



# **NFPA Technical Committee on Fire Department Apparatus**

## **NFPA 1911 Standard for the Inspection, Maintenance, Testing, and Retirement of In- Service Automotive Fire Apparatus First Draft Meeting Agenda May 13th and 14th, 2015 San Antonio, TX**

- I. Welcome and call to order by Chairman Frazeur
- II. Introductions- members and guests
- III. Review and accept minutes from the February 2015 meeting
- IV. NFPA update and purpose of meeting – Ken Holland, Staff Liaison
- V. Act on public inputs/first revision development
- VI. Other business- Old and New
- VII. Next Meeting- Second Draft Meeting for NFPA 1911



# NFPA Technical Committee on Fire Department Apparatus

## NFPA 1912 Second Draft Meeting Minutes February 12, 2015 Conference Call/Adobe Connect

### Attendees:

|                         |                   |                    |
|-------------------------|-------------------|--------------------|
| Frazeur, Donald (Chair) | Lackore, Roger    | Juneau, James      |
| Chestnut, Wesley        | Mettler, Tom      | McKenzie, Dan      |
| Cranfill, Jeff          | Peters, William   | Pope, Gary         |
| Dorio, Ralph            | Piechura, Jeff    | Rice, Ed           |
| Durstine, David         | Salmi, James      | Shivers, Jason     |
| Fenwick, Clayton        | Stalnaker, Thomas | Yohn, William      |
| Haider, Mark            | Terefinko, John   | Ryan Depew (NFPA)  |
| Haston, David           | Insley, Doug      | Ken Holland (NFPA) |

### **November 4, 2014**

- Meeting to Order at 10:00am EST
- Roll Call for Attendees and Guests
- Remarks from the Chair
- Review Purpose of Meeting
- The Committee Created Second Revisions for NFPA 1912
  - Committee members, see forthcoming ballot for suggested changes to text
  - Non committee members, see ballot results and Second Draft Report when available ([www.nfpa.org/1912next](http://www.nfpa.org/1912next))
- Discussion on NFPA Staff Liaison Changes
- NFPA 1911 First Draft Meeting
  - Needs to occur prior to 6/15/15
  - Approximately 70 Public Inputs
  - 2 day meeting
  - Staff will look into Portland, OR and Denver, CO for week of May 4<sup>th</sup>
  - Staff will look into Harrisburg, PA for May 13-14, 2015
- Meeting Adjourned 11:05 EST



## Public Input No. 75-NFPA 1911-2014 [ Section No. 1.1.1 ]

### 1.1.1

This standard defines the minimum requirements for establishing an inspection, maintenance, and testing program for in-service ~~fire apparatus~~ emergency response vehicles .

### Statement of Problem and Substantiation for Public Input

this standard is already being used for inspection and maintenance of other emergency response vehicles such as ambulance, command vehicles and special operation vehicles. The need to include at least ambulances is apparent so we might as well include all other ERVs. Since NFPA has written an ambulance standard 1917 it would stand to reason to include them in this standard.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                  | <u>Relationship</u> |
|-----------------------------------------------------------------------|---------------------|
| <u>Public Input No. 76-NFPA 1911-2014 [Section No. 1.2.1]</u>         |                     |
| <u>Public Input No. 77-NFPA 1911-2014 [New Section after 3.3.136]</u> |                     |

### Submitter Information Verification

**Submitter Full Name:** Stephen Wilde  
**Organization:** Certified Fleet Services, Inc.  
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**Submittal Date:** Mon Nov 24 15:35:29 EST 2014



## Public Input No. 76-NFPA 1911-2014 [ Section No. 1.2.1 ]

### 1.2.1

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

### Statement of Problem and Substantiation for Public Input

this standard is already being used for inspection and maintenance of other emergency response vehicles such as ambulance, command vehicles and special operation vehicles. The need to include at least ambulances is apparent so we might as well include all other ERVs. Since NFPA has written an ambulance standard 1917 it would stand to reason to include them in this standard.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                  | <u>Relationship</u> |
|-----------------------------------------------------------------------|---------------------|
| <u>Public Input No. 75-NFPA 1911-2014 [Section No. 1.1.1]</u>         |                     |
| <u>Public Input No. 77-NFPA 1911-2014 [New Section after 3.3.136]</u> |                     |

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**Submittal Date:** Mon Nov 24 15:43:03 EST 2014



## Public Input No. 58-NFPA 1911-2014 [ Chapter 2 ]

### Chapter 2 Referenced Publications

#### 2.1 General.

The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

#### 2.2 NFPA Publications.

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

NFPA 1071, *Standard for Emergency Vehicle Technician Professional Qualifications*, 2011 edition 2016 .

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2009 edition 2016 .

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

#### 2.3 Other Publications.

##### 2.3.1 ASME Publications.

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

ASME B40.100, *Pressure Gauges and Gauge Attachments*, 2005 2013 .

##### 2.3.2 ASNT Publications.

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

ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, 2001 2011 .

### 2.3.3 ASTM Publications.

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

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 E 6, *Standard Terminology Relating to Methods of Mechanical Testing*, 2006 \_ **2011 e1** .

ASTM E 10, *Standard Test Method for Brinell Hardness of Metallic Materials*, 2001 \_ **2012** .

ASTM E 18, *Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials*, 2005 \_ **2014** .

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/**E165M**, *Standard Test Method for Liquid Penetrant Examination*, 2002 \_ **2012** .

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

ASTM E 569/**E569M**, *Standard Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation*, 2002 \_ **2013** .

ASTM E 650/**E650M**, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*, 1997 (reconfirmed 2002) \_ **2012** .

ASTM E 709, *Standard Guide for Magnetic Particle Examination*, 2001 \_ **2014** .

ASTM E 797/**E797M**, *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** .

ASTM E 1220, *Standard Test Method for Visible Penetrant Examination Using the Solvent-Removable Process*, 2005 \_ **2010** .

ASTM E 1316, *Standard Terminology for Nondestructive Testing*, 2006 \_ **2013** .

ASTM E 1418, *Standard Test Method for Visible Penetrant Examination Using the Water-Washable Process*, 2005 \_ **2010** .

### 2.3.4 AWS Publications.

American Welding Society, 550 N.W. LeJeune Road, **8669 NW 36 Street, #130, Miami, FL 33126 33166-6672** .

AWS B1.10/**B 1.10M**, *Guide for the Nondestructive Examination of Welds*, 1999 \_ **2009** .

AWS D1.1/**D1.1M**, *Structural Welding Code — Steel*, 2005 \_ **2011** .

AWS D1.2/**D1.2M**, *Structural Welding Code — Aluminum*, 2003 \_ **2014** .

### 2.3.5 ISO Publications.

International Organization for Standardization, 1 rue de Varembe, Case postale 56, CH-1211 Genève 20, Switzerland.

ISO/IEC 17020, **Conformity Assessment - General criteria for the operation of various types of bodies performing inspection**, 1998 \_ **2012** .

### 2.3.6 SAE Publications.

Society of Automotive Engineers **SAE International**, 400 Commonwealth Drive, Warrendale, PA 15096.

SAE J959, *Lifting Crane, Wire-Rope Strength Factors*, 1991, **(withdrawn 2012)** .

### 2.3.7 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 49, Code of Federal Regulations, Part 399.211, Appendix G, "Minimum Periodic Inspection Standards," 1988 \_ **2013** .

**2.3.8 Other Publications.**

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

**2.4 References for Extracts in Mandatory Sections.**

NFPA 70<sup>®</sup>, *National Electrical Code*<sup>®</sup>, ~~2011 edition~~ **2014**.

NFPA 99, *Health Care Facilities Code*, ~~2012 edition~~ **2015**.

NFPA 414, *Standard for Aircraft Rescue and Fire-Fighting Vehicles*, ~~2012 edition~~.

NFPA 1451, *Standard for a Fire Service Vehicle Operations Training Program*, ~~2007 edition~~ **2013**.

NFPA 1901, *Standard for Automotive Fire Apparatus*, ~~2009 edition~~ **2016**.

NFPA 1912, *Standard for Fire Apparatus Refurbishing*, ~~2011 edition~~ **2016**.

**Statement of Problem and Substantiation for Public Input**

Referenced current organization names, addresses, and editions.

**Related Public Inputs for This Document**

| <u>Related Input</u>                           | <u>Relationship</u> |
|------------------------------------------------|---------------------|
| Public Input No. 59-NFPA 1911-2014 [Chapter E] |                     |

**Submitter Information Verification**

**Submitter Full Name:** Aaron Adamczyk

**Organization:** [ Not Specified ]

**Street Address:**

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**Submittal Date:** Tue Jun 24 01:38:32 EDT 2014



## Public Input No. 62-NFPA 1911-2014 [ Section No. 2.3.1 ]

### 2.3.1 ASME Publications.

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

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

ASME B30.5, *Mobile and Locomotive Cranes*, 2004.

## Statement of Problem and Substantiation for Public Input

Another public input suggests deleting SAE Publications. This public input replaces SAE J959 with a newer and more comprehensive ASME document to handle what was previously handled by the SAE publication.

## Related Public Inputs for This Document

| <u>Related Input</u>                                                             | <u>Relationship</u> |
|----------------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 63-NFPA 1911-2014 [Section No. 2.3.6]</a>           |                     |
| <a href="#">Public Input No. 64-NFPA 1911-2014 [Section No. 19.8.6.14]</a>       |                     |
| <a href="#">Public Input No. 65-NFPA 1911-2014 [Section No. 19.9.9.5]</a>        |                     |
| <a href="#">Public Input No. 66-NFPA 1911-2014 [New Section after 19.8.6.14]</a> |                     |
| <a href="#">Public Input No. 67-NFPA 1911-2014 [New Section after 19.9.9.5]</a>  |                     |

## Submitter Information Verification

**Submitter Full Name:** Thomas Wood

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**Submittal Date:** Fri Sep 05 15:32:15 EDT 2014



## Public Input No. 63-NFPA 1911-2014 [ Section No. 2.3.6 ]

2.3.6 – SAE Publications.

Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

SAE J959, *Lifting Crane, Wire-Rope Strength Factors*, 1991.

### Statement of Problem and Substantiation for Public Input

Delete this section. Public Comment 62 proposes to add a more up to date ASME document to accomplish what was previously done with the one and only SAE document. This older document will no longer be needed.

### Related Public Inputs for This Document

#### Related Input

[Public Input No. 62-NFPA 1911-2014](#)  
[\[Section No. 2.3.1\]](#)

[Public Input No. 64-NFPA 1911-2014](#)  
[\[Section No. 19.8.6.14\]](#)

[Public Input No. 65-NFPA 1911-2014](#)  
[\[Section No. 19.9.9.5\]](#)

[Public Input No. 66-NFPA 1911-2014](#)  
[\[New Section after 19.8.6.14\]](#)

[Public Input No. 67-NFPA 1911-2014](#)  
[\[New Section after 19.9.9.5\]](#)

#### Relationship

Public Input No. 62 provides the document that replaces the one to be deleted in Public Input No.63.

### Submitter Information Verification

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**Submittal Date:** Fri Sep 05 15:39:51 EDT 2014



## Public Input No. 68-NFPA 1911-2014 [ New Section after 3.3 ]

### Tensiometer

Tensiometer - a device for measuring tension (as of structural material).

### Statement of Problem and Substantiation for Public Input

Public Inputs 66 and 67 require the use of a tensiometer. I suggest adding the Merriam-Webster definition of a tensiometer to definitions, as many users may not be familiar with the terminology.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                             | <u>Relationship</u>                                   |
|----------------------------------------------------------------------------------|-------------------------------------------------------|
| <a href="#">Public Input No. 66-NFPA 1911-2014 [New Section after 19.8.6.14]</a> | The terminology is used in this new proposed section. |
| <a href="#">Public Input No. 67-NFPA 1911-2014 [New Section after 19.9.9.5]</a>  | The terminology is used in this new proposed section. |

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**Submittal Date:** Fri Sep 05 16:21:50 EDT 2014

**Public Input No. 38-NFPA 1911-2014 [ Section No. 3.3.134 ]****3.3.134 Visual Inspection Check .**

Inspection by the eye without recourse to any optical devices, except prescription eyeglasses.

**Statement of Problem and Substantiation for Public Input**

since the word "inspection" is defined as a more in depth look at the system or component we need a way to separate a visual check from an inspection I propose to use visual check in the daily / weekly check area.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                           | <u>Relationship</u> |
|--------------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 20-NFPA 1911-2014 [New Section after 4.3.1.3]</a> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Submittal Date:** Mon May 12 11:07:37 EDT 2014



## Public Input No. 77-NFPA 1911-2014 [ New Section after 3.3.136 ]

### TITLE OF NEW CONTENT

**Emergency Response Vehicle** . A motorized vehicle designated by an organization or agency to respond to emergency incidents where provisions have been made to include warning systems and specialized components such as pumps, aerial devices and rescue equipment and are capable of transporting emergency response personnel. [1071, 3.3.39]

### Statement of Problem and Substantiation for Public Input

we need to define emergency response vehicles in the standard.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                   | <u>Relationship</u> |
|------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 75-NFPA 1911-2014 [Section No. 1.1.1]</a> |                     |
| <a href="#">Public Input No. 76-NFPA 1911-2014 [Section No. 1.2.1]</a> |                     |

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**Submittal Date:** Mon Nov 24 15:50:09 EST 2014

**Public Input No. 78-NFPA 1911-2014 [ New Section after 4.1.9 ]****TITLE OF NEW CONTENT**

**4.1.10 Trailers.** trailers shall be inspected and maintained as required by chapter XXX

**Statement of Problem and Substantiation for Public Input**

We need to add trailers in the general requirement chapter to match the other areas in the standard.

