Report of the Committee on  
Fire Department Apparatus  

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Alternates  

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(Alt. to D. White)  
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(Alt. to G. Handwerk)  

Nonvoting  

William F. Foley, Orland Fire Protection District, IL  

Staff Liaison: Carl E. Peterson  

Committee Scope: This Committee shall have primary responsibility for documents on the design and performance of fire apparatus for use by the fire service.  

This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the front of this book.  

The Report of the Technical Committee on Fire Department Apparatus is presented for adoption in 3 parts.  

Part I of this Report was prepared by the Technical Committee on Fire Department Apparatus, and proposes for adoption a withdrawal to NFPA 11C-1995, Standard for Mobile Foam Apparatus. NFPA 11C-1995 is published in Volume 1 of the 1998 National Fire Codes and in separate pamphlet form.  

Part II of this Report was prepared by the Technical Committee on Fire Department Apparatus, and proposes for complete revision to NFPA 1901-1996, Standard for Automotive Fire Apparatus. NFPA 1901-1996 is published in Volume 8 of the 1998 National Fire Codes and in separate pamphlet form.  


Part II of this Report has been submitted to letter ballot of the Technical Committee on Fire Department Apparatus, which consists of 27 voting members. The results of the ballot, after circulation of any negative votes, can be found in the report.  

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Part III of this Report has been submitted to letter ballot of the Technical Committee on Fire Department Apparatus, which consists of 27 voting members. The results of the ballot, after circulation of any negative votes, can be found in the report.
PART I

(11C-1 - (Entire Document): Accept)

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: The Technical Committee on Fire Department Apparatus proposes a withdraw to NFPA 11C, Standard for Mobile Foam Apparatus.

SUBSTANTIATION: In January 1998, the NFPA Standard Council transferred the responsibility for NFPA 11C from the Technical Committee on Foam to the Technical Committee on Fire Department Apparatus. The Fire Department Apparatus Committee has integrated the requirements of NFPA 11C into NFPA 1901. As this material can be maintained in NFPA 1901, there is no need to continue NFPA 11C as a separate document.


COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

11C-2 - (Entire Document): Accept

SUBMITTER: David White, Industrial Emergency Response Working Group

RECOMMENDATION: Recommend that NFPA 11C be brought into NFPA 1901 and applicable sections be put into either a separate chapter or the foam section.

SUBSTANTIATION: Almost all of NFPA 11C sections related to the vehicle are in NFPA 1901 now. The foam parts can be put into NFPA 1901's foam sections and be updated easier. The IERWG does ask that they be permitted to put a couple of industrial users into NFPA 1901 now. The foam parts can be put into NFPA 1901 now. The foam parts can be put into NFPA 1901 now.

COMMITTEE ACTION: Accept.

COMMITTEE STATEMENT: The Fire Department Apparatus Committee has integrated the requirements of NFPA 11C into NFPA 1901. See Proposal 1901-216 (Log #52) in the A99 Report on Proposals for NFPA 1901.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

Note: To assist in review and comment, a draft of NFPA 1901 is available and downloadable from our Web Site. It is also available on the CD ROM. Paper copies of the draft are available from NFPA upon request by calling Customer Service at 1-800-344-3555.

PART II

(1901-1 - (1-3): Accept)

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add a new section 1-3 as follows: 1-3 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety in place of those prescribed by this standard, provided technical documentation is submitted to the authority having jurisdiction to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

Renumber existing sections.

SUBSTANTIATION: The equivalency statement being added is standard in many NFPA codes and standards and recognizes that the authority having jurisdiction can allow the use of other materials and technologies as long as they have been demonstrated to be equivalent and the system, method, or device is approved for the intended purpose.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

1901-2 - (1-3, 2-9.3 (New), A-2-9): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Modify 1-3 to read as follows:

Responsibility of Purchaser. It shall be the responsibility of the purchaser to specify the details of the apparatus; its required performance, including where operations at elevations above 2000 ft (610 m), or on grades greater than 6 percent, or in ambient temperature condition less than 0°F (-18°C) or greater than 110°F (43°C) are required; the maximum number of fire fighters to ride within the apparatus; specific added continuous electrical loads which exceed the minimum of this standard; and any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard.

Add a new 2-9.3 to read: The apparatus shall meet the requirements of this standard in ambient temperature condition between 0°F (-18°C) and 110°F (43°C). Renumber A-2-9 as A-2-9.3

SUBSTANTIATION: The standard does not established the expected temperature operating range of the fire apparatus. Currently there are references to temperature throughout the document. By establishing this operating range, the other references can be standardized and if the apparatus is expected to operate outside that range, the purchaser is made aware of their responsibility to specify the required temperature range.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-3 - (1-4): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add a new section 1-4 to read as follows:

1-4 Application. This standard is applicable to new fire apparatus contracted for on or after January 1, 2000, however, nothing shall prevent the use of the standard prior to January 1, 2000 if the purchaser and contractor agree. The standard is not intended to be applied retroactively.

Renumber existing sections

SUBSTANTIATION: Fire Departments spend many months planning and writing specifications for new fire apparatus. Manufacturers need time to implement the new requirements of the standard. This allows both the fire department and the manufacturer time to study and implement the standard.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-4 - (1-5 Fire Apparatus, A-1-1): Accept
SUBMITTER: Technical Committee on Fire Department
Apparatus
RECOMMENDATION: Revise the definition of fire apparatus as follows:
Fire Apparatus. A vehicle of 10,000 lb (4540 kg) or greater
GVWR, used for fire suppression or support by a fire department,
fire brigade, or other agency responsible for fire protection.
Add a second paragraph to A-1-1 to read as follows:
"The term fire apparatus is defined in this standard as a vehicle of
10,000 lb (4540 kg) or greater GVWR. While the standard was not
written specifically to cover vehicles below that size, fire
departments should consider using those portions of this standard
that address safety issues with smaller emergency vehicles. This
would apply particularly to the restraint of equipment in the
vehicle.
SUBSTANTIATION: Questions arise as to whether small fire
department vehicles are covered by this standard. These revisions
establish a threshold size for the application of the standard while
encouraging fire department to consider using the standard below
that threshold.
COMMITTEE ACTION: Accept.
COMMITTEE STATEMENT: The committee is accepting the
recommendation but is spelling out National Highway
Transportation Safety Administration and stating the regulations
are specific to the United States.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE ACTION: Accept in Principle.
Add a definition for High-Idle Speed Control to read as follows:
"High-Idle Speed Control. A control or switch system that
provides a means to increase the engine operating speed from an
idle condition to a higher preset operating speed."
COMMITTEE STATEMENT: The committee wants to use the full
term and has added the words "speed control." This committee
also considers this a system that provides a means to increase the
engine operating speed and has modified the proposed text
accordingly.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-5 - (1-5 FMVSS (New)): Accept in Principle
SUBMITTER: Gary B. Selig, State of California
RECOMMENDATION: Add the following definition for FMVSS to
Section 1-5:
Regulations promulgated by NHTSA under Public Law 89-563-,
which are mandatory and must be complied with when vehicles or
items of motor vehicle equipment are manufactured and certified
therefor."
SUBSTANTIATION: This abbreviation is used in both 1901 and
1906 Documents.
COMMITTEE ACTION: Accept in Principle.
Add the following definition for FMVSS to Section 1-5:
"FMVSS. Abbreviation for Federal Motor Vehicle Safety
Standard. Regulations promulgated by National Highway
Transportation Safety Administration (NHTSA) of the United
States under Public Law 89-563, which are mandatory and must be
complied with when vehicles or items of motor vehicle equipment
are manufactured and certified therefor."
COMMITTEE STATEMENT: The committee is accepting the
recommendation but is spelling out National Highway
Transportation Safety Administration and stating the regulations
are specific to the United States.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE ACTION: Accept in Principle.
Add a definition for CAFS system to read as follows:
"C.A.F.S. System (New): Accept in Principle
Add text to read as follows:
2-7 Hydraulic lines, air system tubing, control cables, and
electrical lines shall be clipped to the frame or body structure of
the apparatus and shall be furnished with metal protective
looms, or grommets, or other devices at each point where they pass
through body panels or structural members or wherever they lay
against a sharp metal edge.
SUBSTANTIATION: The current wording can be interpreted
that the loom or grommet must be constructed of metal. Most
looms or grommets used in the industry to protect from abrasion are
crubed with metal or other materials such as nylon, hard plastic,
or rubber. The suggested wording clarifies the intent of protecting
the tubes and wires from abrasion by metal edges on the body or
chassis.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-6 - (1-5 High-Idle (New)): Accept in Principle
SUBMITTER: William McCombs, Emergency One, Inc.
RECOMMENDATION: Add the following definition for High-Idle
as follows:
High-Idle. A control or switch that controls a mechanism to
quickly raise the engine operating speed from an idle condition to
a higher preset operating speed.
SUBSTANTIATION: This control is referred to in areas of the
standard such as 16-17.3.2 but is not defined.

COMMITTEE ACTION: Accept in Principle.
Add a definition for High-Idle Speed Control to read as follows:
"High-Idle Speed Control. A control or switch system that
provides a means to increase the engine operating speed from an
idle condition to a higher preset operating speed."
COMMITTEE STATEMENT: The committee wants to use the full
term and has added the words "speed control." This committee
also considers this a system that provides a means to increase the
engine operating speed and has modified the proposed text
accordingly.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-7 - (2-3.7): Reject
SUBMITTER: Peter W. Szerlag, Arlington, MA
RECOMMENDATION: Add text to read as follows:
Every vehicle shall be equipped with an integral or portable
CAFS.
SUBSTANTIATION: Safety obvious; it's about time/future
thinking/low cost/great gains for low costs/why not?
COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: This is a minimum standard. The
purchaser can specify a CAFS system if they desire and Chapter 18
(proposed text) provides the requirements if a system is installed.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-8 - (2-7): Accept
SUBMITTER: Roger Lackore, Pierce Manufacturing Inc.
RECOMMENDATION: Revise text as follows:
2-7 Hydraulic lines, air system tubing, control cables, and
electrical lines shall be clipped to the frame or body structure of
the apparatus and shall be furnished with metal protective
looms, or grommets, or other devices at each point where they pass
through body panels or structural members or wherever they lay
against a sharp metal edge.
SUBSTANTIATION: The current wording can be interpreted
that the loom or grommet must be constructed of metal. Most
looms or grommets used in the industry to protect from abrasion are
crushed with metal or other materials such as nylon, hard plastic,
or rubber. The suggested wording clarifies the intent of protecting
the tubes and wires from abrasion by metal edges on the body or
chassis.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-9 - (2-11.2): Accept in Principle
SUBMITTER: David A. Ogilvie, Pierce Manufacturing Inc.
RECOMMENDATION: Revise text as follows:
2-11.2 If the vehicle has a cab lift mechanism, a redundant
holding device shall be provided in addition to the main system
holding the cab in the fully raised position or serviceable position.
The activation and release of both systems the cab lift mechanism
shall be completed clear of the cab travel area while still having the
travel area in clear view.
SUBSTANTIATION: Current wording is design restrictive and
does not always achieve the safety objective intended by the NFPA
committee. With the advent of taller and longer cabs, fire
departments are frequently finding it difficult to fully raise the cab
within limited ceiling height buildings in order to perform service to
the vehicle.
Because of this situation, service mechanics are frequently only
partially raising the cab in order to service the truck indoors. The
current, industry popular designs incorporate a mechanical device
that locks the lifting cylinder in place at the top point of its lift.
Previously common manual stay arms can be easily designed to
various heights to accommodate the user's individual needs, however we need to expand the requirement of fully raised position as indicated in the first sentence of 2-11.2. More importantly, the use of manual stay arms was discouraged by NFPA with the use of language in the second sentence "activation and release of both systems shall be accomplished clear of the cab travel area." The temporary minimal exposure an individual may see when engaging a manual stay arm is virtually eliminated with the use of velocity fuses in the hydraulic system.

COMMITTEE ACTION: Accept in Principle.

Revise 2-11.2 to read:

"Where the operation of the tilt cab system is accomplished by hydraulic means, the system shall be equipped with devices to prevent the motion of the cab in the event of any hydraulic hose failure. The control of the cab tilt mechanism shall be accomplished clear of the cab travel area while still having the travel area in clear view. A mechanical means shall be provided to hold the cab in a fully raised position. If the purchaser requires that the cab be able to be raised to a defined intermediate position, a mechanical means shall also be provided to hold the cab in that intermediate position."

COMMITTEE STATEMENT: The committee recognizes the submitters concern and has revised the paragraph to require the purchaser to define the intermediate position if they need one. The committee believes the revisions meet the submitters intent.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-10 - (2-14(a).8): Accept

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete part of existing item (a) 8 so that it reads as follows:

"8. Engine make, model, serial number, rated horsepower, and related speed per SAE J690, Certificates of Maximum Net Horsepower for Motor Trucks and Tractor Tractors, and maximum governed speed."

SUBSTANTIATION: The deleted text covers engine construction details, not apparatus construction details.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-11 - (2-14(a).12): Accept

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Revise existing item (a) 12 to read:

"12. Chassis transmission make, model, type, and serial number. If so equipped chassis transmission PTO(s) make, model, and gear ratio."

SUBSTANTIATION: Chassis transmission PTO's are used to drive a variety of devices used on fire apparatus, including fire pumps. It is an important part of apparatus construction details.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-12 - (2-14(a).13): Accept

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete existing item (a) 13. Renumber remaining items as necessary.

SUBSTANTIATION: Pump drive systems will become obvious to the purchaser and be identified with nameplates, labels, etc. on the apparatus by the requirements of Section 12-10 and 12-11 together with 12-13.1.3.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-13 - (2-14(a).14 and (a).16): Accept

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete existing item (a) 14 and revise (a) 16 to read as follows:

"16. Pump transmission make, model, serial number, and gear ratio."

Renumber as necessary the remaining items.

SUBSTANTIATION: The chassis transmission gear ratio to be used for pumping is covered explicitly in paragraph 12-10.3. The pump transmission gear ratio is better positioned in item 16. When pumping, the combined drive train ratio are related to engine speed in 12-15.1.3.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-14 - (2-14(a).15): Accept in Principle

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete the last part of item (a) 15 so that it reads as follows:

"15. Pump make, model, rated capacity in gallons per minute, and serial number."

SUBSTANTIATION: The "number of stages, and impeller diameter" (the deleted text) covers pump construction details, not apparatus construction details. See 12-15.1.3 for reference.

COMMITTEE ACTION: Accept in Principle.

Revise 2-14(a) 15 to read as follows:

"Pump make, model, rated capacity in gallons per minute (Liters/min where applicable), and serial number."

COMMITTEE STATEMENT: The committee is adding the parenthetical (Liters/min where applicable) to accommodate the metric use of the standard.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-15 - (2-14(a).17 and (a).18): Accept

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete existing items (a) 17 and (a) 18. Renumber remaining items as necessary.

SUBSTANTIATION: These items are pump system construction details, not apparatus construction details. Note that these items are covered by Sections 12-10.9 and 12-10.10 with the required controls giving explicit information on the operation of these systems.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-16 - (2-14(a).19): Accept in Principle

SUBMITTER: Heinz Otte, Waterous Co.

RECOMMENDATION: Delete the last part of existing item (a) 19 so it reads as follows:

"19. Auxiliary pump make, model, rated capacity in gallons per minute, and serial number."

SUBSTANTIATION: The deleted text covers pump construction details, not apparatus construction details.

COMMITTEE ACTION: Accept in Principle.

Revise 2-14(a) 19 to read as follows:

"Pump make, model, rated capacity in gallons per minute (Liters/min where applicable), and serial number."

COMMITTEE STATEMENT: The committee is adding the parenthetical (Liters/min where applicable) to accommodate the metric use of the standard.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-17 - (3-4): Reject

SUBMITTER: Gary Handwerk, Hale Products, Inc.

RECOMMENDATION: Change "500 gal" minimum tank capacity to "300 gal".

SUBSTANTIATION: Some city trucks do not need 500 gal water (quint trucks only have 300 gal also). We must get back to a minimum standard.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: The committee feels that apparatus designed to function as a pumper need to carry a minimum of 300 gallons of water. The committee recognizes that quints may carry less water but also recognizes that quint apparatus may have limitations that are part of a compromise to provide that type of multiple function apparatus. Fire departments that use that type of apparatus recognize those limitations.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 21
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

EXPLANATION OF NEGATIVE:

DeWALD: The NFPA standards are minimum standards. Based on discussions with many fire departments operating in areas with hydrants, a 300 gal water tank is sufficient for their operational requirements. While a 300 gal water tank is not sufficient for many other departments, the minimum standard should be 300 gal and an appendix item should point out that a 300 gal should be the minimum size tank in areas where they do not get their water supply from a hydrant system. With pumpers being used as rescue pumpers and having other purposes than just a pumper, the weight that is being taken up by the extra 200 gal of water could be used for other equipment critical to the mission of the vehicle, such as rescue and medical tools and supplies.

