a supply of clear water and close enough to allow the suction strainer to be submerged at least 2 ft (0.6 m) below the surface of the water, when connected to the pump by a minimum of 10 ft (3 m) of suction hose.

28.12.6.6
If the pump is stopped before the test is completed, the entire pump test shall be repeated.

28.12.6.7
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.

28.12.6.8
The average net pump pressure shall be calculated and recorded based on the average values for discharge and intake pressure.

28.12.7 Pressure Control Test.
At the pump rated flow and pressure for pumps with two or more discharges, the pump system shall be tested for pressure rise as follows:

(1) The pump shall be operated at rated capacity and rated discharge gauge pressure.

(2) If a pressure control system is supplied, it shall maintain the rated discharge gauge pressure within ±5 percent, or if it is adjustable, it shall be set in accordance with the manufacturer's instructions to maintain the rated discharge gauge pressure within ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 7 seconds.

(4) The rise in discharge pressure shall not exceed 10 percent of the rated discharge pressure and shall be recorded.

28.12.8 Priming System Test.
If the pumping system is equipped with a priming system, it shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water.

28.12.8.1*
This test shall be run at a test site that provides a supply of clear water and close enough to allow 10 ft (3 m) of suction hose of the size specified in Table 28.2.3 and equipped with a suction hose strainer to be connected to the pump intake to be submerged at least 2 ft (0.6 m) below the surface of the water, with the water level 3 ft (0.91 m) below the center of the pump intake corrected for the following conditions:

(1) At an altitude of 2000 ft (600 m) above sea level

(2) At 29.9 in. H (101 kPa) atmospheric pressure (corrected to sea level)

(3) At a water temperature of 60°F (16°C)

28.12.8.2

The interval from the time the priming system is started until the time the pump is discharging water shall be noted.

28.12.8.3

The time required to prime the pump shall not exceed 30 seconds.

28.12.8.4

Only biodegradable products shall be permitted to be discharged onto the ground.

28.12.9 Vacuum Test.

If the pumping system is equipped with a priming system, a vacuum test shall be performed that consists of subjecting the interior of the pump, with all intake valves open, all intakes capped or plugged, and all discharge caps removed to a vacuum of 17 in. Hg (57.6 kPa) by means of the pump priming system.

28.12.9.1

At altitudes above 2000 ft (600 m), the vacuum attained shall be permitted to be less than 17 in. Hg (57.6 kPa) by 1 in. Hg (3.4 kPa) for each 1000 ft (300 m) of altitude above 2000 ft (600 m).

28.12.9.2

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

28.12.9.3

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

28.12.9.4

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

28.12.9.5

The vacuum test shall then be repeated with all intake valves closed and the caps or plugs on all gated intakes removed.

28.12.10* Engine Speed Advancement Interlock Test.

If the pump is driven by the chassis engine, the engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

28.12.10.1

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(2) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

28.12.10.2

If the apparatus is equipped with a stationary pump driven through a transmission-mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.

(2) The chassis transmission is in any gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the “Pump Engaged” position.

28.12.10.3

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-and-roll, the test shall verify that the engine speed control at the pump operator’s panel cannot be advanced when any of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.

(2) The chassis transmission is in any gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the “Pump Engaged” position.

(3) The chassis transmission is in any gear other than neutral, the parking brake is off, the pump shift in the driving compartment is in the “Pump Engaged” position and the “OK to Pump-and-Roll” indicator is on.

28.12.10.4

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator’s panel cannot be advanced when one of the following conditions exists:

(1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

28.12.11 Gauge and Flowmeter Test.

28.12.11.1

Pump intake and discharge pressure gauges shall be checked for accuracy while pumping at rated capacity at pump rated pressure.

28.12.11.2

Any gauge that does not meet Grade B ASME B40 requirements as compared to the calibrated test gauge shall be recalibrated, repaired, or replaced.

28.12.11.3

Each flowmeter shall be checked for accuracy while pumping at rated capacity at pump rated pressure.

28.12.11.4

Any flowmeter that is off by more than 10 percent shall be recalibrated, repaired, or replaced.

28.12.12 Manufacturer’s Predelivery Test.

28.12.12.1 Piping Integrity Test.

The pump and its connected piping system shall be subjected to either a hydrostatic test per 28.12.12.2 or hydrodynamic test per 28.12.12.3 .

28.12.12.2

If the pump and its connected piping system are subjected to a hydrostatic test, they shall be hydrostatically tested to a gauge pressure of 1.4 times the rated pump discharge pressure.

28.12.12.2.1

The hydrostatic test shall be conducted with the tank fill line valve, the tank–to–pump valve closed, and the pump bypass line return to the water tank disconnected and capped.

28.12.12.2.2

The hydrostatic test shall be conducted with all discharge valves open and the outlets capped.

28.12.12.2.3*

The hydrostatic test shall be conducted with all external intakes capped and intake valves left open in external intakes equipped with valves.

28.12.12.2.4

The hydrostatic test pressure shall be maintained for 3 minutes.

28.12.12.3*

If the pump and its connected piping system are subjected to a hydrodynamic test, they shall be hydrodynamically tested to a gauge pressure of 1.4 times the rated pump discharge pressure.

28.12.12.4

The hydrodynamic test pressure shall be maintained for 3 minutes.

28.12.13 Water Tank Capacity Test.

The water tank shall be tested for usable water capacity by either a totalizing flowmeter method or truck weight method.

28.12.13.1

The water tank shall be filled until it overflows.

28.12.13.2

If the unit is equipped with an automatic shutdown due to a low pressure feature, the feature shall be engaged.

28.12.13.3

If a totalizing flowmeter is used, the meter shall be connected to a discharge and set to zero.

28.12.13.3.1

If the totalizing flowmeter is connected to a discharge valve, the valve shall be opened and the unit run at between 25 and 35 percent of the pump's rated flow until it automatically shuts down or the pressure drops below 1000 psi (7000 kPa).

28.12.13.3.2

The total volume that was discharged shall be recorded.

28.12.13.4

If the truck weight method is used, the truck shall be weighed and the weight recorded.

28.12.13.4.1

The pump shall be started and brought up to a flow rate of between 25 percent and 35 percent of the pump's rated flow by partly opening a discharge valve.

28.12.13.4.2

The discharge valve shall be closed when the unit automatically shuts down or the pump pressure drops below 1000 psi (7000 kPa).

28.12.13.4.3

The truck shall be reweighed.

28.12.13.4.4

The water tank empty weight shall be subtracted from water tank full weight and the result divided by 8.33 lb/gal to obtain the usable water volume in gallons.

Supplemental Information

File Name	Description
Ch_28_FR_242_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:40:57 EDT 2013

Committee Statement

Committee Statement: There has been increased interest in ultra-high pressure (UHP) fire suppression systems for initial attack for various specific applications. Most have involved military applications but there is activity to pursue it for non-military related fire suppression. The types and sizes of systems are varied with no specific standards or specifications established for municipal or wildland fire apparatus. This proposed chapter reflects an initial starting point to establish requirements for UHP fire pumps and associated equipment. The basic structure of the proposed chapters follows a format similar to the chapter on fire pumps from NFPA 1906 and auxiliary pumps from NFPA 1901. This draft was developed with information from a number of manufacturers but does not represent a consensus of manufacturers. Create new Chapter 27 Reserved and create new Chapter 28 as seen in attachment

Response Message:

Public Input No. 318-NFPA 1901-2013 [New Section after 16.13.10.2]
Public Input No. 423-NFPA 1901-2013 [Global Input]

First Revision No. 25-NFPA 1901-2013 [Section No. A.3.3.124]

A.3.3.126 Optical Source.
An optical source can consist of a single optical element or a fixed array of any number of optical elements whose geometric positioning relative to each other is fixed by the manufacturer of the optical source and is not intended to be modified. A light bar is a typical example of an optical source that consists of multiple optical elements.

Supplemental Information

File Name	Description
A.3.3.124_FR_25_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 13:51:04 EDT 2013

Committee Statement

Committee Statement: Clarification information.
Response Message:
Public Input No. 88-NFPA 1901-2013 [Section No. A.3.3.124]

A.3.3.124 Optical Source.

An optical source can consist of a single optical element or a fixed array of any number of optical elements whose geometric positioning relative to each other is fixed by the manufacturer of the optical source and is not intended to be modified. A light bar is a typical example of an optical source that consists of multiple optical elements.

First Revision No. 35-NFPA 1901-2013 [Section No. A.4.15.2]

A.4.15.2
Special fire service tire ratings could apply that are different from the sidewall rating on the tire. The purchaser might want to consider requesting the tire manufacturer's rating documentation. Fire service ratings are based on the assumption that the truck will never drive at this speed for more than 50 mi (80 km) (1 hour for some manufacturers) without stopping to cool the tires. If longer responses or trips are anticipated, the fire service ratings should not be used.

Supplemental Information

File Name	Description
A.4.15.2_FR_35_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 15:13:12 EDT 2013

Committee Statement

Committee Statement: Additional information about what a fire service rating is, and when it might not be appropriate.
Response Message:

Public Input No. 89-NFPA 1901-2013 [Section No. A.4.15.2]
Public Input No. 90-NFPA 1901-2013 [New Section after A.4.15.2]

A.4.15.2

Special fire service tire ratings could apply that are different from the sidewall rating on the tire. The purchaser might want to consider requesting the tire manufacturer's rating documentation. Fire service ratings are based on the assumption that the truck will never drive at this speed for more than 50 miles (80 km) (1 hour for some manufacturers) without stopping to cool the tires. If longer responses or trips are anticipated, the fire service ratings should not be used.

Commented [b1]: [SL: SI conversion needed. (80km)

First Revision No. 216-NFPA 1901-2013 [Section No. A.5.8.3]

A.5.9.4

The requirements of service in different communities might necessitate additions to the equipment required. The operational objective is to arrive at the scene of the emergency with the necessary equipment for immediate life safety operations and emergency control.

The mandatory miscellaneous equipment required to be carried on the pumper fire apparatus weighs approximately 600 lb (270 kg). This leaves a capacity of approximately 1400 lb (640 kg), to 1900 lb (865 kg), depending on the volume of cabinetry, for storage of optional equipment. The purchaser should advise the contractor if equipment in excess of the allowance in Table 12.1.2 is to be carried so that the contractor can provide a chassis of sufficient size. *(See Sections 4.3 and 12.1.)*

The following additional equipment is recommended to be carried on pumper fire apparatus. The equipment list provided does not detail each item sufficiently for purchasing purpose. The purchaser should clarify the detailed specifications for these items.

(1) One fire service claw tool

(2) One smoke ejector, 5000 ft^3/min (140 m^3/min) minimum capacity, and, if the ejector is electrically driven, a suitable adapter cord to fit standard house "U" ground outlets and extension cords and outlets on line voltage power sources used in fire departments

(3) One crowbar [36 in. (1 m) minimum] with brackets

(4) One pair of insulated bolt cutters with 7⁄16 in. (11 mm) minimum cut

(5) One Halligan-type tool with brackets

(6) One 2½ in. (65 mm) hydrant valve (screw-type gate)

(7) One double-gated reducing leader wye, sized to fit hose used in department

(8) Two shovels (one pointed and one scoop)

(9) Four hose straps

(10) One 125 ft (38 m) length of utility rope having a breaking strength of at least 5000 lb (2200 kg)

(11) One 3000 W (minimum) portable generator if the apparatus does not have a fixed line voltage power source

(12) Two 500 W portable lights

(13) Two cord reels or other means to store and deploy 400 ft (120 m) of electric cord sized for the expected electric loads *(see Table A.22.12.5)* with connectors that are compatible with those on the lights, generator, and smoke ejector

(14) One portable pump

(15) Toolbox with hammers, wrenches, screwdrivers, and other assorted tools

(16) Master stream appliance, 1000 gpm (4000 L/min) minimum

(17) Foam delivery equipment compatible with onboard foam system

(18) One hose clamp

(19) Hose adapters for water supply connections in neighboring communities

Departments should consider the addition of a sodium chloride fire extinguisher for use on combustible metal fires. Combustible metals, such as magnesium, can react violently with water and pose a hazard to personnel.

Submitter Information Verification

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City:
State:
Zip:
Submittal Date: Tue Sep 24 09:44:20 EDT 2013

Committee Statement

Committee Statement: Departments should consider the addition of a sodium chloride fire extinguisher for use on combustible metal fires. Combustible metals such as magnesium can react violently with water and pose a hazard to personnel.

Response Message:

Public Input No. 241-NFPA 1901-2013 [New Section after 5.8.3]

First Revision No. 40-NFPA 1901-2013 [Section No. A.12.1]

A.12.1

The carrying capacity of a vehicle is one of the least understood features of design and one of the most important. All vehicles are designed for a GVWR, which should not be exceeded by the apparatus manufacturer or by the purchaser after the vehicle has been placed in service. For tractor-drawn vehicles, the in-service weight of the apparatus should not exceed the GCWR. There are many factors that make up the GVWR, including the design of the springs or suspension system, the rated axle capacity, the rated tire and wheel loading, and the distribution of the weight between the front and rear wheels.

Water Tank. One of the most critical factors is the size of the water tank. Water weighs approximately 8.3 lb/gal (1 kg/L). A value of 10 lb/gal (1.2 kg/L) can be used when estimating the weight of the tank and its water, making a 500 gal (2000 L) tank and its water about 5000 lb (2400 kg).

Miscellaneous Equipment. If the finished apparatus is not to be overloaded, the purchaser should provide the contractor with the weight of equipment to be carried if it is in excess of the allowance shown in Table 12.1.2. *(See Section 4.3.)*

Large Compartment Capacity. The manufacturer is obligated by this standard to provide only a miscellaneous equipment allowance in compliance with the minimum allowance listed in Table 12.1.2. Purchasers who specify vehicles with large compartment capacity should work closely with the vehicle manufacturer to ensure that the GVWR is sufficient to carry the intended equipment. A vehicle with average compartment loading will have a miscellaneous equipment weight of about 8 lb/ft^3 (125 kg/m^3) of compartment space available for miscellaneous equipment. A lightly loaded vehicle could have as little as 4 lb/ft^3 (65 kg/m^3). A heavily loaded vehicle can reach 12 lb/ft^3 (200 kg/m^3). This volume does not include space occupied by generators, reels, air systems, ladders, hose, and so forth, that are not in the miscellaneous equipment allowance. Total equipment weight varies significantly depending on the density of the equipment and how tightly the fire department chooses to pack it.

Overloading. Overloading of the vehicle by the manufacturer through design or by the purchaser adding a great deal of equipment after the vehicle is in service will materially reduce the life of the vehicle and will undoubtedly result in increased maintenance costs, particularly with respect to the springs, tires, axles, transmissions, clutches, and brakes. Overloading can also seriously affect handling characteristics, making steering particularly difficult.

Underloading. Brake equipment on heavy vehicles can be sensitive to the weight distribution of the vehicle. Specifying a GVWR significantly greater than the estimated in-service weight can lead to poor brake performance, chatter, and squeal. Purchasers who specify configurations with limited compartment volume on a high capacity chassis should consult the manufacturer to ensure that a vehicle with an underloaded condition will not result.

Purchaser Responsibility. The purchaser should specify the weight of the equipment to be carried if it is in excess of the allowance for miscellaneous equipment. This weight specification allows a chassis with an adequate GAWR and GVWR to be supplied. Specific additional equipment is often necessary to meet the operational requirements of the department.

A.12.1

The carrying capacity of a vehicle is one of the least understood features of design and one of the most important. All vehicles are designed for a GVWR, which should not be exceeded by the apparatus manufacturer or by the purchaser after the vehicle has been placed in service. For tractor-drawn vehicles, the in-service weight of the apparatus should not exceed the GCWR. There are many factors that make up the GVWR, including the design of the springs or suspension system, the rated axle capacity, the rated tire and wheel loading, and the distribution of the weight between the front and rear wheels.

Water Tank. One of the most critical factors is the size of the water tank. Water weighs approximately 8.3 lb/gal (1 kg/L). A value of 10 lb/gal (1.2 kg/L) can be used when estimating the weight of the tank and its water, making a 500 gal (2000 L) tank and its water about 5000 lb (2400 kg).

Miscellaneous Equipment. If the finished apparatus is not to be overloaded, the purchaser should provide the contractor with the weight of equipment to be carried if it is in excess of the allowance shown in Table 12.1.2. *(See Section 4.3.)*

~~).~~

Large Compartment Capacity. The manufacturer is obligated by this standard to provide only a miscellaneous equipment allowance in compliance with the minimum allowance listed in Table 12.1.2. Purchasers who specify vehicles with large compartment capacity should work closely with the vehicle manufacturer to ensure that the GVWR is sufficient to carry the intended equipment. A vehicle with average compartment loading will have a miscellaneous equipment weight of about 8 lb/ft^3 (125 kg/m^3) of compartment space available for miscellaneous equipment. A lightly loaded vehicle could have as little as 4 lb/ft^3 (65 kg/m^3). A heavily loaded vehicle can reach 12 lb/ft^3 (200 kg/m^3). This volume does not include space occupied by generators, reels, air systems, ladders, hose, and so forth, that are not in the miscellaneous equipment allowance. Total equipment weight varies significantly depending on the density of the equipment and how tightly the fire department chooses to pack it.

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Purchaser Responsibility. The purchaser should specify the weight of the equipment to be carried if it is in excess of the allowance for miscellaneous equipment. This weight specification allows a chassis with an adequate GAWR and GVWR to be supplied. Specific additional equipment is often necessary to meet the operational requirement of the department.

Severe Service. Fire apparatus have to be able to perform their intended service under adverse conditions that might require operation off paved streets or roads. Chassis components should be selected with the rigors of service in mind.

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Severe Service. Fire apparatus have to be able to perform their intended service under adverse conditions that might require operation off paved streets or roads. Chassis components should be selected with the rigors of service in mind.

Supplemental Information

File Name	Description
A.12.1_FR_40_.docx	11/5/13

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Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:34:27 EDT 2013

Committee Statement

Committee Statement: This text was added to NFPA 1906-2012 and is also applicable to NFPA 1901 apparatus.
Response Message:

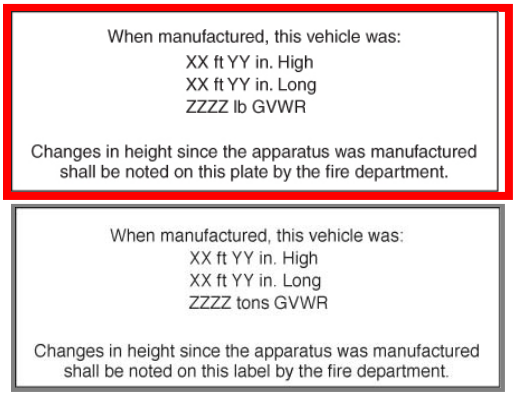
Public Input No. 125-NFPA 1901-2013 [Section No. A.12.1]

First Revision No. 41-NFPA 1901-2013 [Section No. A.12.1.5.1]

A.12.1.5.1

It is important for fire apparatus drivers to understand the height, length, and weight of the vehicle compared to their personally owned vehicles. It is also important that this information be accurate. Because the height of the apparatus could change after delivery, depending on what equipment might be added, the fire department ~~must~~ should note such changes on the ~~plate~~ label . Suggested wording for the ~~plate~~ label is shown in Figure A.12.1.5.1.

Figure A.12.1.5.1 Suggested ~~Plate~~ Label Showing Dimensions of Fire Apparatus.



Supplemental Information

File Name	Description
Figure_A.12.1.5.1.pdf	
A.12.1.5.1_FR_41_.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:41:05 EDT 2013

Committee Statement

Committee Statement: Consistency with definitions of Plate and Label and with 12.1.5.1. These were corrected in 12.1.5.1. Weight called for in 12.1.5.1 should be in tons. In the figure,change "plate" to "label" and the last item should be tons, not pounds - see attachment

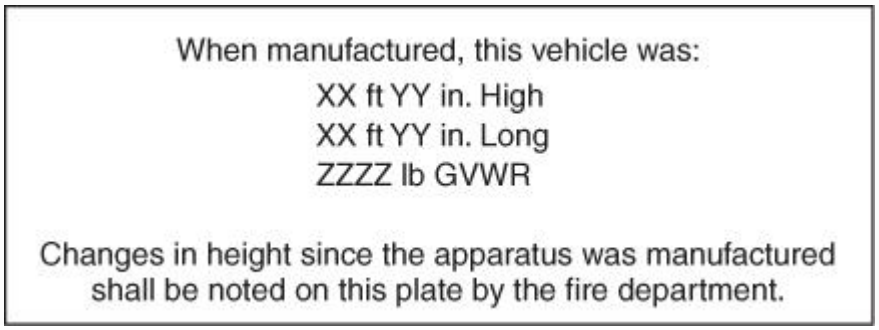
Response Message:

Public Input No. 91-NFPA 1901-2013 [Section No. A.12.1.5.1]

A.12.1.5.1

It is important for fire apparatus drivers to understand the height, length, and weight of the vehicle compared to their personally owned vehicles. It is also important that this information be accurate. Because the height of the apparatus could change after delivery, depending on what equipment might be added, the fire department should ~~must~~ note such changes on the ~~plate~~ label. Suggested wording for the ~~plate~~ label is shown in Figure A.12.1.5.1.

Figure A.12.1.5.1 Suggested ~~Plate~~ Label Showing Dimensions of Fire Apparatus.