**Submitter Information Verification**

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**Submittal Date:** Mon Nov 24 15:59:37 EST 2014

**Public Input No. 79-NFPA 1911-2014 [ New Section after 4.1.9 ]****TITLE OF NEW CONTENT**

**4.1.11 Ambulances.** Ambulances shall be inspected and maintained as required by Chapter XXX.

**Statement of Problem and Substantiation for Public Input**

we need to add ambulances to the general requirements to be consistent with the other areas in the standard.

**Submitter Information Verification**

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**Submittal Date:** Mon Nov 24 16:04:57 EST 2014

**Public Input No. 51-NFPA 1911-2014 [ Section No. 4.3.1.1 ]****4.3.1.1 \* \_**

Any person performing diagnostic checks, inspections, performance testing, or maintenance of the fire apparatus shall meet the qualifications of NFPA 1071, *Standard for Emergency Vehicle Technician Professional Qualifications*, or the equivalent.

**Statement of Problem and Substantiation for Public Input**

missing the word performance in front of testing.

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**Submittal Date:** Tue May 13 14:04:07 EDT 2014

**Public Input No. 19-NFPA 1911-2014 [ Section No. 4.3.1.2 ]**

4.3.1.2 \* --

The AHJ shall determine who is qualified to perform the daily/weekly inspection and the operational checks of fire apparatus.

**Statement of Problem and Substantiation for Public Input**

the requirements for the personnel during the operational checks is listed with the qualifications of the technicians. The driver / operator requirements are set by the AHJ and should be separate, moved section to stand separate section 4.3.2

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                           | <u>Relationship</u> |
|--------------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 20-NFPA 1911-2014 [New Section after 4.3.1.3]</a> |                     |

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**Submittal Date:** Tue Apr 29 13:02:21 EDT 2014



## Public Input No. 20-NFPA 1911-2014 [ New Section after 4.3.1.3 ]

### 4.3.2\*

The AHJ shall determine who is qualified to perform the daily/weekly visual checks and the operational checks of the fire apparatus as required by NFPA 1002 *Standard for Fire Apparatus Driver/Operator Professional Qualifications.*

### Statement of Problem and Substantiation for Public Input

Moved from section 4.3.1.2 to separate from technician qualifications. we need to remove the word "inspection" and replace with "visual check" because the definition of inspection is too in depth for what the driver / operator is doing. There is a new definition for visual check in chapter 3

### Related Public Inputs for This Document

| <u>Related Input</u>                                                     | <u>Relationship</u> |
|--------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 19-NFPA 1911-2014 [Section No. 4.3.1.2]</a> |                     |
| <a href="#">Public Input No. 38-NFPA 1911-2014 [Section No. 3.3.134]</a> |                     |

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**Submittal Date:** Tue Apr 29 13:05:11 EDT 2014

**Public Input No. 12-NFPA 1911-2014 [ Section No. 4.4.3 ]****4.4.3\***

All federal, state, provincial and local laws and regulations governing workplace safety shall be followed when performing maintenance on fire apparatus.

**Statement of Problem and Substantiation for Public Input**

To better accommodate Canadian applications of the standard I think we should consider adding the word "provincial" after "state" most Occupational health and safety legislation is provincial jurisdiction in Canada.

**Submitter Information Verification**

**Submitter Full Name:** PAUL PREVOST

**Organization:** CLEARWATER REGIONAL FIRE

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**Submittal Date:** Mon Feb 03 23:02:31 EST 2014

**Public Input No. 80-NFPA 1911-2014 [ Section No. 4.5.4.1 ]****4.5.4.1**

Defined systems of the apparatus shall be checked, including the fire pump, aerial device, warning lights, audible warning devices, ambulance patient module, cab and pump panel instrumentation, seat belts, tires, engine, transmission, drivetrain, and brake system.

**Statement of Problem and Substantiation for Public Input**

if we are adding ambulances to the standard we need to add patient module to the list of defined systems.

**Submitter Information Verification**

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**Submittal Date:** Mon Nov 24 16:09:07 EST 2014



## Public Input No. 37-NFPA 1911-2014 [ Sections 4.5.4.1, 4.5.4.2 ]

### Sections 4.5.4.1, 4.5.4.2

#### 4.5.4.1

the visual checks and operational check shall be done within 24 hrs of a run or if no runs are done during the week at least weekly.

#### 4.5.4.2

Defined systems of the apparatus shall be checked, including the fire pump, aerial device, warning lights, audible warning devices, cab and pump panel instrumentation, seat belts, tires, engine, transmission, drivetrain, and brake system. visually checked and operationally checked according to chapter 7 (new chapter)

#### 4.5.4. 2- 3

An inspection form- check sheet shall be utilized to record the results of the operational- visual and visual check operational checks . (See Annex C.)

### Statement of Problem and Substantiation for Public Input

we need to set when the visual and operational checks will be done and reference new chapter listing the operational and visual checked items.

### Related Public Inputs for This Document

| <u>Related Input</u>                                          | <u>Relationship</u> |
|---------------------------------------------------------------|---------------------|
| Public Input No. 56-NFPA 1911-2014 [New Section after 6.10.3] |                     |

### Submitter Information Verification

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**Street Address:**  
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**Submittal Date:** Mon May 12 09:11:55 EDT 2014

## **Chapter 7\* Daily / Weekly Visual and Operational Checks.**

7.1 A visual and operational check of the apparatus shall be performed within 24 hours of a run or at least weekly.

7.1.1 The visual and operational checks shall be performed to the requirements sections 7.2 -- 7. 4.

7.1.2 The check sheet in annex C or equivalent check sheet shall be used to record the daily / weekly visual and operational checks.

7.1.3 Personnel conducting the visual and operational checks shall meet the requirements of section 4.3.2

### **7. 2 Visual Checks**

A visual check of components, fluid levels, fluid condition, leaks and systems shall include, but not be limited to, the following:

1. Check engine oil fluid level and condition
2. Check transmission fluid level and condition
3. Check coolant level
4. Check power steering fluid level and condition
5. Check for fluid leaks on the floor
6. Check tire condition
7. Check tire air pressure
8. Check wheel and lug nuts
9. Check seat belt condition
10. Check windshield, mirrors and door glass
11. Steering linkage
12. Cab doors, handles and steps
13. Battery condition
14. Body and compartment door condition
15. Running boards, steps, ladders and handles
16. Ground ladder racks and mounting
17. Hydraulic brake fluid level (if applicable)
18. Placards and warning decals
19. Front and rear springs
20. Fuel tank level and mounting
21. Fire pump mounting
22. Fire pump discharges and suctions valves
23. Fire pump controls and gauges
24. Pump drains
25. Water tank level, leaks and condition
26. Primer oil level (if applicable)
27. Aerial hydraulic system
28. Hydraulic Fluid level and condition
29. Outriggers and torque box
30. Aerial device controls
31. Ladder and basket
32. Waterway and monitor
33. Auxiliary equipment and racks

### 7.3 Operational Check

An operational check of the components and systems shall include, but not be limited to, the following:

1. Starting system
2. Battery voltage
3. Audible and visual alarms
4. Engine
5. Charging system
6. Cab gauges
7. Steering system
8. Seat belts
9. Seat belt warning system
10. Brake Air compressor
11. Transmission
12. Warning light system
13. Fire pump
14. Pump panel gauges and controls
15. Relief Valve
16. Pressure governor operation
17. Foam system
18. Primer system
19. Pump Valves and reels
20. Main drain and other drains
21. Cooler valves
22. Water tank level indicator
23. DOT lighting
24. Horns
25. Brake system
26. Parking or spring brakes
27. Windshield wipers and washers
28. Line voltage generating source
29. Work lighting
30. Cab door glass
31. Power steps and access ladders
32. Aerial hydraulic system
33. Aerial outriggers
34. Aerial interlocks
35. Aerial device
36. Auxiliary equipment and racks

### 7.4 Documentation

7.4.1 A record of the visual and operational check sheet shall be kept.

7.4.2 The AHJ shall develop and implement a procedure for reporting defects found during the visual and operational checks

7.4.3 The AHJ shall have a procedure to remove the apparatus from service should an out of service criteria defect be found during the visual and operational checks.

**Chapter 7. Annex item:** The importance of the daily / weekly checks cannot be stressed enough. For a preventive maintenance plan to succeed the daily/weekly visual and operational checks must be done correctly. Properly done daily/weekly checks locate problems quickly, which then can be corrected before they become worse. The AHJ should work with the maintenance department to develop a plan to complete the daily/weekly checks within the allotted time, complete the checks properly and document the results properly. The driver/operators assigned to perform the daily/weekly checks should be trained with the help of the maintenance

department and technicians regarding the expected outcome of each item on the check sheet. Other groups, such as state mechanics associations, apparatus manufacturers and independent trainers offer some training for driver operators. NFPA 1002 **Standard for Fire Apparatus Driver/Operator Professional Qualifications** has requirements for what a driver operator should know to perform the daily/weekly checks.

**Public Input No. 81-NFPA 1911-2014 [ Section No. 4.5.5 ]****4.5.5 \* \_**

A complete inspection and diagnostic check of the ~~fire apparatus~~ emergency response vehicles shall be conducted at least as frequently as recommended by the ~~apparatus~~ the emergency response vehicle manufacturer or once per year, whichever comes first.

**Statement of Problem and Substantiation for Public Input**

changes needed to include all emergency response vehicles.

**Submitter Information Verification**

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**Submittal Date:** Mon Nov 24 16:11:39 EST 2014

**Public Input No. 48-NFPA 1911-2014 [ Section No. 6.1.6.3 ]****6.1.6.3**

If the fire pump- or , CAFS system, Hydraulic generator or the aerial device is out of service, the engagement device shall be disabled so as to prevent operation of the pump- or , CAFS system, Hydraulic generator or the aerial device.

**Statement of Problem and Substantiation for Public Input**

we should add at least CAFS and hyd generator, maybe we should make a list of all systems that should be disconnected if inoperative.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

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**Submittal Date:** Tue May 13 13:50:01 EDT 2014



## Public Input No. 16-NFPA 1911-2014 [ Section No. 6.3.1 ]

### 6.3.1

The following deficiencies of the chassis, axles, steering and suspension systems, driveline, wheels, and tires shall cause the apparatus to be taken out of service:

- (1) The gross axle weight rating (GAWR) shown on the vehicle weight rating label is greater than the tire manufacturer's load rating.
- (2) When weighed in accordance with Section 16.2, the weight on the front axle, the weight on the rear axle, or the total gross weight of the fire apparatus exceeds the values shown on the vehicle weight rating label.
- (3) Tires have cuts in the sidewall that penetrate to the cord.
- (4) \*Tires have a tread depth of less than  $\frac{4}{32}$  in. ( ~~3~~ 24 mm) on any steering axle or  $\frac{2}{32}$  in. ( ~~3~~ 62 mm) on any nonsteering axle at any two adjacent major tread grooves anywhere on the tire .
- (5) Suspension components are loose, broken, or missing.
- (6) Wheels or rims have the following deficiencies:
  - (a) Bent, broken, cracked, improperly seated, sprung, or mismatched lock or side ring(s)
  - (b) Cracked, broken, or elongated bolt holes
  - (c) Loose, missing, broken, cracked, stripped, or otherwise ineffective fasteners
  - (d) Weld deficiencies, as follows:
    - i. Cracks in welds attaching disc wheel disc to rim
    - ii. Cracks in welds attaching tubeless demountable rim to adapter
    - iii. Welded repair on aluminum wheel(s) on a steering axle
    - iv. Welded repair, other than disc to rim attachment, on steel disc wheel(s) mounted on the steering axle
- (7) Axle flanges have Class 3 leakage.
- (8) An axle has Class 3 leakage.
- (9) Steering components do not meet the requirements of 49 CFR Part 399.211, Appendix G, "Minimum Periodic Inspection Standards."
- (10) A steering component has Class 3 leakage.
- (11) Driveline components do not meet the requirements of 49 CFR 399.211, Appendix G.

## Statement of Problem and Substantiation for Public Input

The existing standard is based on current DOT guidelines for regular commercial vehicles, traveling at posted speeds. Standard commercial vehicles also have the option of not traveling, or pulling over if the conditions warrant. Emergency vehicles have to respond regardless of conditions, and most are permitted to travel faster than posted speed limits. Therefore, emergency vehicles need more tread to increase safety during emergency responses.