1901-18 - (3-6 and 3-8.1): Accept in Principle

SUBMITTER: Gary Handwerk, Hale Products, Inc.

RECOMMENDATION: Revise text:

"Use 1200 ft of 2 1/2 in. or 5 in. hose or 600 ft of 4 in. or 5 in. hose in place of 1200 ft of 2 1/2 in. or larger fire hose."

SUBSTANTIATION: Six hundred feet of LDH equals the performance of 1200 ft of 2 1/2 in. and many city trucks do not need 1200 ft of 5 in. fire hose. We must get back to a minimum standard.

COMMITTEE ACTION: Accept in Principle.

Revise 3-8(a) to read:

"A minimum hose storage area of 30 ft³ (0.85 m³) for 2 1/2 in. (65 mm) or larger fire hose."

Revise 3-8.1 to require 800 ft (244 m) of 2 1/2 in. (65 mm) or larger fire hose.

COMMITTEE STATEMENT: The committee feels 800 ft is a good compromise for a minimum standard and does not want to require varying lengths depending on the size of the hose.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-19 - (3-7.1): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Delete the requirement for minimum ladder lengths for both the straight and extension ladders. Change the "10 ft (3 m) folding ladder" to "one attic ladder." The requirement would then read:

3-7.1 Ground Ladders. All ground ladders carried on the apparatus shall meet the requirements of NFPA 1931, Standard on Design of and Design Verification Tests for Fire Department Ground Ladders. At a minimum, the following ladders shall be carried on the apparatus:

One straight ladder equipped with roof hooks: One extension ladder:

One attic ladder:

SUBSTANTIATION: The committee feels that each fire department can better define the length of ladders it needs based on its operational needs.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-20 - (3-8, 4-7, 5-7, 6-8, and 7-5): Accept

SUBMITTER: Gary Handwerk, Hale Products, Inc.

RECOMMENDATION: Move minor requirement lists to the Appendix.

COMMITTEE STATEMENT: The committee feels it is important to provide guidance to the purchaser on the minimum equipment required to put the fire apparatus in service.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-21 - (3-8.2, 4-7.2, 5-7.2, 6-8 and 7-5): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add after each loose piece of equipment "mounted in a bracket fastened to the apparatus."

SUBSTANTIATION: The mounting and fastening of loose equipment will reduce damage to fire apparatus and increase safety to personnel.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-22 - (6-7): Accept in Principle

SUBMITTER: Gary Handwerk, Hale Products, Inc.

RECOMMENDATION: Eliminate 24 ft and one 16 ft and 14 ft ladder as a minimum.

SUBSTANTIATION: Many times the ground ladders are not used, other pumper's on the fire also carry ladders. We must get back to a minimum standard.

COMMITTEE ACTION: Accept in Principle.

Modify Section 6-7 to read as follows:

6-7 Ground Ladders. A minimum of 115 ft (35 m) of ground ladders shall be supplied and installed by the contractor. The contractor shall provide such brackets or compartments as are necessary to mount the equipment. The ground ladders shall meet the requirements of NFPA 1931, Standard on Design of and Design Verification Tests for Fire Department Ground Ladders. As a minimum, the following types of ladders shall be provided:

One attic ladder;
Two straight ladders (with folding roof hooks);
Two extension ladders.

Modify A-6-7 to read as follows:

The fire department should study its needs for ground ladders, evaluating which ladders will be arriving at a fire scene with pumpers as well as aerial fire apparatus. Many communities have multiple three- and four-story buildings around which a power-operated aerial device cannot be positioned and that require longer or additional extension ladders to support fire-fighting operations. It should be recognized, however, that as requirements for additional ground ladders are added, space for other equipment can become limited. The following list could be used as a ground ladder complement.

One attic ladder a minimum of 10 ft (3 m) in length;
Two roof ladders (with folding roof hooks) a minimum of 16 ft (4.9 m) in length;
One combination ladder a minimum of 14 ft (4.3 m) in length;
One extension ladder a minimum of 24 ft (7.3 m) in length;
One extension ladder a minimum of 35 ft (10.7 m) in length.

COMMITTEE STATEMENT: The committee feels that an aerial fire apparatus should carry a minimum of 115 ft of ground ladders. However, the committee is revising the ground ladder requirement to allow the fire department to choose the combination they need for their community. The list of specific ladders has been moved to the appendix as a recommendation.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-25 - (Chapter 7 (New)): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add a new chapter 7 to cover quint fire apparatus and renumber the remaining chapters. Also modify chapters 1, 2 and 8 (renumbered as 10) to show as incorporated this addition.
1. Add a definition in 1-5 to read:
Quint. Fire apparatus with a permanently mounted fire pump, a water tank, a hose storage area, an aerial ladder or elevating platform, and a complement of ground ladders that meet or exceed the requirements of this standard. The primary purpose of this type of apparatus is to combat structural and associated fires, and to support fire fighting and rescue operations by positioning personnel, handling materials, providing continuous egress, or discharging water at positions elevated from the ground.
2. Add a new (e) to 2-2.1 and reletter existing (e) as (f).
The new (e) would read:
(e) A quint fire apparatus shall comply with Chapter 7.
3. Modify table 2-2.2 to add a column as follows: (note that there is also a proposal to add a new chapter 9 and that is reflected in this table.
4. Add a new chapter 7 with appendices and renumber existing chapters after that. The new chapter shall read:
Chapter 7 Quint Fire Apparatus

7-1 General. If the apparatus is to function as a quint, it shall meet the requirements of this chapter.
7-2 Fire Pump. 7-2.1* The apparatus shall be equipped with a fire pump that meets the requirements of Chapter 14 and has a minimum rated capacity of 1000 gpm (3785 L/min). The fire pump shall be capable of supplying the flow requirements of 18:6:1.2 or 18:12:1 with a maximum intake pressure of 30 psi (138 kPag).
7-2.2 Provisions shall be made to ensure that the pump operator is not in contact with the ground. Signs shall be placed to warn the pump operator of electrocution hazards.
7-3 Aircraft Device. The apparatus shall be equipped with an aerial ladder or an elevating platform with a permanently installed waterway that meets the requirements of Chapter 18.
7-4 Water Tank. The apparatus shall be equipped with a water tank or tanks that meets the requirements of Chapter 17 and that has a minimum certified capacity (combined, if applicable) of 300 gal (1136 L).
7-5 Equipment Storage. A minimum of 40 ft³ (1.13 m³) of enclosed weather-resistant compartment that meets the requirements of Chapter 13 shall be provided for the storage of equipment.
7-6 Hose Storage. Hose bed area(s), compartments, or reels that comply with Section 13-10 shall be provided to accommodate the following. These areas need not be contiguous.
(a) A minimum hose storage area of 30 ft³ (0.85 m³) for 2 1/2 in (65-mm) or larger fire hose;
(b) Two areas, each a minimum of 3.5 ft³ (0.1 m³), to accommodate 1 1/2 in. (38-mm) or larger preconnected fire hose lines.

7-7 Equipment Supplied by the Contractor. The following equipment shall be supplied and installed by the contractor. The contractor shall provide such brackets or compartments as are necessary to mount the equipment.
7-7.1 Ground Ladders. The quint shall carry a minimum of 15 ft 9 in (36 m) of ground ladders to include at least one extension ladder, one straight ladder equipped with roof hooks, and one attic ladder. All ground ladders carried on the apparatus shall meet the requirements of NFPA 1911, Standard for Design and Design Verification Tests for Fire Department Ground Ladders.
7-7.2* Suction Hose. A minimum of 15 ft (4.6 m) of soft suction hose or 20 ft (6 m) of hard suction hose shall be carried. Suction hose shall meet the requirements of NFPA 1901, Standard for Fire Hose. The purchaser shall specify whether hard or soft suction hose is to be provided, the length and size of the hose, the size of the couplings, the manner in which the suction hose is to be carried on the apparatus, and the style of brackets desired.
7-7.2.1 Where hard suction hose is provided, a suction strainer shall be furnished. The friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 14-2.4.1(b).
7-7.2.2 Where soft suction hose is provided, it shall have long handle female couplings with the local hydrant outlet connection on one end and the pump intake connection on the other end.
7-8 Minor Equipment. The list of equipment in 7-8.1 and 7-8.2 shall be on the quint fire apparatus before it is placed in service. A detailed list of who is to furnish the items shall be supplied by the purchasing authority. Brackets or compartments shall be furnished to organize and protect the equipment.

<table>
<thead>
<tr>
<th>Table 2.2.2 Requirements by Apparatus Type</th>
<th>Quint Fire Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1 Administration</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 2 General Requirements</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 3 Pumped Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 4 Initial Attack Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 5 Mobile Water Supply Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 6 Aerial Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 7 Quint Fire Apparatus</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 8 Special Service Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 9 Mobile Foam Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 10 Chassis and Vehicle Components</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 11 Low Voltage Electrical Systems and Warning Devices</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 12 Driving and Crew Areas</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 13 Body, Compartments, and Equipment Mounting</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 14 Fire Pump and Associated Equipment</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 15 Auxiliary Pump and Associated Equipment</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 16 Water Transfer Pump and Associated Equipment</td>
<td>N/A</td>
</tr>
<tr>
<td>Chapter 17 Water Tanks</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 18 Aerial Devices</td>
<td>Required</td>
</tr>
<tr>
<td>Chapter 19 Foam Proportioning Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 20 Compressed Air Foam Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 21 Line Voltage Electrical Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 22 Command and Communications</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 23 Air Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 24 Winches</td>
<td>If specified</td>
</tr>
<tr>
<td>Chapter 25 Referenced Publications</td>
<td>Required</td>
</tr>
</tbody>
</table>

(Log #CP93)
The department should evaluate its needs and choose the size and amount of hose that will best support its operation and then discuss those hose storage needs with the contractor to ensure the fire apparatus hose storage space will be properly laid out and of sufficient size to accommodate the departments needs.

A-7-2. The size of the suction hose specified in Table 14-2.4.1 relates to pump certification only. Other sizes of suction hose, compatible with local operations, could be used and should be specified if they are desired.

A-7-8.1 It is recommended that the department carry at least 200 ft (61 m) of 2 1/2-in. (65-mm) hose for handline operation. If the operations of the department are geared to using multiple large handlines from single apparatus, the department should consider carrying more 2 1/2-in. (65-mm) hose and additional nozzles. Likewise, the amount and size of hose used to supply large stream devices should be considered in planning the amount and size of hose to be carried.

A-7-8.2 The requirements of service in different communities will necessitate additions to the equipment required. The operational objective is to arrive at the scene of the emergency with the necessary equipment for immediate life safety operations and emergency control.

The mandatory equipment required to be carried on the quint fire apparatus weighs approximately 700 lb (318 kg). This leaves a remaining capacity of approximately 1800 lb (817 kg) for storage of optional equipment while staying within the allowance of 2500 lb (1135 kg). The list of equipment required to be carried on a quint contains all the equipment required on a pumper as well as the life safety rope and additional wheel chocks. It is recommended that the purchaser review the list of equipment required to be carried on an aerial fire apparatus (see A-8-9.2) and A-8-8.1 for other tools and equipment needed to meet the functional objectives for which the quint is being purchased. The purchaser should advise the contractor if equipment in excess of 2500 lb (1135 kg) is to be carried so the contractor can provide a chassis of sufficient size (see Sections 1-5 and 10-1).

5. Add a line to Table 8.1 Miscellaneous Equipment Allowance to read:

(Note that this table will be renumbered as Table 10-1)

<table>
<thead>
<tr>
<th>Apparatus type</th>
<th>Chassis</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quint fire apparatus</td>
<td>All</td>
<td>2500 lb (1134 kg)</td>
</tr>
</tbody>
</table>

SUBSTANTIATION: Quints are becoming very popular as a type of fire apparatus and the standard does not currently define or address them. The addition of this chapter and the other modifications will provide requirements for persons purchasing quint fire apparatus.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION: AFFIRMATIVE: 21

NEGATIVE: 1

NOT RETURNED: 5 (Graven, Darley, Guyotte, Ruth, von Zell)

EXPLANATION OF NEGATIVE:

PETERS: I agree with the entire chapter except 7.3 which indicates that the aerial device must be equipped with a permanently installed waterway. Reason: On a standard aerial apparatus a waterway is optional as indicated by:

18-6.2 “Where a prepped waterway is not provided, the following equipment shall be furnished:” (Ladder pipe and associated equipment)

Q: Can an aerial apparatus be required to have a waterway, why must the same aerial device mounted on a quint require one? In the Northeast part of the country especially, this is design restrictive due to low door/firehouse clearances.

I think that it should be up to the purchaser to specify either a prepped waterway or a ladder pipe.

(Log #43)

1901-24 - (7.4.1): Accept in Principle

SUBMITTER: Dennis R. Van Dauwyk, Pierce Manufacturing Inc.

RECOMMENDATION: Revise text as follows some type of cover for the hose compartment. Hinged or removable covers might be desirable.
the size and number. All ground ladders on the apparatus shall meet the requirements of NFPA 91, Standard on Design of and Design Verification Tests for Fire Department Ground Ladders.

**SUBSTANTIATION:** Local fire department operations and fire ground operations determine the need for ladders on special service apparatus. Likewise, the size and number of ladders should be determined by the local purchasing authority.

**COMMITTEE ACTION:** Accept in Principle.

Delete the first sentence as requested. Do not add the proposed sentence. Modify the remaining sentence to read:

7-4.1 Ground Ladders. If ground ladders are carried on the apparatus, they shall meet the requirements of NFPA 1901, Standard on Design of and Design Verification Tests for Fire Department Ground Ladders.

**COMMITTEE STATEMENT:** The committee agrees with deleting the requirement that a ground ladder be carried. It does not feel it is necessary to add the second sentence as that is covered in 1.5 for all ladders, hose and equipment. The modification to the last sentence is just to emphasize that ladders are optional on special service vehicles.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #5)

1901-25 - (8.2.1.4): Reject

**SUBMITTER:** Gary Handwerk, Hale Products, Inc.

**RECOMMENDATION:** Add text to read:

> "The automatic speed increasing system is not required if sufficient alternator performance can be obtained at idle to operate the total electrical load."

**SUBSTANTIATION:** New technology makes this obsolete.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The paragraph does not require systems to be automatic. Speed increasing systems provide for other circumstances. (see A-8.2.1.4)

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #17)

1901-26 - (8.2.1.4): Reject

**SUBMITTER:** James M. Wilkinson, Pierce Mfg. Inc.

**RECOMMENDATION:** Revise text as follows:

An engine speed control device shall be installed (add text: "in the driving compartment") to allow an increase in the engine speed.

**SUBSTANTIATION:** Existing text does not specify a location for this control device.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The recommendation is design restrictive.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #CP64)

1901-27 - (8.2.4.2.2): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise the paragraph to read:

> "Fuel lines and filters or strainers that meet the engine manufacturer's recommendations shall be provided. The filters or strainers shall be of a serviceable type and mounted in an accessible location. Where two or more fuel lines are installed, separate fuel pumps operating in parallel with suitable check valves and filtering devices shall be provided. The fuel line(s) shall be located or protected so as not to be subjected to excessive heating from any portion of a vehicle exhaust system. The line(s) shall be protected from mechanical damage. Suitable valves and drains shall be installed. The gasoline feed system shall include an electrically operated fuel pump located within or adjacent to the fuel tank."

**SUBSTANTIATION:** The word suitable is being deleted in the third sentence as it has no meaning. The second to last sentence is being deleted as valves and drains are not commonly installed on gasoline engine fuel systems.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #37)

1901-28 - (8.2.5): Reject

**SUBMITTER:** Edward A. Pfeiffer, Hartsville, PA, Vol. Fire Co.

**RECOMMENDATION:** Revise text as follows:

> "Exhaust pipe discharge shall be directed away from any operator's position up and away from all areas where firefighters work."

**SUBSTANTIATION:** Firefighters are constantly exposed to diesel smoke, potential exists for ignition of flammable vapors, high water can shut off diesel motors, legal risk to apparatus manufacturers, and fire departments who don't follow NFPA 1500 and NIOSH recommendation on avoiding diesel exhaust smoke.

Note: Supporting material available for review at NFPA Headquarters.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** NFPA 901 states minimum requirements and nothing prohibits the purchaser from specifying a vertical exhaust stack. Experience has indicated that many fire departments have tried vertical exhaust stacks and found they create hazards for deck gun operators. If the apparatus has a top mounted pump panel, a vertical exhaust stack also exposes pump operators to an extremely hot component as well as the exhaust fumes themselves.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #CP65)

1901-29 - (8.2.5, 8.2.6.3, 11-2 and A-8.3.1.4 (Par 2, sentence 4)): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Delete the word "suitable" or "suitably" as it appears.