First Revision No. 42-NFPA 1901-2013 [New Section after A.12.2.3.1]

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:41:25 EDT 2013

Committee Statement

Committee Statement: In many cases the tires can carry a higher load than the GVWR of the vehicle. According to the tire manufacturers, the tire pressure should be adjusted down based on this actual load. That was the intent of this item in the list in 12.2.3.3 but some manufacturers are just listing the maximum rating from the tire sidewall, which is not the correct tire inflation pressure for a specific application. Load and Inflation tables are available from all tire manufacturers. The rims also have a maximum pressure rating, which is not easily determined by the end user. The fire apparatus manufacturer should make the tire pressure determination based on all the data available to them from the tire and the rim manufacturers.

Response Message:

Public Input No. 136-NFPA 1901-2013 [New Section after A.12.2.3.1]

First Revision No. 43-NFPA 1901-2013 [Section No. A.12.2.6.7]

A.12.2.6.7

Exhaust temperature while the diesel particulate filter (DPF) is actively regenerating can reach 900°F to 1300°F (480°C to 704°C). The purchaser should be aware that these temperatures are much higher than normal engine idle exhaust temperatures.

Apparatus that make short runs with extended idle time ~~may~~ might tend to build up soot in the DPF without giving the engine sufficient opportunity to passively regenerate. If the DPF light illuminates, the vehicle should be driven above 5 mph (8 km/hr) for a period of time to allow the DPF to regenerate either actively or passively, or it should be parked in a controlled area and a manual regeneration initiated.

Those fire departments that employ in-station exhaust venting equipment while performing ~~pump tests~~ DPF regeneration should consult their vent supplier to ensure that the vent system will handle any potential DPF active regeneration event or perform the regeneration outside while not connected to exhaust venting equipment .

Supplemental Information

File Name	Description
A.12.2.6.7_FR_43_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 17:41:46 EDT 2013

Committee Statement

Committee Statement: This text refers to pump test but is in a section about DPF regeneration. It is unlikely that most firehouse exhaust venting equipment manufacturer will approve regeneration while connected to their equipment, so we should at least suggest the alternative the user will be left with.

Response Message:

Public Input No. 92-NFPA 1901-2013 [Section No. A.12.2.6.7]

A.12.2.6.7

Exhaust temperature while the diesel particulate filter (DPF) is actively regenerating can reach 900°F to 1300°F (480°C to 704°C). The purchaser should be aware that these temperatures are much higher than normal engine idle exhaust temperatures.

Apparatus that make short runs with extended idle time mightay tend to build up soot in the DPF without giving the engine sufficient opportunity to passively regenerate. If the DPF light illuminates, the vehicle should be driven above 5 mph (8 km/hr) for a period of time to allow the DPF to regenerate either actively or passively, or it should be parked in a controlled area and a manual regeneration initiated.

Those fire departments that employ in-station exhaust venting equipment while performing pump tests DPF regeneration should consult their vent supplier to ensure that the vent system will handle any potential DPF active regeneration event , or perform the regeneration outside while not connected to exhaust venting equipment.

First Revision No. 54-NFPA 1901-2013 [Sections A.13.3.2, A.13.3.3.1 (7)]

A.13.3.2

When that load is exceeded and larger alternators are not available, the purchaser and the manufacturer need to work together to determine how to reduce the minimum continuous electrical load to one that can be sustained under the conditions defined in 13.3.2 .

The minimum alternator size is developed using the loads required to meet the minimum continuous electrical load. Most apparatus will actually have loads exceeding the minimum requirements of this standard. The purchaser should review the maximum current output of the alternator versus the load study supplied for the apparatus from the manufacturer for on-scene and responding modes.

A.13.3.3.1(7)

The purchaser should analyze the electrical loads that need to be maintained to fulfill the mission of the apparatus and define those loads for the manufacturer of the apparatus. The purchaser needs to understand, however, that there is a limit to the output capacity of an alternator system on the apparatus's engine and that this standard requires that the apparatus be capable of maintaining the minimum continuous electrical load under the conditions defined in 13.3.2. ~~When that load is exceeded and larger alternators are not available, the purchaser and the manufacturer need to work together to determine how to reduce the minimum continuous electrical load to that which can be sustained under the conditions defined in 13.3.2 .~~

Supplemental Information

File Name	Description
A.13.3.2_FR_54_.1383681350738.1383681447708.docx	11/5/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:36:56 EDT 2013

Committee Statement

Committee Statement: This text was moved in NFPA 1906-2012. This location is a better place for the sentence.
Response Message:

Public Input No. 127-NFPA 1901-2013 [Sections A.13.3.2, A.13.3.3.1(7)]

~~Sections A.13.3.2, A.13.3.3.1(7)~~

A.13.3.2

When th~~at~~e load is exceeded and larger alternators are not available, the purchaser and the manufacturer need to work together to determine how to reduce the min imum~~ium~~ continuous electrical load to one that ~~to that which~~ can be sustained under the conditions defined in 13.3.2.

The minimum alternator size is developed using the loads required to meet the minimum continuous electrical load. Most apparatus will actually have loads exceeding the minimum requirements of this standard. The purchaser should review the maximum current output of the alternator versus the load study supplied for the apparatus from the manufacturer for on-scene and responding modes

.

A.13.3.3.1(7)

The purchaser should analyze the electrical loads that need to be maintained to fulfill the mission of the apparatus and define those loads for the manufacturer of the apparatus. The purchaser needs to understand, however, that there is a limit to the output capacity of an alternator system on the apparatus's engine and that this standard requires that the apparatus be capable of maintaining the minimum continuous electrical load under the conditions defined in 13.3.2. ~~When that load is exceeded and larger alternators are not available, the purchaser and the manufacturer need to work together to determine how to reduce the minimum continuous electrical load to that which can be sustained under the conditions defined in 13.3.2.~~

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First Revision No. 55-NFPA 1901-2013 [Section No. A.13.10.2]

A.13.10.2

The hose bed lighting can be line voltage lighting provided by mounted line voltage lights that can be directed to provide the required light. The intent of the standard is to provide lighting for personnel unloading or packing hose in the hose bed. Each department requests varying configurations of hose bed divider and many are adjustable and/or removable. It would be impractical to provide lighting that would illuminate every corner of the hose bed with dividers installed.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:37:54 EDT 2013

Committee Statement

Committee Statement: Clairfy and provide rational why standard is measured with the dividers removed.

Response Message:

Public Input No. 284-NFPA 1901-2013 [Section No. A.13.10.2]

First Revision No. 56-NFPA 1901-2013 [Section No. A.13.10.4]

A.13.10.4

The user may want to consider a map light or additional task lighting in the cab. For the purposes of illumination, interior driving or crew compartment seating are those designated seating positions provided with seat belts. Other seating areas that would be used with the vehicle stationary will typically have work lighting specified by the purchaser depending on the work being performed. Minimum lighting levels in these cases will be subject to the purchaser's specification.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 18:39:04 EDT 2013

Committee Statement

Committee Statement: Clarify this standard applies to those seats that are used during travel.

Response Message:

Public Input No. 285-NFPA 1901-2013 [Section No. A.13.10.4]

First Revision No. 190-NFPA 1901-2013 [Section No. A.14.1.3]

A.14.1.3

~~The purchaser will need to define how many seating positions are required to carry personnel and might wish to specify the arrangement of the seating positions. Large fire fighters with heavy bunker gear might require special accommodation for seat belt length. Seat belt extenders are not recommended by seat belt manufacturers, because if they are transferred to other apparatus or personal vehicles and used on another manufacturer's belts, a false latch could result. This can occur if the latch design is similar but not exact. The length of belt that can be accommodated in the retractor is fixed at 89 in., so extra-long belts will not retract all the way, leaving a portion of the belt hanging free. Purchasers who specify extra-long belts must be aware of the potential for the belt to swing into or out of the door.~~

The ability of a fire fighter to enter the driving or crew riding area, get seated, and properly buckle the seat belt is critical. ~~Studies~~ NIOSH studies of fire fighter size have shown that it is not possible to seat four of the largest fire fighters (95th percentile males) wearing their protective clothing side by side across the crew riding area without rubbing shoulders. ~~Purchasers~~ Departments with populations of larger-than-average fire fighters and whose policy is to ride fully equipped with bunker gear and equipment should consider ~~specifying~~ a seating configuration to ensure that all occupants will be able to be buckled into a seating position effectively and efficiently before the apparatus is moving. Alternative seating configurations that can be considered include three or two seats across the width of the riding area ~~and facing seats.~~ and cab configurations that maximize driver and officer space. The NIOSH data suggest that the optimum seating space to accommodate 95th percentile fire fighters would be 31.3 in. (795 mm) at the shoulder and 26.7 in.(678 mm) at the hip.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 15:07:13 EDT 2013

Committee Statement

Committee Statement: New language clarifies seating considerations for large fire fighters (95th percentile males).
Response Message:

Public Input No. 130-NFPA 1901-2013 [Section No. A.14.1.3]

First Revision No. 176-NFPA 1901-2013 [Section No. A.14.1.10.1]

A.14.1.9.1
SCBA units and other equipment stored in the crew compartment can cause injuries to occupants of the compartment if they fly around the compartment as the result of an accident or other impact. Departments should check their pack and bottle weight to ensure that it does not exceed the published rating of the SCBA holder to be provided.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:30:12 EDT 2013

Committee Statement

Committee Statement: Language added to clarify changes to requirements in FR-175. Add new annex material associated with A.14.1.10.1(4)
Response Message:

First Revision No. 106-NFPA 1901-2013 [Section No. A.15.2]

A.15.2
The purchaser needs to provide the apparatus manufacturer with the details of, and any special needs for, communication equipment, such as radio size, power consumption, and location(s) for communication equipment.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 11:40:51 EDT 2013

Committee Statement

Committee Statement: Editorial grammar correction. Commas should be used to set off a nonrestrictive clause or phrase.

Response Message:

Public Input No. 94-NFPA 1901-2013 [Section No. A.15.2]

First Revision No. 91-NFPA 1901-2013 [Section No. A.16.2.3.2]

A.16.2.3.2

~~Pumps larger than~~ Pumps of 3000 gpm (12,000 L/min) or greater capacity are used for specialized industrial fire-fighting applications, where the apparatus is typically supplied by a high pressure feed system.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 22:18:01 EDT 2013

Committee Statement

Committee Statement: NOTE: This Proposal originates from Tentative Interim Amendment 1901-09-1 (TIA 934) issued by the Standards Council on October 28, 2008. The truck engine industry is changing and truck engines that were available to drive pumps that could deliver 3000 gpm (12,000 L/min) at 150 psi net pump pressure (and 1500 gpm at 250 psi) will be no longer available. There are about 25 fire apparatus built each year to the requirements of NFPA 1901 with 3000 gpm (12,000 L/min) pumps. While engines are available to drive pumps that can deliver 3000 gpm at 100 psi (700 kPa) net pump pressure, the horsepower is no longer available from engines for the fire apparatus market to deliver 3000 gpm at 150 psi (1000 kPa) net pump pressure. In the 2003 edition of NFPA 1901, the 3000 gpm pump could be rated as either a fire pump (3000 gpm at 150 psi net pump pressure) or an industrial supply pump (3000 gpm at 100 psi net pump pressure). When the 2009 edition was processed, the fire pump chapter and the industrial supply pump chapter were combined with exceptions noted for pumps over 3000 gpm due to horsepower limitations on engines to drive the pumps. The 3000 gpm pump was included with those that were required to perform at 150 psi net pump pressure because at the time, engines were available to deliver the necessary horsepower. That situation has since changed. EMERGENCY NATURE: Without this change, a fire apparatus will not be able to be built with a 3000 gpm (12000 L/min) pump that meets the standard.

Response Message:

Public Input No. 254-NFPA 1901-2013 [Section No. A.16.2.3.2]

First Revision No. 92-NFPA 1901-2013 [Section No. A.16.2.4.2]

A.16.2.4.2

Where the community to which the apparatus is to be delivered is at a considerably higher altitude than the factory or other test location, sufficient excess power should be provided to compensate for the fact that the power of a naturally aspirated internal combustion engine decreases with elevation above sea level. The performance of a fire pump can be adversely affected by the design of the suction piping or the addition of valves to the suction side of the pump. Losses due to additional piping or valves that are added to the fire pump suction ~~can be calculated and used to determine~~ reduce pump performance.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Sep 11 22:19:29 EDT 2013

Committee Statement

Committee Statement: This is a more accurate statement. Calculating the exact effect on pump performance from plumbing would be very inaccurate. This same change was made in NFPA 1906-2012.

Response Message:

Public Input No. 95-NFPA 1901-2013 [Section No. A.16.2.4.2]

First Revision No. 231-NFPA 1901-2013 [Section No. A.16.6.1]

A.16.6.1

Intakes can be larger than the size of the suction hose specified in Table 16.2.4.1 (a). The sizing of suction hose in Table 16.2.4.1(a) is for the pump manufacturer's certification of the pump's capability only. It is recommended that a fire department standardize suction hose size regardless of fire pump size on its apparatus, which will allow extra suction hose to be available if a long horizontal reach is needed to get to the water source. Regional standardization of suction hose sizes will improve interoperability within the region in the event of a major disaster.

It is also advantageous to have valves on one or more of the intakes. The purchaser should specify if larger intakes are to be provided and if any of the intakes are to be equipped with valves.

Intakes at the front or rear of the apparatus or otherwise specially situated might not allow drafting rated capacity at rated pressure. The purchaser should specify the flow rates required from auxiliary intakes, especially front and rear intakes or other intakes located 10 ft (3 m) or more away from the pump. If auxiliary intakes are provided, the purchaser should also consider requiring the manufacturer to certify the actual flow rates from auxiliary intakes. ~~It is recommended that permanently gated intakes 4 in. or larger be controlled from the pump operator's position.~~

It is recommended that permanently gated intakes 4 in. (102 mm) or larger be controlled from the pump operator's position.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:27:56 EDT 2013

Committee Statement

Committee Statement: Additional language is not a minimum requirement but something that the user should consider.

Response Message:

Public Input No. 165-NFPA 1901-2013 [New Section after 16.6.4]
Public Input No. 304-NFPA 1901-2013 [New Section after 16.6.3.2]

First Revision No. 244-NFPA 1901-2013 [Section No. A.16.7]

A.16.7
Consideration should be given to providing an additional pump cooling/recirculation line or thermal relief valve that is automatic in ~~operation, because pumps~~ operation. Pumps on fire apparatus are often left unattended, and a cooling/recirculation line or thermal relief valve that is automatic in operation will help ensure that the pump does not overheat.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 13:57:35 EDT 2013

Committee Statement

Committee Statement: Not all methods of helping to ensure that the pump does not overheat are noted in the current wording. Thermal relief valves are an effective method of helping to ensure that pumps don't overheat.

Response Message:

Public Input No. 399-NFPA 1901-2013 [Section No. A.16.7]

First Revision No. 94-NFPA 1901-2013 [Section No. A.16.7.1]

A.16.7.1

The flows listed for each outlet size are minimum and are for rating purposes only. If piping and valving are sufficient, much higher flows for a given outlet size might be achievable. The purpose of this section is to provide sufficient discharge outlet connections to allow the apparatus to relay-supply the rated capacity of the pump for a distance of 1200 ft (366 m) or greater. If a 1500 gpm pump (6000 L/min) is chosen, six 2.5 in. (65 mm) lines, or two 2.5 in. (65 mm) lines and one 5 in. (125 mm) line, or one 6 in. (150 mm) line will be needed.

Section 16.7.1 allows the customer the option of using LDH hose instead of many 2.5 in. (65 mm) lines. A 1500 gpm (6000 L/min) pump could be supplied with a 5 in. (125 mm) connection and two 2.5 in. (65 mm) connections and be totally compliant and functional, because the LDH connection equals four 2.5 in. (65 mm) connections.

This section is based on discharge outlet connections, not valve sizes or piping. The valve size friction loss is not normally as great as the hose loss attached to the outlet connection. A 3 in. (75 mm) valve can easily supply a 5 in. (125 mm) connection at 1000 gpm (4000 L/min), with little noticeable loss through the valve and the pipe.

Connection Size	Required Flow	Common Valve/Pipe Size to Meet the Requirement
2.5 in	250	2.5 in. or 3 in.
3 in.	375	2.5 in. or 3 in.
4 in.	635	3 in.
5 in.	1000	3 in. or 4 in.
6 in.	1500	4 in.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:05:17 EDT 2013

Committee Statement

Committee Statement: this section has been one of the most miss understood in the 1901 documents, I am trying for clarify the information
Response Message:

Public Input No. 180-NFPA 1901-2013 [Section No. A.16.7.1]

First Revision No. 96-NFPA 1901-2013 [Section No. A.16.7.5.2]

A.16.7.5.3
Control of discharges on apparatus is available as pull-type actuators, trunnion or swing valves, flexible push/pull controls, gear-operated hand wheel controls, and hydraulic, air, and electric operators. These controls are available with either quick-operating or slow-operating valve mechanisms. The nozzle and hose reaction and "operational effort" for high flow or high pressure discharges are critically important to many fire departments. Because of the variations in types of individuals and characteristics of operators involved with pump operations, a purchaser should carefully evaluate valve controls. ~~Slow closing gear operated and other power operated valves should be considered for valves 3 in. (75 mm) and larger.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:08:33 EDT 2013

Committee Statement

Committee Statement: These no longer need to be "considered" since they are required.
Response Message:
Public Input No. 96-NFPA 1901-2013 [Section No. A.16.7.5.2]

First Revision No. 245-NFPA 1901-2013 [Section No. A.16.10.14.1]

A.16.10.14.1

Pressure control systems can be supplied in the following forms:

(1) Integral with the pump and supplied by the pump manufacturer

(2) As an external system of components supplied by the apparatus manufacturer

(3) As an external control system provided by a pressure control manufacturer

(4) Properly selected pump, PTO ratio, and discharge sizes to limit pressure rise to less than 30 psi (207 kPa)

Pressure governors control the engine speed, which relates directly to the net pump pressure: If the speed is raised, the pressure goes up; if the speed is lowered, the pressure goes down.

Discharge relief valves control pressure by passing water from the discharge side of the pump back into the intake side of the pump. This type of system works in a pressure differential of ~~approximately~~ at least 70 psi to 90 psi (500 kPa to 600 kPa) between the intake and discharge sides of the pump. If the pressure differential is not present, the discharge relief valve might not control a pressure rise completely.

If either a discharge relief valve or a pressure governor is used with high incoming inlet pressures, an intake relief valve or total control system ~~must~~ should be added.

In the case where an intake relief valve is selected, it ~~must~~ should be of sufficient size and response time to handle the pump performance range. It ~~must~~ should also be easily controlled by the pump operator so that this incoming pressure can be adjusted for each incident. For best results, the operator should set the intake relief valve to operate at 90 psi (600 kPa) below the desired discharge operating pressure.

The pressure control system should be certified by the appropriate manufacturer or an independent third-party certification organization. Because of the importance of these systems, the purchaser might wish to have performance tests conducted on the installed system.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 14:04:46 EDT 2013

Committee Statement

Committee Statement: Discharge relief valves work better as pressure increases, even above 90 psi. This is a minimum, not workable range.

Response Message:

Public Input No. 97-NFPA 1901-2013 [Section No. A.16.10.14.1]

First Revision No. 97-NFPA 1901-2013 [Section No. A.16.10.15]

A.16.10.15

Departments that need to attain a draft while conducting operations off tank water will find that adding a primer selector valve or second priming control valve to allow attaining a draft on the outboard side of the gated pump suction valve will ~~eliminate~~ reduce the ~~danger of cavitation~~ potential loss of continuous water flow while supplying attack lines. A vacuum line is run to the outboard side of the valve and connected through a selector valve to the primer. Side, front, and rear selector settings can be arranged to allow priming off any side of the unit with one primer. Automatic priming is available from several manufacturers and offers added convenience to the pump operator.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:09:53 EDT 2013

Committee Statement

Committee Statement: offer info into features new to the US market, offered now by several builders

Response Message:

Public Input No. 98-NFPA 1901-2013 [Section No. A.16.10.15]
Public Input No. 175-NFPA 1901-2013 [Section No. A.16.10.15]

First Revision No. 98-NFPA 1901-2013 [Section No. A.16.13.2.3.2]

A.16.13.2.3.2

Where an engine is operating at or near full power while stationary, the heat generated could raise the temperature of certain chassis or pumping system components above the level that, when touched, could cause 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, it should be considered acceptable.

The suction lift can be determined either by measuring the negative pressure (vacuum) in the pump intake manifold with a ~~manometer or other suitable~~ test gauge that measures vacuum accurately or by adding the vertical lift and the value of friction and entrance loss from Table 16.2.4.1(b) or Table 16.2.4.1(c). To be accurate, gauge readings should be corrected for the difference between the height of the gauge and the centerline of the pump intake, but usually this is not a significant amount and could be ignored. Thus, the net pump pressure can be calculated by using the following formulas.