## Submitter Information Verification

**Submitter Full Name:** Bruce King

**Organization:**

**Street Address:**

**City:****State:****Zip:****Submittal Date:** Sat Mar 29 10:52:21 EDT 2014



## Public Input No. 50-NFPA 1911-2014 [ Section No. 6.3.1 ]

### 6.3.1

The following deficiencies of the chassis, axles, steering and suspension systems, driveline, wheels, and tires shall cause the apparatus to be taken out of service:

- (1) The gross axle weight rating (GAWR) shown on the vehicle weight rating label is greater than the tire manufacturer's load rating.
- (2) When weighed in accordance with Section 16.2, the weight on the front axle, the weight on the rear axle, or the total gross weight of the fire apparatus exceeds the values shown on the vehicle weight rating label.
- (3) Tires have cuts in the sidewall that penetrate to the cord.
- (4) \* Tires have a tread depth of less than  $\frac{4}{32}$  in. (3.2 mm) on any steering axle or  $\frac{2}{32}$  in. (1.6 mm) on any nonsteering axle at any two adjacent major tread grooves anywhere on the tire.
- (5) Tire speed rating is less than the governed vehicle speed rating of the vehicle.
- (6) Suspension components that are loose, broken, or missing.
- (7) Wheels or rims that have the following deficiencies:
  - (a) Bent, broken, cracked, improperly seated, sprung, or mismatched lock or side ring(s)
  - (b) Cracked, broken, or elongated bolt holes
  - (c) Loose, missing, broken, cracked, stripped ~~–~~ or ~~otherwise ineffective~~ damaged fasteners
  - (d) Weld deficiencies, as follows:
    - i. Cracks in welds attaching disc wheel disc to rim
    - ii. Cracks in welds attaching tubeless demountable rim to adapter
    - iii. Welded repair on aluminum wheel(s) on a steering axle
    - iv. Welded repair, other than disc to rim attachment, on steel disc wheel(s) mounted on the steering axle
- (8) Axle flanges have Class 3 leakage.
- (9) An axle has Class 3 leakage.
- (10) Steering components do not meet the requirements of 49 CFR Part 399.211, Appendix G, "Minimum Periodic Inspection Standards."
- (11) A steering component has Class 3 leakage.
- (12) Driveline components do not meet the requirements of 49 CFR 399.211, Appendix G.

### Statement of Problem and Substantiation for Public Input

Ineffective fastener is hard to define, damaged fasteners is easier to determine.

Adding the new item 5 makes sure that tire speed ratings are checked and if not correct, the tires must be changed.

### Related Public Inputs for This Document

| <u>Related Input</u>                                         | <u>Relationship</u> |
|--------------------------------------------------------------|---------------------|
| Public Input No. 61-NFPA 1911-2014 [New Section after 7.3.3] |                     |

### Submitter Information Verification

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**State:**

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**Submittal Date:** Tue May 13 14:00:35 EDT 2014

**Public Input No. 49-NFPA 1911-2014 [ Section No. 6.4.1 ]****6.4.1 \* \_**

The following defects and deficiencies of the engine system shall cause the apparatus to be taken out of service:

- (1) Engine that will not crank or start
- (2) Engine system that has Class 3 leakage of oil
- (3) Engine that is overheating
- (4) ~~Oil that contains coolant~~
- (5) ~~Oil that is diluted with fuel~~
- (6) Fuel system component that has Class 2 leakage of fuel
- (7) Stop-engine light that fails to turn off after engine is started

**Statement of Problem and Substantiation for Public Input**

move item 4 and 5 to technician evaluation area

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**Submittal Date:** Tue May 13 13:56:51 EDT 2014

**Public Input No. 21-NFPA 1911-2014 [ Section No. 6.4.2 ]****6.4.2**

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

- (1) Air filter restriction
- (2) Fuel tank, mountings, or straps
- (3) Exhaust leak in to crew compartment
- (4) Oil that contains coolant
- (5) Oil that is diluted with fuel

**Statement of Problem and Substantiation for Public Input**

this needs to be added to the list, because any exhaust leak into the crew compartment should be repaired before the apparatus is used. Moved item 4 and 5 from 6.4.1 to be evaluated by technician

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**Submittal Date:** Tue Apr 29 13:09:52 EDT 2014

**Public Input No. 82-NFPA 1911-2014 [ Section No. 6.7.3 ]****6.7.3**

If any of the following conditions exist, a qualified technician shall conduct an out-of-service evaluation and make a written report, including recommendations to the AHJ:

- (1) \* Inoperative siren
- (2) Overheating of power source and systems
- (3) Tripping of circuit breakers [ground fault circuit interrupter (GFCI), if applicable]
- (4) Line voltage power source producing high or low voltage or frequency
- (5) Damaged receptacles or observed electrical shock hazard
- (6) Any failure of the line voltage system that could effect patient care in an ambulance

**Statement of Problem and Substantiation for Public Input**

We need to consider the effect of the line voltage system on patient care in an ambulance.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

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**Submittal Date:** Tue Nov 25 09:01:59 EST 2014

**Public Input No. 45-NFPA 1911-2014 [ Section No. 6.8.4 ]****6.8.4 – Wheel Chocks.**

If the apparatus is not equipped with two wheel chocks, mounted in readily accessible locations, the condition shall be reported to the AHJ.

**Statement of Problem and Substantiation for Public Input**

missing wheel chocks should not take the unit out of service and this statement does not say that, so this should be moved to the inspection chapter

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                | <u>Relationship</u> |
|---------------------------------------------------------------------|---------------------|
| <u>Public Input No. 89-NFPA 1911-2014 [New Section after 7.3.6]</u> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde  
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**Street Address:**  
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**Zip:**  
**Submittal Date:** Tue May 13 12:34:05 EDT 2014

**Public Input No. 46-NFPA 1911-2014 [ Section No. 6.10.1 ]****6.10.1**

The following deficiencies of the aerial device and its systems shall cause the aerial device to be taken out of service:

- (1) Power takeoff (PTO) that will not engage
- (2) Stabilizer system that is not operational
- (3) Aerial device that is not operational
- (4) Hydraulic system components that are not operational
- (5) Cable sheaves that are not operational
- (6) Cables that are frayed
- (7) Base and section rails that show ironing beyond the manufacturer's recommendations
- (8) Aerial device that is structurally deformed
- (9) Torque box fasteners that are broken or missing
- (10) Turntable fasteners that are broken or missing
- (11) Class 3 hydraulic leak

**Statement of Problem and Substantiation for Public Input**

a class 3 hydraulic leak should remove a aerial from service until it is repaired.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Submittal Date:** Tue May 13 13:21:59 EDT 2014

**Public Input No. 24-NFPA 1911-2014 [ Section No. 6.10.2 ]****6.10.2**

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

- (1) Hydraulic relief valve
- (2) Hydraulic system components
- (3) Emergency hydraulic system
- (4) Visual and audible alarm systems
- (5) Aerial lighting system
- (6) Aerial intercom system
- (7) Labels or warning signs
- (8) Aerial water delivery system
- (9) Class 3 hydraulic leak

**Statement of Problem and Substantiation for Public Input**

A class 3 hydraulic leak should be added to the required out of service criteria, because anything leaking that bad should be repaired prior to the unit being used.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Submittal Date:** Tue Apr 29 13:34:11 EDT 2014

**Public Input No. 70-NFPA 1911-2014 [ Section No. 6.10.2 ]****6.10.2**

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

- (1) Hydraulic relief valve
- (2) Hydraulic system components
- (3) Emergency hydraulic system
- (4) Visual and audible alarm systems
- (5) Aerial lighting system
- (6) ~~Aerial intercom system~~
- (7)
- (8) Labels or warning signs
- (9) Aerial water delivery system

**Statement of Problem and Substantiation for Public Input**

Aerial intercoms should not be included in an out of service criteria because most users can use radios with headset and hand held radios to communicate on the fire ground. Requiring the intercom to function for a aerial to remain in service does not allow the AHJ to opt for radios and headset operation if the intercom does not function. Also, intercoms are a constant problem with background noise and break downs. By removing this requirement the AHJ can use radios in place of the intercom if they wish to.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Zip:**

**Submittal Date:** Fri Oct 03 10:22:10 EDT 2014

**Public Input No. 36-NFPA 1911-2014 [ New Section after 6.10.3 ]****6.11 Trailers**

**6.11.1** The following deficiencies of a trailer and its system shall cause the trailer to be taken out of service.

- (1) Cracked trailer frame
- (2) Damaged or inoperative hitch
- (3) Damaged or missing safety chain or chain latch
- (4) The gross axle weight rating (GAWR) shown on the trailer information label is greater than the tires manufacturer's load rating
- (5) When weighed in accordance with Section 16.2, the weight on the axles of the trailer exceeds the values shown on the trailer information label
- (6) Tires have cuts in the sidewall that penetrate to the cord
- (7) \* Tires that have a tread depth of less than 2 32 in. (1.6 mm) or at any two adjacent major tread grooves anywhere on the tire. (Use annex item from 6.3.1 (4))
- (8) Suspension components that are loose, broken, or missing.
- (9) Wheels or rims have the following deficiencies:
  - a. Bent, broken, cracked, improperly seated, sprung, or mismatched lock or side ring(s)
  - b. Cracked, broken, or elongated bolt holes
  - c. Loose, missing, broken, cracked, stripped, or otherwise ineffective fasteners
  - d. Weld deficiencies, as follows:
    - i. Cracks in welds attaching disc wheel disc to rim
    - ii. Cracks in welds attaching tubeless demountable rim to adapter
    - iii. Welded repair, other than disc to rim attachment, on steel disc wheel(s) mounted on the steering axle
10. Braking system components that are not operational
11. Friction surfaces, brake shoes, or disc brake pads that have grease or oil on them.
12. Brake linings or pads that are worn beyond the brake system manufacturer's minimum specifications
13. Rotors and drums that are worn beyond the brake system manufacturer's minimum specifications
14. Braking system components that are not operational
15. Brake system components that have Class 2 leakage of brake fluid
16. Inoperative or damaged breakaway brake system
17. Inoperative stop, turn or marker lighting.
18. Damaged or missing trailer cord or plug.

**6.11.2** A qualified technician shall conduct an out-of-service evaluation of the following tire deficiencies and make a written report, including recommendations to the AHJ:

- (1) Tire Punctures
- (2) Tire Cuts to the cord
- (3) Tire Bulges other than bumps or repairs; repair bulges greater than 3 8 in. (10 mm), or bulges or knots associated with tread
- (4) Tire Sidewall separation.

**Statement of Problem and Substantiation for Public Input**

we need to add these out of service criteria for trailers because 1901 added a trailer section and we need to make sure that they are covered in this document.

### Related Public Inputs for This Document

| <u>Related Input</u>                                               | <u>Relationship</u> |
|--------------------------------------------------------------------|---------------------|
| <u>Public Input No. 35-NFPA 1911-2014 [New Section after 15.5]</u> |                     |

### Submitter Information Verification

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**Submittal Date:** Mon May 12 08:53:30 EDT 2014

**Public Input No. 56-NFPA 1911-2014 [ New Section after 6.10.3 ]****TITLE OF NEW CONTENT****Chapter 7 Daily / Weekly Visual and Operational Checks.****Additional Proposed Changes**

| <u>File Name</u>                                  | <u>Description</u>                                     | <u>Approved</u> |
|---------------------------------------------------|--------------------------------------------------------|-----------------|
| Chapter_7_daily_weekly_chapter_1911_oct_2014.docx | New chapter for daily / weekly inspection requirements |                 |

**Statement of Problem and Substantiation for Public Input**

we require a daily/ weekly inspection in 4.5.4, but other then the form in annex C we do not list what visual and operational checks should be done.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                           | <u>Relationship</u> |
|----------------------------------------------------------------|---------------------|
| Public Input No. 37-NFPA 1911-2014 [Sections 4.5.4.1, 4.5.4.2] |                     |

**Submitter Information Verification****Submitter Full Name:** Stephen Wilde**Organization:** Certified Fleet Services, Inc.**Street Address:****City:****State:****Zip:****Submittal Date:** Fri Jun 20 10:15:09 EDT 2014

**Public Input No. 83-NFPA 1911-2014 [ New Section after 6.10.3 ]****6.12. AMBULANCE**

The following deficiencies of an ambulance and its system shall cause the ambulance to be taken out of service.

- (1) Patient module entry doors that do not latch properly.
- (2) Cot retention mechanism that does not hold the cot.
- (3) HVAC system that does not cool or heat properly
- (4) Inoperative dome light system
- (5) Damaged or inoperative attendant seat or seat belt
- (6) An inoperative medical gas system

**Statement of Problem and Substantiation for Public Input**

added out of service criteria for ambulances

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

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**Submittal Date:** Tue Nov 25 09:06:13 EST 2014

**Public Input No. 61-NFPA 1911-2014 [ New Section after 7.3.3 ]****TITLE OF NEW CONTENT**

Tire load and speed rating shall be checked and the tire load rating shall be calculated to insure that it is correct for the GAWR.