**SUBSTANTIATION:** The words "suitable" and "suitably" add no meaning in the identified paragraphs.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #15)

1901-30 - (8.3.1.1): Reject

**SUBMITTER:** Larry Diplo, Simon Ladder Towers

**RECOMMENDATION:** Delete text as follows:

8.3.1 Braking System
8.3.1.1 The vehicle shall be equipped with an all-wheel anti-lock brake system. If such a system is available from the chassis manufacturer.

**SUBSTANTIATION:** The wording currently indicates that all wheels should be equipped with ABS. On straight trucks with tandem axles, Rockwell/Wabco only requires the ABS system on the front axle and one axle of the tandem axle assembly. ABS systems became mandatory March 1, 1997 and should be available from all chassis manufacturers.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** Because fire apparatus are emergency vehicles, the committee feels the ABS should be available on all wheels for emergency applications if such a system is available from the chassis manufacturer.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle
1901-31 - (8-3.1.1): Reject
RECOMMENDATION: Add the following text to 8-3.1.1:
"The aid-lock brake system shall be designed to deactivate any
installed auxiliary braking device if wheel lock-up is detected.
"SUBSTANTIATION: The driver fails to manually deactivate
certain auxiliary braking devices in slippery weather, wheel lock-up
could result. Many departments who have no previous experience
with auxiliary braking devices are experiencing this. This
requirement would help prevent this condition.
COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: Technology does not exist to
accomplish this in all cases.

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-32 - (8-3.1.7): Reject
SUBMITTER: Gary Handwerk, Hale Products, Inc.
RECOMMENDATION: Change "$6000 lb. to "$42000 lb.
"SUBSTANTIATION: Rural trucks in flat terrain need
auxiliary braking on standard pumpers. They do not have the
number of runs, hills or traffic to warrant auxiliary braking.
COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: The heavier trucks that respond
influenously to heavy traffic conditions are considered prime
vehicles for assist braking.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-33 - (8-3.2.4): Accept
SUBMITTER: Technical Committee on Fire Department
Apparatus
RECOMMENDATION: Delete the first sentence which reads:
"Fenders and guards shall be braced and firmly secured." Add
the word "fender" in the second sentence so it reads: "Fender
clearance for tire chains shall be provided in accordance with SAE
J683, Fire Chain Clearance—Trucks, Buses (except Suburban,
Intercity, and Transit Buses), and Combinations of Vehicles."
SUBSTANTIATION: The requirements of the first sentence have
no way of being measured.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-34 - (8-3.4.2): Accept
SUBMITTER: Technical Committee on Fire Department
Apparatus
RECOMMENDATION: Revise the paragraph to read:
"If two fuel tanks are furnished, the fuel system shall not require
manual intervention to provide fuel to the engine. A single fuel
gauge shall indicate the proportional amount of fuel in the fuel
system." Delete A-8.3.4.2
SUBSTANTIATION: The revised wording allows the use of
commercial chassis fuel tank systems as furnished by a chassis
builder. With this change, the appendix is no longer required.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-35 - (9-2.2.1): Accept in Principle
SUBMITTER: Rex Beck, Allison Transmission
RECOMMENDATION: Revise text as follows:
"Wire insulation shall be in accordance with SAE J1128, Low
Tension Primary Cable, type SXL, or GXL or TXL."
SUBSTANTIATION: SAE J1128 covers TXL wire.
Note: Supporting material available for review at NFPA
Headquarters.
COMMITTEE ACTION: Accept in Principle.
Revise 9-2.2.1 to read:
"All insulated wire and cable shall conform to SAE J1127, Battery
Cable; SAE J1128, Low Tension Primary Cable, type SXL or
GXL or TXL; or SAE J1560, Low Tension Thin Wall Primary Cable."
COMMITTEE STATEMENT: The reference to SXL and GXL are
not currently in the standard and the committee is adding those as
well.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-36 - (9-2.2.2): Accept
SUBMITTER: Technical Committee on Fire Department
Apparatus
RECOMMENDATION: Revise 9-2.2.2 to read:
"The overall covering of conductors shall be moisture-resistant
loom or braid. This covering shall have a minimum continuous
rating of 194°F (90°C) except when good engineering practice
dicates special consideration for loom installations exposed to
higher temperatures."
SUBSTANTIATION: The current requirement for 289°F (143°C)
is an excessive requirement when applied to every application on
fire apparatus. The 194°F (90°C) recommendation is sufficient
for a typical engine area application. The proposed minimum
continuous temperature rating is consistent with section 19-9(b) of
NFPA 1901 which reads: "Type SO or Type SEO cord with a WA
suffix, rated at 600 volts at not less than 194°F (90°C). Good
engineering practice would dictate heat shields or higher
temperature rated loom in any area where the loom might be
subjected to higher temperatures such as in close proximity to the
exhaust system or the turbo on the engine. The Society of
Automotive Engineers (SAE) recommended practice indicates
normal chassis and exterior high temperatures of 185°F (85°C) can
be expected [J1455 Aug 94- "Joint SAE/TMC Recommended
Environmental Practices for Electronic Equipment Design (Heavy
Duty Trucks)"].. Higher temperatures can be expected near heat
sources which would require the use of materials with continuous
temperature ratings above the minimum standard. Good
engineering practice dictates using appropriately rated materials as
the application dictates. As the standard is currently written, it
forces the use of higher rated materials when they are not
required. When higher rated materials are required to be used,
unnecessary cost are incurred. In some application, the higher
rated material can not be used.
The flammability rating is being dropped because the UL rating of
VV-1 is not applicable to loom and there is no rating that is
applicable.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-37 - (9-2.3): Accept
SUBMITTER: Technical Committee on Fire Department
Apparatus
RECOMMENDATION: Revise 9-2.3 to read:
"The overall covering of jacketed cables shall be moisture
resistant and have a minimum continuous temperature rating of
194°F (90°C) except when good engineering practice dictates
special consideration for cable installations exposed to higher
temperatures."
SUBSTANTIATION: The current requirement for 289°F (143°C)
is an excessive requirement when applied to every application on
fire apparatus. The 194°F (90°C) recommendation is sufficient
for a typical engine area application. The proposed minimum
I RECOMMENDATION: Add new paragraph 9.2.9 to read as follows:

subjected to higher temperatures such as in dose proximity to the suffix, rated at 600 volts at not less than 194°F (90°C). Good Automotive Engineers (SAE) recommended practice indicates engineering practice would dictate heat shields or higher NTPA 1901 which reads: “Type SO or Type SEO cord with a WA continuous temperature rating is consistent with section 19-9(b) of sources which would require the use of materials with continuous temperature ratings above the minimum standard. Good engineering practice dictates using appropriately rated materials as the application dictates. As the standard is currently written, it forces the use of higher rated materials when they are not required. When higher rated materials are required to be used, unnecessary costs are incurred. In some application, the higher rated material can not be used.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-98 - (9.2.5): Accept

SUBMITTER: Ken Menke, Fire Service Research Inst.

RECOMMENDATION: In 9.2.5, delete entire sentence and replace with the following:

Wiring shall be restrained to prevent damage caused by chafing or ice buildup, and protected against heat, liquid contaminants, or other environmental factors.

SUBSTANTIATION: “Securely” is not a parameter that is easily defined or measured. The sentence has been rewritten to eliminate the use of the word.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-99 - (9.2.7): Accept

SUBMITTER: Ken Menke, Fire Service Research Inst.

RECOMMENDATION: Revise text as follows:

9.2.7 Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the component’s overcurrent device’s design range, mechanical damage, and water spray. Caution.

SUBSTANTIATION: To clarify the intent of this paragraph.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-100 - (9.2.9 (New)): Accept in Principle

SUBMITTER: William McCombs, Emergency One, Inc.

RECOMMENDATION: Add new paragraph 9.2.9 to read as follows:

“All electrical devices installed on the vehicle that operate on a digital data bus system (multiplex), shall have diagnostic connections that comply with SAE Standard (J1939). All data bus devices that communicate outside their system shall comply with SAE (J1939) communications protocols.

SUBSTANTIATION: Many new devices and controls are being developed for the fire service that use data bus technology. Many different protocols are being used. As many as five different connectors and readout devices may have to be used by fire departments. This standard would require a common protocol and simplify future vehicles.

COMMITTEE ACTION: Accept in Principle.
I RECOMMENDATION: 1901-44-9-8.1: Accept an upper and lower warning level and the requirements for each level shall be met by the warning devices in that level without consideration of the warning devices in the other level.

SUBSTANTIATION: To clarify the intent of the paragraph that the upper level lights must alone satisfy the upper level requirements and the lower level lights must alone satisfy the lower level requirements.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-45-9-8.2: Accept

SUBMITTER: Ken Menke, Fire Service Research Inst.

RECOMMENDATION: Revise the first sentence as follows: 9-8.2 For the purpose of defining and measuring the required optical performance, the apparatus upper and lower warning lights shall each be divided into four warning zones.

SUBSTANTIATION: To clarify the intent of the paragraph that the upper level and lower level lights have different requirements and must be measured separately.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-46-9-8.9: Accept in Principle

SUBMITTER: Douglas B. Kelley, S & S Fire Apparatus Co.

RECOMMENDATION: Revise text as follows:

"The optical sources shall be of sufficient number and arranged so that failure of a single optical source does not create a measurement point in any zone without a warning signal at a distance of 100 ft (30 m) from the geometric center of the apparatus. A minimum of two warning lights are required in each zone for both upper and lower levels. An upper level optical device cannot be used to compensate for the loss of a lower level optical device, nor can a lower level optical device be used to offset the failure of an upper level device.

SUBSTANTIATION: To clarify the intent of the paragraph that there must be a sufficient number of light sources on both the upper and lower levels. An upper level optical device cannot be used to compensate for the loss of a lower level optical device, nor can a lower level optical device be used to offset the failure of an upper level device.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-47-9-8.10: Accept

SUBMITTER: Ken Menke, Fire Service Research Inst.

RECOMMENDATION: Revise text as follows:

"When the apparatus is equipped with a platform type aerial device, the forward upper level warning lights shall be mounted as high on the cab face as practical without being obstructed by the aerial device.

SUBSTANTIATION: The platforms on some aerial devices are mounted just above windshield height. The upper level warning devices are obstructed from view in some directions unless they are mounted lower on the front of the cab.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: The committee feels the standard already addresses this as this paragraph discusses placement and the optical power will not be available if the light is shielded by the aerial device.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
1901-50 - (9-8.12.2): Accept in Principle

RECOMMENDATION: Revise text as follows:

9-8.12.2 The optical center of the lower level optical warning devices in the front of the vehicle shall be mounted as close to the front corner points of the apparatus and forward of the front axle centerline as is practical, with the optical center of the device at a distance of 18 in. to 62 in. (457 mm to 1575 mm) above grade. The optical center of the lower level optical warning devices at the rear of the vehicle shall be mounted as close to the rear corners of the apparatus, behind the rear axle centerline as is practical. Installation must meet parameters stated in 9-8.14.2.3. The optical center of the device must be 18 in. to 62 in. (457 mm to 1575 mm) above grade.

SUBMITTER: Tom Furdek, FAMA

RECOMMENDATION: Accept in principle.

SUBMITTER: Mike Bailey, City of San Jose

SUBMITTER: Ken Menke, Fire Service Research Inst.

RECOMMENDATION: Revise 9-8.12.2 to read as follows:

9-8.12.2 In order to define the clearance lines of the apparatus, the optical center of the lower level optical warning devices in the front of the vehicle shall be mounted forward of the front axle centerline and as close to the front corner points of the apparatus as is practical. The optical center of the lower level optical warning devices at the rear of the vehicle shall be mounted behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower level device shall be between 18 in. and 62 in. (457 mm and 1575 mm) above ground.

COMMITTEE STATEMENT: The committee has further refined the wording to clarify the mounting requirements for lower level warning devices.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-51 - (9-8.12.2): Accept in Principle

SUBMITTER: Douglas B. Kelley, S & S Fire Apparatus Co.

RECOMMENDATION: Revise text as follows:

A midship optical warning device shall be mounted on both the right and left sides of the apparatus with the optical center of the device at a distance of 18 in. to 62 in. (457 mm to 1575 mm) above grade if the distance between the front and rear lower level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required where necessary to maintain a horizontal distance between the centers of adjacent lower level optical warning devices of 44 ft (14 m) or less.

SUBSTANTIATION: When apparatus that are less than 22 ft do not require any midship lights at all. Additionally, on shorter apparatus, this requirement usually means that the midship light must be placed in the vicinity of the pump panel (if apparatus is so equipped) where it can interfere with the operator. Changing the requirement as proposed will result in less expense and hassle for the end user with no reduction in safety. As a note, most lighting manufacturers can meet the zone B and D optical requirements without the use of a midship light.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
lighting package requires the additional light to meet the optical performance, then this may also be part of the lighting manufacturer's requirements.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: See Committee Action on Proposal 1901-52 (Log #13). The committee has increased the distance allowed before a midship light is required. The committee does feel that midship light(s) should be provided when the distance between optical devices exceed 25 ft.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 27
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-56 - (9-8.12.3): Accept in Principle
SUBMITTER: Robert Spangler, Federal Signal Corp.
RECOMMENDATION: Modify the requirement to give more latitude to the OEM in placement. Extend the spacing requirement to 20 or 25 feet.

SUBSTANTIATION: This would provide a larger area to the OEM to place lights and still comply with the standard.

Placement of the required midship lights can be solved. The 1996 requirement came from a desire from end users who viewed the test vehicles to have additional warning on the side of the vehicle. The reason was that they didn't want a driver to mistake the front and near lower level lights for the front of one truck and the rear of another, then try to drive between the lights. With the requirements for reflective striping that are also part of the present standard, it would be very difficult for the driver to make the mistake. In addition, the 15 foot requirement is one of the difficult parts of the standard for the OEM. In many cases, 15 feet places the midship light on or near pump panels, discharge lines or on roll up doors. We can solve this by changing the requirement to the above.

COMMITTEE ACTION: Accept in Principle.
COMMITTEE STATEMENT: The committee believes the action taken on Proposal 1901-52 (Log #13) addresses the submitters concerns.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 27
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-57 - (9-8.12.3): Accept in Principle
SUBMITTER: Douglas B. Kelley, S & S Fire Apparatus Co.
RECOMMENDATION: Revise text as follows:

"The apparatus shall be equipped with front intersector lights positioned in the lower level of Zone B and D as close as practical to the front corner points of the apparatus. Additionally, the apparatus shall be equipped with two lights located on the front of the chassis in the lower level of Zone A. All the lower level optical warning devices shall be mounted as close as practical to the front corner points of the apparatus with the optical center of the device at a distance of 18 in. to 48 in. (457 mm to 1220 mm) above grade."

SUBSTANTIATION: With the standard as written now, it is possible to meet the performance requirements described in paragraph 9-8.13.5 with just a lightbar (provided the lightbar is visible in all directions). There is no reference made in the standard to the need for front intersector lights or lower front warning lights other than what is implied in paragraph 9-8.13.5. The proposed wording will clarify that intersector lights and front warning lights are still required as under previous editions of NFPA 1901.

SUBMITTER: Robert Spangler, Federal Signal Corp.
RECOMMENDATION: The issue of a "max" current draw for the warning package may not be required.

SUBSTANTIATION: The basic problem of sufficient electrical supply is defined well for the entire vehicle, then tested prior to delivery to the customer. If the vehicle passes both the minimum electrical load and the maximum electrical load tests, it really doesn’t matter how much energy the lighting system is consuming. The requirement for a sufficient supply has been met.
COMMITTEE ACTION: Accept in Principle.
COMMITTEE STATEMENT: See Committee Action on Proposal 1901-59 (Log #116).

1901-59 - (9-8.12.6): Accept in Principle
SUBMITTER: Ken Menke, Fire Service Research Inst.
RECOMMENDATION: Delete entire paragraph 9-8.126.

SUBSTANTIATION: This paragraph has proven to be a source of great confusion and generated formal interpretation 9740. At the last Fire Department Apparatus Committee meeting, it was the consensus of the committee that this paragraph was not needed as the requirements for an electrical system adequate to handle the load specified by the purchaser are clearly stated elsewhere.
COMMITTEE ACTION: Accept in Principle.
COMMITTEE STATEMENT: The committee agrees to deleting the text in the body of the standard but feels it should be retained in the appendix to offer guidance on what amount of power the optical warning system should be able to operate on.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 27
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-60 - (9-8.13.2): Accept in Principle
SUBMITTER: Douglas B. Kelley, S & S Fire Apparatus Co.
RECOMMENDATION: Revise text as follows:

"The apparatus shall be equipped with front intersector lights positioned in the lower level of Zones B and D as close as practical to the front corner points of the apparatus. Additionally, the apparatus must be equipped with a minimum of two lights located on the front of the chassis in the lower level of Zone A. All the lower level optical warning devices shall be mounted as close as practical to the front corner points of the apparatus with the optical center of the device at a distance of 18 in. to 48 in. (457 mm to 1220 mm) above grade."