For inch-pound units:

$$P = D + (H \times 0.5) \qquad \text{[A.16.13.2.3.2(a)]}$$

or

$$P = D + 0.43(L + F) \qquad \text{[A.16.13.2.3.2(b)]}$$

where:

P = net pump pressure (psi)

D = discharge pressure (psi gauge)

H = ~~manometer~~ vacuum gauge reading (in. Hg)

L = vertical lift (ft)

F = friction and entrance loss (ft of water)

For SI units:

$$P_m = D_m + H_m \qquad \text{[A.16.13.2.3.2(c)]}$$

or

$$P_m = D_m + F_m + 9.8L_m \qquad \text{[A.16.13.2.3.2(d)]}$$

where:

P_m = net pump pressure (kPa)

D_m = discharge pressure (kPa)

H_m = ~~manometer~~ vacuum gauge reading (kPa)

F_m = friction and entrance loss (kPa)

L_m = vertical lift (m)

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Thu Sep 12 10:12:21 EDT 2013

Committee Statement

Committee Statement: Mercury manometers should not be suggested. Mercury is a hazardous material and accurate vacuum gauges without mercury are easily available.

Response Message:

Public Input No. 99-NFPA 1901-2013 [Section No. A.16.13.2.3.2]

First Revision No. 236-NFPA 1901-2013 [Section No. A.16.13.8]

A.16.13.8

The test of the engine speed advancement interlock system should verify proper functioning for the conditions of chassis transmission(s), parking brake and pump shift control action status, and indicator status in driving compartment and pump operator's panel indicated in Table A.16.13.8(a) through Table A.16.13.8(d). Testing should 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. Shifting of the pump transmission/PTO should be done in accordance with the manufacturer's instructions.

Table A.16.13.8(a) Stationary Pump Driven Through Split-Shaft PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment) [a]	Pump Indicator Status (Driving Compartment)	Pump Indicator (Pump Operator's Panel	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Road	None	None	~~Yes~~ * No	
Neutral	On	Road	None	"Throttle Ready"	Yes [b]	
Neutral	Off	Road	None	None	No	X
Neutral	On	Engaged	"Pump Engaged"	None	~~Yes~~ * No	
Neutral	On	Engaged	"Pump Engaged"	"Throttle Ready"	Yes [b]	
Neutral	Off	Engaged	"Pump Engaged"	None	No	
Pump gear‡ [c]	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Throttle Ready"	Yes	X
Pump gear‡ [c]	Off	Engaged	"Pump Engaged"	None	No	
Pump gear‡ [c]	On	Road	None	None	No	X
Pump gear‡ [c]	Off	Road	None	None	No	
Any gear other than neutral and pump gear‡ [c]	On or off	Road	None	None	No	
Any gear other than neutral and pump gear‡ [c]	On or off	Engaged	None	None	No	

[a] Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

Tables A.16.13.8(a-d)

Table A.16.13.8(a) Stationary Pump Driven Through Split-Shaft PTO

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment)[a]	Pump Indicator Status (Driving Compartment)	Pump Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Road	None	None	No ~~Yes*~~	
Neutral	On	Road	None	"Throttle Ready"	Yes[b]	
Neutral	Off	Road	None	None	No	X
Neutral	On	Engaged	"Pump Engaged"	None	No~~Yes~~[b]	
Neutral	On	Engaged	"Pump Engaged"	"Throttle Ready"	Yes[b]	
Neutral	Off	Engaged	"Pump Engaged"	None	No	
Pump gear[c]	On	Engaged, ~~OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Throttle Ready"	Yes	
Pump gear[c]	Off	Engaged	"Pump Engaged"	None	No	
Pump gear[c]	On	Road	None	None	No	X
Pump gear[c]	Off	Road	None	None	No	
Any gear other than neutral and pump gear[c]	On or off	Road	None	None	No	
Any gear other than neutral and pump gear[c]	On or off	Engaged	None	None	No	

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[a] Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position mightay or mightay not provide indication of a particular status.

[b] ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

[c] Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.

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Commented [b1]: SL: Reordered table footnotes to conform to MOS.

Commented [rd2]: Ok as edited.

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Table A.16.13.8(b) 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 Control Action Status (Driving Compartment)*~~*~~	Indicator Status (Driving Compartment)	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Disengaged	None	None	No~~Yes~~†~~*~~	
Neutral	On	Disengaged	None	"Throttle Ready"	Yes†~~*~~	
Neutral	Off	Disengaged	None	None	No	X
Neutral	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Pump Engaged & "Throttle Ready"	Yes~~*~~ (* deleted)	
Neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On	Engaged	"Pump Engaged"	"Pump Engaged"	No	X
Any gear other than neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On or off	Disengaged	None	None	No	

*Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

†~~*Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

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Commented [b3]: SL: Reordered table footnotes to conform to MOS.

~~**Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position may or may not provide indication of a particular status.~~

Commented [rd4]: Ok as edited.

Table A.16.13.8(c) Stationary and Pump-and-Roll Pump

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment)**	Indicator Status (Driving Compartment)	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Disengaged	None	None	No ~~Yes*~~	
Neutral	On	Disengaged	None	"Throttle Ready"	Yes†*	
Neutral	Off	Disengaged	None	None	No	X
Neutral	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Pump Engaged & "Throttle Ready"	Yes~~*~~ (* deleted)	
Neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On	Engaged~~, OK to pump & roll~~	"Pump Engaged"	"Pump Engaged"	No	X
Any gear other than neutral	Off	Engaged~~, OK to pump & roll~~	"Pump Engaged" & "Okay to Pump and Roll"	"Pump Engaged"	No	X
Any gear other than neutral	On or off	Disengaged	None	None	No	

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*Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

†* ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

~~**Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position may or may not provide indication of a particular status.~~

Table A.16.13.8(d) Stationary Pump Driven Through Transfer Case PTO

Chassis Transmission Gear Selected	Transfer Case	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment)[a]**	Indicator Status (Driving Compartment)	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	Neutral or engaged	On	Road	None	None	No ~~Yes*~~	
Neutral	Neutral or engaged	On	Road	None	"Throttle Ready"	Yes[b]*	
Neutral	Neutral	Off	Road	None	None	No	X
Neutral	Engaged	Off	Road	None	None	No	X
Neutral	Neutral or engaged	On	Engaged	"Pump Engaged"	"Throttle Ready"	Yes[b]*	
Neutral	Neutral or engaged	Off	Engaged	"Pump Engaged"	None	No	

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Pump gear[c,‡]	Neutral	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	None	Yes	
Pump gear[c,‡]	Engaged	On	Engaged~~, OK to pump~~	"Pump Engaged"	None	No	
Pump gear[c,‡]	Neutral or engaged	Off	Engaged	"Pump Engaged"	None	No	
Pump gear[c,‡]	Neutral or engaged	On	Road	None	None	No	X
Pump gear[c,‡]	Neutral or engaged	Off	Road	None	None	No	
Any gear other than neutral and pump gear[c,‡]	Neutral or engaged	On or off	Road or engaged	None	None	No	

[a]Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.[‡]~~Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.~~

[b,‡]~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

[c]Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.

~~**Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position may or may not provide indication of a particular status.~~

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Commented [b8]: SL: Table footnotes reordered to conform to MOS.

* [b] ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

‡ [c] Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.

Table A.16.13.8(b) 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 Control Action Status (Driving Compartment) *	Indicator Status (Driving Compartment)	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Disengaged	None	None	~~Yes~~ * No	
Neutral	On	Disengaged	None	"Throttle Ready"	Yes ‡	
Neutral	Off	Disengaged	None	None	No	X
Neutral	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Pump Engaged & "Throttle Ready"	Yes*	
Neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On	Engaged	"Pump Engaged"	"Pump Engaged"	No	X
Any gear other than neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On or off	Disengaged	None	None	No	

* Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

* ‡ ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

Table A.16.13.8(c) Stationary and Pump-and-Roll Pump

Chassis Transmission Gear Selected	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment) *	Indicator Status (Driving Compartment) *	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	Required Test
Neutral	On	Disengaged	None	None	~~Yes~~ * No	
Neutral	On	Disengaged	None	"T h rottle Ready"	Yes ‡	
Neutral	Off	Disengaged	None	None	No	X
Neutral	On	Engaged~~, OK to pump~~	"Pump Engaged" & "Okay to Pump"	"Pump Engaged & "Throttle Ready"	Yes*	
Neutral	Off	Engaged	"Pump Engaged"	"Pump Engaged"	No	
Any gear other than neutral	On	Engaged~~, OK to pump & roll~~	"Pump Engaged"	"Pump Engaged"	No	X
Any gear other than neutral	Off	Engaged~~, OK to pump & roll~~	"Pump Engaged" & "Okay to Pump and Roll"	"Pump Engaged"	No	X
Any gear other than neutral	On or off	Disengaged	None	None	No	

* Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

* ‡ ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

Table A.16.13.8(d) Stationary Pump Driven Through Transfer Case PTO

Chassis Transmission Gear Selected	Transfer Case	Parking Brake Status	Pump Shift Control Action Status (Driving Compartment) [a]	Indicator Status (Driving Compartment)	Indicator Status (Pump Operator's Panel)	Engine Speed Control at Pump Operator's Panel	R
Neutral	Neutral or engaged	On	Road	None	None	~~Yes~~ [*] No	
Neutral	Neutral or engaged	On	Road	None	"Throttle Ready"	Yes [b]	
Neutral	Neutral	Off	Road	None	None	No	
Neutral	Engaged	Off	Road	None	None	No	
Neutral	Neutral or engaged	On	Engaged	"Pump Engaged"	"Throttle Ready"	Yes [*] [b]	
Neutral	Neutral or engaged	Off	Engaged	"Pump Engaged"	None	No	
Pump gear [‡] [c]	Neutral	On	Engaged, ~~OK to pump~~	"Pump Engaged" & "Okay to Pump"	None	Yes	
Pump gear [‡] [c]	Engaged	On	Engaged, ~~OK to pump~~	"Pump Engaged"	None	No	
Pump gear [‡] [c]	Neutral or engaged	Off	Engaged	"Pump Engaged"	None	No	
Pump gear [‡] [c]	Neutral or engaged	On	Road	None	None	No	
Pump gear [‡] [c]	Neutral or engaged	Off	Road	None	None	No	
Any gear other than neutral and pump gear [‡] [c]	Neutral or engaged	On or off	Road or engaged	None	None	No	

[a] Refers to the physical position of the pump shift control (or status of an electrical control action) in the driving compartment. The indicators associated with a particular pump shift control position might or might not provide indication of a particular status.

~~[‡] Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.~~

[*] [b] ~~Applies only~~ Engine speed control at the pump operator's panel is permitted for those apparatus that have "Throttle Ready" indication on the pump operator's panel when the chassis transmission is in neutral and the parking brake is engaged. If there is no "Throttle Ready" indication, there is no engine speed control at the pump operator's panel.

[c] Chassis transmission shift selector is placed in position for pumping as indicated on the label provided in the driving compartment.

Supplemental Information

File Name	Description
Tables_A.16.13.8_FR_236_.docx	11/6/13

Submitter Information Verification

Submitter Full Name: [Not Specified]
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Street Address:
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Submittal Date: Tue Sep 24 13:02:39 EDT 2013

Committee Statement

Committee Statement: The edits to A.16.13.8 and Tables A.16.13.8(a)-(d) provide clarification for engage speed control interlock systems. Revise Tables A.16.13.8(a)-(d) as indicated in attachment.

Response Message:

Public Input No. 100-NFPA 1901-2013 [Section No. A.16.13.8]
Public Input No. 400-NFPA 1901-2013 [Section No. A.16.13.8]

First Revision No. 246-NFPA 1901-2013 [Section No. A.18.2.3]

A.18.2.4

Water tanks can appear in several different configurations, such as round, elliptical, rectangular, or T-shaped. Handling characteristics of the apparatus can be greatly affected by its vertical and horizontal centers of gravity. The purchaser should indicate the filling and dumping rates required if those rates exceed the requirements of this standard, and any other local needs, and let the apparatus manufacturer design the tank shape to best meet the axle-loading and center-of-gravity requirements.

If the tanks are made as one unit with the body and compartments, the material used is important. It should be corrosionproof and should not easily ~~sweat~~ cause condensation .

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Committee Statement

Committee Statement: The additional two commas are needed to correct the grammar and make the clauses apply correctly. Changing "sweat" to "cause condensation" was made in 1906-2012 to be more correct.

Response Message:

Public Input No. 132-NFPA 1901-2013 [Section No. A.18.2.3]

First Revision No. 247-NFPA 1901-2013 [Section No. A.18.5.2]

A.18.5.2

It is important that the purchaser evaluate how the apparatus will be used and define the location(s) and types of fittings for these outlets.

Where rapid dumping of the contents of the water tank to an external use is desired on other types of apparatus, the purchaser should consider an outlet directly ~~into~~ from the tank that is capable of allowing water to be transferred from the tank at an average rate of at least 1000 gpm (4000 L/min).

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Committee Statement

Committee Statement: Better word. Inlets go into, outlets go from or out of.
Response Message:
Public Input No. 101-NFPA 1901-2013 [Section No. A.18.5.2]

First Revision No. 135-NFPA 1901-2013 [Section No. A.19.3.4]

A.19.3.4

Ladder capacity ratings are established in many different operating positions other than full extension and zero degrees elevation. Ladders are often rated at higher tip capacities as elevation angles increase or when the ladder is not fully extended. Most manufacturers provide distributed load capacities (several persons), depending on the ladder's extension and elevation. Combination ratings that include capacity at the tip while discharging water are normally provided. These can vary with elevation and extension and are examples of multiple configurations. It is important that the manufacturer ~~clearly~~ define for the user the ladder's rated capacity in various positions and operation modes.~~Aerial control systems can now limit the motion of the aerial device based on the following conditions:~~

~~Geometric position of the aerial device~~

~~Weights and loads (ice, wind, nozzle reactions, slope conditions, etc.) applied to the aerial device that create overturning loads~~

~~Stabilizer extension at each location~~

~~Position of the aerial device with respect to the centerline of the truck~~

Aerial control systems can now limit the motion of the aerial device based on the following conditions:

(1) Geometric position of the aerial device

(2) Weights and loads (ice, wind, nozzle reactions, slope conditions, etc.) applied to the aerial device that create overturning loads

(3) Stabilizer extension at each location

(4) Position of the aerial device with respect to the centerline of the truck

These geometric conditions are complex, and the electronic systems should clearly monitor the required inputs and validate the range of motion with the loads applied while maintaining the required safety factors for vehicle stability and structural safety.

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Submittal Date: Thu Sep 19 15:58:42 EDT 2013

Committee Statement

Committee Statement: The addition of this language clarifies envelope control.
Response Message:

First Revision No. 134-NFPA 1901-2013 [Section No. A.19.5.2.1]

A.19.5.2.1
Turntable bearing bolts are required to be checked ~~and retorqued~~ through torque verification at regular intervals. The apparatus body should be constructed so as to make this task relatively simple by unbolting access panels, ladder slides, and other obstructions. Space should be provided for checking and torquing of the bearing bolts above and below the turntable using the appropriate tools.

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Submittal Date: Thu Sep 19 15:55:48 EDT 2013

Committee Statement

Committee Statement: As was correctly accomplished in NFPA 1911, 2009 Edition, the word re-torque refers to the backing off of a fastener and then "retorquing" the fastener. The result of this process is to reduce the clamping force by as much as 50% which is unacceptable in the required application. The proper terminology for the process is to use a properly calibrated torque wrench and "verify" the manufacturer's original torque specification value.

Response Message:

Public Input No. 247-NFPA 1901-2013 [Section No. A.19.5.2.1]

First Revision No. 137-NFPA 1901-2013 [Section No. A.19.19.7]

A.19.19.7

While this standard requires the hydraulic system to have adequate cooling for continuous operation for 2½ hours, prolonged ~~operations~~ operation under adverse environmental conditions could cause the hydraulic oil to rise in temperature beyond its recommended temperature range. The purchaser might wish to specify an indicator and an alarm that warns the operator if the fluid temperature begins to overheat.

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Committee Statement

Committee Statement: Editorial change.
Response Message:

First Revision No. 200-NFPA 1901-2013 [Section No. A.20.3.1]

A.20.3.1

~~Foam proportioning~~ Proportioning systems that ~~inject~~ introduce foam concentrate or other additives into the water pumping system ~~at a higher pressure than the water pressure~~ have the potential to ~~force foam concentrate or foam~~ backflow solution into an external water source. ~~This condition will occur when there is no water flowing and the foam proportioning system is activated in the automatic mode. Backflow prevention devices or any other devices that~~ Backflow prevention devices utilized in the water piping prior to the introduction of the water additive are designed to prevent such occurrences. Use of these devices could create additional friction loss in the system and should be used or installed ~~only with the approval and specific instructions of the foam~~ following the proportioning system ~~manufacturer~~ manufacturer's recommendations .

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Submittal Date: Mon Sep 23 16:32:29 EDT 2013

Committee Statement

Committee Statement: These changes clarify the explanation in the annex material.
Response Message:
Public Input No. 404-NFPA 1901-2013 [Section No. A.20.3.1]

First Revision No. 117-NFPA 1901-2013 [Section No. A.20.7.5]

A.20.7.5

A suitable ~~suction device~~ intake connection is required for the type of system being utilized to operate from an external source ~~such as 5 gal (19 L) pails, 55 gal (208 L) drums, and portable tanks or containers~~ as specified by the purchaser .

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Street Address:
City:
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Zip:
Submittal Date: Thu Sep 19 12:59:03 EDT 2013

Committee Statement

Committee Statement: There are many types of systems utilized when operating from an external source and should be specified by the purchaser.

Response Message:

Public Input No. 102-NFPA 1901-2013 [Section No. A.20.7.5]

First Revision No. 58-NFPA 1901-2013 [Section No. A.22.4.3.1]

A.22.4.3.1

The 120°F (49°C) requirement is for air inlet temperature to the power source. The completed apparatus is required to operate at an ambient temperature of 110°F (43°C). This difference of only 10°F (6°C) is difficult to achieve due to heat produced by the apparatus engine. The installer should take this temperature into consideration in selecting a location for the power source. If the apparatus is intended to operate at high temperatures, the purchaser may want to specify a larger nameplate rating on the generator and derate it to allow for a higher temperature capability. Consult with the power source manufacturer for more information on extended temperature range operation. In the testing required in 22.15.7 the ambient and air inlet temperatures are recorded, giving a measure of the temperature difference in actual operation.

The following factors could be relevant to power source testing, depending on the type of power source:

(1) *Sampling.* The selection of test unit(s) should be representative of the construction and settings for units that will be supplied to the apparatus manufacturer. The standard does not require that all production units be tested; however, the power source manufacturer should test as needed to maintain confidence in its declaration of the continuous duty rating for all production units .

(2) *Clearances, cooling, and ventilation.* Testing should be conducted at the worst -case clearance (usually minimum clearance or minimum compartment size) and worst-case ventilation conditions (minimum inlet/outlet dimensions and maximum inlet/outlet restrictions) specified in the literature. If not in the literature, the power source manufacturer's declaration should indicate the clearances, compartment size, and ventilation that are applicable to the declared continuous duty rating.

(3) *Test duration.* “Continuous” ratings are usually established by tests run until thermal stabilization is achieved. A minimum test of 2 hours, matching the in-apparatus test duration indicated in 22.15.7.3.4, is recommended.

(4) *Air inlet temperature.* Power sources should be tested in a chamber or room where the air temperature supplied to all inlet ducts (radiators, engine induction, windings, heat sinks, etc.), and the air surrounding the test unit, is maintained at 120°F (49°C).

(5) *Barometric pressure.* Pressure (air density) varies with changes in altitude and weather. Its effect is generally greatest on engines, where it affects combustion and cooling efficiency. There is a lesser effect on wound machines due to cooling only. To show compliance with the 2000 ft (600 m) requirement, a test in a chamber simulating 2000 ft (600 m) would be ideal, but it is not expected. Alternatively, connecting more or less than the rated load can be used to simulate/demonstrate that the engine is capable of the power required for rated output at 2000 ft (600 m). (Several standards organizations, such as SAE and ISO, have standards that describe how to compute load/output correction factors for barometric pressure.)

(6) *Fuel temperature.* Fuel supply for the test should be stabilized at 120°F (49°C) before testing. Increases in fuel tank temperature that can occur as a result of fuel returned to the tank should be controlled so as to provide a result that is representative of expected fuel temperature conditions for the fire apparatus.

(7) *Intake and exhaust restrictions, accessories, hydraulic pumps, and reservoirs.* Components and accessories that might reduce engine power available for electrical output or that consume electrical output from the power source should be installed and be of the type used for the model that will be ordered for fire apparatus use, or their effect should be separately determined and reflected in the certified output.

(8) *Break-in.* Acceptance of a reduced output rating until completion of an in-use break-in period is subject to the prior agreement of the apparatus manufacturer, who might request test evidence. When applicable, the reduced output amount and duration of the break-in period should be indicated in the power supply literature.

(9) *Voltage and frequency.* Tests should be run while maintaining the ±10 percent voltage and ±3 Hz frequency required by 22.2.1. Furthermore, settings for voltage and frequency should be representative of production units.

(10) *Engine speed and hydraulic flow/pressure.* The engine speed and/or hydraulic flow and pressure ranges indicated in the power source's literature should be used to verify that the declared ratings are achievable.

(11) *Hydraulic fluid temperature.* The entire hydraulic power supply system, including hydraulic fluid piping and reservoir, should be located within a test chamber where temperature is controlled to maintain 120°F (49°C). Hydraulic fluid reservoirs should be stabilized at the ambient air test temperature [120°F (49°C)] prior to the testing.

(12) *Component and material temperatures.* Although not specified in the standard, when a power supply designed for light-duty use in open air is proposed for fixed fire apparatus use, the power source manufacturer should evaluate the components to determine whether they will operate within their rated or design temperature limits.