**Statement of Problem and Substantiation for Public Input**

Tire load and speed rating is critical to the safe operation of the vehicle, so these tire ratings need to be checked to insure that the tires are not overloaded or the incorrect speed rating.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                          | <u>Relationship</u> |
|---------------------------------------------------------------|---------------------|
| <u>Public Input No. 50-NFPA 1911-2014 [Section No. 6.3.1]</u> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde  
**Organization:** Certified Fleet Services, Inc.  
**Street Address:**  
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**Submittal Date:** Wed Aug 27 11:15:53 EDT 2014

**Public Input No. 71-NFPA 1911-2014 [ Section No. 7.3.4 ]****7.3.4 \* \_**

Tires shall be ~~replaced at least every 7 years or more frequently when~~ replaced when the tread wear exceeds state or federal standards as determined by measuring with a tread depth gauge. [See [6.3.1 \(4\).](#)]

**Statement of Problem and Substantiation for Public Input**

There is no data to support the need to replace tires every seven (7) years. Statements concerning the replacement of tires based on years alone should not be recommended without the data to support such time frames.

**Submitter Information Verification**

**Submitter Full Name:** Gregg Cleveland

**Organization:** La Crosse Fire Department

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Oct 06 16:01:08 EDT 2014

**Public Input No. 89-NFPA 1911-2014 [ New Section after 7.3.6 ]****TITLE OF NEW CONTENT**

~~7.3.7 If the apparatus is not equipped with two wheel chocks, mounted in readily accessible locations, the condition shall be reported to the AHJ.~~

**Statement of Problem and Substantiation for Public Input**

moved wheel chocks from out of service criteria to inspection chapter

**Related Public Inputs for This Document**

| <u>Related Input</u>                                   | <u>Relationship</u> |
|--------------------------------------------------------|---------------------|
| Public Input No. 45-NFPA 1911-2014 [Section No. 6.8.4] |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde  
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**Zip:**  
**Submittal Date:** Wed Dec 24 14:37:12 EST 2014

**Public Input No. 44-NFPA 1911-2014 [ Section No. 7.6.6 ]****7.6.6**

All electronic throttle components and throttle position sensors (TPS) shall be inspected ~~for counts~~ and diagnostically checked.

**Statement of Problem and Substantiation for Public Input**

no need to inspect counts during pm inspection unless there is a problem

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**Submittal Date:** Tue May 13 12:16:37 EDT 2014

**Public Input No. 30-NFPA 1911-2014 [ Section No. 7.12.10.9 ]****7.12.10.9**

Leak-down rate (time) of the applied side of the air brake system shall ~~be~~ be performance tested with the engine stopped and the service brakes applied, and the air pressure shall not drop more than 3 psi (20.7 kPa) in 1 minute for a straight vehicle or more than 4 psi (27.6 kPa) in 1 minute for a combination vehicle.

**Statement of Problem and Substantiation for Public Input**

The word "test" cannot be used without the word performance, because we are testing the leak down rate to a predetermined specification

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

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**Zip:**

**Submittal Date:** Mon May 12 07:37:34 EDT 2014

**Public Input No. 31-NFPA 1911-2014 [ Section No. 7.12.10.10 ]****7.12.10.10**

Leak-down rate (time) of the supply-side of the chassis air system shall be performance tested with the engine stopped and the service brakes released, and the air pressure shall not drop more than 2 psi (13.8 kPa) in 1 minute for a straight vehicle or more than 3 psi (20.7 kPa) in 1 minute for a combination vehicle.

**Statement of Problem and Substantiation for Public Input**

The word "test" cannot be used without the word performance, because we are testing the leak down rate to a predetermined specification

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

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**Submittal Date:** Mon May 12 07:44:24 EDT 2014



## Public Input No. 18-NFPA 1911-2014 [ Chapter 8 ]

### **Chapter 8** Inspection and Maintenance of Low-Voltage Electrical Systems

#### **8.1** General.

Low-voltage electrical systems shall be inspected and maintained in accordance with this chapter.

##### **8.1.1**

All electrical equipment on the apparatus shall be inspected and maintained, regardless of whether it is specified in Sections 8.2 through 8.12.

##### **8.1.2**

All components of the low-voltage electrical system shall meet the following criteria:

- (1) They shall be kept clean and free of accumulated dirt or corrosion.
- (2) They shall be maintained in accordance with manufacturer's instructions and schedules.
- (3) They shall be securely mounted.
- (4) They shall be securely connected to their electrical supply and ground.

#### **8.2** Starting System.

All components of the starting system including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Batteries, cabling, and connections
- (2) Cranking motor
- (3) Solenoid, relays, and switches
- (4) Interlock systems

#### **8.3** Wiring.

All wiring and wire looms shall be inspected for security of mounting, tight connections, proper routing, presence of grommets, condition, and cleanliness.

#### **8.4** Batteries.

The battery(ies) shall be tested for storage and performance capabilities in accordance with the manufacturer's recommendations.

#### **8.5** Charging System.

##### **8.5.1**

All components of the charging system including, but not limited to, the following shall be inspected for security of mounting, deformation, and alignment and shall be diagnostically checked:

- (1) Alternator, regulator, and associated wiring and cables
- (2) Isolators
- (3) Alternator drive belts
- (4) Solenoids, relays, switches, and instrumentation
- (5) Interlock systems

##### **8.5.2\***

The alternator shall be diagnostically checked.

**8.6 Ignition System.**

All components of the ignition system including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Associated wiring and cables
- (2) Solenoid, relays, switches, instrumentation, and lighting
- (3) Primary and secondary systems
- (4) Glow plugs

**8.7 Automatic Electrical Load Management System.****8.7.1**

If so equipped, all components of the automatic electrical load management system including, but not limited to, the following shall be inspected for security of mounting and deformation:

- (1) Electronic hardware
- (2) Associated wiring and cables
- (3) Relays, controls, and indicators
- (4) Low-voltage warning devices

**8.7.2\***

The electrical load management system shall be checked for activation and operation of low-voltage warning devices in accordance with the manufacturer's recommendations.

**8.8 Miscellaneous Electrical Components.**

Miscellaneous electrical components including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Battery conditioners and chargers
- (2) Shoreline receptacles
- (3) Radios and intercoms
- (4) Converters and inverters
- (5) Fast idle system
- (6) Interlock system(s)
- (7) Operator alert devices
- (8) Other electrical components on the apparatus not otherwise specified in Section 8.8(1) through (7)

**8.9 Apparatus Lighting.**

All fire apparatus lighting including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Headlights
- (2) Marker lights
- (3) Clearance lights
- (4) Turn signals and hazard lights
- (5) Brake lights
- (6) Backup lights
- (7) Dash lights
- (8) Other fire apparatus lighting equipment on the apparatus not otherwise specified in Section 8.9(1) through (7)

**8.10 Work Lighting.**

All work lighting including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Ground lights
- (2) Step lights
- (3) Flood, spot, and scene lights
- (4) Cab interior lights
- (5) Compartment lights
- (6) Other work lighting on the apparatus not otherwise specified in Section [8.10](#)(1) through (5)

**8.11 Electrical Accessories.**

All electrical accessories including, but not limited to, the following shall be diagnostically checked:

- (1) Heater and defroster
- (2) Air-conditioning system
- (3) Windshield wipers and washers
- (4) Instrumentation
- (5) Traffic preemption
- (6) Other electrical accessories on the apparatus not otherwise specified in Section [8.11](#)(1) through (5)

**8.12 Warning Devices.**

All warning devices including, but not limited to, the following shall be inspected for security of mounting and deformation and shall be diagnostically checked:

- (1) Emergency warning lights
- (2) Electric and electronic sirens
- (3) Automotive traffic horn
- (4) Air horns
- (5) Backup alarm
- (6) Other warning devices on the apparatus not otherwise specified in Section [8.12](#)(1) through (5)

**Statement of Problem and Substantiation for Public Input****Submitter Information Verification**

This PI has not been submitted yet

**Public Input No. 33-NFPA 1911-2014 [ Section No. 8.7.2 ]****8.7.2** \* —

The electrical load management system shall be checked for activation and operation of low-voltage warning devices in accordance with the manufacturer's recommendations.

**Statement of Problem and Substantiation for Public Input**

delete annex item for 8.7.2 because 1901 changed specifications and added test Added low voltage alarm test to section 17.10

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                     | <u>Relationship</u> |
|--------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 34-NFPA 1911-2014 [Section No. A.8.7.2]</a> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde  
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**Submittal Date:** Mon May 12 08:19:45 EDT 2014

**Public Input No. 25-NFPA 1911-2014 [ Section No. 9.2.6 ]****9.2.6 Instrumentation and Gauges.**

All instrumentation, gauges, pump test label and lighting shall be legible and inspected for security of mounting and condition and shall be diagnostically checked.

**Statement of Problem and Substantiation for Public Input**

Adding the pump test label to the list needs to be done, because many older pumpers are either missing the pump test label or it can not be read.

**Submitter Information Verification**

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**Submittal Date:** Tue Apr 29 13:47:34 EDT 2014



**Public Input No. 35-NFPA 1911-2014 [ New Section after 15.5 ]**

## Chapter 16 Inspection and Maintenance of Trailers

**16.1 General. Trailers shall be inspected and maintain in accordance with this chapter.**

### **16.2 Frame, Hitch, Axle and Suspension**

**16.2.1 All frame rails and members shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.**

**16.2.2 All suspension components including, but not limited to, the following shall be inspected for defects, missing or loose parts, and functional operation and shall be lubricated:**

- (1) Springs and spring hangers**
- (2) Air springs (bags), mounting brackets, and attaching hardware**
- (3) Equalizer beams and torque arms**
- (4) Shock absorbers**

**16.2.3 the safety chains and chain latches shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts**

**16.2.4 the hitch mounting shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.**

**16.2.4.1 the hitch operation and lock shall be diagnostically checked.**

**16.2.5 the axle shall be inspected for alignment.**

**16.2.6 All axle components including, but not limited to, the following shall be inspected for security of mounting, structural integrity, deformation, abnormal wear; shall be functionally operated; and shall be lubricated:**

- (1) Spindles and bushings**
- (2) Attaching hardware**
- (3) Axle beams**

**16.2.7 Wheel bearings and seals shall be cleaned; shall be inspected for deformation, wear, cracks, and leakage; and shall be lubricated.**

**16.2.8\* Tires shall be inspected for damage and shall be inflated to the tire manufacturer's recommended pressure. (Use annex item from 7.3.3)**

**16.2.9\* Tires shall be replaced at least every 7 years or more frequently when the tread wear exceeds state or federal standards as determined by measuring with a tread depth gauge. [See 6.3.1 (4).] (use annex item from 7.3.4)**

**16.2.10 wheel attaching nuts shall be torqued to the wheel manufacturer's specifications.**

**16.2.11 wheels and rims shall be inspected for cracks, deformation, structural integrity and corrosion.**

### **16.3. Trailer brake Systems**

**16.3.1 The braking system shall be inspected and maintained in accordance with the manufacturer's severe service recommendation. If no severe service recommendation exists, the shortest interval recommended by the braking system manufacturer, based on time or mileage, shall be followed.**

**16.3.2 The brake linings shall be replaced in accordance with the brake manufacturer's severe service recommendation when they are contaminated, when the lining is worn to the minimum thickness for safe operation as defined by the brake manufacturer, or when the brake drum or rotor is replaced.**

**16.3.3 The drums or rotors shall be inspected during scheduled maintenance, when there is a suspected problem, or at the time of brake lining replacement, and the inspection shall consist of, but not be limited to, the following:**

- (1) Evidence of extensive heat or heat cracking**
- (2) Out of round**
- (3) Wear beyond manufacturer's specifications**

- (4) Rust
- (5) Taper
- (6) Rotor parallelism
- (7) Metal fatigue

**16.3.4 All components of the braking system shall be inspected for damage and wear when performing a brake overhaul.**

**16.3.5 If the Trailer has a electric brake system, the components to be inspected and maintained shall include, but not be limited to, the following:**

- (1) Wiring and grounds
- (2) Brake shoes or pads
- (3) Magnets and mounting
- (4) Brake drums or rotors
- (5) Mounting hardware

**16.3.6 If the Trailer has a hydraulic brake system, the components to be inspected and maintained shall include, but not be limited to, the following:**

- (1) Actuator and linkage
- (2) Hydraulic lines
- (3) Master cylinder
- (4) Valves
- (5) Wheel cylinders or calipers
- (6) Brake shoes or pads
- (7) Brake drums or rotors
- (8) Mounting hardware
- (9) Fluid level and contamination

**16.3.7 If the trailer has an air brake system, the components to be inspected and maintained shall include, but not be limited to, the following:**

- (1) All valves
- (2) Hoses and lines
- (3) Brake air chambers
- (4) Slack adjusters
- (5) Cams and wedges
- (6) Brake shoes or pads
- (7) Brake drums or rotor
- (8) Calipers
- (9) Air tanks
- (10) Drain valves
- (11) Mounting hardware
- (12) Glad hands and hoses

**16.3.7.1 The air brake system pressure protection valve(s) shall be diagnostically checked to the shutoff point.**

**16.3.7.2 Air reservoir tanks, air dryers, and drains shall be inspected for security of mounting, deformation, and leakage and shall be maintained in accordance with the manufacturer's recommendations**

**16.3.7.3 All valves, lines, cylinders, and chambers shall be inspected for security of mounting, deformation, and leakage and shall be diagnostically checked.**

**16.3.7.4 Leak-down rate (time) of the applied side of the air brake system shall be diagnostically checked with the engine stopped and the service brakes applied, and the air pressure shall not drop more than 4 psi (27.6 kPa) in 1 minute for a combination vehicle.**

**16.4. Trailer electrical and lighting all trailer lighting shall be inspected and maintained to the requirements of Chapter 8 of this document.**

**Renumber all following chapters**

## Statement of Problem and Substantiation for Public Input

we need to add a section on trailers because 1901 added a trailer section and we need to make sure that they are covered in this document.