SUBSTANTIATION: With the standard as written now, it is possible to meet the performance requirements described in paragraph 9-8.13.5 with just a lightbar (provided the lightbar is visible in all directions). There is no reference made in the standard to the need for front intersector lights or lower front warning lights other than what is implied in paragraph 9-8.13.5. The proposed wording will clarify that intersector lights and front warning lights are still required as under previous editions of NFPA 1901.
COMMITTEE ACTION: Accept in Principle.
REVISE 9-8.13.2 to read:
"One or more lower level optical warning devices shall be
mounted as close as practical to each front corner of the apparatus
with the optical center of the device at a distance of between 18 in.
and 48 in. (457 mm and 1220 mm) above ground level."
COMMITTEE STATEMENT: The committee has revised the
paragraph to clarify its intent.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-61 - (9-8.15.5): Accept in Principle
SUBMITTER: Ken Menke, Fire Service Research Inst.
RECOMMENDATION: Delete entire paragraph 9-8.15.5.
SUBSTANTIATION: This paragraph has proven to be a source
of great confusion and generated RFI 97-03. At the last 1901
meeting, it was the consensus of the committee that this paragraph
was not needed as the requirements for an electrical system
adequate to handle the load specified by the purchaser are clearly
stated elsewhere.
COMMITTEE ACTION: Accept in Principle.
Delete 9-8.15.5 and add an appendix to 9-8.13 to read:
A-9-8.13 The minimum optical warning system should require no
more than an average of 35 amps for the operation of the devices.
COMMITTEE STATEMENT: The committee agrees to delete the
text in the body of the standard but feels it should be retained in the
appendix to offer guidance on what amount of power the
optical warning system should be able to operate on.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

SUBMITTER: Ken Menke, Fire Service Research Inst.
RECOMMENDATION: Revise text as follows:
9-8.14.2.1 The optical source shall be mounted in a suitable
goniometer.
SUBSTANTIATION: The goniometer is fully specified in 9-
8.12.2.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-63 - (9-10.3): Accept in Principle
SUBMITTER: James M. Wilkinson, Pierce Manufacturing Inc.
RECOMMENDATION: Revise text as follows:
"Apparatus shall have sufficient lights to properly illuminate
provide an average minimum level of 1 footcandle (11 lux at the
crew compartment(s); any operator's panel; the engine
compartment; the pump compartment; each enclosed tool
compartment..."
SUBSTANTIATION: Replaces subjective ("properly illuminate")
text with measurable minimum performance level. This action is
consistent with provisions for measurable minimum lighting
performance levels found elsewhere in the 1901 standard (i.e., 2-
6.1, 9-3.2(d), 9-10.1, and 9-10.2). A performance level of 1
footcandle is consistent with the minimum lighting level
established for ground and step areas in 9-10.2.
COMMITTEE ACTION: Accept in Principle.
Modify 9-10.3 to read:
"Apparatus shall have sufficient lights to provide an average
minimum level of 1 footcandle (11 lux) in the crew
compartment(s); the engine compartment; the pump
compartment; and each enclosed tool and equipment
compartment greater than 4 ft<sup>3</sup> (0.11 m<sup>3</sup>) in volume and having an
opening greater than 144 in<sup>2</sup> (9500 mm<sup>2</sup>); as well as on all work
areas, steps, and walkways."
COMMITTEE STATEMENT: The committee is accepting the
recommendation but has removed the words "operators panel"
because they are required to be lighted to a higher level by other
requirements in the standard.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
COMMITTEE STATEMENT: The committee feels the reference to SAE J833 should remain as part of the requirement as that establishes the sizes of drivers the seat needs to accommodate.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION: 

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

(27)

RECOMMENDATION: Change the word “secure” in 2 places to "permanently attached" so the paragraph reads:

“Steps, platforms, or permanently attached secure ladders shall be provided so fire fighters have access to all working and storage areas of the apparatus. The maximum stepping height shall not exceed 18 in. (458 mm), with the exception of the ground to first step, which shall not exceed 24 in. (610 mm). A permanently attached supplemental access/egress means from the ground to these steps, platforms, or permanently attached secure ladders shall be provided where the ground to the first step, platform, or ladder exceeds 24 in. (610 mm). The supplemental access means shall consist of a step(s), platform(s), or ladder(s). The ground to first step height shall be...”

SUBSTANTIATION: Secure has no meaning in this context and the wording "permanently attached" better states the committee’s intent.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION: 

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

(27)

EXPLANATION OF NEGATIVE: 

PETERS: I believe that marking every horizontal surface that was excessive and overkill. In order to avoid possible liability I envision the manufacturers “decorating” the apparatus with signs on places like the front bumper. I think that we presently have enough warning labels plastered all over the apparatus.

COMMITTEE STATEMENT: The committee feels the reference to SAE J833 should remain as part of the requirement as that establishes the sizes of drivers the seat needs to accommodate.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION: 

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

(27)

RECOMMENDATION: Revise the title of 11-7.3 to read: “Stepping, Standing and Walking Surfaces.”

SUBSTANTIATION: This is designed to reduce injuries from slips and falls. It should discourage walking on surfaces that were not designed to be walkways.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION: 

AFFIRMATIVE: 21

NEGATIVE: 1

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

(27)
Marletta is a safety specialist regarding stairs, ramps, walks, flooring, construction and industry fall protection, ladders, scaffolds, slip resistance testing and evaluation, speed bumps, and similar floor surface transitions.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**COMMENT ON AFFIRMATIVE:**

DeWALD: It is correct to define "slip resistant" surfaces in measurable terms. The coefficient of friction that are listed have not been objectively tested as being the minimum coefficient of friction that provides a level of slip resistance which is perceived to be slip resistant. The coefficient of friction that is used here should not be based on eliminating any material currently being used for step and walking surfaces. It should be based on scientific, objective tests of various materials used for step and walking surfaces that are perceived to be slip resistant. Those tests need to be completed and the coefficient of friction should be adjusted based on those tests.

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**RECOMMENDATION:**

Revise the paragraph to read:

"The slip-on unit shall be mounted in a manner that allows access to the engine, pump, and auxiliary systems for routine maintenance. The slip-on unit shall be removable using common hand tools not be welded or otherwise permanently secured to other components."

**SUBSTANTIATION:** The revised wording clarifies the intent of the paragraph.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**RECOMMENDATION:** Add "8-2.1.6" to the list of paragraphs referenced.

**SUBSTANTIATION:** An hour meter should be provided on pump system drive engines.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

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**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**RECOMMENDATION:** Delete 12-5.7 and revise 12-6.2 to read as follows:

Each intake shall have a removable or accessible strainer inside the connection. The strainer shall restrict debris that is too large to pass through the pump.

Add an appendix as A-12-6.2 to read as follows:

Sizing of the openings of the strainer(s) is intended for debris of generally uniform dimensions. It is recognized that debris of nonuniform dimensions, i.e., long in relation to cross section, may be able to pass through the strainer(s) while not being able to pass through the pump.

**SUBSTANTIATION:** The requirements in 12-5.7 were out of place and belong in the pump intake section. They are also being rewritten to put the performance requirement on the strainer, not the pump. At 12-6.2 already addresses intake strainers, these requirements are being combined.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle
1901. 78 - (12-6.3): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise 12-6.3 as follows:

"At least one manually valved intake shall be provided that is
totally controllable at the pump operator's position. The valve and piping
shall be a minimum of 2 1/2 in. (65 mm) nominal minimum size and shall be equipped with a female swivel coupling with
National Hose threads."

SUBSTANTIATION: The existing wording requires an additional
valved intake and is design restrictive as to the type of connection.
The revised wording allows flexibility in design as long as the valve
and piping are at least 2 1/2 in.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 70 - (12-6.5 and 14-5.4): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise 12-6.5 and 14-5.4 to read: "Each
valved intake shall be equipped with a bleeder valve having a
minimum 3/4 in. (19-mm) pipe thread connection, located in
close proximity to the intake, to bleed off air or water from a hose
connected to the intake. The control for the bleeder valve shall be
located not more than 8 in. (152 mm) from the valve operating
mechanism. The bleeder valve shall be operational without the
operator having to get under the apparatus. If a valved appliance is
attached to an intake, it shall be equipped with a 3/4 in. (19-mm)
bleeder valve on each intake."

SUBSTANTIATION: The revised wording clarifies the location of the
tools for the bleeder valves.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 80 - (12-6.6): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Add a new 12-6.6 as follows:

"Each valved intake having a connection size of 4 in. (100 mm)
or larger shall be equipped with an adjustable automatic pressure
relief device installed on the supply side of the valve to bleed off
pressure from a hose connected to the valve intake. The pressure
relief device shall discharge to atmosphere."

Renumber current 12-6.6 and 12-6.7 as 12-6.7 and 12-6.8

SUBSTANTIATION: An intake pressure relief device outside a
valve protects hose and couplings from overpressurization that
could injure fire fighters when using LDH hose lines.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 81 - (Table 12-7.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Add a line to the table to show a 6 in.
(150 mm) discharge with a 1440 gpm (5450 L/min) flow.

SUBSTANTIATION: 6 in. (150 mm) size is now available.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 82 - (12-7.5): Accept
RECOMMENDATION: Revise text as follows:

12-7.5 All 4 1/2 in. 1 1/2 in., or larger discharge outlets shall be
equipped with a drain or bleed-off valve having a minimum 5/4 in.
pipe thread connection for draining or bleedinoff pressure from a
hose connected to the outlet.

SUBSTANTIATION: Crosslays and speedlays lack a method of
bleeding-off pressure from hose connected to the discharge. In
addition, it is often quite difficult to disconnect these lines to
facilitate draining.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 83 - (12-9.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the paragraph to read:

"Each pump control, gauge, and other instrument necessary to
operate the pump shall be marked with a label as to its function
and shall be located on a panel known as the pump operator's
panel."

SUBSTANTIATION: This adds a requirement for the labeling of the
pump controls, gauges, and other instruments.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 84 - (12-9.4): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Delete 12-9.4 and renumber A-12-9.4 as
A-12-9.1.

SUBSTANTIATION: 12-9.4 is a duplicate of 24-6.2.

COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901. 85 - (12-10.5, 12-11.2, 14-10.5 and 14-10.6): Accept in Principle
SUBMITTER: Ronald Ewers, Class 1
RECOMMENDATION: Replace paragraphs 12-10.5, 12-10.6,
12-11.2, and 14-10.5 and 14-10.6 with the following:

12-10.5. When the water pump is driven by a split shaft PTO,
transmission mounted (SASE) PTO, front-of-engine crankshaft
PTO, or engine flywheel PTO, and is used for stationary pumping
or "Pump and Roll" pumping with the chassis automatic
transmission in neutral or pumping gear, indicators and an
interlock shall be provided as follows:

(a) A "Pump Engaged" indicator in the driving compartment
that indicates the pump shaft has been successfully completed.
(b) an "OK to Pump" indicator in the driving compartment
that indicates the apparatus is in a stationary pump mode; that is,
the pump is engaged, the chassis transmission is in pump gear,
and the parking brake is engaged.
(c) A "Throttle Ready" interlock and indicator at the pump
operator's panel that indicates the chassis transmission is in
neutral and the parking brake is engaged, or when the apparatus
is in "OK to pump."

When the chassis engine is utilized to drive the
pump, the "Throttle Ready" interlock shall prevent advancement of
the engine speed at the pump operator's panel.

SUBSTANTIATION: The new verbiage allows for new
technology, simplifies instructions, and identifies interlock
indicators.
COMMITTEE ACTION: Accept in Principle.

Replace 12-10 through 12-10.7 with the following:

12-10.1 Provisions shall be made for placing the pump drive system in operation using controls and switches that are identified and located in a convenient reach of the operator. Indicator and interlock systems shall be provided as required by this pump control section.

12-10.1.1 Where the pump is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for pumping operations. Where an automatic fan clutch is furnished, the fan shall be engaged for pumping operations.

12-10.1.2 Any control device used in the pumping system power train between the engine and the pump shall be provided with a means to prevent unintentional movement of the control device from its set position in the pumping mode.

Exception: Auxiliary manual pump shift override devices shall not require such means.

12-10.1.3 A label indicating the transmission shift selector position to be used for pumping shall be provided in the driving compartment and located so that it can be read from the driver's position.

12-10.1.4 Where the pump is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the pump drive system is engaged. Where the chassis transmission retarders are furnished, they shall be automatically disengaged for pumping operations.

12-10.2 Where the apparatus is equipped with an automatic chassis transmission and the water pump is driven by the chassis engine through the transmission main drive line and the apparatus is to be used for stationary pumping only, an interlock system shall be provided to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the pump drive system can be safely operated from the pump operator's position.

12-10.2.1 A "Pump Engaged" indicator shall be provided in the driving compartment to indicate that the pump shaft has been successfully completed.

12-10.2.2 An "OK to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged, the chassis transmission is in pump gear, and the parking brake is engaged.

12-10.2.3 A "Throttle Ready" indicator shall be provided at the pump operator's panel that indicates that the apparatus is in "OK to Pump" mode, or that the filter transmission is in neutral and the parking brake is engaged.

12-10.3 Where the water pump is driven by a transmission mounted (SAE) PTO, front of engine crankshaft PTO, or engine flywheel PTO, and the apparatus is to be used for stationary pumping only with the chassis transmission in neutral, an interlock system shall be provided to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the pump system can be safely operated from the pump operator's position.

12-10.3.1 A "Pump Engaged" indicator shall be provided both in the driving compartment and at the pump operator's position to indicate that the pump shaft has been successfully completed.

12-10.3.2 An "OK to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged and the chassis transmission is in neutral and the parking brake is engaged.

12-10.3.3 A "Throttle Ready" indicator shall be provided at the pump operator's panel that is energized when the "OK to Pump" indicator is energized or when the chassis transmission is in neutral and the parking brake is engaged.

12-10.4 Where the water pump is driven by a transmission mounted (SAE) PTO, front of engine crankshaft PTO, or engine flywheel PTO and the apparatus is to be used for either stationary or "pump and roll" pumping with the automatic chassis transmission either in neutral for stationary pumping, or in a road gear for pump and roll, an interlock system shall be provided to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the apparatus can be safely operated in either stationary or pump and roll pumping mode.

12-10.4.1 A "Pump Engaged" indicator shall be provided both in the driving compartment and at the pump operator panel to indicate that the pump shaft has been successfully completed.

12-10.4.2 An "OK to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged and the chassis transmission is in neutral and the parking brake is engaged. An "OK to Pump and Roll" indicator shall be provided in the driving compartment and shall be energized when the pump is engaged, the chassis transmission is in road gear, and the parking brake is released. When the "OK to Pump and Roll" indicator is energized, the "OK to Pump" indicator shall not be energized.

12-10.4.3 A "Throttle Ready" indicator shall be provided at the pump operator's panel that is energized when the "OK to Pump" indicator is energized or when the chassis transmission is in neutral and the parking brake is engaged.

12-10.5 An interlock system shall be provided to prevent advancement of the engine speed at the pump operator's panel unless the chassis transmission is in neutral and the parking brake is engaged, or the apparatus is in "OK to Pump" mode.

A-12-10 The indicator lights and interlocks specified in this section are minimum. Some manufacturers or users might choose to add additional indicator lights or interlocks.

A-12-10.1.2 Pumps operated from the side, top, front, or rear of the vehicle, and stationary pumping requires that there is no power applied to the wheels while pumping. Therefore it is essential that any pumping system controls, which shift the vehicle out of road mode of operation to place the pumping system into operation, be equipped with a means to prevent dislocation of the control from its set position in the pumping mode.

Delete 12-11.2.

Replace 14-9 through 14-9.7 with the above wording and delete 14-10.2.

COMMITTEE STATEMENT: The committee has reviewed the whole pump shift indicator needs and has revised the section to simplify and clarify the requirements while addressing the submitters concerns.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-86 - (12-10.9.2): Accept in Principle
SUBMITTER: Ronald Ewers, Class 1
RECOMMENDATION: Revise text to read as follows:
12-10.9.2 The system shall be equipped with an amber indicating light indicator, that is energized when the system is in control of the pressure. The system shall be controllable by one person at the pump operator position.

SUBSTANTIATION: New control systems use graphic displays.