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Committee Statement

Committee Statement: Word improves the sentence (1).
Response Message:
Public Input No. 103-NFPA 1901-2013 [Section No. A.22.4.3.1]

First Revision No. 59-NFPA 1901-2013 [Section No. A.22.15.7]

A.22.15.7

It is important that the power source meet the fire department requirements for output. Power sources ~~of the size and type used on fire apparatus are generally~~ not specifically designed and tested for the fire service are often advertised with power ratings for operating conditions that are more favorable than the conditions that might be encountered in fire apparatus use. Some power sources are advertised at peak output or intermittent duty ratings and not the continuous duty output required for fire apparatus. The power source manufacturer and apparatus manufacturer might need to establish a reduced rating that is appropriate for fire apparatus. The standard calls for two steps. The power source manufacturer provides a declared rating for 120°F (49°C) air inlet temperature and 2000 ft (600 m) altitude for the minimum clearance and ventilation indicated on the declaration *(see 22.4.3.1 and A.22.4.3.1)*. Then the apparatus manufacturer verifies that the rating printed on the power source specification label can be attained during the apparatus test *(see 22.15.7)*.

Generator Set Rating. Auxiliary engine–powered generator sets are the type of power source most likely to require a reduction from advertised ratings, and generator set literature usually provides rating correction factors for altitude and temperature. These factors could be based on standards for engines, such as ISO 3046-1, *Reciprocating internal combustion engines — Performance — Part 1: Declarations of power, fuel and lubricating oil consumptions, and test methods — Additional requirements for engines for general use*, and SAE J1349, *Engine Power Test Code — Spark Ignition and Compression Ignition — Net Power Rating*; standards for generators, such as NEMA MG 1, *Motors and Generators*; or manufacturer testing. As an example of how altitude and temperature affect output capability, consider a typical 10 kW generator set with 0.8 generator efficiency and naturally aspirated diesel engine that is rated at 500 ft (150 m) and 85°F (30°C) for continuous operation without overload or reserve capacity. ISO 3046-1 indicates a factor of -2.1 percent output per 10°F (5.5°C) ambient increase, and a -2.6 percent per 1000 ft (300 m) altitude increase. Generator output is also affected by temperature [about -0.5 percent per 10°F (5.5°C)] and altitude (small and ignored in this example). There is also an effect from combining engine and generator into a generator set due to each heating the other. This may require an additional factor of -1 to -4+ percent per 10°F (5.5°C), depending on the effectiveness of the cooling system and temperature (the factor increases with increasing temperature). Altogether, these factors suggest the 10 kW generator set in this example is capable of about 8.~~8~~ 4 kW at the maximum temperature of ~~110~~ 120 °F (~~43~~ 49 °C) and altitude of 2000 ft (600 m) specified in the standard. Another way to view this result is that ~~an~~ a ~~11.4~~ 12 kW generator set would be required to provide 10 kW at ~~110~~ 120 °F (~~43~~ 49 °C) and 2000 ft (600 m).

Apparatus Test. Where there is concern that installation or operational circumstances could cause power source intake air to heat above 120°F (49°C) or where the flow of cooling, induction, or exhaust air is more restricted than what is allowed by the manufacturer's literature, advance consultation with the power source manufacturer(s) could help in the selection of a power source that will pass the apparatus test with an output that meets the fire departments needs. Also, weather, like altitude, can affect air density and thus engine and generator set output. The combined effect of altitude and weather is reported as barometric pressure on local weather reports. Low barometric pressure will reduce engine and generator set output capability. High barometric pressure (usually clear cold days) will increase engine and generator set output capacity.

Other Power Source Types. Some output correction factors described in the generator set example apply to other types of power sources, depending on circumstances. For example, PTO and hydraulically driven generators also rely on engine power, but the engine will usually have substantial reserve power, so increased altitude or temperature will not affect their power supply rating. Regardless, best practice for longest life and lowest maintenance is to provide unrestricted airflow at the lowest temperature.

Submitter Information Verification

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Submittal Date: Wed Sep 11 18:53:24 EDT 2013

Committee Statement

Committee Statement: Illustration adjusted for 120 degrees, which is what is called for in the standard.

Response Message:

Public Input No. 104-NFPA 1901-2013 [Section No. A.22.15.7]
Public Input No. 105-NFPA 1901-2013 [Section No. A.22.15.7]

First Revision No. 111-NFPA 1901-2013 [Section No. A.24.2]

A.24.2

The type of fire department air system and its size is determined by the number of SCBA units that will be used simultaneously, the number of SCBAs available, and the length of the event requiring the use of SCBA.

The number of users wearing SCBAs simultaneously should be considered under both peak demand and continuous demand. Peak demand is the maximum number of simultaneous SCBA users needed under the worst emergency conditions for which the fire department feels preparation is necessary. Continuous demand is the minimum number of simultaneous SCBA users necessary to maintain operations for a long-term duration.

To allow a specified number of SCBA users to be deployed without interruption, as many as three times that number of SCBA units should be available on the scene. That allows for backup personnel to have their equipment in readiness to immediately relieve those personnel who have exhausted their air supply as well as providing extra units in the event of failures or equipment problems.

The resupply rate of SCBA cylinders on the scene could be accomplished by an air compressor alone, air cascade alone, or a combination of ~~each type of system with~~ both, and with or without a booster system. The users should determine the supply rate and duration, then determine what system will meet this requirement.

An analysis of the existing fire department SCBAs and breathing air system should be performed to determine what needs, if any, exist. This analysis should include the following:

(1) SCBA units: type, quantity, designed duration

(2) Extra SCBA cylinders: type, quantity, designed duration

(3) Air storage system capability

(4) Air compressor capability

Submitter Information Verification

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Organization: [Not Specified]
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Committee Statement

Committee Statement: There are actually 6 possible combinations. The new wording includes all these combinations.
Response Message:

Public Input No. 106-NFPA 1901-2013 [Section No. A.24.2]

First Revision No. 167-NFPA 1901-2013 [Section No. A.24.3]

A.24.3

If filling is to be accomplished with a compressor and a filled air storage system in simultaneous operation, the amount of SCBA fills in the first 1 to 2 hours will increase considerably. The number of SCBA fills from the air storage system should be calculated and added to the air compressor fill rate. The total fills per hour would have to be an estimate, because the compressor could be refilling the air storage system during SCBA connection and disconnection.

~~If only an air compressor is to be used for refilling SCBA cylinders, the minimum size of the air compressor system needed can be determined based on the number of SCBA cylinders that need to be refilled per hour to meet incident demand requirements. Table A.24.3(a) and Table A.24.3(b) can assist in determining the compressor size.~~

~~Table A.24.3(a) Compressor Capacity Requirements in ft3/min of Free Air Delivery~~

	~~SCBA Cylinder Rating~~				
~~Desired SCBA Fills per Hour~~	~~45 ft^3 at 2216 psi~~	~~45 ft^3 at 4500 psi~~	~~72 ft^3 at 2250 psi~~	~~80 ft^3 at 3000 psi~~	~~88 ft^3 at 4500 psi~~
~~5~~	~~3.8~~	~~3.8~~	~~6.0~~	~~6.7~~	~~7.4~~
~~10~~	~~7.5~~	~~7.5~~	~~12.0~~	~~13.4~~	~~14.7~~
~~15~~	~~11.3~~	~~11.3~~	~~18.0~~	~~20.0~~	~~22.0~~
~~20~~	~~15.0~~	~~15.0~~	~~24.0~~	~~26.7~~	~~29.4~~
~~25~~	~~18.8~~	~~18.8~~	~~30.0~~	~~33.4~~	~~36.7~~
~~30~~	~~22.5~~	~~22.5~~	~~36.0~~	~~40.0~~	~~44.0~~
~~35~~	~~26.5~~	~~26.5~~	~~42.0~~	~~46.7~~	~~51.4~~
~~40~~	~~30.0~~	~~30.0~~	~~48.0~~	~~53.4~~	~~58.7~~
~~45~~	~~33.8~~	~~33.8~~	~~54.0~~	~~60.0~~	~~66.0~~
~~50~~	~~37.5~~	~~37.5~~	~~60.0~~	~~66.7~~	~~73.4~~
~~55~~	~~41.3~~	~~41.3~~	~~66.0~~	~~73.4~~	~~80.7~~
~~60~~	~~45.0~~	~~45.0~~	~~72.0~~	~~80.0~~	~~88.0~~
~~65~~	~~48.8~~	~~48.8~~	~~78.0~~	~~86.7~~	~~95.4~~
~~70~~	~~52.5~~	~~52.5~~	~~84.0~~	~~93.4~~	~~102.7~~
~~75~~	~~56.3~~	~~56.3~~	~~90.0~~	~~100.0~~	~~110.0~~
~~80~~	~~60.0~~	~~60.0~~	~~96.0~~	~~106.7~~	~~117.4~~
~~85~~	~~63.8~~	~~63.8~~	~~102.0~~	~~113.4~~	~~124.7~~
~~90~~	~~67.5~~	~~67.5~~	~~108.0~~	~~120.0~~	~~132.0~~
~~95~~	~~71.3~~	~~71.3~~	~~114.0~~	~~126.7~~	~~139.4~~
~~100~~	~~75.0~~	~~75.0~~	~~120.0~~	~~133.4~~	~~146.7~~

~~Note: Typically, a single fill station is limited to approximately 40 SCBA cylinder refills per hour (per operator), normally with two to four fill hose. An additional fill station should be added for each additional 40 SCBA cylinders that are to be filled per hour.~~

~~Table A.24.3(b) Compressor Capacity Requirements in L/min of Free Air Delivery~~

	SCBA Cylinder Rating				
Desired SCBA Fills per Hour	1275 L at 15,000 kPa	1275 L at 31,000 kPa	2000 L at 15,500 kPa	2250 L at 20,000 kPa	2500 L at 31,000 kPa
5	108	108	170	190	210
10	212	212	340	380	416
15	320	320	510	566	623
20	425	425	680	756	833
25	532	532	850	946	1040
30	637	637	1020	1133	1245
35	750	750	1189	1323	1455
40	850	850	1359	1512	1661
45	957	957	1529	1699	1868
50	1062	1062	1699	1889	2078
55	1170	1170	1869	2078	2285
60	1274	1274	2039	2265	2492
65	1382	1382	2209	2455	2701
70	1487	1487	2379	2645	2908
75	1594	1594	2549	2832	3115
80	1699	1699	2718	3021	3324
85	1807	1807	2888	3211	3531
90	1911	1911	3058	3398	3738
95	2019	2019	3228	3588	3947
100	2124	2124	3398	3777	4154

Note: Typically, a single fill station is limited to approximately 40 SCBA cylinder refills per hour (per operator), normally with two to four fill hose. An additional fill station should be added for each additional 40 SCBA cylinders that are to be filled per hour.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:19:59 EDT 2013

Committee Statement

Committee Statement: Information provided in table is outdated and did not accurately reflect compressor sizing requirements. Delete Table A.24.3(a) and Table A.24.3(b)

Response Message:

First Revision No. 163-NFPA 1901-2013 [Section No. A.24.3.6.3]

A.24.3.6.3

The purchaser might want to require the apparatus to be equipped with a shoreline to permit external electric power to supply the air compressor's electric motor when the vehicle is in the fire station.

The purchaser might also require a compatible shorepower cord and plugs, sized to match electric motor requirements.

It is important to have a transfer switch or other means to isolate the generator power from the shorepower connection.

Three-phase electric motors with "soft starting" provisions are the most practical electric motors for air compressors. The fire station electrical supply should be checked for capacity and compatibility with the breathing air compressor. The generator should be sized to provide additional capacity for floodlight, emergency power applications, and other utility usage. A general guideline would be to specify a generator output with twice the capacity required for the breathing air compressor.

~~The fire apparatus should be provided with a compatible shorepower cord and plugs, sized to match electric motor requirements. The shorepower cord needs to be sized to reflect the distance from fire station service entrance to the fire apparatus shorepower receptacle.~~

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:09:55 EDT 2013

Committee Statement

Committee Statement: Language added to annex in accordance with material deleted from 24.3.6.3. Minimum standard, not every fire station is equipped with the necessary electrical capacity to power larger compressors.

Response Message:

First Revision No. 168-NFPA 1901-2013 [Section No. A.24.4.3.2]

A.24.4.3.2

The purification system ~~should be located where it is easily accessible for service, preferably on slide-out tracks or in a location where purifier~~ cartridges and filter elements ~~can be installed from the top~~ should be located for ease of service . These units can be remote mounted from the air compressor and the operator's panel.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:22:22 EDT 2013

Committee Statement

Committee Statement: Reflects current technology.
Response Message:

First Revision No. 169-NFPA 1901-2013 [Section No. A.24.5]

A.24.5
In some states in the United States, the regulations of the Occupational Safety and Health Administration (OSHA) of the Department of Labor have been interpreted to require that UN/ DOT cylinders be used for mobile air tanks to transport air on state highways. If UN/ DOT cylinders are not required by state regulations, ASME cylinders should be utilized as air tanks if the design of the apparatus presents a severe difficulty in the removal of cylinders for testing.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 12:24:00 EDT 2013

Committee Statement

Committee Statement: Updated to include UN cylinder specification.
Response Message:

First Revision No. 174-NFPA 1901-2013 [Section No. A.25.1.1]

A.25.1.1

Winches are classified by manufacturers for different applications and uses. The purchaser might want to specify that winches meet the requirements of SAE J706, *Rating of Winches*. Winches installed on fire apparatus are not designed or suited for lifting or lowering personnel in rescue applications. Winches rated at under 20,000 lbf (89 kN) on fire apparatus are not designed for removal of apparatus from "buried" offroad conditions. A heavy-duty wrecker should be used for towing and lifting of fire apparatus.

Most electric (12 volt or 24 volt dc) winches used for fire apparatus applications are rated at between 5000 lbf (22.2 kN) and ~~12~~ 25 ,000 lbf (~~53~~ 111 .4 2 kN) line pull. Smaller winches of the removable type might be specified by the purchaser. Hydraulically driven winches are typically rated for 6000 lbf to 30,000 lbf (26.7 kN to 133.5 kN) line pull.

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Mon Sep 23 13:15:31 EDT 2013

Committee Statement

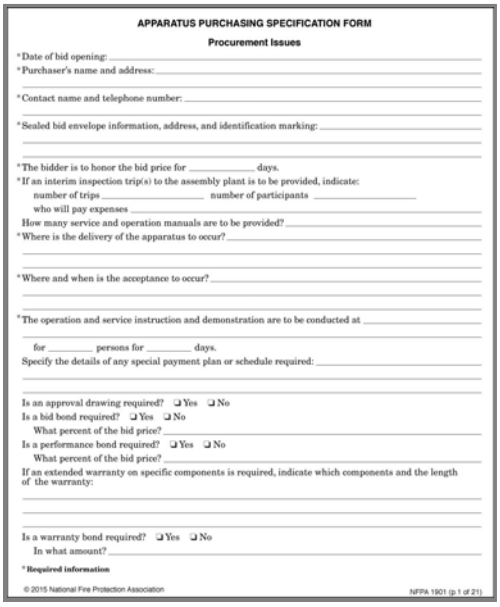
Committee Statement: Reflects increase in winch ratings for fire apparatus applications.
Response Message:

First Revision No. 232-NFPA 1901-2013 [Section No. B.2.12]

B.2.12

The form in Figure B.2.12(a) is a good way to document the specifications. Completion of the form should assist the purchaser in developing the specifications and provide the information required in the various sections of this document. The purchaser should fill in only the required sections (marked with *) and only those other sections where there are specific requirements over and above the standard. All the items of information marked with an asterisk (*) generally are required for the manufacturer to bid on and build the apparatus. The other items are details about which the purchaser might want to specify special requirements. In many cases, the purchaser should specify additional details only if the purchaser is experienced in that area and has specific, unusual requirements. Consult with manufacturers or others with experience in apparatus architecture and specifications if necessary. Care must be taken not to specify incompatible requirements, such as a 3000 gal (11,400 L) water tank, which weighs approximately 30,000 lb (13,600 kg), and a 10,000 lb (4500 kg) GVWR chassis. When more restrictive details are specified, fewer manufacturers will be able to bid, and the cost of the apparatus might be higher.

Figure B.2.12(a) A Sample Apparatus Purchasing Specification Form.



APPARATUS PURCHASING SPECIFICATION FORM

Procurement Issues

*Date of bid 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.

*If an interim inspection trip(s) to the assembly plant is to be provided, indicate:

number of trips _____ number of participants _____

who will pay expenses _____

How many service and operation manuals are to be provided? _____

*Where is the delivery of the apparatus to occur? _____

_____

*Where and when is the acceptance to occur? _____

_____

_____

*The operation and service instruction and demonstration are to be conducted at _____

_____

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 the bid price? _____

Is a performance bond required? ❑ Yes ❑ No

What percent of the bid price? _____

If an extended warranty on specific components is required, indicate which components and the length of the warranty:

_____

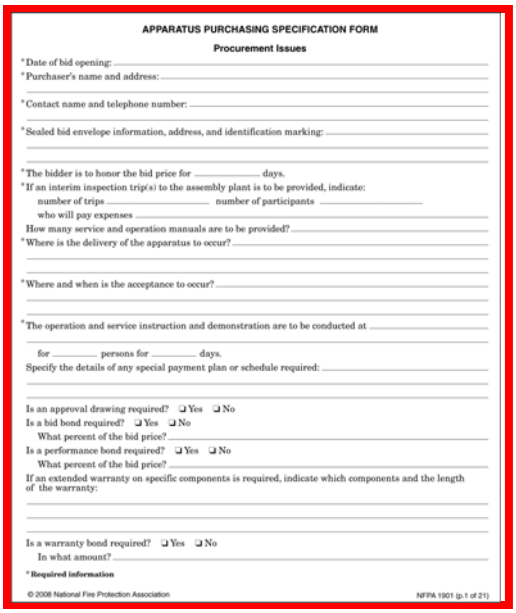
_____

_____

Is a warranty bond required? ❑ Yes ❑ No

In what amount? _____

*Required information



APPARATUS PURCHASING SPECIFICATION FORM

Procurement Issues

*Date of bid 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.

*If an interim inspection trip(s) to the assembly plant is to be provided, indicate:
number of trips _____ number of participants _____
who will pay expenses _____

How many service and operation manuals are to be provided? _____

*Where is the delivery of the apparatus to occur? _____

*Where and when is the acceptance to occur? _____

*The operation and service instruction and demonstration are to be conducted at _____

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 the bid price? _____

Is a performance bond required? ❑ Yes ❑ No
What percent of the bid price? _____

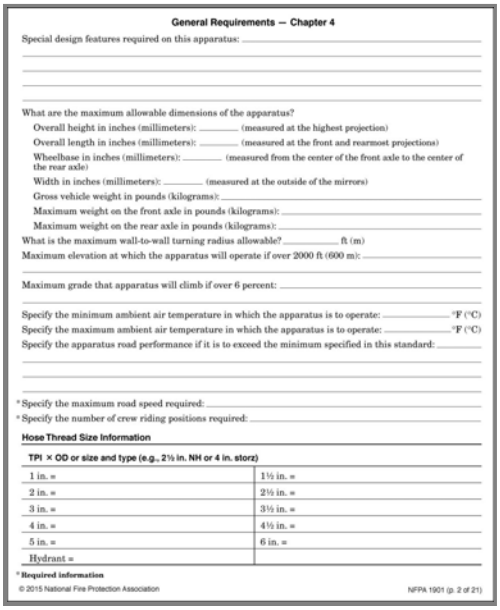
If an extended warranty on specific components is required, indicate which components and the length of the warranty: _____

Is a warranty bond required? ❑ Yes ❑ No
In what amount? _____

*Required information

 NFPA 1901 (p.1 of 21)

Figure B.2.12(b) *Continued*



General Requirements — Chapter 4

Special design features required on this apparatus: _____

What are the maximum allowable dimensions of the apparatus?
Overall height in inches (millimeters): _____ (measured at the highest projection)
Overall length in inches (millimeters): _____ (measured at the front and rearmost projections)
Wheelbase in inches (millimeters): _____ (measured from the center of the front axle to the center of the rear axle)
Width in inches (millimeters): _____ (measured at the outside of the mirrors)
Gross vehicle weight in pounds (kilograms): _____
Maximum weight on the front axle in pounds (kilograms): _____
Maximum weight on the rear axle in pounds (kilograms): _____

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 apparatus will climb if over 6 percent: _____

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 the maximum road speed required: _____

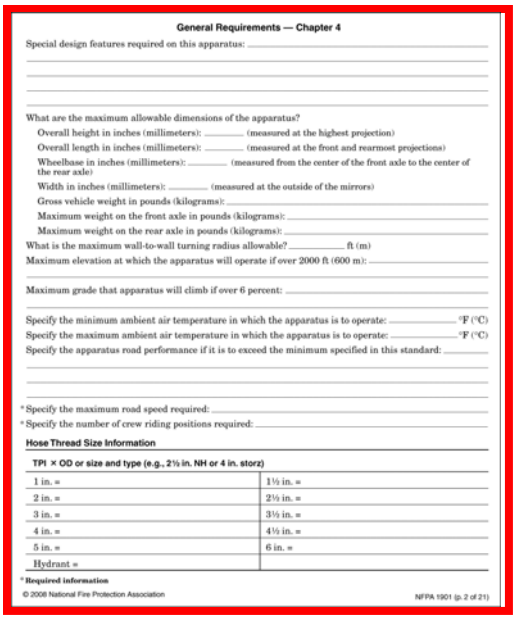
*Specify the number of crew riding positions required: _____

Hose Thread Size Information

TPI × 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 =	

*Required information

 NFPA 1901 (p. 2 of 21)



General Requirements — Chapter 4

Special design features required on this apparatus: _____

What are the maximum allowable dimensions of the apparatus?