## Related Public Inputs for This Document

| <u>Related Input</u>                                          | <u>Relationship</u> |
|---------------------------------------------------------------|---------------------|
| Public Input No. 36-NFPA 1911-2014 [New Section after 6.10.3] |                     |

## Submitter Information Verification

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon May 12 08:44:47 EDT 2014



**Public Input No. 85-NFPA 1911-2014 [ New Section after 15.5 ]**

## Chapter 17 Inspection and Maintenance of Ambulance Patient Module

17.1 General . Ambulance Patient Module shall be inspected and maintain in accordance with this chapter.

### 17.2 Body Exterior, Compartments and Doors

17.2.1 All body exterior lights, striping, fixtures and compartments shall be inspected for defects, missing or loose parts or stripping.

17.2.2 All compartment and Patient Module doors and door components shall be inspected for defects, structural integrity, leaks, corrosion, perforations, and missing or loose parts.

17.2.2.1 Door latches shall be lubricated and the operation shall be diagnostically checked.

17.2.2.2 Automatic dome light and scene light activation from Patient Module doors shall be diagnostically checked.

17.2.2.3 All steps, tailshelf or access ladder shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts and lubricated.

### 17.3 Lighting

17.3.1 All dot lighting shall be diagnostically checked

17.3.2 All warning lights shall be diagnostically checked

17.3.3 Primary and secondary modes shall be diagnostically checked

### 17.4 Patient Module Interior

17.4.1 Seats and seat belts shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.4.2 Seats and seat belts operation shall be diagnostically checked and lubricated

17.4.3 Cot retention system shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.4.4 Cot retention system shall be diagnostically checked and lubricated

17.4.5 HVAC system shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.4.6 HVAC system shall be diagnostically checked

17.4.7 Action panel switches shall be inspected and diagnostically checked

17.4.8 Medical gas system and components shall be inspected for defects, structural integrity, leaks, and missing or loose parts.

17.4.9 Medical gas system and components shall be diagnostically checked

17.4.10 Interior compartments, doors, locks and latches shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.4.11 Line voltage outlets shall be inspected and diagnostically checked

17.4.12 Line voltage power source shall be inspected and diagnostically checked

17.4.13 fire extinguishers and mounts shall be inspected for defects, structural integrity, corrosion, charge, and missing or loose parts.

### 17.5 Auxiliary Equipment

17.5.1 Oxygen tank mounts and lifts shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.5.2 Oxygen lifts shall be diagnostically checked.

17.5.3 Invertors shall be inspected and diagnostically checked

17.5.4 Medical equipment mounts shall be inspected for defects, structural integrity, corrosion, perforations, and missing or loose parts.

17.5.5 Suction pumps and outlets shall be inspected for defects, structural integrity, leaks, and missing or loose parts.

17.5.6 Suction pumps and outlets shall be diagnostically checked

**Statement of Problem and Substantiation for Public Input**

add inspection and maintenance for ambulances

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Submittal Date:** Tue Nov 25 12:05:17 EST 2014

**Public Input No. 52-NFPA 1911-2014 [ Section No. 17.7.1 ]****17.7.1**

If the apparatus is equipped with a battery charger or conditioner, it shall be tested as ~~described in 17.7.2 and 17.7.3~~ follows:

- (1) Batteries shall be fully charged to at least 12.66 volts 12-volt nominal system , 25.32 volts for 24-volt nominal system and 44.31 volts 42-volt nominal system before starting test .
- (2) Engine off and shoreline power cord attached.
- (3) Apply a load of at least 80% of nominal charger output for 1 hour
- (4) Record battery voltage at beginning of test
- (5) Remove the load and record battery voltage at end of test.
- (6) The battery charger test shall be considered a failure if charger does not maintain battery voltage of at least 12.54 volts or higher for a 12-volt nominal system, 25.02 volts or higher for 24-volt nominal system and 43.75 volts or higher 42-volt nominal system

**Statement of Problem and Substantiation for Public Input**

The current test can not be done because most batteries have a float voltage lower then 13.8 volts. Since there are different battery chargers and batteries available a performance type test would work better. The test I have added is a variation of the test we are proposing to use in 1917 the ambulance standard. I have tried both the old test and new test in my shop and we were not able to meet the 13.8 float voltage even if left the charger on overnight with no load on the battery system. The new test is doable and if the charger, wiring and circuit breaker are ok the test is successful.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                           | <u>Relationship</u> |
|----------------------------------------------------------------|---------------------|
| <u>Public Input No. 53-NFPA 1911-2014 [Section No. 17.7.2]</u> |                     |
| <u>Public Input No. 54-NFPA 1911-2014 [Section No. 17.7.3]</u> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde  
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**Zip:**  
**Submittal Date:** Thu May 29 14:45:22 EDT 2014

**Public Input No. 53-NFPA 1911-2014 [ Section No. 17.7.2 ]****17.7.2 –**

With the apparatus turned off, and electrical loads that exceed the rated output of the charger/conditioner turned on, the output of the battery charger/conditioner shall be at least 80 percent of the rated output of the battery charger/conditioner.

**Statement of Problem and Substantiation for Public Input**

see section 17.7.1 changes

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                    | <u>Relationship</u> |
|-------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 52-NFPA 1911-2014 [Section No. 17.7.1]</a> |                     |

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Submittal Date:** Thu May 29 14:52:49 EDT 2014



## Public Input No. 54-NFPA 1911-2014 [ Section No. 17.7.3 ]

### 17.7.3 –

With the battery fully charged, the float voltage of the battery charger/conditioner shall not drop to less than 13.8 volts for a 12-volt nominal system, 27.6 volts for a 24-volt nominal system, or 41.4 volts for a 42-volt nominal system.

### Statement of Problem and Substantiation for Public Input

see Substantiation in 17.7.1

### Related Public Inputs for This Document

| <u>Related Input</u>                                                    | <u>Relationship</u> |
|-------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 52-NFPA 1911-2014 [Section No. 17.7.1]</a> |                     |

### Submitter Information Verification

**Submitter Full Name:** Stephen Wilde  
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**City:**  
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**Submittal Date:** Thu May 29 14:57:25 EDT 2014



## Public Input No. 32-NFPA 1911-2014 [ New Section after 17.9.3 ]

### 17.10 Low Voltage Alarm Test.

17.10.1 The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system, 24 V for a 24 V nominal system, or 36 V for a 42 V nominal system.

17.10.2 With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

17.10.3 The battery voltage shall be measured at the battery terminals.

17.10.4 The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system, 23.4 V dc for a 24 V nominal system, or 35.1 V for a 42 V nominal system

### Statement of Problem and Substantiation for Public Input

1901 now requires the testing of the low voltage alarm so it needs to be checked annually.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                     | <u>Relationship</u> |
|--------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 34-NFPA 1911-2014 [Section No. A.8.7.2]</a> |                     |

### Submitter Information Verification

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## Public Input No. 26-NFPA 1911-2014 [ Chapter 18 [Title Only] ]

Performance Testing of Fire Pumps and Wildland pump and Industrial Supply Pumps

### Statement of Problem and Substantiation for Public Input

need to add annual testing for wildland pumps

### Submitter Information Verification

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

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**Submittal Date:** Tue Apr 29 14:11:14 EDT 2014

**Public Input No. 27-NFPA 1911-2014 [ Section No. 18.2 ]****18.2 \* \_ Frequency.**

Performance tests shall be conducted at least annually and ~~whenever major repairs or~~ whenever repairs are done as listed below or modifications to the pump or any component of the apparatus that ~~is-~~ are used in pump operations have been made.

Repairs requiring a performance test include, but are not limited to the list below:

1. Removal of the pump transmission
2. Removal of fire,wildland or industrial pump
3. Removal of chassis transmission
4. Engine overhaul or removal
5. Injector or injection pump replacement or repair
6. Engine ECM replacement or reprogramming
7. Turbo charger replacement
8. Radiator removal
9. Removal of pto if pump is pto driven

**Statement of Problem and Substantiation for Public Input**

we need to provide guidance to the AHJ and technicians as to what a repairs require a pump test

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

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**Zip:**

**Submittal Date:** Tue Apr 29 14:13:29 EDT 2014

**Public Input No. 42-NFPA 1911-2014 [ Section No. 18.4 ]**

~~18.4 \* \_ Environmental Conditions.~~

**Tests shall be performed when**

~~the environmental conditions are within the limits shown in- [Table 18.4](#) .~~

~~Table 18.4 Environmental Conditions for Testing Pumps~~

~~Condition Limits Air temperature~~

**the 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)~~

~~(4)\* Minimum lift: 3 ft (1 m) from center of pump intake to the surface of the water 1901: 16.13.2.1.2~~

**Statement of Problem and Substantiation for Public Input**

change this section to match 1901: 16.13.2.1.2

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                          | <u>Relationship</u> |
|-------------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 40-NFPA 1911-2014 [New Section after A.18.4]</a> |                     |

**Submitter Information Verification**

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**Submittal Date:** Tue May 13 11:10:17 EDT 2014



**Public Input No. 43-NFPA 1911-2014 [ Section No. 18.5.1.1.1 ]**

**18.5.1.1.1 Pumps Rated in Gallons per Minute.**

If the pump was originally rated in gallons per minute at pressures measured in pounds per square inch, the following shall be used:

- (1) Suction hose of the appropriate size for the rated capacity of the pump as shown in [Table 18.5.1.1.1\(a\)](#)
- (2) A suction strainer and hose that will allow flow with total friction and entrance loss not greater than that specified in [Table 18.5.1.1.1\(b\)](#) through [Table 18.5.1.1.1\(e\)](#)

[replace table 18.5.1.1 with 1901 table 16.2.4.1\(a\) hoses sizes are not the same](#)

Table 18.5.1.1.1(a) Suction Hose Size, Number of Suction Lines, and Lift for Fire Pump

| <b>Rated Capacity</b> |              | <b>Maximum Suction Hose Size</b> |           |   | <b>Maximum Number of Suction Lines*</b> | <b>Maximum Lift</b> |          |
|-----------------------|--------------|----------------------------------|-----------|---|-----------------------------------------|---------------------|----------|
| <b>gpm</b>            | <b>L/min</b> | <b>in.</b>                       | <b>mm</b> |   |                                         | <b>ft</b>           | <b>m</b> |
| 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        | 4                                | 100       | 1 |                                         | 10                  | 3        |
| 750                   | 3,000        | 4 1/2                            | 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      |
| 4500                  | 18,000       | 6                                | 150       | 4 |                                         | 6                   | 1.8      |
| 4500                  | 18,000       | 8                                | 200       | 2 |                                         | 6                   | 1.8      |
| 5000                  | 20,000       | 6                                | 150       | 4 |                                         | 6                   | 1.8      |
| 5000                  | 20,000       | 8                                | 200       | 2 |                                         | 6                   | 1.8      |

\*Where more than one suction line is used, all suction lines are not required to be the same hose size.