COMMITTEE ACTION: Accept in Principle.

Revise 12-10.9.2 to read as follows:
"If the pump is equipped with a relief valve system where the system does not control engine speed, the system shall be equipped with a means to indicate when the system is in control of the pressure. If the pump is equipped with a governor system that controls engine speed, an indicator shall show when the system is turned on and whether it is controlling the engine speed or pump pressure. Either system shall be controllable by one person at the pump operator position."

COMMITTEE STATEMENT: A relief valve system and a pressure governor system work differently and different indicators are needed to identify what the system is doing. This revised wording separates the requirements for the two systems. The committee feels this addresses the submitters concerns.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle (Log #637)
COMMITTEE ACTION: Accept in Principle.

Revised 12-12.2.1 to read as follows:

12-12.2.1 Master pump intake and pump discharge pressure indicating devices shall be located within 8 in. (200 mm) of each other edge to edge with the intake pressure indicating device to the left of the pump discharge pressure indicating device. The intake indicating device shall read from 30 in. Hg (101.6 kPa) vacuum to at least 300 psig (2070 kPag). The discharge indicating device shall read from 0 psig or lower to at least 800 psig (2070 kPag). Pressure indicating devices shall not be damaged by a 30 in. Hg (101.6 kPa) vacuum. Pressure indicating devices shall be marked with labels that read “Pump Intake” for the intake pressure indicating device and “Pump Discharge” for the discharge pressure indicating device.

COMMITTEE STATEMENT: The additional revisions clean up the wording and integrate the last sentence of the submitters substantiation into the requirements.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-91 - (12-12.4): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read:

“Each pressure indicating device or flow meter, and its respective display, shall be mounted and attached so as to be protected from accidental damage and excessive vibration.”

SUBSTANTIATION: The revised wording clarifies that the displays must be mounted and attached so as to be protected from accidental damage and excessive vibration, not just the device itself.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-92 - (12-12.5): Accept
SUBMITTER: Gary Handwerk, Hale Products, Inc.

RECOMMENDATION: Eliminate 12-12.5.

SUBSTANTIATION: This is misleading and confuses fire department people, at -40°F water freezes, the gauge may work but the line is frozen.

COMMITTEE ACTION: Accept.

Also delete 13-10.4, 14-11.3, 17-5.4 and 18-7.4.

COMMITTEE STATEMENT: The same requirement appears as paragraphs 13-10.4, 14-11.3, 17-5.4 and 18-7.4. Deletion of those paragraphs is necessary for consistency in the standard.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-93 - (12-13.2.2.6): Reject
SUBMITTER: Tom Furdek, FAMA

RECOMMENDATION: Add text as follows:

12-13.2.2.6 Speed measuring means other than the engine speed tachometers on the pump operator’s panel (see 12-12.1.1) or in the driving compartment (see 10-2.4) shall be used to measure the rotational speed of the pump drive system such that the pump impeller shaft speed can be calculated. Such speed measuring means shall be accurate to within ± 50 rpm of actual speed. A plate showing the method of calculating pump impeller speed shall be permanently attached adjacent to the speed measuring means.

SUBSTANTIATION: You now allow a means of monitoring engine speed other than the hand counter. At the same time you deleted the need for a plate showing how to calculate pump speed. You still need to tell people how to calculate impeller speed by multiplying engine speed times the gear ratios of the gearbox(s).

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: The plate is not needed and is redundant with 12-12.1.5.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-95 - (12-13.2.2.6.6): Reject
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add a new paragraph and table to read:

Each flowmeter shall be calibrated and tested at the flow listed in Table 12-12.3.3 for the pipe size it is mounted in. At this flow, the flowmeter shall have an accuracy of ±5%.

<table>
<thead>
<tr>
<th>Pipe size</th>
<th>Flow GPM</th>
<th>Flow L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>inch</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>1 1/2</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>51</td>
<td>160</td>
</tr>
<tr>
<td>2 1/2</td>
<td>63</td>
<td>250</td>
</tr>
<tr>
<td>3</td>
<td>76</td>
<td>575</td>
</tr>
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<td>125</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>1440</td>
</tr>
</tbody>
</table>

SUBSTANTIATION: With the increased use of flow meters on fire apparatus, accuracy requirements are needed.
Recommending: Add a new 13-6.1 to read as follows:

"Each pump control, gauge, and other instrument necessary to operate the auxiliary pump shall be marked with a label as to its function and shall be located on a panel known as the pump operator’s panel."

Recommending: There is currently no requirement in Chapter 13 that pump controls, gauges and instruments be marked or located on a pump panel. This will make the requirements consistent with other sections of the standard.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-95 - (13-10.3): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise the paragraph to read:

"Each pressure indicating device or flow meter, and their respective display, shall be mounted and attached so it is protected from accidental damage and excessive vibration."

Substantiation: The revised wording clarifies that the displays must be mounted and attached so as to be protected from accidental damage and excessive vibration, not just the device itself.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-96 - (14-5.5): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Add a new 14-5.5 as follows:

"An intake pressure relief device outside a shut-off valve protects hose and couplings from overpressurization that could injure firefighters when using LDH hose lines."

Substantiation: This change essentially adds a requirement that tanks be mounted in accordance with the tank manufacturer’s recommendations. This should ensure the tank is properly supported.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-97 - (14-8.1): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise the paragraph to read as follows:

"Each pump control, gauge, and other instrument necessary to operate the transfer pump shall be marked with a label as to its function and shall be located on a panel known as the transfer pump operator’s panel."

Substantiation: This editorially revises the requirement for consistency with other sections of the standard and adds a requirement that the controls, gauges and instruments be labeled.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-98 - (14-8.3): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Delete 14-8.3.

Substantiation: Paragraph 14-8.3 is redundant with 2-6.2.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-99 - (14-11.2): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise the paragraph to read:

"Each pressure indicating device or flow meter, and their respective display, shall be mounted and attached so it is protected from accidental damage and excessive vibration."

Substantiation: The revised wording clarifies that the displays must be mounted and attached so as to be protected from accidental damage and excessive vibration, not just the device itself.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-100 - (15-2.3): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise 15-2.3 to read:

"Tanks shall be cradled, cushioned, spring mounted or otherwise supported."

Substantiation: This change essentially adds a requirement that tanks be mounted in accordance with the tank manufacturer’s recommendations. This should ensure the tank is properly supported.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-101 - (15-2.4.2): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise the last sentence to read:

"The partitions shall be arranged in such a manner that the vertical plane passed through of each partition shall create cells for which no dimension shall exceed 48 in (1220 mm)."

Substantiation: These changes are to clarify the intent of the existing paragraph.

Committee Action: Accept.

Number of Committee Members Eligible to Vote: 27

Vote on Committee Action:
Affirmative: 22
Not Returned: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-102 - (15-2.5): Accept
Submitter: Technical Committee on Fire Department Apparatus

Recommending: Revise the paragraph to read as follows:

"One or more clean-out sumps shall be provided, that extend below the bottom of the tank with a 3 in. (76 mm) or larger A 3 in. (76 mm) or larger removable pipe plug shall be furnished in each tank provided."

Substantiation: This change allows more flexibility in the sump and cleanout arrangement.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

**SUBMITTER:** Dale K. Larson, Fireman’s Friend Engineering, Inc.

**RECOMMENDATION:** Delete requirement for throttled shutoff valve (paragraph 15-4.4).

**Note:** Supporting material available for review at NFPA Headquarters.

**SUBSTANTIATION:** Arrangements are now available that provide self-closing capability, without leaking, eliminating the need for a manual closing valve. Fire departments should have the option of controlling flow into the tank at another location.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The committee feels that a throttling valve is necessary at the apparatus.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-105- (15-4.4 and 15-5): Reject

**SUBMITTER:** Gary Handwerk, Hale Products, Inc.

**RECOMMENDATION:** Move to Appendix.

**SUBSTANTIATION:** If department isn’t using a Foldatank system you may not want these items. We must get back to a minimum standard.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The committee feels that part of a mobile water supply system should be the ability to fill directly into the tank and to off load to either side or the rear.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-105- (15-5): Reject

**SUBMITTER:** Peter W. Szerlag, Arlington, MA

**RECOMMENDATION:** Add text to read as follows:
“Every water tender shall have dump valves which cannot be accidentally opened by children.”

**SUBSTANTIATION:** Safety/obvious/it’s about time/future thinking/low cost/cheap/plus for low costs/why not?

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The committee feels that if fire departments see this as a problem, they can specify some type of device to accomplish this. The proposal as written is not measurable (what does “accidentally opened” mean? This has not been a problem the committee is aware of.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-106- (16-2.5): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** In the second sentence, delete the wording “be attached in a manner as to be secure from twisting” and replace with “not twist.” The resulting sentence will read:
“Where covering is provided, it shall not twist and shall cover at least 60 percent of the length of each rung.”

**SUBSTANTIATION:** The term “secure” is not measurable.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-107- (16-4.1): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Delete 16-4.1 and renumber 16-4.2 and 16-4.3 as 16-4.1 and 16-4.2.


Add a new paragraph as 16-18.2 and renumber 16-18.2 through 16-18.9 as 16-18.3 through 16-18.10. The new 16-18.2 would read:

The primary device or operator's position at ground level shall be arranged so that the operator is not in contact with the ground. A sign(s) shall be placed to warn the operator(s) of electrocution hazards.

**SUBSTANTIATION:** The requirement to have all the operators off the ground should be the same for all aerial devices.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-108- (16-5.1.3): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Delete the following text from the end of 16-5.1.3: “and will dampen the impact of the aerial ladders base section on the ladder rest.” The remaining sentence will read: “A locking device shall be provided that will retain the aerial ladder in the bed when the vehicle is in motion.”

**SUBSTANTIATION:** This will make the text consistent with similar paragraphs for elevating platforms (16-10.4) and water towers (16-15.2). Systems which dampen aerial impact are not well defined and lead to many different interpretations.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 22
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

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1901-109- (16-5.4(c)): Reject

**SUBMITTER:** Tim McDonald, Pierce Manufacturing Inc.

**RECOMMENDATION:** Revise text as follows:
(c) If the tip controls are momentary switches, the maximum speed of the ladder functions measured at the tip shall be as follows:

1. Rotation at 2 ft/sec (0.6 m/sec), when fully extended at 0 degrees elevation;
2. Elevation and lowering at 1 ft/sec (0.3 m/sec);
3. Extension and retraction at 1/2 ft/sec (0.15 m/sec).

If the tip controls are proportional controls, the maximum speed of the ladder function measured at the tip shall be as follows when operating from the tip control station:

1. Rotation at 4 ft/sec (1.2 m/sec), when fully extended at 0 degrees elevation;
2. Elevation and lowering at 2 ft/sec (0.6 m/sec);
3. Extension and retraction at 1 ft/sec (0.3 m/sec).

**SUBSTANTIATION:** Tip controls that operate momentary switches must have the slower speed setting to keep the risk of throwing the operator from the ladder as the switch is turned on to move the device. The setting is slow enough, and there are times when the operator needs to move quicker. Two examples would be the maneuvering during a rushing water rescue or if a roof would collapse and the operator was exposed to a tremendous amount of heat.

Proportional controls can still be limited to the above speeds yet they allow the operator the capability "ramp" on or off the speed to adjust to the situation without the fear of "ladder whip."

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** The speeds as proposed are too fast for safe operation from the tip of an aerial ladder.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27
**VOTE ON COMMITTEE ACTION:**
**AFFIRMATIVE:** 21
**NEGATIVE:** 1
**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle
EXPLANATION OF NEGATIVE:
DeWald: There is no substantiation that the proposed speeds to be allowed with proportional tip controls are too fast for safe operation from the tip of an aerial ladder. The maximum speeds that are currently in the standard were based on momentary switches controlling the operation and there is a good basis for the slower maximum speeds with momentary switches so that the there is no "ladder whip". Proportional controls put the operator in control of the speed and the start and stop of a function can be "feathered" by the operator. The proposed higher maximum speeds with proportional controls gives the operator a greater range to operate with and can actually make the operation safer when there is a need to move the ladder out of danger. The current maximum speeds are very slow. No one has presented any objective data to show that the proposed speeds with proportional controls would be too fast for safe operation.

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-115 - (16-4.2): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Change 16-6.2(a) to read:
"A ladder pipe suitable for quick-attaching with 1 7/8-in. (32-
mm), 1 7/8-in. (32-mm), 1 1/2-in. (38-mm), and 1 1/2-in. (38-
mm) tips that can be attached to the aerial ladder with 1 1/4-in. (32-mm), 1 3/8-in.
(35-mm), and 1 1/2-in. (38-mm) tips;"
Change 16-6.2(b) to read:
"A suitable Sufficient length(s) of 3-in. (76-mm) attack hose
complying with the requirements of NFPA 1961, Standard for Fire
Hose, to reach between the installed ladder pipe and the ground
with at least 10 ft (3 m) of hose available on the ground with the
ladder at full extension;".

SUBSTANTIATION: Suitable is not a measurable term.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-115 - (16-4.2): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Change 16-6.2(a) to read:
"A ladder pipe suitable for quick-attaching with 1 7/8-in. (32-
mm), 1 7/8-in. (32-mm), 1 1/2-in. (38-mm), and 1 1/2-in. (38-
mm) tips that can be attached to the aerial ladder with 1 1/4-in. (32-mm), 1 3/8-in.
(35-mm), and 1 1/2-in. (38-mm) tips;"
Change 16-6.2(b) to read:
"A suitable Sufficient length(s) of 3-in. (76-mm) attack hose
complying with the requirements of NFPA 1961, Standard for Fire
Hose, to reach between the installed ladder pipe and the ground
with at least 10 ft (3 m) of hose available on the ground with the
ladder at full extension;".

SUBSTANTIATION: Suitable is not a measurable term.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
**NFPA 1901 — A99 ROP**

1901-117 - (16-17.5): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise the paragraph to read:

"Controls in the operator’s position shall be lighted, clearly marked with a label, and conveniently arranged. They shall be provided at a position so that the operator can easily operate them without disturbing any other control(s)."

**SUBSTANTIATION:** The levels of illumination for controls, switches, etc. are defined in 9.6.1

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP4)

1901-118 - (16-17.5.3): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise the sentence as follows:

"All controls at the operator’s position shall be arranged so that they can be easily operated by an operator with a gloved hand without disturbing any other control(s)."

**SUBSTANTIATION:** This clarifies the intent of the sentence.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP12)

1901-119 - (16-18.2): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Delete the words "suitable" and "adequate" from the paragraph. The paragraph would then read:

"Where the aerial device includes moving cylinders or other moving parts, these shall be arranged so as to provide hand clearance, or hand guards shall be provided to prevent injury to the operator."

**SUBSTANTIATION:** The terms "suitable" and "adequate" are not measurable.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP5)

1901-120 - (16-21.2.2): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise 16-21.2.2 to read as follows:

"Where the rated vertical height of the aerial device elevation platform is 110 ft (34 m) or less, all the stabilizers shall be deployed in not more than 90 seconds from the stored position to the operating position."

**SUBSTANTIATION:** The section on stabilization applies to all aerial devices, not just elevating platforms. This change to the text will reflect this.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP15)

1901-121 - (17-3.5): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise the sentence to read:

"The foam concentrate supply line shall not collapse under all operating conditions specified by the manufacturer of the foam proportioning system."

**SUBSTANTIATION:** Pickup tube hose supplied by the final stage manufacturer is sometimes not sufficiently reinforced to withstand the vacuum generated by line proportioners operating under high flow conditions.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP37)

1901-122 - (17.3.7): Accept

**SUBMITTER:** Technical Committee on Fire Department Apparatus

**RECOMMENDATION:** Revise the paragraph to read as follows:

"A minimum of one strainer or filter device shall be provided on the foam concentrate supply side of the foam proportioner to prevent any debris that might affect the operation of the foam proportioning system from entering the system. The device shall consist of a removable straining element, housing, and retaining. The strainer assembly shall allow for removal of debris without shutting off the flow capacity of the foam supply line."

**SUBSTANTIATION:** Current wording is based on design requirements. Revised wording is based on performance requirements.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

(Log #CP38)

1901-123 - (17-3.8): Accept

**SUBMITTER:** Roger A. Ruth, National Foam, Inc.

**RECOMMENDATION:** Delete paragraph 17-3.8.

**SUBSTANTIATION:** The intent of this paragraph was to require the installation of a check valve or similar device upstream of the ratio flow controller(s) (proportioners) on balanced pressure and direct injection type foam proportioning systems to prevent foam concentrate from being forced into the water pump. The condition where foam concentrate is forced into the water pump can only occur when there is no water flow from a discharge (shutoff or standby operation), the foam metering valve is "open" either from malfunction or operator error.