Overall height in inches (millimeters): _____ (measured at the highest projection)

Overall length in inches (millimeters): _____ (measured at the front and rearmost projections)

Wheelbase in inches (millimeters): _____ (measured from the center of the front axle to the center of the rear axle)

Width in inches (millimeters): _____ (measured at the outside of the mirrors)

Gross vehicle weight in pounds (kilograms): _____

Maximum weight on the front axle in pounds (kilograms): _____

Maximum weight on the rear axle in pounds (kilograms): _____

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 apparatus will climb if over 6 percent: _____

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 the maximum road speed required: _____

* Specify the number of crew riding positions required: _____

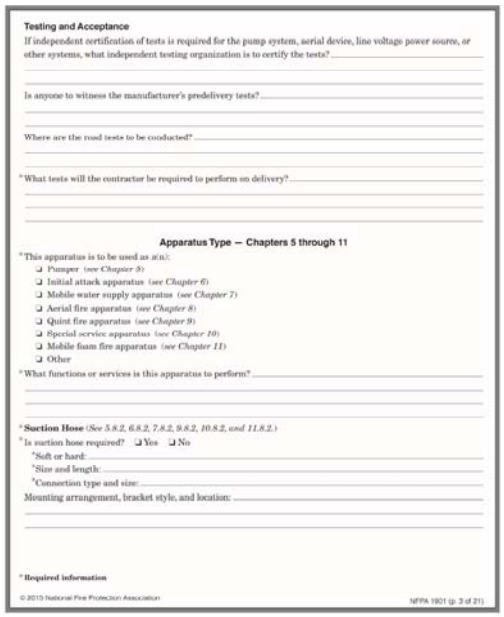
Hose Thread Size Information

TPI × 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 =	

* **Required information**

NFPA 1901 (p. 2 of 21)

~~Figure B.2.12(c)~~ *~~Continued~~*



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 to witness the manufacturer's predelivery tests? _____

Where are the road tests to be conducted? _____

* What tests will the contractor be required to perform on delivery? _____

Apparatus Type — Chapters 5 through 11

* This apparatus is to be used as a(n):

- ❑ Pumper *(see Chapter 5)*
- ❑ Initial attack apparatus *(see Chapter 6)*
- ❑ Mobile water supply apparatus *(see Chapter 7)*
- ❑ Aerial fire apparatus *(see Chapter 8)*
- ❑ Quint fire apparatus *(see Chapter 9)*
- ❑ Special service apparatus *(see Chapter 10)*
- ❑ Mobile foam fire apparatus *(see Chapter 11)*
- ❑ Other

* What functions or services is this apparatus to perform? _____

* **Suction Hose** *(See 5.8.2, 6.8.2, 7.8.2, 9.8.2, 10.8.2, and 11.8.2.)*

* Is suction hose required? ❑ Yes ❑ No

*Soft or hard: _____

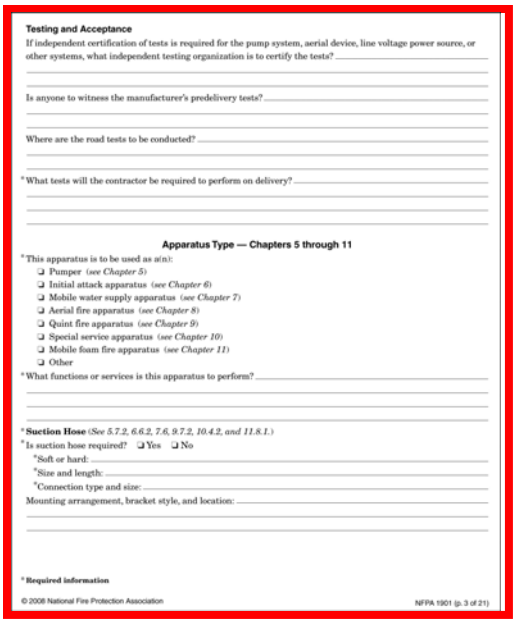
*Size and length: _____

*Connection type and size: _____

Mounting arrangement, bracket style, and location: _____

* **Required information**

NFPA 1901 (p. 3 of 21)



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 to witness the manufacturer's predelivery tests? _____

Where are the road tests to be conducted? _____

*What tests will the contractor be required to perform on delivery? _____

Apparatus Type — Chapters 5 through 11

*This apparatus is to be used as a(n):

- ❑ Pumper *(see Chapter 5)*
- ❑ Initial attack apparatus *(see Chapter 6)*
- ❑ Mobile water supply apparatus *(see Chapter 7)*
- ❑ Aerial fire apparatus *(see Chapter 8)*
- ❑ Quint fire apparatus *(see Chapter 9)*
- ❑ Special service apparatus *(see Chapter 10)*
- ❑ Mobile foam fire apparatus *(see Chapter 11)*
- ❑ Other

*What functions or services is this apparatus to perform? _____

***Suction Hose** *(See 5.7.2, 6.6.2, 7.6, 9.7.2, 10.4.2, and 11.8.1.)*

*Is suction hose required? ❑ Yes ❑ No

*Soft or hard: _____

*Size and length: _____

*Connection type and size: _____

Mounting arrangement, bracket style, and location: _____

* **Required information**

 NFPA 1901 (p. 3 of 21)

Figure B.2.12(d) *Continued*

***Ground Ladders to Be Carried** *(See 5.8.1, 6.8.1, 8.8.1, 9.8.1, and 10.8.1.)*

Number	Length	Type	Mounting Location and Bracket Type

Indicate if a specific type or make of ladder is desired: _____

***Breathing Apparatus**

Quantity	Make/Model	Mounting Location

*The breathing apparatus is to be supplied by the ❑ contractor ❑ purchaser.

Special requirements for the breathing apparatus or its mounting, including diameters of SCBA cylinders to be utilized: _____

***Equipment Carried on Apparatus** *(See Sections 5.9, 6.9, 7.9, 8.9, 9.9, 10.9, and 11.9.)*

*Miscellaneous equipment allowance if it exceeds the standard's minimum weight: _____

*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 and permanent components required on the apparatus, showing the item, quantity, weight of each, and dimensions (L × W × H), as well as the location where it is to be carried.

If additional compartment space is required in addition to what is necessary to store the equipment on the attached four lists, indicate space requirements. _____

* **Required information**

 NFPA 1901 (p. 4 of 21)

*** Ground Ladders to Be Carried** *(See 5.7.1, 6.6.1, Section 8.7, 9.7.1, and 10.4.1.)*

Number	Length	Type	Mounting Location and Bracket Type

Indicate if a specific type or make of ladder is desired: _____

*** Breathing Apparatus**

Quantity	Make/Model	Mounting Location

* The breathing apparatus is to be supplied by the ❑ contractor ❑ purchaser.
Special requirements for the breathing apparatus or its mounting, including diameters of SCBA cylinders to be utilized: _____

*** Equipment Carried on Apparatus** *(See Sections 5.8, 6.8, 7.7, 8.8, 9.8, 10.5, and 11.9.)*

* Miscellaneous equipment allowance if it exceeds the standard's minimum weight: _____

* 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).

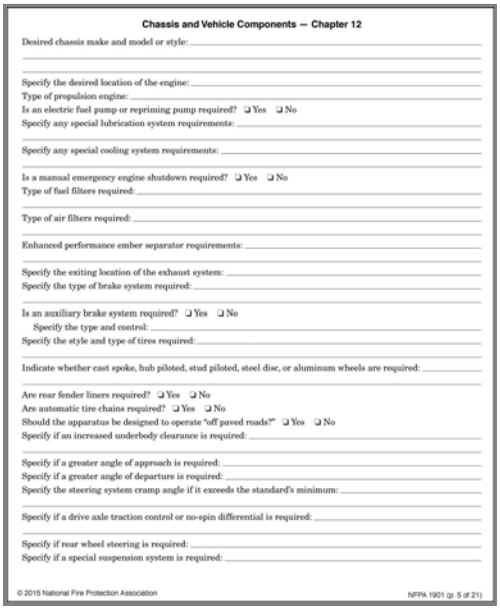
* Attach a list of fixed and permanent components required on the apparatus, showing the item, quantity, weight of each, and dimensions (L × W × H), as well as the location where it is to be carried.

If additional compartment space is required in addition to what is necessary to store the equipment on the attached four lists, indicate space requirements. _____

*** Required information**

 NFPA 1901 (p. 4 of 21)

~~Figure B.2.12(e)~~ ***~~Continued~~***



Chassis and Vehicle Components — Chapter 12

Desired chassis make and model or style: _____

Specify the desired location of the engine: _____
Type of propulsion engine: _____
Is an electric fuel pump or repriming pump required? ❑ Yes ❑ No
Specify any special lubrication system requirements: _____

Specify any special cooling system requirements: _____

Is a manual emergency engine shutdown required? ❑ Yes ❑ No
Type of fuel filters required: _____

Type of air filters required: _____

Enhanced performance ember separator requirements: _____

Specify the exiting location of the exhaust system: _____
Specify the type of brake system required: _____

Is an auxiliary brake system required? ❑ Yes ❑ No
Specify the type and control: _____
Specify the style and type of tires required: _____

Indicate whether cast spoke, hub piloted, stud piloted, steel disc, or aluminum wheels are required: _____

Are rear fender liners required? ❑ Yes ❑ No
Are automatic tire chains required? ❑ Yes ❑ No
Should the apparatus be designed to operate "off paved roads?" ❑ Yes ❑ No
Specify if an increased underbody clearance is required: _____

Specify if a greater angle of approach is required: _____
Specify if a greater angle of departure is required: _____
Specify the steering system cramp angle if it exceeds the standard's minimum: _____

Specify if a drive axle traction control or no-spin differential is required: _____

Specify if rear wheel steering is required: _____
Specify if a special suspension system is required: _____

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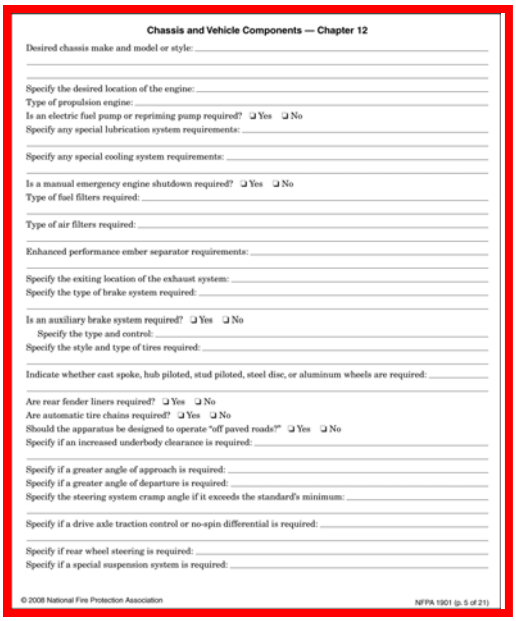

Chassis and Vehicle Components — Chapter 12

Desired chassis make and model or style: _____

Specify the desired location of the engine: _____
Type of propulsion engine: _____
Is an electric fuel pump or repriming pump required? ❑ Yes ❑ No
Specify any special lubrication system requirements: _____

Specify any special cooling system requirements: _____

Is a manual emergency engine shutdown required? ❑ Yes ❑ No
Type of fuel filters required: _____

Type of air filters required: _____

Enhanced performance ember separator requirements: _____

Specify the exiting location of the exhaust system: _____
Specify the type of brake system required: _____

Is an auxiliary brake system required? ❑ Yes ❑ No
Specify the type and control: _____
Specify the style and type of tires required: _____

Indicate whether cast spoke, hub piloted, stud piloted, steel disc, or aluminum wheels are required: _____

Are rear fender liners required? ❑ Yes ❑ No
Are automatic tire chains required? ❑ Yes ❑ No
Should the apparatus be designed to operate "off paved roads?" ❑ Yes ❑ No
Specify if an increased underbody clearance is required: _____

Specify if a greater angle of approach is required: _____
Specify if a greater angle of departure is required: _____
Specify the steering system cramp angle if it exceeds the standard's minimum: _____

Specify if a drive axle traction control or no-spin differential is required: _____

Specify if rear wheel steering is required: _____
Specify if a special suspension system is required: _____

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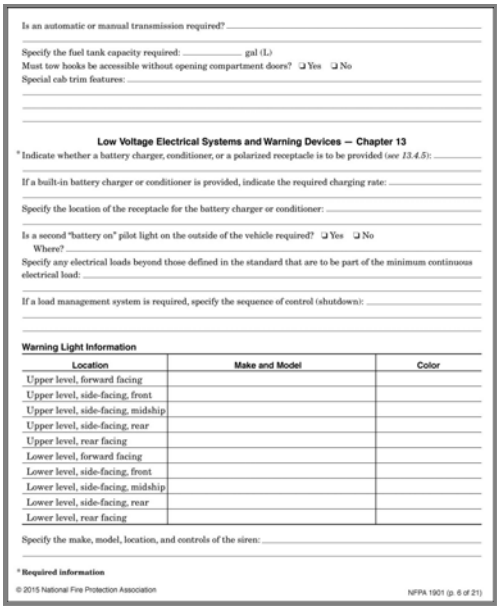
Figure B.2.12(f) *Continued*



Is an automatic or manual transmission required? _____

Specify the fuel tank capacity required: _____ gal (L)
Must tow hooks be accessible without opening compartment doors? ❑ Yes ❑ No
Special cab trim features: _____

Low Voltage Electrical Systems and Warning Devices — Chapter 13

* Indicate whether a battery charger, conditioner, or a polarized receptacle is to be provided (*see 13.4.5*): _____

If a built-in battery charger or conditioner is provided, indicate the required charging rate: _____

Specify the location of the receptacle for the battery charger or conditioner: _____

Is a second "battery on" pilot light on the outside of the vehicle required? ❑ Yes ❑ No
Where? _____
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 required, specify the sequence of control (shutdown): _____

Warning Light Information

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		

Specify the make, model, location, and controls of the siren: _____

* **Required information**

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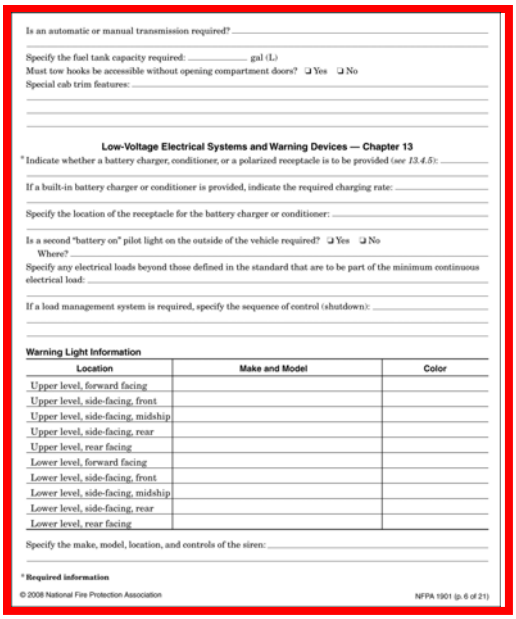


Is an automatic or manual transmission required? _____

Specify the fuel tank capacity required: _____ gal (L)
Must tow hooks be accessible without opening compartment doors? ❑ Yes ❑ No
Special cab trim features: _____

Low-Voltage Electrical Systems and Warning Devices — Chapter 13

* Indicate whether a battery charger, conditioner, or a polarized receptacle is to be provided (*see 13.4.5*): _____

If a built-in battery charger or conditioner is provided, indicate the required charging rate: _____

Specify the location of the receptacle for the battery charger or conditioner: _____

Is a second "battery on" pilot light on the outside of the vehicle required? ❑ Yes ❑ No
Where? _____
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 required, specify the sequence of control (shutdown): _____

Warning Light Information

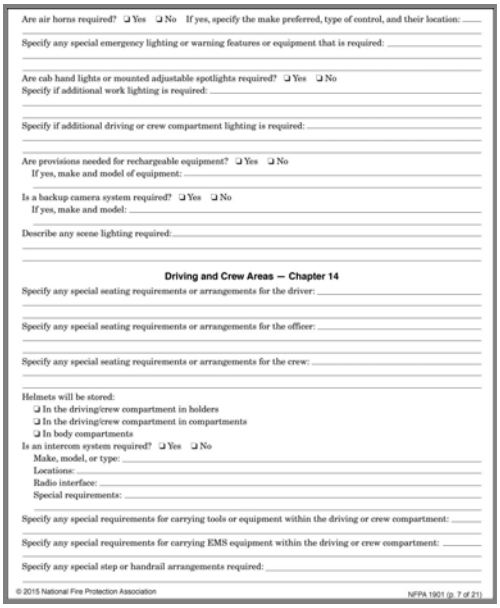
Location	Make and Model	Color
Upper level, forward facing		
Upper level, side-facing, front		
Upper level, side-facing, midship		
Upper level, side-facing, rear		
Upper level, rear facing		
Lower level, forward facing		
Lower level, side-facing, front		
Lower level, side-facing, midship		
Lower level, side-facing, rear		
Lower level, rear facing		

Specify the make, model, location, and controls of the siren: _____

* **Required information**

 NFPA 1901 (p. 6 of 21)

~~Figure B.2.12(g) *Continued*~~



Are air horns required? ❑ Yes ❑ No If yes, specify the make preferred, type of control, and their location: _____

Specify any special emergency lighting or warning features or equipment that is required: _____

Are cab hand lights or mounted adjustable spotlights required? ❑ Yes ❑ No
Specify if additional work lighting is required: _____

Specify if additional driving or crew compartment lighting is required: _____

Are provisions needed for rechargeable equipment? ❑ Yes ❑ No
If yes, make and model of equipment: _____

Is a backup camera system required? ❑ Yes ❑ No
If yes, make and model: _____

Describe any scene lighting required: _____

Driving and Crew Areas — Chapter 14

Specify any special seating requirements or arrangements for the driver: _____

Specify any special seating requirements or arrangements for the officer: _____

Specify any special seating requirements or arrangements for the crew: _____

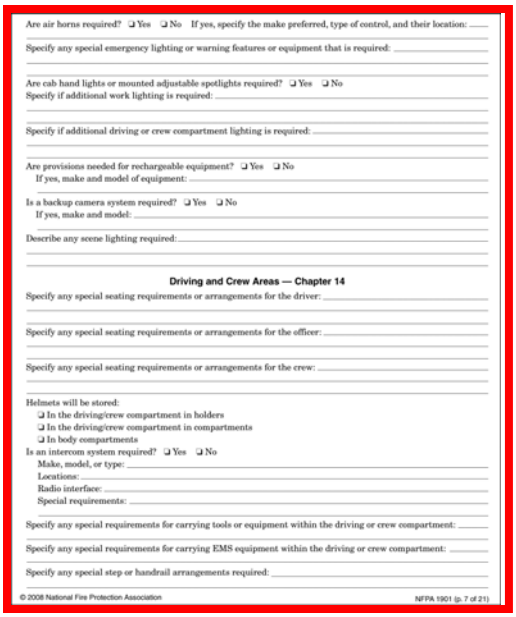
Helmets will be stored:
❑ In the driving/crew compartment in holders
❑ In the driving/crew compartment in compartments
❑ In body compartments
Is an intercom system required? ❑ Yes ❑ No
Make, model, or type: _____
Locations: _____
Radio interface: _____
Special requirements: _____

Specify any special requirements for carrying tools or equipment within the driving or crew compartment: _____

Specify any special requirements for carrying EMS equipment within the driving or crew compartment: _____

Specify any special step or handrail arrangements required: _____

 NFPA 1901 (p. 7 of 21)



Are air horns required? ❑ Yes ❑ No If yes, specify the make preferred, type of control, and their location: _____

Specify any special emergency lighting or warning features or equipment that is required: _____

Are cab hand lights or mounted adjustable spotlights required? ❑ Yes ❑ No
Specify if additional work lighting is required: _____

Specify if additional driving or crew compartment lighting is required: _____

Are provisions needed for rechargeable equipment? ❑ Yes ❑ No
If yes, make and model of equipment: _____

Is a backup camera system required? ❑ Yes ❑ No
If yes, make and model: _____

Describe any scene lighting required: _____

Driving and Crew Areas — Chapter 14

Specify any special seating requirements or arrangements for the driver: _____

Specify any special seating requirements or arrangements for the officer: _____

Specify any special seating requirements or arrangements for the crew: _____

Helmets will be stored:
❑ In the driving/crew compartment in holders
❑ In the driving/crew compartment in compartments
❑ In body compartments

Is an intercom system required? ❑ Yes ❑ No
Make, model, or type: _____
Locations: _____
Radio interface: _____
Special requirements: _____