Table 18.5.1.1.1(b) Friction and Entrance Loss in 20 Feet of Suction Hose, Including Strainer (Inch-Pound Units)

| <b>Flow Rate (gpm)</b> | <b>Suction Hose Size (Inside Diameter)</b> |               |                      |               |                  |               |                      |               |
|------------------------|--------------------------------------------|---------------|----------------------|---------------|------------------|---------------|----------------------|---------------|
|                        | <b>One 3 in.</b>                           |               | <b>One 3 1/2 in.</b> |               | <b>One 4 in.</b> |               | <b>One 4 1/2 in.</b> |               |
|                        | <b>ft Water</b>                            | <b>in. Hg</b> | <b>ft Water</b>      | <b>in. Hg</b> | <b>ft Water</b>  | <b>in. Hg</b> | <b>ft Water</b>      | <b>in. Hg</b> |
| 250                    | 5.2 (1.2)                                  | 4.6           |                      |               |                  |               |                      |               |
| 175                    | 2.6 (0.6)                                  | 2.3           |                      |               |                  |               |                      |               |

| <u>Flow Rate (gpm)</u> | <u>Suction Hose Size (Inside Diameter)</u> |               |                      |               |                   |               |                      |               |
|------------------------|--------------------------------------------|---------------|----------------------|---------------|-------------------|---------------|----------------------|---------------|
|                        | <u>One 3 in.</u>                           |               | <u>One 3 1/2 in.</u> |               | <u>One 4 in.</u>  |               | <u>One 4 1/2 in.</u> |               |
|                        | <u>ft Water</u>                            | <u>in. Hg</u> | <u>ft Water</u>      | <u>in. Hg</u> | <u>ft Water</u>   | <u>in. Hg</u> | <u>ft Water</u>      | <u>in. Hg</u> |
| <u>125</u>             | <u>1.4 (0.3)</u>                           | <u>1.2</u>    |                      |               |                   |               |                      |               |
| <u>300</u>             | <u>7.5 (1.7)</u>                           | <u>6.6</u>    | <u>3.5 (0.8)</u>     | <u>3.1</u>    |                   |               |                      |               |
| <u>210</u>             | <u>3.8 (0.8)</u>                           | <u>3.4</u>    | <u>1.8 (0.4)</u>     | <u>1.6</u>    |                   |               |                      |               |
| <u>150</u>             | <u>1.9 (0.4)</u>                           | <u>1.7</u>    | <u>0.9 (0.2)</u>     | <u>0.8</u>    |                   |               |                      |               |
| <u>350</u>             |                                            |               | <u>4.8 (1.1)</u>     | <u>4.2</u>    | <u>2.5 (0.7)</u>  | <u>2.1</u>    |                      |               |
| <u>245</u>             |                                            |               | <u>2.4 (0.5)</u>     | <u>2.1</u>    | <u>1.2 (0.3)</u>  | <u>1.1</u>    |                      |               |
| <u>175</u>             |                                            |               | <u>1.2 (0.3)</u>     | <u>1.1</u>    | <u>0.7 (0.1)</u>  | <u>0.6</u>    |                      |               |
| <u>500</u>             |                                            |               |                      |               | <u>5.0 (1.3)</u>  | <u>4.4</u>    | <u>3.6 (0.8)</u>     | <u>3.2</u>    |
| <u>350</u>             |                                            |               |                      |               | <u>2.5 (0.7)</u>  | <u>2.1</u>    | <u>1.8 (0.4)</u>     | <u>1.6</u>    |
| <u>250</u>             |                                            |               |                      |               | <u>1.3 (0.4)</u>  | <u>1.1</u>    | <u>0.9 (0.3)</u>     | <u>0.8</u>    |
| <u>750</u>             |                                            |               |                      |               | <u>11.4 (2.9)</u> | <u>9.8</u>    | <u>8.0 (1.6)</u>     | <u>7.1</u>    |
| <u>525</u>             |                                            |               |                      |               | <u>5.5 (1.5)</u>  | <u>4.9</u>    | <u>3.9 (0.8)</u>     | <u>3.4</u>    |
| <u>375</u>             |                                            |               |                      |               | <u>2.8 (0.7)</u>  | <u>2.5</u>    | <u>2.0 (0.4)</u>     | <u>1.8</u>    |

Note: Values in parentheses indicate increment to be added or subtracted for each 10 ft of hose greater than or less than 20 ft.

Table 18.5.1.1.1(c) Friction and Entrance Loss in 20 Feet of Suction Hose, Including Strainer (Inch-Pound Units)

| <u>Flow Rate (gpm)</u> | <u>Suction Hose Size (Inside Diameter)</u> |               |                   |               |                   |               |                      |               |
|------------------------|--------------------------------------------|---------------|-------------------|---------------|-------------------|---------------|----------------------|---------------|
|                        | <u>One 4 1/2 in.</u>                       |               | <u>One 5 in.</u>  |               | <u>One 6 in.</u>  |               | <u>Two 4 1/2 in.</u> |               |
|                        | <u>ft Water</u>                            | <u>in. Hg</u> | <u>ft Water</u>   | <u>in. Hg</u> | <u>ft Water</u>   | <u>in. Hg</u> | <u>ft Water</u>      | <u>in. Hg</u> |
| <u>750</u>             | <u>8.0 (1.6)</u>                           | <u>7.1</u>    | <u>4.7 (0.9)</u>  | <u>4.2</u>    | <u>1.9 (0.4)</u>  | <u>1.7</u>    |                      |               |
| <u>525</u>             | <u>3.9 (0.8)</u>                           | <u>3.4</u>    | <u>2.3 (0.5)</u>  | <u>2.0</u>    | <u>0.9 (0.2)</u>  | <u>0.8</u>    |                      |               |
| <u>375</u>             | <u>2.0 (0.4)</u>                           | <u>1.8</u>    | <u>1.2 (0.2)</u>  | <u>1.1</u>    | <u>0.5 (0.1)</u>  | <u>0.5</u>    |                      |               |
| <u>1000</u>            | <u>14.5 (2.8)</u>                          | <u>12.5</u>   | <u>8.4 (1.6)</u>  | <u>7.4</u>    | <u>3.4 (0.6)</u>  | <u>3.0</u>    |                      |               |
| <u>700</u>             | <u>7.0 (1.4)</u>                           | <u>6.2</u>    | <u>4.1 (0.8)</u>  | <u>3.7</u>    | <u>1.7 (0.3)</u>  | <u>1.5</u>    |                      |               |
| <u>500</u>             | <u>3.6 (0.8)</u>                           | <u>3.2</u>    | <u>2.1 (0.4)</u>  | <u>1.9</u>    | <u>0.9 (0.2)</u>  | <u>0.8</u>    |                      |               |
| <u>1250</u>            |                                            |               | <u>13.0 (2.4)</u> | <u>11.5</u>   | <u>5.2 (0.9)</u>  | <u>4.7</u>    | <u>5.5 (1.2)</u>     | <u>4.9</u>    |
| <u>875</u>             |                                            |               | <u>6.5 (1.2)</u>  | <u>5.7</u>    | <u>2.6 (0.5)</u>  | <u>2.3</u>    | <u>2.8 (0.7)</u>     | <u>2.5</u>    |
| <u>625</u>             |                                            |               | <u>3.3 (0.7)</u>  | <u>2.9</u>    | <u>1.3 (0.3)</u>  | <u>1.1</u>    | <u>1.4 (0.3)</u>     | <u>1.2</u>    |
| <u>1500</u>            |                                            |               |                   |               | <u>7.6 (1.4)</u>  | <u>6.7</u>    | <u>8.0 (1.6)</u>     | <u>7.1</u>    |
| <u>1050</u>            |                                            |               |                   |               | <u>3.7 (0.7)</u>  | <u>3.3</u>    | <u>3.9 (0.8)</u>     | <u>3.4</u>    |
| <u>750</u>             |                                            |               |                   |               | <u>1.9 (0.4)</u>  | <u>1.7</u>    | <u>2.0 (0.4)</u>     | <u>1.8</u>    |
| <u>1750</u>            |                                            |               |                   |               | <u>10.4 (1.8)</u> | <u>9.3</u>    | <u>11.0 (2.2)</u>    | <u>9.7</u>    |
| <u>1225</u>            |                                            |               |                   |               | <u>5.0 (0.9)</u>  | <u>4.6</u>    | <u>5.3 (1.1)</u>     | <u>4.7</u>    |
| <u>875</u>             |                                            |               |                   |               | <u>2.6 (0.5)</u>  | <u>2.3</u>    | <u>2.8 (0.6)</u>     | <u>2.5</u>    |
| <u>2000</u>            |                                            |               |                   |               |                   |               | <u>14.5 (2.8)</u>    | <u>12.5</u>   |
| <u>1400</u>            |                                            |               |                   |               |                   |               | <u>7.0 (1.4)</u>     | <u>6.2</u>    |
| <u>1000</u>            |                                            |               |                   |               |                   |               | <u>3.6 (0.8)</u>     | <u>3.2</u>    |

Note: Values in parentheses indicate increment to be added or subtracted for each 10 ft of hose greater than or less than 20 ft.

Table 18.5.1.1.1(d) Friction and Entrance Loss in 20 Feet of Suction Hose, Including Strainer (Inch-Pound Units)

| <b>Flow Rate<br/>(gpm)</b> | <b>Suction Hose Size (Inside Diameter)</b> |                   |                     |                   |                     |                   |                     |                   |                     |                   |
|----------------------------|--------------------------------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
|                            | <b>Two 5 in.</b>                           |                   | <b>Two 6 in.</b>    |                   | <b>Three 6 in.</b>  |                   | <b>One 8 in.</b>    |                   | <b>Two 8 in.</b>    |                   |
|                            | <b>ft<br/>Water</b>                        | <b>in.<br/>Hg</b> | <b>ft<br/>Water</b> | <b>in.<br/>Hg</b> | <b>ft<br/>Water</b> | <b>in.<br/>Hg</b> | <b>ft<br/>Water</b> | <b>in.<br/>Hg</b> | <b>ft<br/>Water</b> | <b>in.<br/>Hg</b> |
| 1500                       | 4.7 (0.9)                                  | 4.2               | 1.9 (0.4)           | 1.7               |                     |                   |                     |                   |                     |                   |
| 1050                       | 2.3 (0.5)                                  | 2.0               | 0.9 (0.3)           | 0.8               |                     |                   |                     |                   |                     |                   |
| 750                        | 1.2 (0.2)                                  | 1.1               | 0.5 (0.1)           | 0.5               |                     |                   |                     |                   |                     |                   |
| 1750                       | 6.5 (1.2)                                  | 5.7               | 2.6 (0.5)           | 2.3               |                     |                   |                     |                   |                     |                   |
| 1225                       | 3.1 (0.7)                                  | 2.7               | 1.2 (0.3)           | 1.1               |                     |                   |                     |                   |                     |                   |
| 875                        | 1.6 (0.3)                                  | 1.4               | 0.7 (0.2)           | 0.6               |                     |                   |                     |                   |                     |                   |
| 2000                       | 8.4 (1.6)                                  | 7.4               | 3.4 (0.6)           | 3.0               |                     |                   | 4.3 (1.1)           | 3.8               |                     |                   |
| 1400                       | 4.1 (0.8)                                  | 3.7               | 1.7 (0.3)           | 1.5               |                     |                   | 2.0 (0.6)           | 1.8               |                     |                   |
| 1000                       | 2.1 (0.4)                                  | 1.9               | 0.9 (0.2)           | 0.8               |                     |                   | 1.0 (0.3)           | 0.9               |                     |                   |
| 2250                       | 10.8<br>(2.2)                              | 9.5               | 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                       | 5.3 (1.1)                                  | 4.7               | 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                       | 2.8 (0.5)                                  | 2.5               | 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                       | 13.0<br>(2.4)                              | 11.5              | 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                       | 6.5 (1.2)                                  | 5.7               | 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                       | 3.3 (0.7)                                  | 2.9               | 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<br>(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               |
| 1500                       |                                            |                   | 1.9 (0.4)           | 1.7               | 0.9 (0.2)           | 0.8               | 2.3 (0.7)           | 2.1               | 0.6 (0.2)           | 0.5               |

Note: Values in parentheses indicate increment to be added or subtracted for each 10 ft of hose greater than or less than 20 ft.

Table 18.5.1.1.1(e) Friction and Entrance Loss in 20 Feet of Suction Hose, Including Strainer (Inch-Pound Units)

| <b>Flow Rate (gpm)</b> | <b>Suction Hose Size (Inside Diameter)</b> |               |                   |               |                  |               |
|------------------------|--------------------------------------------|---------------|-------------------|---------------|------------------|---------------|
|                        | <b>Three 6 in.</b>                         |               | <b>Four 6 in.</b> |               | <b>Two 8 in.</b> |               |
|                        | <b>ft Water</b>                            | <b>in. Hg</b> | <b>ft Water</b>   | <b>in. Hg</b> | <b>ft Water</b>  | <b>in. Hg</b> |
| 3500                   |                                            |               | 2.6 (0.5)         | 2.3           | 3.2 (0.8)        | 2.8           |
| 2450                   |                                            |               | 1.2 (0.3)         | 1.1           | 1.5 (0.4)        | 1.3           |
| 1750                   |                                            |               | 0.7 (0.2)         | 0.6           | 0.7 (0.2)        | 0.7           |
| 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           |
| 2000                   | 1.4 (0.3)                                  | 1.2           | 0.9 (0.2)         | 0.8           | 1.0 (0.3)        | 0.9           |
| 4500                   | 7.6 (1.4)                                  | 6.7           | 4.3 (0.8)         | 3.8           | 5.6 (1.4)        | 5.0           |
| 3150                   | 3.7 (0.7)                                  | 3.3           | 2.2 (0.4)         | 1.9           | 2.5 (0.9)        | 2.2           |
| 2250                   | 1.9 (0.4)                                  | 1.7           | 1.1 (0.2)         | 1.0           | 1.2 (0.4)        | 1.1           |
| 5000                   | 7.6 (1.4)                                  | 6.7           | 4.5 (0.9)         | 4.0           | 7.0 (1.7)        | 6.2           |
| 3500                   | 3.8 (0.7)                                  | 3.4           | 2.6 (0.5)         | 2.3           | 3.2 (1.0)        | 2.8           |
| 2500                   | 2.3 (0.6)                                  | 2.0           | 1.3 (0.3)         | 1.2           | 1.5 (0.4)        | 1.3           |

Note: Values in parentheses indicate increment to be added or subtracted for each 10 ft of hose greater than or less than 20 ft.