1. Standard operating procedure instructs the operator to "close" the metering valve and turn the system "off" when there is no water flow from the designated discharge.
2. Installation of check valves will not always prevent foam concentrate from entering the water pump if the metering valve is "open." The foam concentrate flow will typically be from 3 to 15 gpm and will be intermittent as the balancing system cycles. This low flow and intermittent pressure spike is not sufficient to close a check valve under turbulent conditions.
3. The installation of check valves directly ahead of the ratio flow controller(s) (proportioners) creates a turbulent flow condition that can affect accurate proportioning.
4. The installation of check valves on the discharge side of the pump adds friction loss and complexity to the system.
5. The addition of check valves for each discharge adds unnecessary expense to the system.

National Foam feels that while there is good reason to require installation of a check valve from the foam concentrate supply upstream of the controller(s), the benefit does not outweigh the expense.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle
1901-124 - (17.4.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read as follows:
“The foam proportioning system operating controls shall be located at the pump operator’s position and shall be identified as required by 17.6.2. Clearly identified.”

SUBSTANTIATION: The word “clearly” is difficult to define in a pass/fail performance evaluation. The revised wording is based on performance requirements.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-125 - (17.4.2): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read:
“Foam proportioning systems that require flushing after use shall be provided with readily accessible controls accessible to the operator to completely flush the system with water according to the manufacturer’s instructions.”

SUBSTANTIATION: The word “readily” is difficult to define in a pass/fail performance evaluation. Revised wording is a performance based requirement.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-126 - (17.5.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read:
“The displays of all pressure indicating devices or flow meters, and other indicators (e.g., fluid level indicators) shall be located so that they are readily visible from the pump operator’s position and shall meet the requirements of 23.5. All pressure indicating devices or flow meter displays shall be mounted in a manner that protects the indicating device or display from physical damage and excessive vibration.”

SUBSTANTIATION: The revised wording is consistent with wording in other parts of the standard. The word “readily” is difficult to define in a pass/fail performance evaluation. Revised wording is a performance based requirement. The last sentence is being moved to a new paragraph [see Committee Proposal 1901-127 (Log #CP42)].

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-127 - (17.5.4): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Add a new paragraph 17.5.4 to read as follows:

“Each pressure indicating device or flow meter, and its respective display, shall be mounted and attached so it is protected from accidental damage and excessive vibration.”

Revert 17.5.4 and 17.5.5 as 17.5.5 and 17.5.6

SUBSTANTIATION: The new wording is moved, and revised from 17.5.1 to be consistent with similar wording in other sections of the standard.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-128 - (17.6.3): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read as follows:

“The foam concentrate tank shall be provided with a fill/tower or expansion compartment having a minimum area of 12 in.2 (774.2 mm2) and having a volume of not less than 1/2 percent of the total tank volume. The fill tower opening shall be protected by a completely sealed sight glass. The cover shall be attached to the fill tower by mechanical means. The fill opening shall be incorporated to incorporate a 1/4 in. (6 mm) removable screen with a mesh size not to exceed 1/4 in. (6 mm) and shall be arranged so that foam concentrate from a 5-gal (18-L) container can be dumped directly to the bottom of the tank to minimize aeration without the use of funnels or other special devices.”

SUBSTANTIATION: An expansion volume of 1 percent is sufficient for 10 gallon through 3000 gallon foam concentrate tanks. The current 2 percent requirement dictates an expansion compartment that is not always practical in the larger volume tanks. For example, a 5000 gallon tank required a 60 gallon expansion compartment. The other changes are for clarification.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-129 - (17.6.9): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read:

“The foam concentrate discharge system design shall prevent the siphoning of foam concentrate.”

SUBSTANTIATION: This section is referring to the tank and dealing with foam concentrate. Foam is aspirated foam concentrate produced by an aspirating discharge device.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-130 - (17.8.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise 17.8.1 to read:

“If the tank is charged with a compressed gas or a pressurized liquid and it falls within the scope of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, it shall be designed, fabricated, and stamped in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, for the rated pressure.”

SUBSTANTIATION: The revisions reflect current industry practice and recognize that not all pressure vessels used by apparatus builders are subject to the ASME Boiler and Pressure Vessel Code.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-131 - (17.8.2): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph to read:

“All pressure tanks and associated foam proportioning system piping and components shall be designed to withstand a minimum of 1.12 times the maximum working pressure of the pressure vessel and shall be tested to the working design pressure of the pressure vessel after installation.”

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

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I RECOMMENDATION: Revise the paragraph to read:

SUBSTANTIATION: This requirement is intended to specify the design and testing of the piping and components of the foam proportioning system. Testing of the pressure vessel is covered under 17-8.1.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-132 - (17-8.6): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the paragraph to read:

If the tank pressure vessel is charged with a compressed gas or a pressurized liquid, a suitable ASME relief valve that meets the applicable requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Div. 1, properties, shall be installed on the pressure vessel and set to prevent the vessel tank pressure from exceeding 110 percent of the maximum allowable working pressure.

SUBSTANTIATION: The words “pressure vessel” is being substituted for “tank” for consistency with other paragraphs in this section. These changes also recognize that the charging agent can be a pressurized liquid as well as compressed gas. The words “properly set” are difficult to define in a pass/fail performance evaluation. Revised wording is a performance based requirement. ASME does not “approve” system components.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-133 - (17-8.8): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the paragraph to read:

A display indicating the internal pressure of the pressure vessel shall be located at the operator’s position.

SUBSTANTIATION: The revised wording allows for the use of digital gauges which could have the sensor and display separated.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-134 - (17-9.2): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the paragraph to read as follows:

Each control, gauge, and indicator necessary to operate the foam proportioning system shall be marked with a label as to its function.

SUBSTANTIATION: The words “marked clearly” are difficult to define in a pass/fail performance evaluation. Revised wording is a performance based requirement. The additional revisions are intended to clarify the intent of the paragraph.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-135 - (17-9.3): Accept in Principle
SUBMITTER: Roger A. Ruth, National Foam, Inc.
RECOMMENDATION: Delete current wording in paragraph 17-9.3. Replace with the following new wording:

A nameplate, located at the operator’s position, shall provide the following information pertaining to the operating specifications of the foam proportioning system:

(a) Fire classification (Class A, Class B, etc.).
(b) Type of foam concentrate (Class A, Class B, Protein, Fluoroprotein, Aqueous Film Forming Foam (AFFP), Film Forming Fluoroprotein (FFF), and Alcohol Resistant Foam).
(c) Proportioning rate (percent).
(d) Maximum/minimum operating pressure (psi).
(e) Maximum/minimum operating pressure (psi).

SUBSTANTIATION: Nameplate data is required to advise the operator of the foam proportioning system design limitations and the type(s) of foam concentrate compatible with the system. In addition, this requirement is intended to warn the operator that foam concentrates not listed on the nameplate may not proportion correctly in the system without modifications by the manufacturer.

COMMITTEE ACTION: Accept in Principle.

Replaced 17-9.3 with the following:

“A plate, located at the operators position, shall provide the following information pertaining to the operating specifications of the foam proportioning system:

(a) Foam classification type (Class A, Class B, etc.).
(b) Types of foam concentrates for system use (“see Operation Manual”).
(c) Proportioning rate (percent).
(d) Maximum/minimum operating pressure (psi).
(e) Maximum/minimum operating pressure (psi).”

COMMITTEE STATEMENT: Because of the variety of concentrates that could be used by some systems, the committee recommends referring the operator to the “Operation Manual” for system foam concentrate capabilities. See Committee Proposal 1901-136 (Log #CP50) that modifies 17-9.4 to require that the system foam concentrate capabilities be provided in that manual.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-136 - (17-9.4): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise 17-9.4 to read:

“Two copies of an operations and maintenance manual shall be provided. They shall include a complete diagram of the system together with operating instructions, system foam concentrate capabilities, original system calibration, and details outlining all recommended maintenance procedures.”

SUBSTANTIATION: Data is required to advise the operator of the foam proportioning system design limitations. Because of the variety of concentrates that could be used by some systems, the committee is referring the operator to the “Operation Manual” for that information. See public proposal 1901-135. (Log #99). The modification to 17-9.4 requires that the system foam concentrate capabilities and the original system calibration data be provided in that manual.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-137 - (17-10): Accept in Principle
SUBMITTER: Dan W. McKenzie, USDA Forest Service
RECOMMENDATION: Revise text to read as follows:

17-10 Foam Proportioning System Accuracy. The accuracy of the foam proportioning system shall be tested by the apparatus manufacturer prior to delivery of the apparatus. If the manufacturer’s rated proportioning ratio is below 3 percent, the foam system shall proportion foam concentrate within + or -20 percent of the manufacturer’s stated range of water flow and
压力。如果制造商的调节比例在+或-3%之外，泡沫系统将根据制造商声明的流量和压力范围调节泡沫浓度。如果制造商声明的调节比例在+或-3%之外，调节比例将在±5%以内。

**COMMITTEE ACTION:** Accept in Principle.

**RECOMMENDATION:** Revis the text to read as follows:

**17-3-1** Foam Proportioning System Accuracy. The accuracy of the foam proportioning system shall be tested by the apparatus manufacturer prior to delivery of the apparatus. The foam system shall proportion foam concentrate to an accuracy of ±10 percent throughout the manufacturer's stated range of water flow and pressure.

**COMMITTEE STATEMENT:** This changes the foam proportioning system accuracy to what was originally set by NFPA 11C. No documented reasons for changing from these previously established accuracy requirements have been presented.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**RECOMMENDATION:** Revise the paragraph to read:

If a holding, surge, or separator tank is provided and it falls within the scope of the ASME Boiler and Pressure Vessel Code, Section VIII, Division I, it shall be designed, fabricated, and stamped in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division I, for the rated required pressure.

**SUBSTANTIATION:** The revision reflects current industry practice and recognizes that not all pressure vessels used by apparatus builders are subject to the requirements of the Boiler and Pressure Vessel Code.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**RECOMMENDATION:** Revise the paragraph to read:

"All compressed air source controls shall be located at the pump operator's position and shall be clearly labeled with a plate in accordance with the requirements of 18-8.1."
The NFPA definition of “Listed” applies to equipment and materials included in a list published by an organization acceptable to the authority having jurisdiction and whose listing states that the equipment or material meets identified standards or has been tested and found suitable for a specified purpose. Based on this definition all line-voltage electrical equipment used on automotive fire apparatus is eligible for listing.
Where an automatic chassis transmission is provided, a second indicator light shall be energized when the PTO shift has been completed and the automatic fan clutch is engaged. A green indicator light located on the operator's panel shall be marked "Generator PTO Engaged." This green indicator light located in the driving compartment and a completed and shall be marked "Generator PTO Engaged." Where an automatic chassis transmission is provided, a second green indicator light located in the driving compartment and a green indicator light located on the operator's panel shall be energized when both the PTO shift has been completed and the chassis transmission is engaged in the correct gear. The light at the operator panel shall be marked "Generator PTO Engaged."

**SUBSTANTIATION:** All labeling should be consistent and also indicate that generator PTO is engaged (not necessarily generator output).

**COMMITTEE ACTION:** Accept in Principle.

Replace paragraph 19-4.9 through 19-4.9.2 with the following:

**19-4.9.1** Operation.

19-4.9.1.1 Provisions shall be made for placing the generator drive system in operation using controls and switches that are identified and within convenient reach of the operator. Indicator and interlock systems shall be provided as required by this chapter.

19-4.9.2 Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations. Where an automatic fan clutch is furnished, the fan shall be engaged for generator operations.

19-4.9.3* Any control device used in the generator system power train between the engine and the generator shall be equipped with a means to prevent unintentional movement of the control device from its set position in the power generation mode.

A-19-4.9 The indicator lights and interlocks specified in this section are minimum. Some manufacturers or users might choose to add additional indicator lights or interlocks.

A-19-4.9.3 Generators are operated from the side, top, front, or rear of the vehicle, and stationary operation requires that there is no power applied to the wheels while operating. Therefore it is essential that any generator system components, which shift the vehicle out of road mode of operation to place the generator system into operation, be equipped with a means to prevent dislocation of the control from its set position in the power generation mode.

19-5.1.4 A label indicating the chassis transmission shift selector position to be used for generator operation shall be provided in the driving compartment and located so that it can be read from the driver's position.

19-5.1.5 Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged. Where chassis transmission retarders are furnished, they shall be automatically disengaged for generator operations.

19-5.1.6 Where the apparatus is equipped with an automatic chassis transmission and the generator is driven by the chassis engine through the transmission main driveline and the apparatus is to be used for stationary operation, an interlock system shall be provided to ensure that the generator drive system components are properly engaged in the power generation mode of operation so that the system can be safely operated from the operator's position.

19-5.1.6.1 A "Generator Engaged" indicator shall be provided in the driving compartment to indicate that the generator shift has been successfully completed.

19-5.1.6.2 An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged and the chassis transmission is in neutral and the parking brake is engaged.

19-5.1.6.3 A "Throttle Ready" indicator shall be provided at the operator's panel that indicates that the apparatus is in the "OK to Operate Generator" mode, or that the chassis transmission is in neutral and the parking brake is engaged.

19-5.1.7 Where the generator is driven by a transmission mounted (SAE) PTO, front-of-engine crank shaft PTO, or engine flywheel PTO, and the apparatus is to be used for stationary generator operation with the chassis transmission in neutral, an interlock system shall be provided to ensure that the drive system components are properly engaged in the power generation mode of operation so that the generator system can be safely operated from the operator's position.

19-5.1.7.1 A "Generator Engaged" indicator shall be provided both in the driving compartment and at the operator's position to indicate that the generator shift has been successfully completed.

19-5.1.7.2 An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged and the chassis transmission is in neutral and the parking brake is engaged.

19-5.1.7.3 A "Throttle Ready" indicator shall be provided at the operator's panel that is energized when the "OK to Operate Generator" indicator is energized or when the chassis transmission is in neutral and the parking brake is engaged.

19-5.1.8* Where the generator is hydraulically or direct drive driven by a transmission mounted (SAE) PTO, front-of-engine crankshaft PTO, or engine flywheel PTO and the apparatus is to be used for either stationary or "moving mode operation" with the automatic chassis transmission either in neutral for stationary operation, or in a road gear for moving operation, an interlock system shall be provided to ensure that the drive system components are properly engaged in the power generation mode of operation so that the apparatus can be safely operated in either stationary or moving mode.

19-5.1.8.1 A "Generator Engaged" indicator shall be provided both in the driving compartment and at the operators panel to indicate that the generator shift has been successfully completed.

19-5.1.8.2 An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged and the chassis transmission is in neutral and the parking brake is engaged. An "OK to Operate Generator in Motion" indicator shall be provided in the driving compartment and shall be energized when the generator is engaged, the chassis transmission is in road gear, and the parking brake is released. When the "OK to Operate Generator in Motion" indicator is energized, the "OK to Operate Generator" indicator shall not be energized.

19-5.1.8.3 A "Throttle Ready" indicator shall be provided at the operator's panel that is energized when the "OK to Operate Generator" indicator is energized or when the chassis transmission is in neutral and the parking brake is engaged.

19-5.1.9 An interlock system shall be provided to prevent advancement of the engine speed at the operator's panel unless the chassis transmission is in neutral and the parking brake is engaged, or the apparatus is in "OK to Operate Generator" mode.

A-19-5.1.9* Due to variable engine speeds encountered in the "moving mode of operation", direct drive generators are usually not acceptable in fire department operations where controlled outputs of 120/240 volts and 60 cycles (frequency) are required. COMMITTEE STATEMENT: The committee has revised this section to allow flexibility in the types of indicators used to advise the operator of when it is safe to operate the generator and to be consistent with the revised pump control section. See Committee Action on Proposal 1901.85 (Log #109).

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle

**COMMITTEE ACTION:** Accept.

Delete paragraph 19-5.2.2 or make it an appendix item.

**SUBSTANTIATION:** Hydraulic pumps are no different than fire pumps and are not significant point of vibration.

**COMMITTEE ACTION:** Accept.

Delete paragraph 19-5.2.9

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5 Craven, Darley, Guyotte, Ruth, von Zehle
Exception No. 2. Only one circuit is hardwire connected to the power source which is protected by an integrated overcurrent device.

SUBSTANTIATION: If a power source has integrated overcurrent protection, a fault in the system should trip the breaker or fuse. When only one circuit is connected to the supply, the circuit has dedicated overcurrent protection similar to a panel board with protection for each circuit.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-154 - (19-9.6.2): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Delete 19-9.6.2.