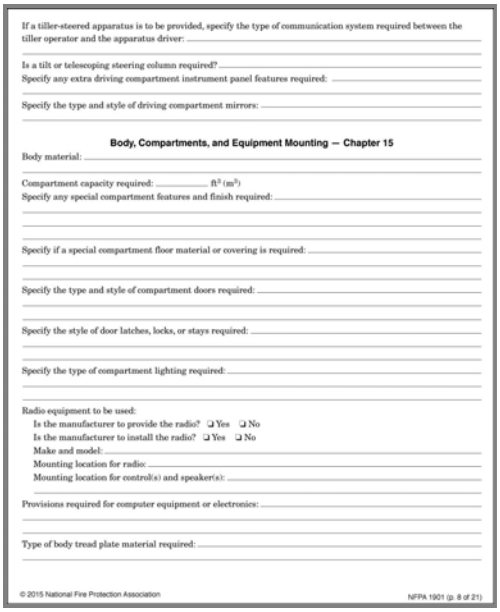
Specify any special requirements for carrying tools or equipment within the driving or crew compartment: _____

Specify any special requirements for carrying EMS equipment within the driving or crew compartment: _____

Specify any special step or handrail arrangements required: _____

 NFPA 1901 (p. 7 of 21)

~~Figure B.2.12(h)~~ ***~~Continued~~***



If a tiller-steered apparatus is to be provided, specify the type of communication system required between the tiller operator and the apparatus driver: _____

Is a tilt or telescoping steering column required? _____
Specify any extra driving compartment instrument panel features required: _____

Specify the type and style of driving compartment mirrors: _____

Body, Compartments, and Equipment Mounting — Chapter 15

Body material: _____

Compartment capacity required: _____ ft^3 (m^3)
Specify any special compartment features and finish required: _____

Specify if a special compartment floor material or covering is required: _____

Specify the type and style of compartment doors required: _____

Specify the style of door latches, locks, or stays required: _____

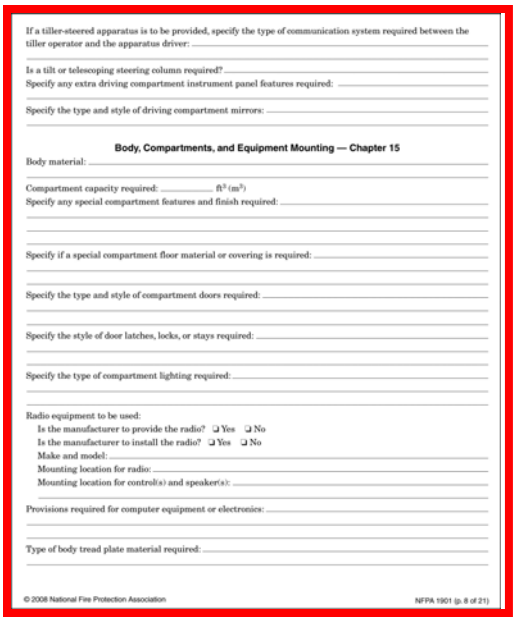
Specify the type of compartment lighting required: _____

Radio equipment to be used:
Is the manufacturer to provide the radio? ❑ Yes ❑ No
Is the manufacturer to install the radio? ❑ Yes ❑ No
Make and model: _____
Mounting location for radio: _____
Mounting location for control(s) and speaker(s): _____

Provisions required for computer equipment or electronics: _____

Type of body tread plate material required: _____

 NFPA 1901 (p. 8 of 21)



If a tiller-steered apparatus is to be provided, specify the type of communication system required between the tiller operator and the apparatus driver: _____

Is a tilt or telescoping steering column required? _____
Specify any extra driving compartment instrument panel features required: _____

Specify the type and style of driving compartment mirrors: _____

Body, Compartments, and Equipment Mounting — Chapter 15

Body material: _____

Compartment capacity required: _____ ft³ (m³)
Specify any special compartment features and finish required: _____

Specify if a special compartment floor material or covering is required: _____

Specify the type and style of compartment doors required: _____

Specify the style of door latches, locks, or stays required: _____

Specify the type of compartment lighting required: _____

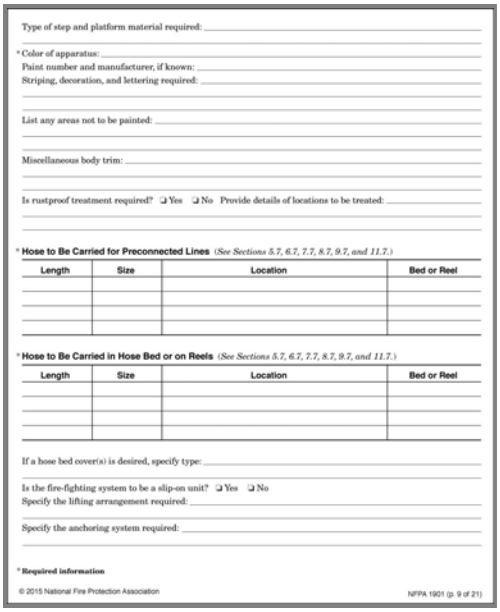
Radio equipment to be used:
Is the manufacturer to provide the radio? ❑ Yes ❑ No
Is the manufacturer to install the radio? ❑ Yes ❑ No
Make and model: _____
Mounting location for radio: _____
Mounting location for control(s) and speaker(s): _____

Provisions required for computer equipment or electronics: _____

Type of body tread plate material required: _____

 NFPA 1901 (p. 8 of 21)

Figure B.2.12(i) *Continued*



Type of step and platform material required: _____

* Color of apparatus: _____
Paint number and manufacturer, if known: _____
Striping, decoration, and lettering required: _____

List any areas not to be painted: _____

Miscellaneous body trim: _____

Is rustproof treatment required? ❑ Yes ❑ No Provide details of locations to be treated: _____

* **Hose to Be Carried for Preconnected Lines** *(See Sections 5.7, 6.7, 7.7, 8.7, 9.7, and 11.7.)*

Length	Size	Location	Bed or Reel

* **Hose to Be Carried in Hose Bed or on Reels** *(See Sections 5.7, 6.7, 7.7, 8.7, 9.7, and 11.7.)*

Length	Size	Location	Bed or Reel

If a hose bed cover(s) is desired, specify type: _____

Is the fire-fighting system to be a slip-on unit? ❑ Yes ❑ No
Specify the lifting arrangement required: _____

Specify the anchoring system required: _____

* **Required information**

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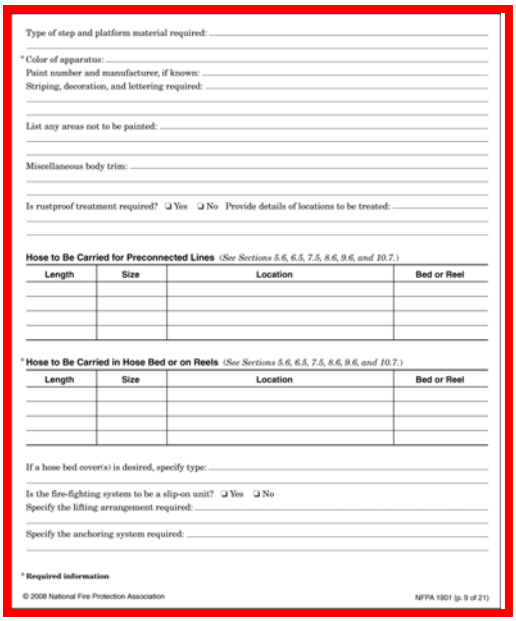

Type of step and platform material required: _____

* Color of apparatus: _____
Paint number and manufacturer, if known: _____
Striping, decoration, and lettering required: _____

List any areas not to be painted: _____

Miscellaneous body trim: _____

Is rustproof treatment required? ❑ Yes ❑ No Provide details of locations to be treated: _____

Hose to Be Carried for Preconnected Lines *(See Sections 5.6, 6.5, 7.5, 8.6, 9.6, and 10.7.)*

Length	Size	Location	Bed or Reel

* **Hose to Be Carried in Hose Bed or on Reels** *(See Sections 5.6, 6.5, 7.5, 8.6, 9.6, and 10.7.)*

Length	Size	Location	Bed or Reel

If a hose bed cover(s) is desired, specify type: _____

Is the fire-fighting system to be a slip-on unit? ❑ Yes ❑ No
Specify the lifting arrangement required: _____

Specify the anchoring system required: _____

* **Required information**

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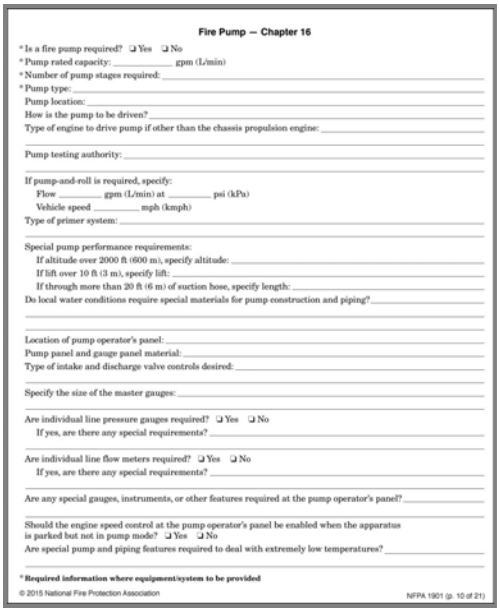
Figure B.2.12(j) *Continued*



Fire Pump — Chapter 16

* Is a fire pump required? ❑ Yes ❑ No
* Pump rated capacity: _____ gpm (L/min)
* Number of pump stages required: _____
* Pump type: _____
Pump location: _____
How is the pump to be driven? _____
Type of engine to drive pump if other than the chassis propulsion engine: _____

Pump testing authority: _____

If pump-and-roll is required, specify:
Flow _____ gpm (L/min) at _____ psi (kPa)
Vehicle speed _____ mph (kmph)
Type of primer system: _____

Special pump performance requirements:
If altitude over 2000 ft (600 m), specify altitude: _____
If lift over 10 ft (3 m), specify lift: _____
If through more than 20 ft (6 m) of suction hose, specify length: _____
Do local water conditions require special materials for pump construction and piping? _____

Location of pump operator's panel: _____
Pump panel and gauge panel material: _____
Type of intake and discharge valve controls desired: _____

Specify the size of the master gauges: _____

Are individual line pressure gauges required? ❑ Yes ❑ No
If yes, are there any special requirements? _____

Are individual line flow meters required? ❑ Yes ❑ No
If yes, are there any special requirements? _____

Are any special gauges, instruments, or other features required at the pump operator's panel? _____

Should the engine speed control at the pump operator's panel be enabled when the apparatus is parked but not in pump mode? ❑ Yes ❑ No
Are special pump and piping features required to deal with extremely low temperatures? _____

* **Required information where equipment/system to be provided**

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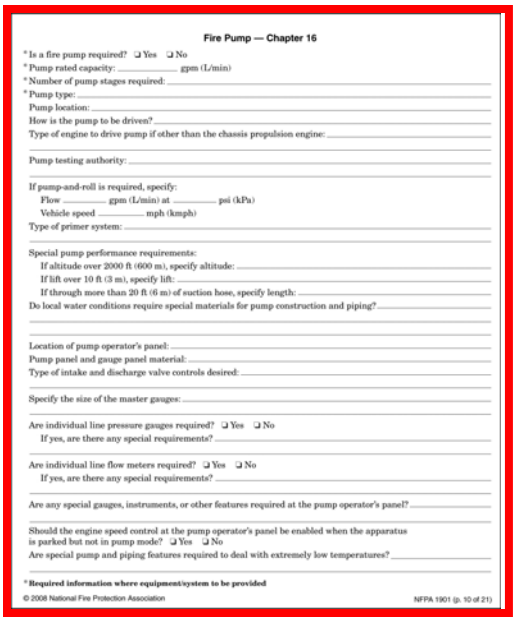

Fire Pump — Chapter 16

* Is a fire pump required? ❑ Yes ❑ No
* Pump rated capacity: _____ gpm (L/min)
* Number of pump stages required: _____
* Pump type: _____
Pump location: _____
How is the pump to be driven? _____
Type of engine to drive pump if other than the chassis propulsion engine: _____
Pump testing authority: _____
If pump-and-roll is required, specify:
Flow _____ gpm (L/min) at _____ psi (kPa)
Vehicle speed _____ mph (kmph)
Type of primer system: _____
Special pump performance requirements:
If altitude over 2000 ft (600 m), specify altitude: _____
If lift over 10 ft (3 m), specify lift: _____
If through more than 20 ft (6 m) of suction hose, specify length: _____
Do local water conditions require special materials for pump construction and piping? _____
Location of pump operator's panel: _____
Pump panel and gauge panel material: _____
Type of intake and discharge valve controls desired: _____
Specify the size of the master gauges: _____
Are individual line pressure gauges required? ❑ Yes ❑ No
If yes, are there any special requirements? _____
Are individual line flow meters required? ❑ Yes ❑ No
If yes, are there any special requirements? _____
Are any special gauges, instruments, or other features required at the pump operator's panel? _____
Should the engine speed control at the pump operator's panel be enabled when the apparatus is parked but not in pump mode? ❑ Yes ❑ No
Are special pump and piping features required to deal with extremely low temperatures? _____

* **Required information where equipment/system to be provided**

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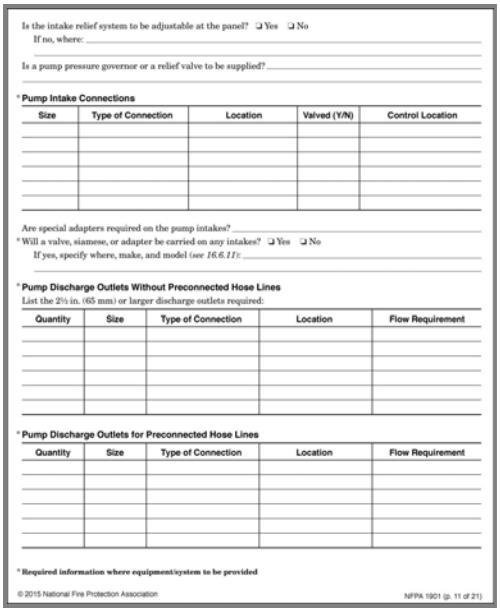
~~Figure B.2.12(k)~~ *~~Continued~~*



Is the intake relief system to be adjustable at the panel? ❑ Yes ❑ No
If no, where: _____
Is a pump pressure governor or a relief valve to be supplied? _____

* **Pump Intake Connections**

Size	Type of Connection	Location	Valved (Y/N)	Control Location

Are special adapters required on the pump intakes? _____
* Will a valve, siamese, or adapter be carried on any intakes? ❑ Yes ❑ No
If yes, specify where, make, and model (*see 16.6.11*): _____

* **Pump Discharge Outlets Without Preconnected Hose Lines**

List the 2½ in. (65 mm) or larger discharge outlets required:

Quantity	Size	Type of Connection	Location	Flow Requirement

* **Pump Discharge Outlets for Preconnected Hose Lines**

Quantity	Size	Type of Connection	Location	Flow Requirement

* **Required information where equipment/system to be provided**

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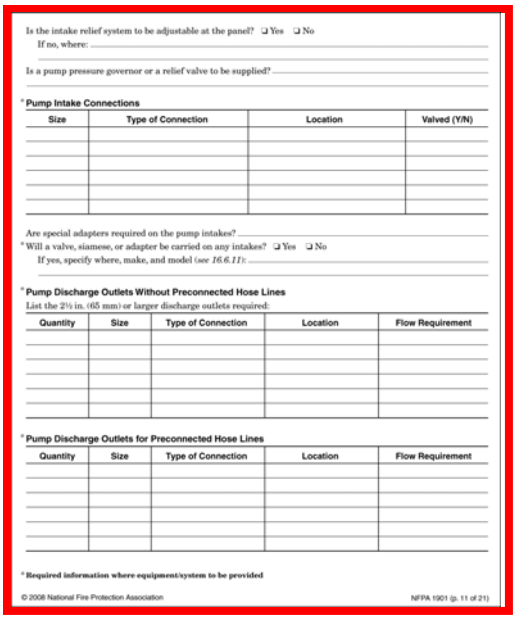

Is the intake relief system to be adjustable at the panel? ❑ Yes ❑ No
If no, where: _____

Is a pump pressure governor or a relief valve to be supplied? _____

* **Pump Intake Connections**

Size	Type of Connection	Location	Valved (Y/N)

Are special adapters required on the pump intakes? _____
* Will a valve, siamese, or adapter be carried on any intakes? ❑ Yes ❑ No
If yes, specify where, make, and model (*see 16.6.11*): _____

* **Pump Discharge Outlets Without Preconnected Hose Lines**
List the 2½ in. (65 mm) or larger discharge outlets required:

Quantity	Size	Type of Connection	Location	Flow Requirement

* **Pump Discharge Outlets for Preconnected Hose Lines**

Quantity	Size	Type of Connection	Location	Flow Requirement

* **Required information where equipment/system to be provided**

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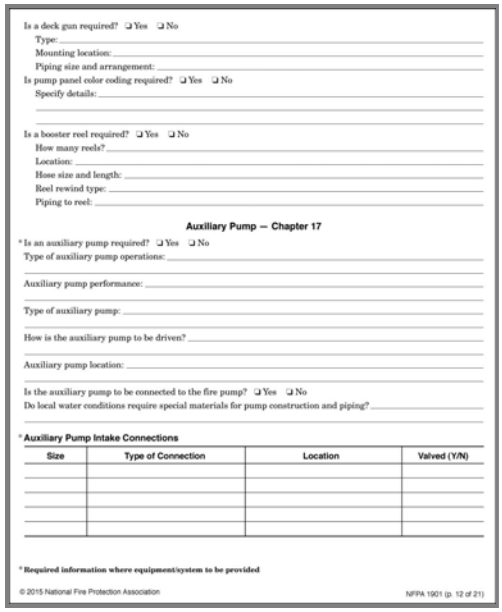
~~Figure B.2.12(l) *Continued*~~



Is a deck gun required? ❑ Yes ❑ No
Type: _____
Mounting location: _____
Piping size and arrangement: _____
Is pump panel color coding required? ❑ Yes ❑ No
Specify details: _____

Is a booster reel required? ❑ Yes ❑ No
How many reels? _____
Location: _____
Hose size and length: _____
Reel rewind type: _____
Piping to reel: _____

Auxiliary Pump — Chapter 17

* Is an auxiliary pump required? ❑ Yes ❑ No
Type of auxiliary pump operations: _____

Auxiliary pump performance: _____

Type of auxiliary pump: _____

How is the auxiliary pump to be driven? _____

Auxiliary pump location: _____

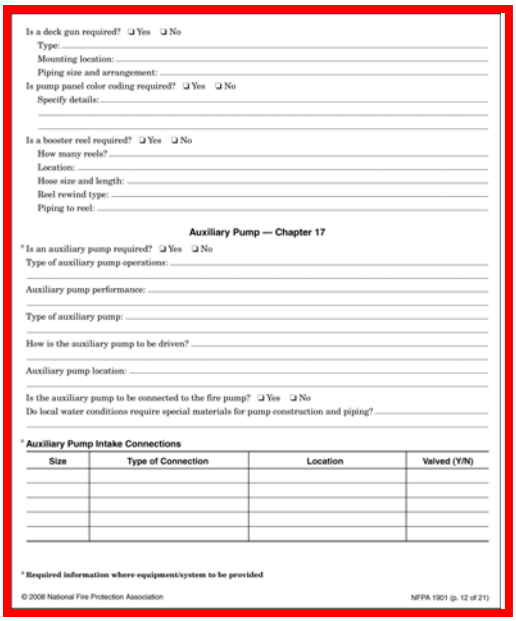
Is the auxiliary pump to be connected to the fire pump? ❑ Yes ❑ No
Do local water conditions require special materials for pump construction and piping? _____

* **Auxiliary Pump Intake Connections**

Size	Type of Connection	Location	Valved (Y/N)

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 12 of 21)



Is a deck gun required? ❑ Yes ❑ No
Type:
Mounting location:
Piping size and arrangement:
Is pump panel color coding required? ❑ Yes ❑ No
Specify details:

Is a booster reel required? ❑ Yes ❑ No
How many reels?
Location:
Hose size and length:
Reel rewind type:
Piping to reel:

Auxiliary Pump — Chapter 17

* Is an auxiliary pump required? ❑ Yes ❑ No
Type of auxiliary pump operations:

Auxiliary pump performance:

Type of auxiliary pump:

How is the auxiliary pump to be driven?

Auxiliary pump location:

Is the auxiliary pump to be connected to the fire pump? ❑ Yes ❑ No
Do local water conditions require special materials for pump construction and piping?

* **Auxiliary Pump Intake Connections**

Size	Type of Connection	Location	Valved (Y/N)

* **Required information where equipment/system to be provided**

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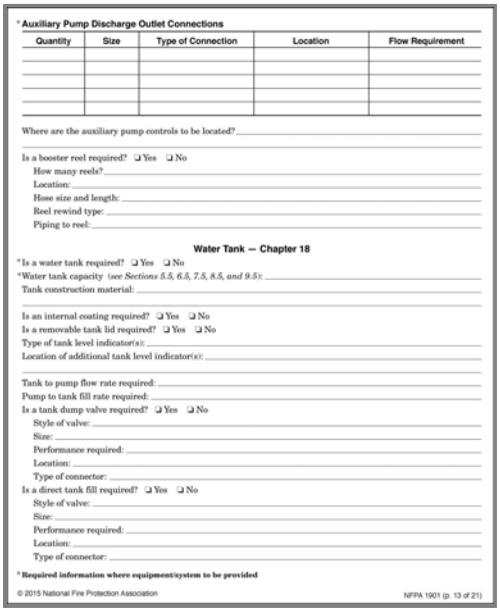
~~Figure B.2.12(m)~~ *~~Continued~~*



* **Auxiliary Pump Discharge Outlet Connections**

Quantity	Size	Type of Connection	Location	Flow Requirement

Where are the auxiliary pump controls to be located?