**Statement of Problem and Substantiation for Public Input**

hoses sizes for 500 gpm pump from 1901 to 1911 are not the same and lift on 2000 gpm differ

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 13 11:15:11 EDT 2014

**Public Input No. 92-NFPA 1911-2015 [ Section No. 18.5.2.2 ]****18.5.2.2**

To ascertain if the hose and coupling are starting to separate, the hose shall be marked immediately behind each coupling. If ~~The hose and any marks placed on the hose stretches from the coupling more than~~ **3/8 - in. (10 mm) at the back of the couplings or at external collars shall be observed for coupling slippage.** ~~If the hose assembly shows any sign of coupling slippage~~, the test shall be stopped and that section of hose shall be replaced.

**Statement of Problem and Substantiation for Public Input**

The current edition of 1911 under pump testing, describes 3/8 inch stretching of hose couplings. Fire hose shall have no movement from couplings. The 3/8 inch stretching is subjective and open to opinion as to whether a hose is actually slipping or stretching. NFPA 1962, Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances, 2013 Edition, is very clear about no coupling slippage in section 4.8.5.2.17. The proposed revision to paragraph 18.5.2 of NFPA 1911 is directly from NFPA 1962.

**Submitter Information Verification**

**Submitter Full Name:** James Glatts

**Organization:** FireOne Inc.

**Affiliation:** Member, Technical Committee on Fire Hose

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Sun Jan 04 21:17:23 EST 2015

**Public Input No. 28-NFPA 1911-2014 [ Section No. 18.6.2 ]**

18

.

~~6.2– Alternative Conditions.~~

~~If it is impractical to provide all the conditions specified in Sections [18.3](#) and [18.4](#) , the AHJ shall be permitted to authorize tests under other conditions.~~

**Statement of Problem and Substantiation for Public Input**

if this section is left in basically you can pump test under any conditions, we need to decide which way we want it.

**Submitter Information Verification****Submitter Full Name:** Stephen Wilde**Organization:** Certified Fleet Services, Inc.**Street Address:****City:****State:****Zip:****Submittal Date:** Tue Apr 29 14:30:34 EDT 2014

**Public Input No. 90-NFPA 1911-2014 [ Section No. 18.6.2 ]****\* 18.6.2 Alternative Conditions.**

If it is impractical to provide all the conditions specified in Sections 18.3 and 18.4, the AHJ shall be permitted to authorize tests under other conditions.

**A.18.6.2** The suction lift capability of a fire pump is certified by the pump manufacturer for specific conditions of altitude above sea level, atmospheric pressure, water temperature, and friction and entrance loss caused by the flow of water through intake strainers and hose. The AHJ should be aware that as the temperature of the water increases and barometric pressures decreases, the suction lift capability of the fire pump is reduced. The test site configuration must not provide a vertical lift that exceeds the suction lift capability of the pump as a result of elevated water temperatures and reduced barometric pressure. See Table A.18.6.2.

**Table A.18.6.2 Effect on Water Temperature and**

**Barometric Pressure on Suction Lift**

| <u>Water Temperature Effect</u> |                | <u>Barometric Pressure Effect</u> |              |
|---------------------------------|----------------|-----------------------------------|--------------|
| <u>60 ° F</u>                   | <u>0 ft</u>    | <u>29.9 in-Hg</u>                 | <u>0 ft</u>  |
| <u>90 ° F</u>                   | <u>-1 ft</u>   | <u>29.0 in-Hg</u>                 | <u>-1 ft</u> |
| <u>110 ° F</u>                  | <u>-2.3 ft</u> |                                   |              |
| <u>120 ° F</u>                  | <u>-3.3 ft</u> |                                   |              |

**Statement of Problem and Substantiation for Public Input**

The proposed annex addition is useful information for the AHJ to consider in those situations when it is impractical to provide the conditions specified in 18.3 and 18.4. Similar information is provided in NFPA 1901 2009 Edition in A.16.13.2.1.2(4).

**Submitter Information Verification**

**Submitter Full Name:** Tom Mettler

**Organization:** Waterous Company

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Dec 26 17:04:42 EST 2014

**Public Input No. 1-NFPA 1911-2013 [ Section No. 18.7.6 ]****18.7.6 \* \_ Vacuum Test.**

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

- (1) All intake valves shall be open, all intakes shall be capped or plugged, and all discharge caps shall be removed.
- (2) The primer shall be operated in accordance with the manufacturer's instructions. Electric vane primers 60 seconds and air venturi primers be operated until the air reservoir or reservoirs are depleted of air to a maximum of 80 seconds.
- (3) The maximum vacuum attained shall be at least 22 in. Hg (75 kPa), unless the altitude is above 2000 ft (610 m), in which case the vacuum attained shall be permitted to be less than 22 in. Hg (75 kPa) by 1 in. Hg (3.4 kPa) for each 1000 ft (305 m) of altitude above 2000 ft (610 m).
- (4) The vacuum shall not drop more than 10 in. Hg (34 kPa) in 5 minutes.
- (5) The primer shall not be used after the 5-minute test period has begun.
- (6) The engine shall not be operated at any speed greater than the governed speed during the test.
- (7) \* Close all intake valves, remove the cap or plug from each valved intake, and repeat test steps 2 through 6.

**Statement of Problem and Substantiation for Public Input**

Please see the attached statement below. Also please change the statement above as needed to meet the info I have explained.

Also see attached documents in regards to the truck in question during the test explained below. I do not want the customer contacted if not needed so I have blocked his name and the truck serial number. If this is needed please contact me.

NOTE: Supporting material is available for review at NFPA Headquarters.

**Submitter Information Verification**

**Submitter Full Name:** BRENT CRONKWRIGHT

**Organization:** CARRIER EMERGENCY

**Affiliation:** E-One Dealer

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Sep 10 08:23:59 EDT 2013

**Public Input No. 57-NFPA 1911-2014 [ Section No. 18.7.8 ]****18.7.8** Pumping Test for Industrial Supply Pumps.

**18.7.8.1** on units manufactured prior to the 2009 edition of NFPA 1901

**18.7.8.2**

The pump shall be subjected to a pumping test consisting of the following:

- (1) At least 20 minutes of pumping at 100 percent of rated capacity at 100 psi (700 kPa) net pump pressure
- (2) At least 10 minutes of pumping 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (3) At least 10 minutes of pumping 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure

**18.7.8.2—3**

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

**18.7.8.3 4 \***

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

- (1) The test at 100 percent of capacity shall be run with the pump in parallel mode.
- (2) The test at 70 percent of capacity shall be permitted to be run with the pump in either series or parallel mode.
- (3) The test at 50 percent of capacity shall be run with the pump in series mode.

**18.7.8.4 5**

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

**18.7.8.5 6**

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

**18.7.8.6 7**

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

**Statement of Problem and Substantiation for Public Input**

we need to define the industry supply pumps did not exist after the 2009 edition of nfpa 1901

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Jun 20 10:43:23 EDT 2014

**Public Input No. 14-NFPA 1911-2014 [ New Section after 18.7.11 ]****High Pressure pump system relief valves**

If the apparatus has a high pressure pump system spring operated relief valve, this valve shall be tested to verify its proper operation at set pressure below the maximum operating pressure of the pump system and that it resets automatically. The opening and closing pressures shall be recorded on the pump test record report.

**Statement of Problem and Substantiation for Public Input**

Most high pressure pump systems on apparatus have adjustable spring operated pressure relief valves that are designed to relieve excess pressure below the maximum operating pressure of the system and to close automatically. These valves need to be operated and verified on a regular basis.

**Submitter Information Verification**

**Submitter Full Name:** PAUL PREVOST

**Organization:** CLEARWATER REGIONAL FIRE RESCUE SERVICES

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Mon Mar 03 01:22:26 EST 2014

**Public Input No. 29-NFPA 1911-2014 [ Section No. 18.8.4 ]****18.8.4**

Indications of decreasing pump or component performance by higher than expected RPM readings of more than 10% of the original tests shall be reported to the AHJ repaired .

**Statement of Problem and Substantiation for Public Input**

we need to decide on a point where the pump must be repaired, this will help the AHJ and technician decide on a course of action. If 10% is the wrong number we need to decide on the correct number. As a rule of thumb I have used the 10 % number to tell customers it's time to rebuild or repair the pump.

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue Apr 29 14:32:23 EDT 2014



## Public Input No. 91-NFPA 1911-2015 [ Section No. 19.2.2 ]

### 19.2.2

The person actually performing the nondestructive test work shall be certified as at least a Level II NDT technician in the test method used, as specified in ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*.

19.2.2.1 Inspection personnel shall also meet the requirements of section 4.3.

### Statement of Problem and Substantiation for Public Input

Individuals not familiar with NFPA 1911 may think section 19.2.2. is the only requirement for personnel inspecting and testing aerial devices as 19.2.2 appears to be a stand alone comment. Referring readers to section 4.3 will assist the reader in understanding the entire qualification of personnel. Another example is Chapter 18 where the qualifications of personnel testing testing apparatus fire pumps is not addressed forcing the reader of Chapter 18 to look further in 1911 to find section 4.3 in determining qualifications of personnel for apparatus pump testing.

### Submitter Information Verification

**Submitter Full Name:** James Glatts  
**Organization:** FireOne Inc.  
**Affiliation:** Member, Technical Committee on Emergency Vehicle Technicians Professional Qualifications  
**Street Address:**  
**City:**  
**State:**  
**Zip:**  
**Submittal Date:** Sun Jan 04 20:59:03 EST 2015

**Public Input No. 66-NFPA 1911-2014 [ New Section after 19.8.6.14 ]****Extension Cable Tension**

Extension cable surface tension shall be measured using a tensiometer and evaluated for compliance with the apparatus manufacturer's requirements.

**Statement of Problem and Substantiation for Public Input**

There have been three serious incidents involving cable failures on ladder trucks, resulting in at least 10 injuries since 2012. My research found five of fourteen incidents involving cable damage and/or failures since 2007, resulted from the cable tension being too loose or too tight. When the tension is too loose, the cable can jump the sheave (pulley) and wrap around it, and thus cable damage and/or failure. When the tension is too tight, the cable can cause damage and deformity to the sheave (pulley), and thus cable damage and/or failure. Current practices involve pressing on the cable with human fingers and deciding if the tension is correct. Tensiometer technology is available and should be used for accurate surface tension measurements.

**Related Public Inputs for This Document**

| <b><u>Related Input</u></b>                                                     | <b><u>Relationship</u></b>         |
|---------------------------------------------------------------------------------|------------------------------------|
| <a href="#">Public Input No. 62-NFPA 1911-2014 [Section No. 2.3.1]</a>          | Adds a new ASME Standard           |
| <a href="#">Public Input No. 63-NFPA 1911-2014 [Section No. 2.3.6]</a>          | Deletes an old SAE Standard        |
| <a href="#">Public Input No. 64-NFPA 1911-2014 [Section No. 19.8.6.14]</a>      | Updates to the newer ASME Standard |
| <a href="#">Public Input No. 65-NFPA 1911-2014 [Section No. 19.9.9.5]</a>       | Updates to the newer ASME Standard |
| <a href="#">Public Input No. 67-NFPA 1911-2014 [New Section after 19.9.9.5]</a> |                                    |
| <a href="#">Public Input No. 68-NFPA 1911-2014 [New Section after 3.3]</a>      |                                    |

**Submitter Information Verification**

**Submitter Full Name:** Thomas Wood  
**Organization:** Boca Raton Fire Rescue Service  
**Street Address:**  
**City:**  
**State:**  
**Zip:**  
**Submittal Date:** Fri Sep 05 15:57:00 EDT 2014

**Public Input No. 47-NFPA 1911-2014 [ Section No. 19.8.6.14 ]****19.8.6.14 Extension Cables.**

The extension cables shall be inspected for compliance with ~~Appendix A of SAE J959, *Lifting Crane, Wire-Rope Strength Factors*~~ - OSHA 1926.550.(a)(7)

**Statement of Problem and Substantiation for Public Input**

we should us the OSHA reference, it is easier for inspectors to get and SAE J959 is older and points to the OSHA section anyways

**Submitter Information Verification**

**Submitter Full Name:** Stephen Wilde

**Organization:** Certified Fleet Services, Inc.

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 13 13:40:59 EDT 2014



## Public Input No. 64-NFPA 1911-2014 [ Section No. 19.8.6.14 ]

### 19.8.6.14 Extension Cables.

The extension cables shall be inspected for compliance with ~~Appendix A of SAE J959, *Lifting Crane, Wire-Rope Strength Factors*~~ Chapter 5-2 of ASME B30.5, 2004 .