SUBSTANTIATION: The flammability rating needs to be deleted because the UL rating of VW-1 is not applicable to loom and there is no rating that is applicable. Since Type SE or Type SEO cable is designed to be abrasion resistant without loom, all of section 19-9.6.2 can be deleted.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-155 - (19-9.7.1): Accept in Principle

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Revise 19-9.7.1 to read as follows:

"All line voltage circuits located in the main panel board shall be identified. The identification shall reference a wiring schematic or wire list or indicate the final termination point, adjacent circuit breaker, or switches."

SUBSTANTIATION: Wiring normally is THHN or SO or MTTW and is not available with permanent identification. Numerical numbering systems (tape) is sufficient and can reference a schematic or wire list, or the circuit breakers can be numbered and appropriately identified.

COMMITTEE ACTION: Accept in Principle.

REVISE 19-9.7.1 TO READ AS FOLLOWS:

"Each line voltage circuit originating from the main panel board shall be identified. The wire or circuit identification shall either reference a wiring schematic or wire list, or shall indicates the final termination point of the circuit."

COMMITTEE STATEMENT: The committee has further refined the wording for clarification.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-156 - (19-10.5.1): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add "and dry" to read "Wet and dry locations."

SUBSTANTIATION: Editorial. The section applies to both dry and wet locations.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-157 - (19-10.5.3): Reject

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add words "wet location" to paragraph to read as follows:

"The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No wet location receptacle shall be installed in a face-up position."

SUBSTANTIATION: Dry location receptacles can be installed face up.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: The committee is not accepting this change because it is inconsistent with the National Electrical Code.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-158 - (19-10.5.4): Accept in Principle

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add "of the receptacle" to paragraph to read as follows:

"Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the receptacle."

COMMITTEE ACTION: Accept in Principle.

REVISE 19-10.5.4 TO READ AS FOLLOWS:

"Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is dc or other than single phase, that information shall be marked on the label."

COMMITTEE STATEMENT: The committee is adding "of the circuit" to the end of the first sentence as it is the circuit rating that is important. The receptacles should be matched to the circuit rating. The other changes are part of the general editorial cleanup of the document.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-159 - (19-11.2): Accept

SUBMITTER: Wayne Kleinmann, Pierce Manufacturing Inc.

RECOMMENDATION: Revise text as follows:

"Rollers or guides shall be provided, where required, to prevent damage to the cable at reel spools or compartment openings."

SUBSTANTIATION: The term "rollers" is design restrictive. If the cable can be protected from damage by other means, it should be allowed. (ref 21-10.9.3 regarding air reels)

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-160 - (19-11.3.2): Accept in Principle

SUBMITTER: Wayne Kleinmann, Pierce Manufacturing Inc.

RECOMMENDATION: Add another sentence to read as follows:

"For manual rewind type reels shall have the control in a position where the operator can safely observe the rewinding operation. If a reel is in an enclosure or out of direct view, then the cord entry point to the enclosure must be visible to the operator of the reel control."

SUBSTANTIATION: Many times departments look to protect the reels from the environment and place them in enclosures where the drum is not able to be viewed.

COMMITTEE ACTION: Accept in Principle.

Accept the submitters recommendation with 2 editorial revisions and is also modifying the first sentence to remove the word safely as it is a non-measurable term.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-161 - (19-14.2): Reject
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Delete entire paragraph 19-14.2.
SUBSTANTIATION: A dielectric voltage withstand test, more commonly known as a "megger" or "hi-pot" test, is traditionally employed to appraise the fitness of an electromechanical device for continued service after repair or an extended period of non-use. Such a test can also be used to check for manufacturing defects in a particular component before it is installed in a system. In the former case, insulation resistance readings are taken at the end of one (1) minute and at the end of ten (10) minutes. The ratio of the two readings yields the polarization index for a particular machine. Recommended minimum polarization indices are 2.0 for ac and dc motors and generators. In the latter case, a high voltage is applied between live parts and/or conductors and the insulated case or chassis to identify internal faults.

If the generator is installed in accordance with the requirements of NFPA 1901, Chapter 10, and NFPA 70, National Electrical Code, and all switches are closed, resistance readings between any live part in any circuit and the neutral conductor or the vehicle frame will be equal to the static winding resistance of the generator in parallel with all permanently connected loads. A megohmmeter will give resistance readings of zero. No polarization index can be calculated.

A dielectric voltage withstand test, which is well suited to component repair and troubleshooting operations, is inappropriate for complete systems installed in fire apparatus. The existence of a fault condition within the system will yield identical test data to that of a fully functional system. Therefore, any data obtained from such a test will be inconclusive.

The test outlined in 19-14-4 provides much more conclusive data regarding the overall condition of the line voltage system and its components as installed on the apparatus.

COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: The committee feels this should be a required test for proper quality control of the finished electrical installation to insure the safety of the persons using the fire apparatus.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-162 - (19-14.4 (New)): Reject
SUBMITTER: James M. Wilkinson, Pierce Mfg. Inc.
RECOMMENDATION: Add a new paragraph within section 19-14.4 to read:

19-14.4: Conditions for Test.
Tests shall be performed within an ambient air temperature range of 0 degrees F to 100 degrees F (-18 degrees C to 38 degrees C).

SUBSTANTIATION: The added provision is consistent with 14-19.1.2 (conditions for pumping tests).

COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: The committee is adding a requirement in Chapter 2 that the apparatus be able to operate in ambient temperatures between 0°F and 110°F (see Committee Proposal 1901-2 (Log #CP76) and does not feel it need to state a temperature range here.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-163 - (19-14.4.2): Accept in Principle
SUBMITTER: James M. Wilkinson, Pierce Mfg. Inc.
RECOMMENDATION: Revise text as follows:

"The power source shall be operated at 100 percent of its nameplate voltage, the system's rated wattage as specified on the Power Source Specification Label for a minimum of 2 hours."

SUBSTANTIATION: The results of significant research and test efforts indicate the need for this revision. There are acceptable power source applications that must be run at a derated power source's nameplate power rating to achieve certification. Per 19-4.10, a "Power Source Specification Label" must be provided. This label provides the OEM's "System Ratings." The certification tests validate these values.

COMMITTEE ACTION: Accept in Principle.

VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-164 - (20-6.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Delete the second sentence which reads: "The surface shall be supported or constructed to support the weight of a person."
SUBSTANTIATION: Surfaces and countertops are working surfaces which need not support a person.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-165 - (20-9.3): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the paragraph to read:

"Dry-type grease boards, cork boards, chalk-type boards, or similar bulletin- or command-type wall surfaces shall be fastened securely bolted in place, easily maintainable, and replaceable."

SUBSTANTIATION: Securely has no meaning and bolted is design restrictive and the term "easily maintainable" is not measurable.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-166 - (20-11.1): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Revise the second sentence to read:

"During transit, computer equipment shall be stored in cabinets or securely mounted on work surfaces with quick release straps or other means."

SUBSTANTIATION: The word securely is not measurable.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
VOTE ON COMMITTEE ACTION:

with pure air from existing compressors or cylinders.

SUBSTANTIATION: The air system can most easily be purged

VOTE ON COMMITTEE ACTION:

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE

ACTION: Accept.

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise the paragraph which reads:

"If a video monitor is provided, it shall be securely mounted to prevent damage during transit."

SUBSTANTIATION: The word securely is not measurable.

Addition of the word "video" is for emphasis.

"mechanically."

ADD 21-2.6.3 to read as follows:

In 21-2.5.2, change the word "suitably" to "mechanically."

In 21-2.7.7, change the word "secured" to "clamped."

In 21-3.8, delete the word "securely."

In 21-5.7.1, delete the word "securely."

In 21-10.9.6, delete the word "suitably."

Change 21-15.2 to read as follows:

"Suitable holder A holder or box shall be provided for the storage of the breathing air equipment when it is not in use.

SUBSTANTIATION: These changes are necessary to clean up some ambiguous language.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.6.3): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

SUBSTANTIATION: The air system can most easily be purged with pure air from existing compressors or cylinders.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.6.3): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Change the test standard from 5 to 1 to 4.

SUBSTANTIATION: The 4 to 1 is standard for the air industry and other codes.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.6.3): Accept

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Revise 21-2.1 to read as follows:

"The operating gauges and instruments shall be no higher than 72 in. above operator's platform (reference 2-6.3 and 2-10.1) and 84 in. above operator's platform. Operating controls shall be no higher than 72 in. above operator's platform (reference 2-6.3 and 2-10.)"

SUBSTANTIATION: This verbiage is the same as a fire pump panel.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: The committee feels this addition is not necessary as 2-6.3 and 2-6.4 apply to all controls on the apparatus, not just pump controls.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.9.1): Reject

SUBMITTER: Technical Committee on Fire Department Apparatus

RECOMMENDATION: Delete "or nitrogen" from 21-2.6.3.

SUBSTANTIATION: This verbiage is the same as a fire pump panel.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.6.3): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Delete the word "securely." in 21-2.7.1, change the word "secured" to "clamped." in 21-5.7.1, delete the word "securely." in 21-10.9.6, delete the word "suitably." in 21-15.2 to read as follows:

"Suitable holder A holder or box shall be provided for the storage of the breathing air equipment when it is not in use.

SUBSTANTIATION: These changes are necessary to clean up some ambiguous language.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.6.3): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add the following new paragraph:

21-2.7.8 Both rigid piping or flexible lines shall be provided with removable mechanical protection devices to prevent wear or damage from portable fire department equipment stored in compartments.

SUBSTANTIATION: The standard does not address the hazards of mechanical damage caused by after-market storage of portable equipment within vehicle.

COMMITTEE ACTION: Accept in Principle.

Add a new 21-2.7.8 to read as follows:

21-2.7.8 Any rigid piping or flexible lines that run through a compartment shall be protected with removable mechanical protection to prevent wear or damage from equipment stored in the compartment.

COMMITTEE STATEMENT: The committee is adding the requested language but has editorially revised it for clarity.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-170 - (21-2.7.8): Accept in Principle
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-175 - (21-2.10(f) (New)): Accept in Principle
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Add (f) to 21-2.10 to read as follows:
(f) For equipment which requires oil or other liquid drainage, the device(s) shall be provided with a remote location for accessible usage. The hose termination point shall be provided with a control valve, threaded plug or cap, and a permanently attached tag to note usage.
SUBSTANTIATION: Many compressors require frequent drainage of liquids and are located in inaccessible locations. This comment made by several fire department users.
COMMITTEE ACTION: Accept in Principle.
Add (f) to 21-2.10 to read as follows:
(f) If equipment requires oil or other liquid drainage, it shall be provided with a remote drainage system. The drainage system shall be provided with a control valve, threaded plug or cap, and a label to note usage.
COMMITTEE STATEMENT: The committee has editorially revised the submitters wording to reduce design specific requirements.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-176 - (21-2.11.2): Reject
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Add the following text to 21-2.11.2:
"Illumination shall be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. If external illumination is provided, it shall be a minimum of 5 footcandles (54 lux) on the face of the device. If internal illumination is provided, it shall be a minimum of 4 footlamberts (14 candela/m²).
All required labels and markings shall be of a type permanent in nature, securely attached, and capable of withstanding the effects of extremes of weather and temperature." 
SUBSTANTIATION: By adding these paragraphs, the air system panels reflect requirements of a fire pump panel.
COMMITTEE ACTION: Reject.
COMMITTEE STATEMENT: The committee feels this addition is not necessary as 2-6.1 and 2-6.2 apply to all controls on the apparatus, not just pump controls.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-177 - (21-2.11.3): Accept
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Revise 21-2.11.3 to read as follows:
"The compressor shall be either air cooled or water cooled."
SUBSTANTIATION: A compressor may be installed in a theoretically proper manner, in terms of an adequate amount of cooling air, but operators may fail to open doors and closures that theoretically proper manner, in terms of an adequate amount of cooling air.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-178 - (21-3.3.1): Accept in Principle
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Add the following text to 21-3.3.1:
"The final installer (if not the air compressor manufacturer) shall submit engineering drawings noting air flow, air panels, access for maintenance, and provisions for fire department equipment storage to the air compressor manufacturer for approval prior to installation into apparatus."
COMMITTEE ACTION: Accept in Principle.
Revise 21-3.3.1 to read as follows:
"The final installer shall install all components in accordance with the component manufacturers instructions and shall test the final assembled system in accordance with this standard and the operating parameters of the component manufacturers."
COMMITTEE STATEMENT: The submitters wording dictated a relationship between the installer and the air compressor manufacturer which the committee considers restrictive in nature. The revised wording requires installation in accordance with the component manufacturer's instructions without requiring that the air compressor manufacturer, who is only one of the component manufacturers, to approve the arrangement.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-179 - (21-3.3.2): Accept
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Delete the following from 21-3.3.2:
"The compressor shall be either air cooled or water cooled."
SUBSTANTIATION: The specific cooling method for the air compressor is restrictive; 21-3.3.3 addresses the compressed air and is sufficient to cover this item.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-180 - (21-3.3.2): Accept in Principle
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Add the following text to 21-3.3.2:
"Any vehicle doors which must be opened to allow for adequate flow of cooling air shall be interlocked to preclude compressor operation with any of those doors closed." 
SUBSTANTIATION: A compressor may be installed in a theoretically proper manner, in terms of an adequate amount of cooling air, but operators may fail to open doors and closures that must be in an open position to allow the full flow of air.
COMMITTEE ACTION: Accept in Principle.
Add the following text as 21-3.3.2:
"Provisions shall be made by the final installer to assure there is adequate cooling to keep the air compressor within the compressor manufacturer's operating temperature range while it is operating in an ambient temperature range of between 32°F and 110°F (0°C and 43°C)."
COMMITTEE STATEMENT: The committee does not feel interlocks should be mandatory but is requiring to final installer to be sure there is adequate cooling without describing how it is to be done.

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VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-181 - (21-3.3.3): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: In 21-3.3.3, change 25°F to 20°F.

SUBSTANTIATION: Most modern compressors designed for breathing air applications are designed to produce air of 15-20°F above ambient air temperatures. Allowing 20°F air temperature would improve the use of compressors not appropriate for the production of air to breathing air standards.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE: 27

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-182 - (21-3.5): Accept in Principle

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add the following text to 21-3.5:

If interstage condensate traps and air storage reservoirs are provided by the compressor manufacturer, they shall be plumbed to a common automatic drain system.

SUBSTANTIATION: Air reservoirs which are part of the air compressor package require such drains (due to freezing, etc.) to a common drain.

COMMITTEE ACTION: Accept in Principle.

Add the following text to 21-5.5:

"If interstage condensate traps are provided by the compressor manufacturer, they shall be plumbed to the final separator and to an automatic condensate drain system. The automatic condensate drain system shall be plumbed to a reservoir to collect the discharged liquids."

COMMITTEE STATEMENT: The committee is accepting the changes and has further revised the language to clarify the intent.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-183 - (21-3.6.1): Reject

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: In item (c) of 21-3.6.1, change 24 ppm to a "maximum of 55 ppm" or "allowable standards" of compressor manufacturer.

SUBSTANTIATION: No agency currently recommends moisture standards as low as 24 ppm. (Most suggest 50-55 ppm as a maximum.) The current NFPA recommendation of 25 ppm is lower than most authorities suggest, and extremely hard to achieve with current equipment of any brand.

COMMITTEE ACTION: Reject.

COMMITTEE STATEMENT: As currently stated, the requirement is consistent with NFPA 1500, Standard for Fire Department Occupational Safety and Health Program.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-184 - (21-4.3): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Delete the words "mechanical separate filter and the" from 21-4.3.

SUBSTANTIATION: Though it is practical and desirable to avoid the need to disconnect any piping or other components to replace the purifier cartridges in a purification system, it is virtually impossible to design and manufacture a separator chamber this same way. And, though there are interior components in most brands of separator chambers, in NO BRAND is there a filter inside of the separator chamber which requires routine replacement.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-185 - (21-5.2): Accept in Principle

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Replace the second sentence of 21-5.2 with the following:

"Relief valves shall be of the ASME type on ASME cylinders and of the DOT type on DOT cylinders."

COMMITTEE STATEMENT: The committee has removed the word "approved" in 2 places as neither ASME nor DOT approve relief valves.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-186 - (21-5.4.1 (New)): Accept in Principle

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Add the following paragraph:

21-5.4.1 Installations utilizing DOT cylinders shall require an external label on operator's panel noting stamped test date on cylinders and next date for testing.

SUBSTANTIATION: DOT cylinders usually are not easily visible to see stamped test date and this label will reinforce need of five year testing.

COMMITTEE ACTION: Accept in Principle.

Add a second sentence to 21-5.4 to read:

"If the installation utilizes DOT cylinders, a label shall be placed on the operators panel indicating the test date stamped on the cylinders and the date the cylinders will next require testing."