Is a booster reel required? ❑ Yes ❑ No
How many reels?
Location:
Hose size and length:
Reel rewind type:
Piping to reel:

Water Tank — Chapter 18

* Is a water tank required? ❑ Yes ❑ No
* Water tank capacity *(see Sections 5.5, 6.5, 7.5, 8.5, and 9.5)*:
Tank construction material:

Is an internal coating required? ❑ Yes ❑ No
Is a removable tank lid required? ❑ Yes ❑ No
Type of tank level indicator(s):
Location of additional tank level indicator(s):

Tank to pump flow rate required:
Pump to tank fill rate required:
Is a tank dump valve required? ❑ Yes ❑ No
Style of valve:
Size:
Performance required:
Location:
Type of connector:
Is a direct tank fill required? ❑ Yes ❑ No
Style of valve:
Size:
Performance required:
Location:
Type of connector:

* **Required information where equipment/system to be provided**

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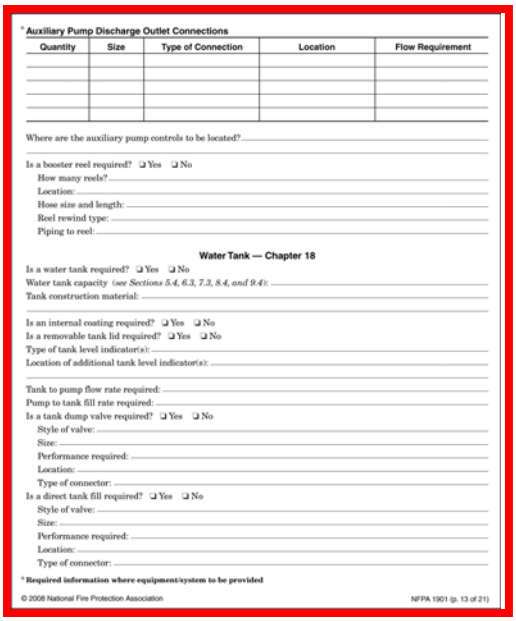


* Auxiliary Pump Discharge Outlet Connections

Quantity	Size	Type of Connection	Location	Flow Requirement

Where are the auxiliary pump controls to be located?

Is a booster reel required? ❑ Yes ❑ No
- How many reels?
- Location:
- Hose size and length:
- Reel rewind type:
- Piping to reel:

Water Tank — Chapter 18

Is a water tank required? ❑ Yes ❑ No
Water tank capacity (*see Sections 5.4, 6.3, 7.3, 8.4, and 9.4*):
Tank construction material:

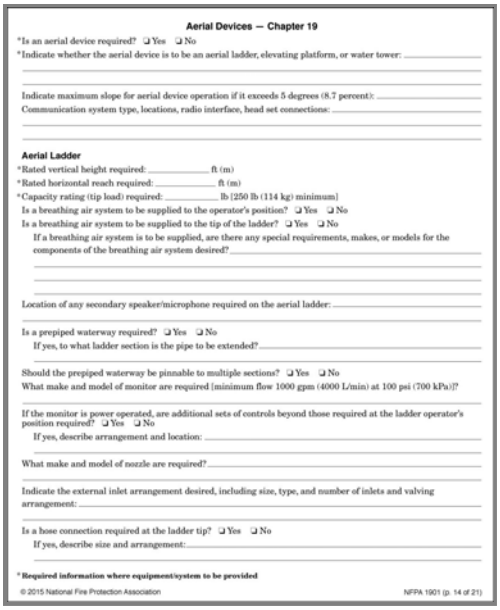
Is an internal coating required? ❑ Yes ❑ No
Is a removable tank lid required? ❑ Yes ❑ No
Type of tank level indicator(s):
Location of additional tank level indicator(s):

Tank to pump flow rate required:
Pump to tank fill rate required:
Is a tank dump valve required? ❑ Yes ❑ No
- Style of valve:
- Size:
- Performance required:
- Location:
- Type of connector:

Is a direct tank fill required? ❑ Yes ❑ No
- Style of valve:
- Size:
- Performance required:
- Location:
- Type of connector:

* **Required information where equipment/system to be provided**

Figure B.2.12(n) *Continued*



Aerial Devices — Chapter 19

*Is an aerial device required? ❑ Yes ❑ No
*Indicate whether the aerial device is to be an aerial ladder, elevating platform, or water tower:

Indicate maximum slope for aerial device operation if it exceeds 5 degrees (8.7 percent):
Communication system type, locations, radio interface, head set connections:

Aerial Ladder

*Rated vertical height required: _____ ft (m)
*Rated horizontal reach required: _____ ft (m)
*Capacity rating (tip load) required: _____ lb [250 lb (114 kg) minimum]
Is a breathing air system to be supplied to the operator's position? ❑ Yes ❑ No
Is a breathing air system to be supplied to the tip of the ladder? ❑ Yes ❑ No
- If a breathing air system is to be supplied, are there any special requirements, makes, or models for the components of the breathing air system desired?

Location of any secondary speaker/microphone required on the aerial ladder:

Is a prepiped waterway required? ❑ Yes ❑ No
- If yes, to what ladder section is the pipe to be extended?

Should the prepiped waterway be pinnable to multiple sections? ❑ Yes ❑ No
What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]?

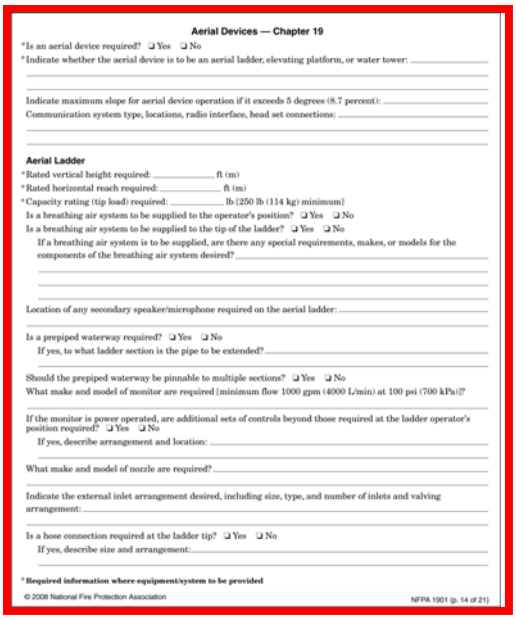
If the monitor is power operated, are additional sets of controls beyond those required at the ladder operator's position required? ❑ Yes ❑ No
- If yes, describe arrangement and location:

What make and model of nozzle are required?

Indicate the external inlet arrangement desired, including size, type, and number of inlets and valving arrangement:

Is a hose connection required at the ladder tip? ❑ Yes ❑ No
- If yes, describe size and arrangement:

* **Required information where equipment/system to be provided**



Aerial Devices — Chapter 19

*Is an aerial device required? ❑ Yes ❑ No
*Indicate whether the aerial device is to be an aerial ladder, elevating platform, or water tower: _____
Indicate maximum slope for aerial device operation if it exceeds 5 degrees (8.7 percent): _____
Communication system type, locations, radio interface, head set connections: _____

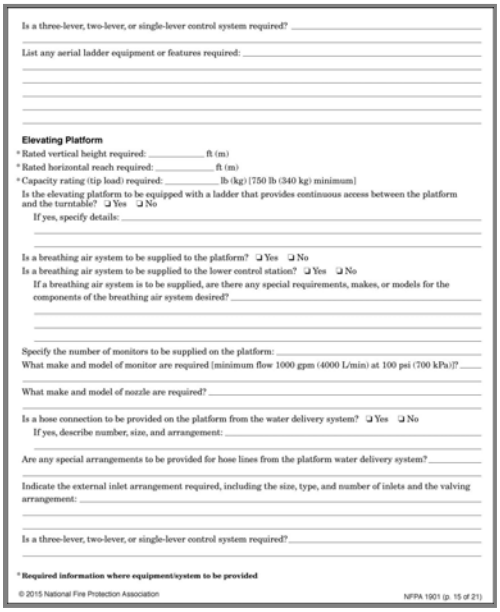
Aerial Ladder

*Rated vertical height required: _____ ft (m)
*Rated horizontal reach required: _____ ft (m)
*Capacity rating (tip load) required: _____ lb [250 lb (114 kg) minimum]
Is a breathing air system to be supplied to the operator's position? ❑ Yes ❑ No
Is a breathing air system to be supplied to the tip of the ladder? ❑ Yes ❑ No
If a breathing air system is to be supplied, are there any special requirements, makes, or models for the components of the breathing air system desired? _____
Location of any secondary speaker/microphone required on the aerial ladder: _____
Is a prepiped waterway required? ❑ Yes ❑ No
If yes, to what ladder section is the pipe to be extended? _____
Should the prepiped waterway be pinnable to multiple sections? ❑ Yes ❑ No
What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]? _____
If the monitor is power operated, are additional sets of controls beyond those required at the ladder operator's position required? ❑ Yes ❑ No
If yes, describe arrangement and location: _____
What make and model of nozzle are required? _____
Indicate the external inlet arrangement desired, including size, type, and number of inlets and valving arrangement: _____
Is a hose connection required at the ladder tip? ❑ Yes ❑ No
If yes, describe size and arrangement: _____

*Required information where equipment/system to be provided

 NFPA 1901 (p. 14 of 21)

~~Figure B.2.12(o)~~ ***~~Continued~~***



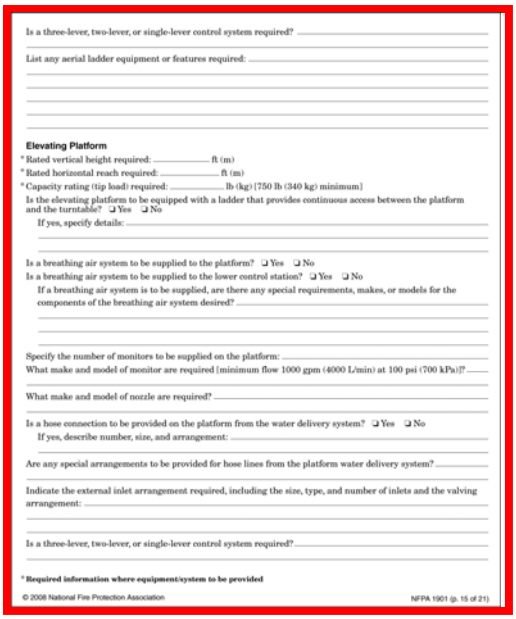
Is a three-lever, two-lever, or single-lever control system required? _____
List any aerial ladder equipment or features required: _____

Elevating Platform

*Rated vertical height required: _____ ft (m)
*Rated horizontal reach required: _____ ft (m)
*Capacity rating (tip load) required: _____ lb (kg) [750 lb (340 kg) minimum]
Is the elevating platform to be equipped with a ladder that provides continuous access between the platform and the turntable? ❑ Yes ❑ No
If yes, specify details: _____
Is a breathing air system to be supplied to the platform? ❑ Yes ❑ No
Is a breathing air system to be supplied to the lower control station? ❑ Yes ❑ No
If a breathing air system is to be supplied, are there any special requirements, makes, or models for the components of the breathing air system desired? _____
Specify the number of monitors to be supplied on the platform: _____
What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]? _____
What make and model of nozzle are required? _____
Is a hose connection to be provided on the platform from the water delivery system? ❑ Yes ❑ No
If yes, describe number, size, and arrangement: _____
Are any special arrangements to be provided for hose lines from the platform water delivery system? _____
Indicate the external inlet arrangement required, including the size, type, and number of inlets and the valving arrangement: _____
Is a three-lever, two-lever, or single-lever control system required? _____

*Required information where equipment/system to be provided

 NFPA 1901 (p. 15 of 21)



Is a three-lever, two-lever, or single-lever control system required? _____

List any aerial ladder equipment or features required: _____

Elevating Platform

* Rated vertical height required: _____ ft (m)
* Rated horizontal reach required: _____ ft (m)
* Capacity rating (tip load) required: _____ lb (kg) [750 lb (340 kg) minimum]

Is the elevating platform to be equipped with a ladder that provides continuous access between the platform and the turntable? ❑ Yes ❑ No

If yes, specify details: _____

Is a breathing air system to be supplied to the platform? ❑ Yes ❑ No

Is a breathing air system to be supplied to the lower control station? ❑ Yes ❑ No

If a breathing air system is to be supplied, are there any special requirements, makes, or models for the components of the breathing air system desired? _____

Specify the number of monitors to be supplied on the platform: _____

What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]? _____

What make and model of nozzle are required? _____

Is a hose connection to be provided on the platform from the water delivery system? ❑ Yes ❑ No

If yes, describe number, size, and arrangement: _____

Are any special arrangements to be provided for hose lines from the platform water delivery system? _____

Indicate the external inlet arrangement required, including the size, type, and number of inlets and the valving arrangement: _____

Is a three-lever, two-lever, or single-lever control system required? _____

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 15 of 21)

~~Figure B.2.12(p)~~ ***~~Continued~~***

Low Voltage Lighting Requirement

Quantity	Spot/Flood	Location	Specify Details

Line Voltage Lighting Requirement

Quantity	Spot/Flood	Wattage	Location	Specify Details

List any elevating platform equipment or features required: _____

Water Tower

* Is the water tower to be telescoping, articulating, or both? _____

* Rated vertical height required: _____ ft (m)
* Rated horizontal reach required: _____ ft (m)

Waterway capacity required if in excess of 1000 gpm (4000 L/min): _____

What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]? _____

What make and model of nozzle are required? _____

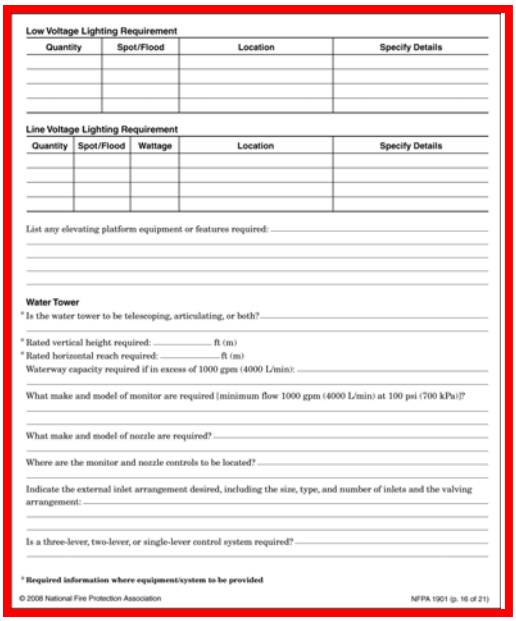
Where are the monitor and nozzle controls to be located? _____

Indicate the external inlet arrangement desired, including the size, type, and number of inlets and the valving arrangement: _____

Is a three-lever, two-lever, or single-lever control system required? _____

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 16 of 21)



Low Voltage Lighting Requirement

Quantity	Spot/Flood	Location	Specify Details

Line Voltage Lighting Requirement

Quantity	Spot/Flood	Wattage	Location	Specify Details

List any elevating platform equipment or features required:

Water Tower

* Is the water tower to be telescoping, articulating, or both?
* Rated vertical height required: _____ ft (m)
* Rated horizontal reach required: _____ ft (m)

Waterway capacity required if in excess of 1000 gpm (4000 L/min):

What make and model of monitor are required [minimum flow 1000 gpm (4000 L/min) at 100 psi (700 kPa)]?

What make and model of nozzle are required?

Where are the monitor and nozzle controls to be located?

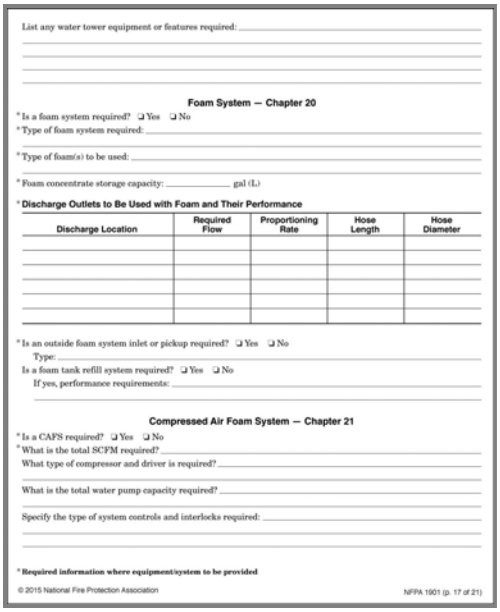
Indicate the external inlet arrangement desired, including the size, type, and number of inlets and the valving arrangement:

Is a three-lever, two-lever, or single-lever control system required?

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 16 of 21)

~~Figure B.2.12(q)~~ ***~~Continued~~***



List any water tower equipment or features required:

Foam System — Chapter 20

* Is a foam system required? ❑ Yes ❑ No
* Type of foam system required:
* Type of foam(s) to be used:
* Foam concentrate storage 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 or pickup required? ❑ Yes ❑ No
  Type:

Is a foam tank refill system required? ❑ Yes ❑ No
If yes, performance requirements:

Compressed Air Foam System — Chapter 21

* Is a CAFS required? ❑ Yes ❑ No
* What is the total SCFM required?

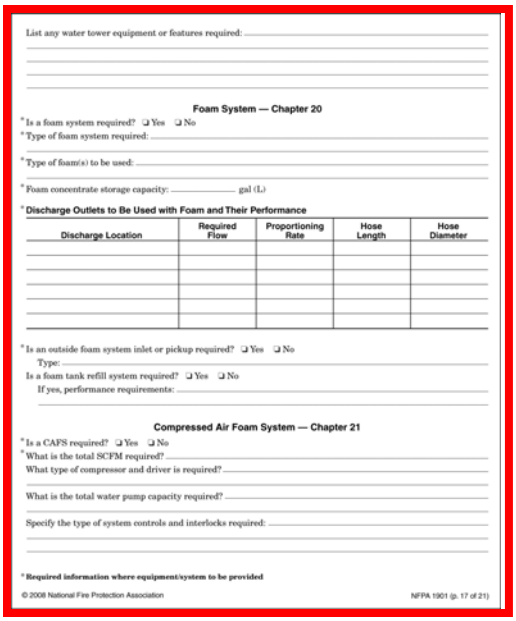
What type of compressor and driver is required?

What is the total water pump capacity required?