## Statement of Problem and Substantiation for Public Input

ASME B30.5 Mobile and Locomotive Cranes, 2004 provides a more current inspection standard than Appendix A of SAE J959.

## Related Public Inputs for This Document

| <u>Related Input</u>                                                    | <u>Relationship</u>                                                   |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <u>Public Input No. 63-NFPA 1911-2014 [Section No. 2.3.6]</u>           | This Public Input deletes the old SAE Publications from Section 2.3.6 |
| <u>Public Input No. 62-NFPA 1911-2014 [Section No. 2.3.1]</u>           | This Public Input adds the needed ASME Publication to Section 2.3.1   |
| <u>Public Input No. 65-NFPA 1911-2014 [Section No. 19.9.9.5]</u>        |                                                                       |
| <u>Public Input No. 66-NFPA 1911-2014 [New Section after 19.8.6.14]</u> |                                                                       |
| <u>Public Input No. 67-NFPA 1911-2014 [New Section after 19.9.9.5]</u>  |                                                                       |

## Submitter Information Verification

**Submitter Full Name:** Thomas Wood  
**Organization:** Boca Raton Fire Rescue Service  
**Street Address:**  
**City:**  
**State:**  
**Zip:**  
**Submittal Date:** Fri Sep 05 15:46:10 EDT 2014

**Public Input No. 67-NFPA 1911-2014 [ New Section after 19.9.9.5 ]****Extension Cable Tension**

Extension cable surface tension shall be measured using a tensiometer and evaluated for compliance with the apparatus manufacturer's requirements.

**Statement of Problem and Substantiation for Public Input**

There have been three serious incidents involving cable failures on ladder trucks, resulting in at least 10 injuries since 2012. My research found five of fourteen incidents involving cable damage and/or failures since 2007, resulted from the cable tension being too loose or too tight. When the tension is too loose, the cable can jump the sheave (pulley) and wrap around it, and thus cable damage and/or failure. When the tension is too tight, the cable can cause damage and deformity to the sheave (pulley), and thus cable damage and/or failure. Current practices involve pressing on the cable with human fingers and deciding if the tension is correct. Tensiometer technology is available and should be used for accurate surface tension measurements.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                             | <u>Relationship</u>                                          |
|----------------------------------------------------------------------------------|--------------------------------------------------------------|
| <a href="#">Public Input No. 62-NFPA 1911-2014 [Section No. 2.3.1]</a>           | Deletes an old SAE standard.                                 |
| <a href="#">Public Input No. 63-NFPA 1911-2014 [Section No. 2.3.6]</a>           | Adds a new ASME standard.                                    |
| <a href="#">Public Input No. 64-NFPA 1911-2014 [Section No. 19.8.6.14]</a>       | Updates to a newer ASME Standard.                            |
| <a href="#">Public Input No. 65-NFPA 1911-2014 [Section No. 19.9.9.5]</a>        | Updates to a newer ASME Standard.                            |
| <a href="#">Public Input No. 66-NFPA 1911-2014 [New Section after 19.8.6.14]</a> | Provides identical wording as contained in Section 19.8.6.14 |
| <a href="#">Public Input No. 68-NFPA 1911-2014 [New Section after 3.3]</a>       |                                                              |

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**Submitter Full Name:** Thomas Wood  
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**Submission Date:** Fri Sep 05 16:17:04 EDT 2014



## Public Input No. 65-NFPA 1911-2014 [ Section No. 19.9.9.5 ]

### 19.9.9.5 Extension Cables.

Extension cables shall be inspected for compliance with Appendix A of SAE J959. Chapter 5-2 of ASME B30.5, 2004.

### Statement of Problem and Substantiation for Public Input

ASME B30.5 Mobile and Locomotive Cranes, 2004 provides a more current inspection standard than Appendix A of SAE J959.

### Related Public Inputs for This Document

| <u>Related Input</u>                                                    | <u>Relationship</u>                                                   |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <u>Public Input No. 62-NFPA 1911-2014 [Section No. 2.3.1]</u>           | Public Input 62 adds the new needed ASME document.                    |
| <u>Public Input No. 63-NFPA 1911-2014 [Section No. 2.3.6]</u>           | Public Input 63 deletes the old SAE Publications that are not needed. |
| <u>Public Input No. 64-NFPA 1911-2014 [Section No. 19.8.6.14]</u>       | Public Input 64 makes the identical change to Section 19.8.6.14.      |
| <u>Public Input No. 66-NFPA 1911-2014 [New Section after 19.8.6.14]</u> |                                                                       |
| <u>Public Input No. 67-NFPA 1911-2014 [New Section after 19.9.9.5]</u>  |                                                                       |

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**Public Input No. 86-NFPA 1911-2014 [ New Section after 22.3.6 ]****22.3.7 Invertor test, If the ambulance has an invertor it shall be tested on each ambulance as follows**

- (1) the engine shall be running during the invertor test.
- (2) the invertor shall be loaded to the manufacturer's maximum listed power output for a minimum of 1 hour.
- (3) if the manufacturer has a specific full power output test it shall be followed.
- (4) a load bank may be used.
- (5) the test shall be considered a failure if the output of the invertor drops below the manufacturers specifications or 10% of maximum listed output.

**Statement of Problem and Substantiation for Public Input**

we need to add invertor test to match the test in 1917

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Public Input No. 87-NFPA 1911-2014 [ New Section after 23.3 ]

## **Chapter 24 Performance testing of ambulance systems**

### **24.1 Alternator Testing**

#### **24.1.1 Alternator Performance Test at Idle.**

- (1) The minimum electrical load test conditions as stated in 1917 section 7.3.2.1.1 shall be activated with the engine running at idle speed.
- (2) The engine temperature shall be stabilized at normal operating temperature.
- (3) The battery system shall be tested to detect the presence of battery discharge current.
- (4) The detection of battery discharge current shall be considered a test failure.

#### **24.1.2 Alternator Performance Test at High Idle.**

- (1) The operational electrical load test conditions as stated in the governing standard shall be activated with the engine running at high idle.
- (2) The test duration shall be a minimum of 30 minutes with engine at operating temperature.
- (3) Engine speed shall not exceed 1600 RPM
- (4) Activation of the load management system shall be permitted during this test.
- (5) Alarm sounded by excessive battery discharge, as detected by the warning system, or a system voltage of less than 11.8 volts dc for a 12-volt nominal system, 23.6 volts dc for a 24-volt

nominal system, or 35.4 volts dc for a 42-volt nominal system for more than 120 seconds shall be considered a test failure.

### **24.2 Invertor testing**

#### **24.2.1 If the ambulance has an inverter, then the ambulance inverter shall be tested as follows:**

- (1) The ambulance engine shall be running during the inverter test.
- (2) The inverter shall be subjected to a load equal to the manufacturer's nominal listed power output for a minimum of 1 hour.
- (3) If the manufacturer has a specific full power output test, that test shall be performed.
- (4) A load bank shall be permitted to be used.
- (5) The test shall be considered a failure if the output of the inverter drops below the manufacturer's specifications or more than 10 percent of nominal listed output.

### **24.3 On-Board Battery Charger Test**

#### **24.3.1 The on-board battery charger shall be tested for 1 hour as follows:**

- (1) Batteries shall be fully charged to at least 12.66 volts before starting test.
- (2) Engine off and shoreline power cord attached.
- (3) Apply a load of at least 80% of nominal charger output.
- (4) Inverter/battery charger compartment closed
- (5) Record battery voltage at beginning of test.
- (6) Remove the load and record battery voltage at end of test.
- (7) The battery charger test shall be considered a failure if charger does not maintain battery voltage at 12.54 volts or higher

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## **Statement of Problem and Substantiation for Public Input**

a new testing chapter is needed for ambulance specific performance testing.

**Submitter Information Verification**

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**Public Input No. 34-NFPA 1911-2014 [ Section No. A.8.7.2 ]****A.8.7.2 —**

Starting with the 1996 edition of NFPA 1901, the low-voltage alarm is required to sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 volts for a 12-volt nominal system or 23.6 volts for a 24-volt nominal system for more than 120 seconds (2 minutes). This alarm can be tested easily by loading the electrical system, at idle, and waiting for the alarm to sound. In many cases, once the alarm has sounded, the fire apparatus's engine will proceed to fast idle to recuperate the voltage loss. To test the load management system load-shedding function, it might be necessary to disable the fast idle by placing the pump in gear or placing the transmission in gear (it is important to hold the apparatus by depressing the brake pedal).

**Statement of Problem and Substantiation for Public Input**

1901 Added test for low voltage alarm and changed the specifications of the requirements.

**Related Public Inputs for This Document**

| <u>Related Input</u>                                                          | <u>Relationship</u> |
|-------------------------------------------------------------------------------|---------------------|
| <a href="#">Public Input No. 33-NFPA 1911-2014 [Section No. 8.7.2]</a>        |                     |
| <a href="#">Public Input No. 32-NFPA 1911-2014 [New Section after 17.9.3]</a> |                     |

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**Public Input No. 40-NFPA 1911-2014 [ New Section after A.18.4 ]**

**A18.4.4** The suction lift capability of a fire pump is certified by the pump manufacturer for specific conditions of altitude above sea level, atmospheric pressure, water temperature, and friction and entrance loss caused by the flow of water through the intake strainers and hose as stated in 18.5.1.1. As the temperature of the water increases and barometric pressures decreases, the suction lift capability of the fire pump is reduced. While the minimum lift of the test site for the pumping test is 3 ft, the test site configuration must not provide a vertical lift that exceeds the suction lift capability of the pump as a result of elevated water temperatures and reduced barometric pressure. See Table A.18.4(4).

Table A.18.4(4) Effect of Water Temperature and Barometric Pressure on Suction Lift Capability

| Water Temperature |    | Effect on Lift |      | Barometric Pressure |       | Effect on Lift |      |
|-------------------|----|----------------|------|---------------------|-------|----------------|------|
| °F                | °C | ft             | m    | in. Hg              | kPa   | ft             | m    |
| 60                | 16 | 0              | 0    | 29.9                | 101.3 | 0              | 0    |
| 90                | 32 | -1             | -0.3 | 29.0                | 98.2  | -1             | -0.3 |
| 110               | 43 | -2.3           | -0.7 |                     |       |                |      |
| 120               | 49 | -3.3           | -1.0 |                     |       |                |      |

**Statement of Problem and Substantiation for Public Input**

add annex item in 1901 for the minimum lift requirement

**Related Public Inputs for This Document**

| <u>Related Input</u>                                  | <u>Relationship</u> |
|-------------------------------------------------------|---------------------|
| Public Input No. 42-NFPA 1911-2014 [Section No. 18.4] |                     |

**Submitter Information Verification**

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## Public Input No. 59-NFPA 1911-2014 [ Chapter E ]

### Annex E Informational References

#### E.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

##### E.1.1 NFPA Publications.

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

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2010 edition 2015 .

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 2009 edition 2014 .

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

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2009 edition 2016 .

NFPA 1912, *Standard for Fire Apparatus Refurbishing*, 2011 edition 2016 .

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

NFPA 1962, *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose Appliances* , 2008 edition 2013 .

##### E.1.2 Other Publications.

###### E.1.2.1 American Association of Motor Vehicle Administrators- AAMVA/CCMTA Publications.

American Association of Motor Vehicle Administrators, P.O. Box 79702, Baltimore, MD 21279-0702 4301 Wilson Boulevard, Suite 400, Arlington, VA 22302, Canadian Council of Motor Transport Administrators 2323 St. Laurent Blvd., Ottawa, Ontario, Canada, K1G 4j8 .

*Vehicle Inspection Handbook, Passenger Vehicles & Light Trucks*, 1999.

*Vehicle Inspection Handbook, Trucks, Buses, & Trailers*, 1999.

###### E.1.2.2 ASME Publications.

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

ASME B40.100, *Pressure Gauges and Gauge Attachments*, - 2005 2013 .

###### E.1.2.3 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Section 1910.177, "Servicing multi-piece and single piece rim wheels" Mar 2011 . - 7, 1996.

#### E.2 Informational References. (Reserved)

#### E.3 References for Extracts in Informational Sections.

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2009 edition 2016 .

## Statement of Problem and Substantiation for Public Input

Referenced current organization names, addresses, and editions.

## Related Public Inputs for This Document

| <u>Related Input</u>                              | <u>Relationship</u>                                             |
|---------------------------------------------------|-----------------------------------------------------------------|
| Public Input No. 58-NFPA 1911-2014<br>[Chapter 2] | Referenced current organization names, addresses, and editions. |

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