Specify the type of system controls and interlocks required:

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 17 of 21)



List any water tower equipment or features required: _____

Foam System — Chapter 20

* Is a foam system required? ❑ Yes ❑ No
* Type of foam system required: _____
* Type of foam(s) to be used: _____
* Foam concentrate storage 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 or pickup required? ❑ Yes ❑ No
Type: _____
Is a foam tank refill system required? ❑ Yes ❑ No
If yes, performance requirements: _____

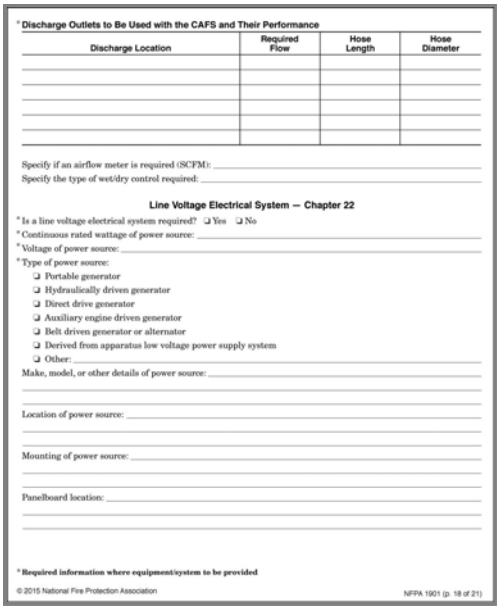
Compressed Air Foam System — Chapter 21

* Is a CAFS required? ❑ Yes ❑ No
* What is the total SCFM required? _____
What type of compressor and driver is required? _____
What is the total water pump capacity required? _____
Specify the type of system controls and interlocks required: _____

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 17 of 21)

Figure B.2.12(r) *Continued*



* **Discharge Outlets to Be Used with the CAFS and Their Performance**

Discharge Location	Required Flow	Hose Length	Hose Diameter

Specify if an airflow meter is required (SCFM): _____
Specify the type of wet/dry control required: _____

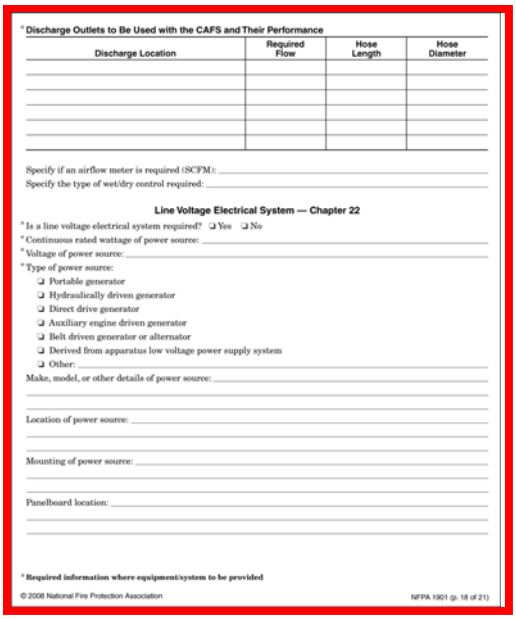
Line Voltage Electrical System — Chapter 22

* Is a line voltage electrical system required? ❑ Yes ❑ No
* Continuous rated wattage of power source: _____
* Voltage of power source: _____
* Type of power source:
  - ❑ Portable generator
  - ❑ Hydraulically driven generator
  - ❑ Direct drive generator
  - ❑ Auxiliary engine driven generator
  - ❑ Belt driven generator or alternator
  - ❑ Derived from apparatus low voltage power supply system
  - ❑ Other: _____

Make, model, or other details of power source: _____
Location of power source: _____
Mounting of power source: _____
Panelboard location: _____

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 18 of 21)



* Discharge Outlets to Be Used with the CAFS and Their Performance

Discharge Location	Required Flow	Hose Length	Hose Diameter

Specify if an airflow meter is required (SCFM): _____

Specify the type of wet/dry control required: _____

Line Voltage Electrical System — Chapter 22

* Is a line voltage electrical system required? ❑ Yes ❑ No

* Continuous rated wattage of power source: _____

* Voltage of power source: _____

* Type of power source:

- ❑ Portable generator
- ❑ Hydraulically driven generator
- ❑ Direct drive generator
- ❑ Auxiliary engine driven generator
- ❑ Belt driven generator or alternator
- ❑ Derived from apparatus low voltage power supply system
- ❑ Other: _____

Make, model, or other details of power source: _____

Location of power source: _____

Mounting of power source: _____

Panelboard location: _____

* Required information where equipment/system to be provided

 NFPA 1901 (p. 18 of 21)

~~Figure B.2.12(s)~~ ***~~Continued~~***

* Receptacle Information

Quantity	Amps/Volts	Style of Receptacle	Location

* Circuit Remote Control Information

Controlled Circuit	Switch Location

* 120/240 Volt Lighting Information

Style/Make	Location	Wattage/Bulb	Type Mounting

* Cord Reel Information

	Reel #	Reel #	Reel #	Reel #
Mounting location				
Amperage				
Voltage				
Length of cord in feet				
Receptacle style				
Distribution box				
Rewind system				

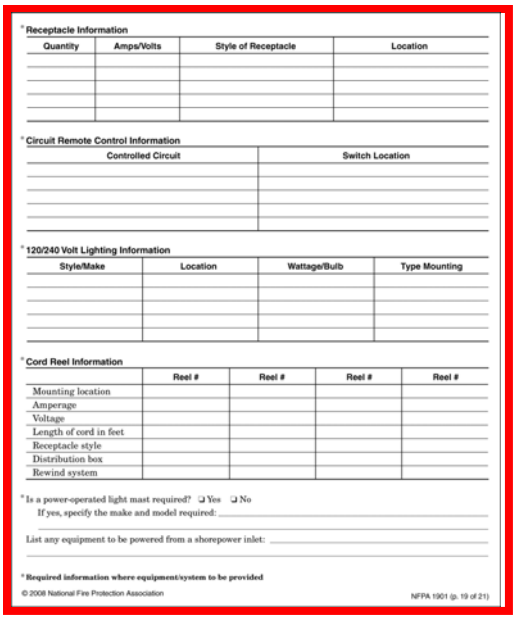
* Is a power-operated light mast required? ❑ Yes ❑ No

If yes, specify the make and model required: _____

List any equipment to be powered from a shorepower inlet: _____

* Required information where equipment/system to be provided

 NFPA 1901 (p. 19 of 21)



* Receptacle Information

Quantity	Amps/Volts	Style of Receptacle	Location

* Circuit Remote Control Information

Controlled Circuit	Switch Location

* 120/240 Volt Lighting Information

Style/Make	Location	Wattage/Bulb	Type Mounting

* Cord Reel Information

	Reel #	Reel #	Reel #	Reel #
Mounting location				
Amperage				
Voltage				
Length of cord in feet				
Receptacle style				
Distribution box				
Rewind system				

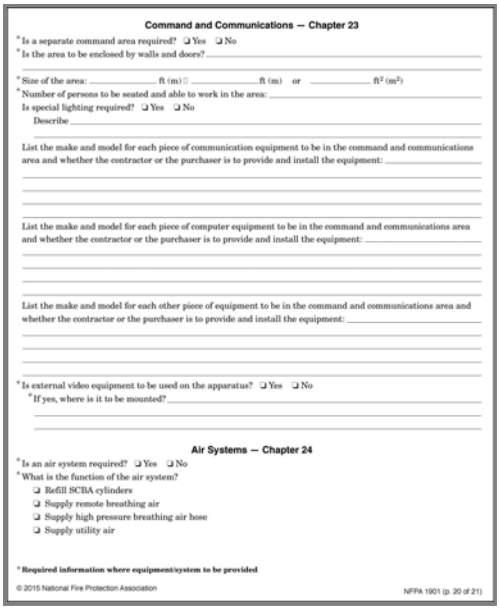
* Is a power-operated light mast required? ❑ Yes ❑ No
If yes, specify the make and model required: _____

List any equipment to be powered from a shorepower inlet: _____

* Required information where equipment/system to be provided

 NFPA 1901 (p. 19 of 21)

~~Figure B.2.12(t)~~ ***~~Continued~~***



Command and Communications — Chapter 23

* Is a separate command area required? ❑ Yes ❑ No
* Is the area to be enclosed by walls and doors? _____

* Size of the area: _____ ft (m) □ _____ ft (m) or _____ ft² (m²)
* Number of persons to be seated and able to work in the area: _____
Is special lighting required? ❑ Yes ❑ No
Describe _____

List the make and model for each piece of communication equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

List the make and model for each piece of computer equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

List the make and model for each other piece of equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

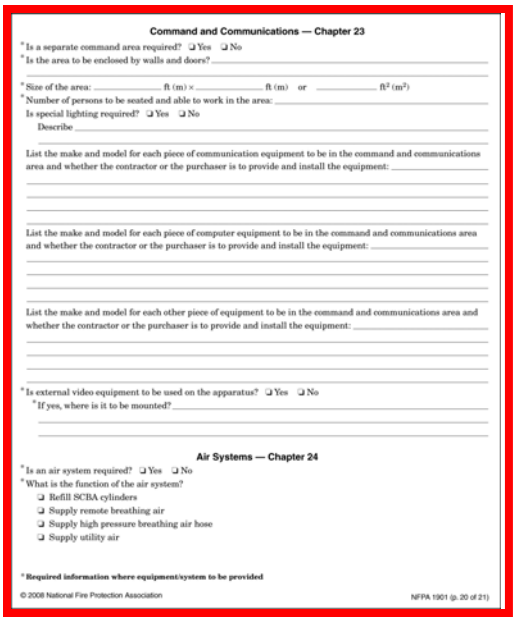
* Is external video equipment to be used on the apparatus? ❑ Yes ❑ No
* If yes, where is it to be mounted? _____

Air Systems — Chapter 24

* Is an air system required? ❑ Yes ❑ No
* What is the function of the air system?
❑ Refill SCBA cylinders
❑ Supply remote breathing air
❑ Supply high pressure breathing air hose
❑ Supply utility air

* Required information where equipment/system to be provided

 NFPA 1901 (p. 20 of 21)



Command and Communications — Chapter 23

* Is a separate command area required? ❑ Yes ❑ No
* Is the area to be enclosed by walls and doors? _____
* Size of the area: _____ ft (m) × _____ ft (m) or _____ ft² (m²)
* Number of persons to be seated and able to work in the area: _____
Is special lighting required? ❑ Yes ❑ No
Describe _____

List the make and model for each piece of communication equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

List the make and model for each piece of computer equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

List the make and model for each other piece of equipment to be in the command and communications area and whether the contractor or the purchaser is to provide and install the equipment: _____

* Is external video equipment to be used on the apparatus? ❑ Yes ❑ No
* If yes, where is it to be mounted? _____

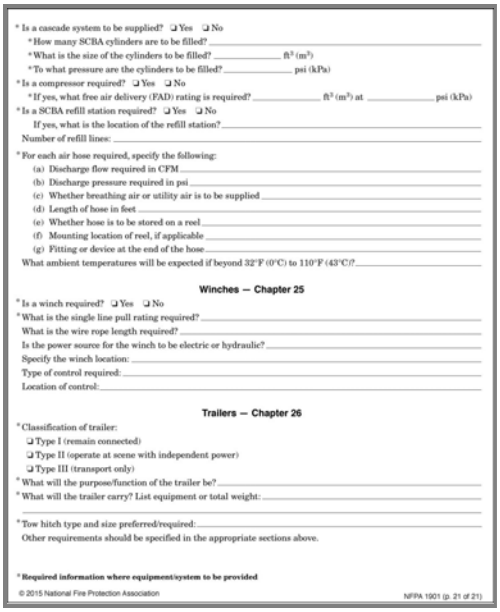
Air Systems — Chapter 24

* Is an air system required? ❑ Yes ❑ No
* What is the function of the air system?
❑ Refill SCBA cylinders
❑ Supply remote breathing air
❑ Supply high pressure breathing air hose
❑ Supply utility air

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 20 of 21)

Figure B.2.12(u) *Continued*



* Is a cascade system to be supplied? ❑ Yes ❑ No
* How many SCBA cylinders are to be filled? _____
* What is the size of the cylinders to be filled? _____ ft³ (m³)
* To what pressure are the cylinders to be filled? _____ psi (kPa)
* Is a compressor required? ❑ Yes ❑ No
* If yes, what free air delivery (FAD) rating is required? _____ ft³ (m³) at _____ psi (kPa)
* Is a SCBA refill station required? ❑ Yes ❑ No
If yes, what is the location of the refill station? _____
Number of refill lines: _____
* For each air hose required, specify the following:
(a) Discharge flow required in CFM _____
(b) Discharge pressure required in psi _____
(c) Whether breathing air or utility air is to be supplied _____
(d) Length of hose in feet _____
(e) Whether hose is to be stored on a reel _____
(f) Mounting location of reel, if applicable _____
(g) Fitting or device at the end of the hose _____
What ambient temperatures will be expected if beyond 32°F (0°C) to 110°F (43°C)? _____

Winches — Chapter 25

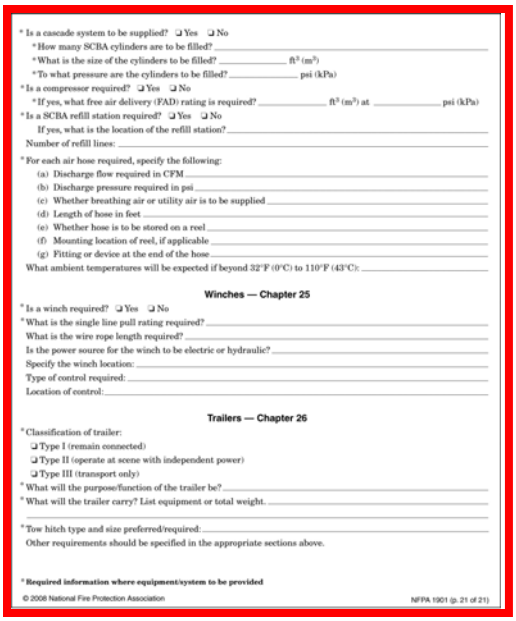
* Is a winch required? ❑ Yes ❑ No
* What is the single line pull rating required? _____
What is the wire rope length required? _____
Is the power source for the winch to be electric or hydraulic? _____
Specify the winch location: _____
Type of control required: _____
Location of control: _____

Trailers — Chapter 26

* Classification of trailer:
❑ Type I (remain connected)
❑ Type II (operate at scene with independent power)
❑ Type III (transport only)
* What will the purpose/function of the trailer be? _____
* What will the trailer carry? List equipment or total weight: _____
* Tow hitch type and size preferred/required: _____
Other requirements should be specified in the appropriate sections above.

* **Required information where equipment/system to be provided**

 NFPA 1901 (p. 21 of 21)



* Is a cascade system to be supplied? ❑ Yes ❑ No
* How many SCBA cylinders are to be filled? _____
* What is the size of the cylinders to be filled? _____ ft³ (m³)
* To what pressure are the cylinders to be filled? _____ psi (kPa)
* Is a compressor required? ❑ Yes ❑ No
* If yes, what free air delivery (FAD) rating is required? _____ ft³ (m³) at _____ psi (kPa)
* Is a SCBA refill station required? ❑ Yes ❑ No
If yes, what is the location of the refill station? _____
Number of refill lines: _____
* For each air hose required, specify the following:
(a) Discharge flow required in CFM _____
(b) Discharge pressure required in psi _____
(c) Whether breathing air or utility air is to be supplied _____
(d) Length of hose in feet _____
(e) Whether hose is to be stored on a reel _____
(f) Mounting location of reel, if applicable _____
(g) Fitting or device at the end of the hose _____
What ambient temperatures will be expected if beyond 32°F (0°C) to 110°F (43°C): _____

Winches — Chapter 25

* Is a winch required? ❑ Yes ❑ No
* What is the single line pull rating required? _____
What is the wire rope length required? _____
Is the power source for the winch to be electric or hydraulic? _____
Specify the winch location: _____
Type of control required: _____
Location of control: _____

Trailers — Chapter 26

* Classification of trailer:
❑ Type I (remain connected)
❑ Type II (operate at scene with independent power)
❑ Type III (transport only)
* What will the purpose/function of the trailer be? _____
* What will the trailer carry? List equipment or total weight. _____
* Tow hitch type and size preferred/required: _____
Other requirements should be specified in the appropriate sections above.

* Required information where equipment/system to be provided

 NFPA 1901 (p. 21 of 21)

Supplemental Information

File Name	Description
Figure_B.2.12.pdf	

Submitter Information Verification

Submitter Full Name: [Not Specified]
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Sep 24 12:29:44 EDT 2013

Committee Statement

Committee Statement: This change updates Figure B.2.12 (page of 11 of 21) to include a new column "Control Location". See attached Update Figure B.2.12 (page 11 of 21) with attached edits.

Response Message:

First Revision No. 93-NFPA 1901-2013 [Chapter D]

Annex D Guidelines for First-Line and Reserve Fire Apparatus

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 General.

To maximize fire fighter 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 ~~manufactured prior to 1991 usually included~~ 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~~, *Standard for Automotive Fire Apparatus* ,~~ have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to fire fighters of keeping fire apparatus ~~older~~ more than 15 years old in first-line service.

It is recommended that apparatus ~~greater~~ more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status~~; and~~ be upgraded in accordance with NFPA 1912~~, *Standard for Fire Apparatus Refurbishing* , to~~ ; 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 ~~recent versions~~ current editions of the standards are available to the fire fighters 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.

D.2 ~~How the Standards Have Changed~~ 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 being used and the quality and timeliness of maintenance are perhaps the most significant factors in determining how well a fire apparatus ages.

Prior to 1991, NFPA 1901 was basically a "reactive standard." If something worked well in field use for a few years, it might have been suggested for inclusion in NFPA 1901 . It was a very basic standard. In the late 1980s, the Technical Committee on Fire Department Apparatus decided to become proactive and to greatly enhance the value of the standard for the fire service. Task groups were appointed to develop reasonable requirements for the various components that made up a fire apparatus, and a safety task group was charged with looking at issues across the board that would improve the safety of fire fighters who use the apparatus.

The completely revised 1991 editions of the NFPA fire department apparatus standards were the result of those efforts and the full committee's strong desire to make the automotive fire apparatus standards not only more safety oriented but also more user friendly.

Contained within the 1991 edition of the fire department apparatus standards were requirements for such items as fully enclosed riding areas with reduced noise (dBA) levels to keep crew members safe and informed, seats and seat belts for all crew members riding on the apparatus, fail-safe door handles so the sleeve of a coat did not inadvertently catch a handle and open a door, and signs requiring everyone to be seated and belted. Also included were increased battery capacity to ensure starting under most conditions; improved warning lights, including intersection lights for increased visibility; removal of all roof-mounted audible warning devices to reduce hearing problems; a flashing light in the cab to warn if a cab or body door is open; a backup alarm; an automatic transmission to make it easier to drive (unless the purchaser has a specific reason for a manual transmission); auxiliary braking systems; and reflective striping.

The tip load for an aerial ladder was required to have a minimum carrying capacity of 250 lb (114 kg) when the aerial ladder was at zero degrees elevation and maximum extension. Other requirements, such as a minimum rail height, the minimum design strength of the rungs, and a minimum load-carrying requirement for folding steps, were added to make the aerial ladder safer for fire fighters to use. Where a water tower was equipped with a ladder, the same requirements that applied to an aerial ladder were required of the ladder on the water tower.

The carrying capacity of elevating platforms at zero degrees elevation and maximum extension was raised to 750 lb (340 kg). Elevating platforms were also required to have handrails, breathing air available in the platform (with low-air warning capability) for at least two fire fighters, and a water curtain cooling system under the platform.

All aerial devices had to be capable of supporting a static load of one and one-half times their rated capacity in any position. A requirement for a stabilizer movement alarm and reflective striping with warning lights was added. Interlocks to prevent inadvertent movement to an unsupported side and to prevent raising the aerial device prior to the stabilizers being deployed were specified. One hundred percent nondestructive tests (NDT) became a requirement. All these requirements were included in the 1991 editions of the NFPA fire department apparatus standards

In the pump area, the standard specified that 3 in. (75 mm) or larger valves be "slow close," that caps on intakes and discharge outlets be tested to 500 psi (3400 kPa), that an intake relief valve be provided to help manage incoming pressure, that 30-degree sweep elbows be provided on the discharges to eliminate hose kinking, and that all 3 in. (75 mm) and larger discharges be eliminated from the pump panel to reduce the possibility of injuries to the pump operator.

Fire apparatus equipped with electronic or electric engine throttle controls were required to include an interlock system to prevent engine speed advancement, unless the chassis transmission was in neutral with the parking brake engaged or unless the parking brake was engaged, the fire pump was engaged, and the chassis transmission was in the correct pumping gear.

~~The 1991 editions have been recognized as the benchmark from which improved and safer fire apparatus have evolved.~~

~~In 1996, many requirements were added throughout the document to improve the safety for fire fighters using the apparatus. These requirements included limiting the height of controls to 72 in. (1830 mm) above the standing position of the operator, requiring equipment in driving and crew areas to be securely fastened or in a compartment, increasing work lighting around the apparatus, and better grouping of pump controls to keep the operator away from the intake and discharge outlets. The low voltage electrical chapter was totally rewritten to require load analysis and load management if the total connected load could not be supplied by the vehicle's alternator. The requirements for warning lights were also rewritten to provide for different lighting for "calling for right of way" versus "blocking right of way." Requirements for warning lights were increased to provide more visibility of the fire apparatus.~~

~~The 1999 edition of~~ ~~NFPA 1901~~ ~~added requirements to further increase the safety for the users. In the body area, the minimum step surface size, slip resistance, and load-carrying capabilities were increased. Handrails were required to be slip resistant, and reflective striping was required on all four sides of the apparatus. To ensure the capability for continuous operation at fire scenes, a 2-hour, maximum load electrical test for line voltage systems was implemented.~~

~~The 1999 standard also required more secure mounting of equipment in the driving and crew compartment, minimum performance and pre-delivery testing of foam systems, and design of fill stations for breathing air cylinders to totally contain a rupturing cylinder.~~

~~The 2003 edition continued to refine the requirements in the driving and crew riding areas, increasing the head height at seating positions, bright-red seat belts, reflective material inside each cab door, automatic door-open lights, and more secure mounting of SCBAs in seat backs, all aimed at reducing fire fighter injuries. The test protocol for slip resistance of standing and walking surfaces was better defined. Because of the size of emergency vehicles, a label was required to remind operators of the height, length, and weight of the apparatus.~~

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 user 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 apparatus, providing a consistent identifiable set of markings for all automotive fire apparatus; and enhanced aerial control technologies, enabling short jacking and envelope controls.

D.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 as a minimum:

(1) Seat belts with seat belt warning systems are available for every seat and are new or in serviceable condition.

~~Fully enclosed seating is provided for all members riding on the fire apparatus.~~

(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.

~~Seat belts are available for every seat and are new or in serviceable condition.~~

(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 ~~to prevent its movement in case of an accident~~ in accordance with the current standard .

D.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 manufacturer's 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 manufacturer's 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 rating or total GVWR.

(7) The fire pump meets or exceeds its original pump rating.

(8) The 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.

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~~, *Standard for Fire Apparatus Refurbishing*~~ . 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 ~~considering~~ 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~~to~~ 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? ~~Remember,~~ 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. ~~An aerial ladder that does not have a 250 lb (114 kg) tip load rating at zero degrees elevation and maximum extension cannot be made stronger.~~

(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? ~~Do not forget insurance costs, downtime costs, maintenance costs, depreciation, reliability, and the safety of the users and the public.~~ 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? 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?

D.6 Conclusion.

A fire apparatus is an emergency vehicle that must be relied on to transport fire fighters 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 fire fighters 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.

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F.1.2.7 UL Publications.
Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062, ~~www.UL.com~~ www.ul.com .

UL 943, *Standard for Ground-Fault Circuit Interrupters*, ~~1993, with revisions through August 2, 2005~~ 2006, Revised 2010 .

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F.3 References for Extracts in Informational Sections.

NFPA 70®, *National Electrical Code*®, ~~2008~~ 2014 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2016 edition.

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