COMMITTEE STATEMENT: The committee has editorially revised the submitters text for clarification.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-187 - (21-5.7.1): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Delete the following words from paragraph 21-5.7.1:

(a) "securely"

(b) "including rough roads and terrain"

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

TO VOTE ON COMMITTEE ACTION:

AFFIRMATIVE: 22

NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-188 - (21-5.8.1): Accept

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus

RECOMMENDATION: Revise text as follows:

21-5.8.1 A slow operating valve(s) shall be provided to control airflow into and out of the storage system (if applicable).
SUBSTANTIATION: Quick opening valves are not desirable for filling SCBA. Therefore, "slow operating" or "booster pump" could be utilized.

COMMITTEE ACTION: Accept.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-190 -(21-7.1): Accept in Principle
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: In 21-7.1, revise (a) and (c) to read as follows:
(a) One air pressure gauge marked "Supply Pressure" between the air supply line valve and the pressure self-relieving regulator.
(c) One self-relieving adjustable pressure regulator equipped with a device to prevent unintentional or accidental adjustments.

COMMITTEE ACTION: Accept in Principle.
In 21-7.1, revise (a) and (c) to read as follows:
(a) One air pressure gauge marked "Supply Pressure" between the air supply line valve and the pressure self-relieving regulator.
(c) One self-relieving adjustable pressure regulator equipped with a device to prevent unintentional or accidental adjustments.

COMMITTEE STATEMENT: While the obvious purpose of this wording is desirable, it is impractical to prescribe. No one, of course, can rule out the operator's 'inadvertent' adjustment of anything; and if the regulator is to be "adjustable," as most are, an 'accidental adjustment' cannot be ruled out. For example, if the regulator has been adjusted to refill 4500 psi SCBA cylinders, and the next batch to be refilled are rated for only 2250 psi, an adjustment of the regulator will need to be made. No device (associated with the regulator) can make it impossible for the operator to make an error. If the regulator itself is enclosed in a padlocked enclosure, the operator with a key can still make a mistake. There does exist, however, various means to preclude the accidental refilling of a lower-pressure SCBA bottle to an improper high pressure. Such a system, however, incorporates separate fill hoses, dual relief valves, etc.

COMMITTEE ACTION: Accept in Principle.

SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: In 21-7.1, revise (a) and (c) to read as follows:
(a) One air pressure gauge marked "Supply Pressure" between the air supply line valve and the pressure self-relieving regulator.
(c) One self-relieving adjustable pressure regulator equipped with a device to prevent unintentional or accidental adjustments.

COMMITTEE STATEMENT: The committee is accepting the changes to (a) and is adding self-relieving to (c) as it is more descriptive of industry practice. The committee also wants to retain the language in (c) that requires a device to prevent unintentional adjustment.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-190 -(21-8.5): Accept
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Revise text as follows:
(f) "Meter airflow to control SCBA fill rate with a slow opening valve."

COMMITTEE ACTION: Accept in Principle.
Revise text as follows:
(f) "Meter airflow to control SCBA fill rate with a slow operating valve."

COMMITTEE STATEMENT: Slow operating valves are defined in the standard.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-190 -(21-8.3): Accept
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Delete paragraph 21-8.3.

COMMITTEE ACTION: Accept.

COMMITTEE STATEMENT: Previously covered under 21-2.9, 21-2.11.2, and 21-2.11.3.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

1901-194 -(21-9.1): Reject
SUBMITTER: Dennis R. Van Daalwyk, Pierce Manufacturing Inc.
RECOMMENDATION: Revise text as follows:
"An area shall be provided to retain SCBA cylinders during refilling. If a fragmentating cylinder enclosure is provided, it shall be designed to direct all material away from operator in the event of a cylinder failure. The purchasing authority shall specify whether or not SCBA cylinder failure protection is to be provided. If SCBA cylinder failure protection is not specified, an SCBA fill holder shall be provided. The fill holder shall hold an SCBA cylinder during refilling operations. SCBA fill holders shall be labeled to warn the operator of hazards that could exist during refilling. Air control panels shall not be located in the same compartment as the SCBA fill holder to minimize the operator's exposure to any hazards.
If SCBA cylinder protection is specified, an SCBA fill enclosure shall be provided. The SCBA fill enclosure shall be designed to contain and direct all fragments and high velocity air away from the operator in the event of a cylinder failure. All SCBA fill enclosures shall be tested and certified by the manufacturer."

SUBSTANTIATION: The term "fragmentation tube" implies more protection than it may realistically provide during some types of cylinder failure. The proposed text differentiates between cylinder failure protection provided by a fill enclosure and a fill holder for simply holding the SCBA cylinder. Due to the significant cost difference, the purchasing authority should specify when they are looking for cylinder failure protection during refilling versus simply holding the SCBA cylinder. Various SCBA cylinders require different protection from failure during refilling. Some manufacturers of SCBA cylinders market them as safe to refill without cylinder failure protection.

COMMITTEE ACTION: Reject.
I revise 21-9.1 to read: 21-9.1 ff SCBA or SCUBA air cylinders are to be refilled from a
SCBA fill holder. Since the manufacturers of some SCBA
VOTE
from injury in case of an explosive CYLINDER FAILURE
the cylinder being refilled and protect the operator and bystanders
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
standard and driving unnecessary cost.
this protection, the standard is going beyond the minimum
station is very expensive and if the SCBA cylinders do not require
protection, the purchaser should have a choice on whether
cylinder failure protection is to be provided. A protective refill
station is very expensive and if the SCBA cylinders do not require
this protection, the standard is going beyond the minimum
and driving unnecessary cost.

Committee Statement: This does not provide for the level of
fire fighter safety the committee feels is important. See
Committee Action on Proposal 1901-195 (Log #85).

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION: AFFIRMATIVE: 21
NEGATIVE: 1
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

EXPLANATION OF VOTE NEGATIVE:
DeWald: This proposal provides for the purchaser to specify
whether SCBA cylinder failure protection is to be provided or just
an SCBA fill holder. Since the manufacturers of some SCBA
cylinders promote a non-refilling cylinder failure
protection, the purchaser should have a choice on whether
cylinder failure protection is to be provided. A protective refill
station is very expensive and if the SCBA cylinders do not require
this protection, the standard is going beyond the minimum
and driving unnecessary cost.

COMMITTEE STATEMENT: The committee feels that for fire
fighter safety, cylinders should be enclosed to an extent that
fragments of the ruptured cylinder AND the concussive air
blast. Fill lines are usually enclosed.

(1901-196 - (21-9.1)): Accept in Principle
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Delete existing paragraph 21-9.1 and
replace with the following:

21-9.1 SCBA PROTECTIVE REFILL STATIONS.
21-9.1.1* All SCBA cylinder refilling operations shall incorporate
the use of a PROTECTIVE REFILL STATION DEVICE to contain
the cylinder after being refilled and protect the operator and bystanders
from injury in case of an explosive CYLINDER FAILURE INCIDENT.
Said protective refill station shall provide protection at no less than
Class 2 level for air mobile systems. Fill station designs must be
documented by the manufacturer to have been tested and
classified by a third party test agency to the following criteria:
All fill stations shall be designed and manufactured to provide
one or more of the following levels of protection, stated in terms
of the instance of the rupture of an SCBA or SCUBA bottle, during the
refill process:
Class 1: A TOTAL ENCLOSURE design, which contains both
the fragments of the ruptured cylinder AND the concussive air
blast. Fill lines are enclosed.
Class 2: An ENCLOSED design, which contains the fragments of
the ruptured cylinder, and directs the concussive air blast away
from the operator. Fill lines are enclosed.
Class 3: A FRAGMENTATION-DEFLECTING design, which
directs the fragments of the ruptured cylinder away from the
operator, utilizing both a fragmentation tube and a shield, but
does little to direct the concussive air blast. Fill lines are exposed,
but are captive or positioned to avoid damage to the operator from
whipping.
Class 4: A FRAGMENTATION TUBE design, which, when
placed and used properly, can deflect most of the fragments of the
ruptured cylinder away from the operator. Fill lines are usually
not part of this type of fill station, and are usually totally exposed
and of potential whipping damage or injury (minimal protection).
A-21-9.1.1 Any of these designs may also incorporate a water bath
or spray to help control the heat rise of cylinders being refilled.
21-9.1.2 Testing/Certification.
Manufacturer must provide third party testing and proof that a
standard production model has been successfully field tested to the
following criteria:
A 90 cu. ft. SCBA cylinder is to be ruptured under full 4500 psi
pressure in the fill station. If the design provides for multiple
SCBA refilling, the other chambers must also contain full cylinders
at the time of the rupture. Results must indicate the path of
fragments, if any noise levels or concussive effects; predicted
potential injury to the operator; and damages to the fill station itself.
A-21-9.1.2 This test provides for testing at the maximum level of
exposure in the field, that of refilling multiple 4500 psi “60 minute”
SCBA cylinders.
SUBSTANTIATION: This is a very important change, yet
controversial in nature. It will be discussed in committee meeting.
COMMITTEE ACTION: Accept in Principle.
Revise 21-9.1 to read:
21-9.3 If SCBA or SCUBA air cylinders are to be refilled from a
vehicle mounted air system, the system shall meet the following
requirements:

(a) The system shall fully enclosed the cylinder during filling to
contain the fragments if a cylinder ruptures.
(b) The system shall fully enclose the refill lines to the cylinders.
(c) The system shall direct the concussive air blast away from the
operator and bystanders. Fill station within an enclosed crew
area shall have provisions to vent the concussive air blast to the
exterior of the vehicle.
(d) A means shall be provided to prevent SCBA or SCUBA
cylinder refilling unless the system is in the "cylinder fill operation
position"
(e) A warning sign shall indicate the hazards inherent in the
operation of filling SCBA or SCUBA cylinders.

Add a new 21-9.4 to read:

21-9.4 Testing and Certification.
21-9.4.1 The manufacturer of the enclosed air refill station shall test a standard production model. The test shall include
pressurizing a 90 ft3 (2.55 m3), 4500 psi (31027 kPa) SCBA
cylinder to failure. If the system provides for simultaneously
refilling multiple cylinders, the other chambers shall contain air
cylinders of equal size filled to 4500 psi (31027 kPa) pressure
during the test. These cylinders shall not rupture during the test.
21-9.4.2 The testing shall prove that the air refill station is
capable of containing all fragments of a failed cylinder so as to
protect the operator and not rupture cylinders in adjacent
chambers, and that the venting provisions are adequate to direct
the air concussive release away from the operator.
21-9.4.3 All test results shall be certified by an independent third
party testing organization.

COMMITTEE STATEMENT: The committee feels that for fire
fighter safety, cylinders should be enclosed to an extent that
fragments will be contained if a cylinder ruptures during filling
and the concussive air blast is directed away from the operator.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION: AFFIRMATIVE: 20
NEGATIVE: 2
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

EXPLANATION OF VOTE NEGATIVE:
Hillenbrand: The proposed testing should include specific
test procedures for rupturing the SCBA cylinder under full 4500 psi
to provide for reproducible results and consistency among testing
companies. Manufacturers of these devices who have conducted
such testing should submit their test procedure for review by the
Technical Committee. This test should be held for further study
to assure that suitable test procedures are in place.

1901-197 - (21-9.2): Accept
SUBMITTER: Alan Saulsbury, Saulsbury Fire Apparatus
RECOMMENDATION: Delete the last sentence of paragraph 21-
9.2.
SUBSTANTIATION: If the SCBA filling is in a confined device,
this item is no longer necessary.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION: AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT: This does not provide for the level of
fire fighter safety the committee feels is important. See
Committee Action on Proposal 1901-195 (Log #85).
COMMITTEE STATEMENT: The committee feels it has addressed the submitters concern in its action on Proposal 1901-105 (Log #85).

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT:
The committee agrees with deleting the requirement to indicate the maximum airflow and duration on the reel. However, the committee feels the requirement that the operating pressure range be on the label at the reel should remain as that allows the user to determine if the reel can supply the range of pressure needed for the application. The committee feels the addition of the submitters last sentence is design restrictive but is adding an appendix to A-21-10 to advise purchasers they need to work with the apparatus manufacturer to ensure they get the performance they need from their system and tools.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT:
The use of the chassis air brake systems for utility air tools is not recommended. Air brake system supplied air outlets should be used only for non-emergency applications. Rescue air tools, air bags or other emergency uses should not be supplied from air brake systems but from high pressure air compressor especially designed for air tool usage. SCBA or SCUBA air cylinders are suitable for intermittent air supply with limited air flow requirements. Where used for this purpose, additional SCBA cylinders should be defined and segregated on the fire apparatus for such usage.

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT:
The final installer of the air hose reel assembly and installation shall test the completed system for leaks, air pressure settings, and air pressure settings. A permanent label shall be installed adjacent to the air reel controls to indicate pressure range and air usage for test and labeling purposes.

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT:
Revise paragraph 21-10.8 to read as follows:

"The final installer of the air hose reel assembly and installation shall test the completed system for leaks, air pressure settings, and air pressure settings. A permanent label shall be installed adjacent to the air reel controls to indicate pressure range and air usage for test and labeling purposes."

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle

COMMITTEE STATEMENT:
Revise 21-10.8 to read as follows:

"A-21-10.8 Typical mechanics type air tools consume between 35 and 90 cubic feet per minute of air. This rate of consumption is well beyond the capacity of most air compressors used to charge the chassis air brake system. For this reason, tools supplied by the chassis air system deplete the air supply quickly and will not operate an air tool more than a few minutes. Air tools operated from a high pressure source such as that used for breathing air will operate much longer before the source is depleted. Use the term High Capacity to specify an air reel supplied from a high pressure (breathing) air tank. Departments with specific tools and estimated operation durations should determine and specify the number, size, and quantity of high pressure bottles required to provide the desired performance.

SUBSTANTIATION: Since the duration of a finite air source is dependent on the restriction of the tool being used, the test currently specified in 21-10.8 would require that the manufacturer produce an entire set of performance curves showing the relationship between flow and pressure over time. For any given air flow that is above the output capacity of the compressor, the pressure in the system will begin to drop as soon as air begins to flow. The duration of the air supply will depend on the size of the compressor (if provided), the number of air tanks, the rpm of the engine operating the compressor, and the torque demand on the tool. Since typical air tools consume much more air than the typical chassis air compressor can supply, users who use an air reel supplied by the chassis air system are frequently disappointed by the performance. Users who intend to use the hose reel for normal usage for low pressure air hose operations.

COMMITTEE ACTION: Accept in Principle.
<table>
<thead>
<tr>
<th>A-21-11.5 Confined space type low pressure hose supplying multiple users or hose lengths greater than 300 feet (92 m) could require larger hose sizes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMITTEE STATEMENT:</strong> The committee has revised the submittors recommended appendix to change &quot;and&quot; to &quot;or&quot; as a hose line that either supplies multiple users or has an extended length could require larger diameter hose. Other changes are editorial.</td>
</tr>
<tr>
<td><strong>NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:</strong> 27</td>
</tr>
<tr>
<td><strong>VOTE ON COMMITTEE ACTION:</strong></td>
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<tr>
<td>AFFIRMATIVE: 22</td>
</tr>
<tr>
<td><strong>NOT RETURNED:</strong> 5 Craven, Darley, Guyotte, Ruth, von Zehle</td>
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<td></td>
</tr>
<tr>
<td>1901-202 - (21-13.7, 21-14.3 (New)): Accept in Principle</td>
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<tr>
<td><strong>SUBMITTER:</strong> Alan Saulsbury, Saulsbury Fire Apparatus</td>
</tr>
<tr>
<td><strong>RECOMMENDATION:</strong> Delete paragraph 21-13.7 and replace it with the following:</td>
</tr>
<tr>
<td>21-14.3: The contractor shall deliver the apparatus with all air cylinders, piping, hose, reels, and other fixed equipment charged with at least 100 psig (690 kPag) of breathing air in the system.</td>
</tr>
<tr>
<td><strong>SUBSTANTIATION:</strong> Move item to reflect all air systems (not use remote air system).</td>
</tr>
<tr>
<td><strong>COMMITTEE ACTION:</strong> Accept in Principle.</td>
</tr>
<tr>
<td>Delete 21-13.7 and add the proposed text as a new 21-15 with a title of &quot;Initial Delivery&quot;. The paragraph would read:</td>
</tr>
<tr>
<td>21-15 Initial Delivery: The contractor shall deliver the apparatus with all air cylinders, piping, hose, reels, and other fixed equipment charged with at least 100 psig (690 kPag) of breathing air in the system.</td>
</tr>
<tr>
<td><strong>COMMITTEE STATEMENT:</strong> The committee is moving the text to a new section titled &quot;Initial Delivery&quot; as the recommended change would have put it in the testing section.</td>
</tr>
<tr>
<td><strong>NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:</strong> 27</td>
</tr>
<tr>
<td><strong>VOTE ON COMMITTEE ACTION:</strong></td>
</tr>
<tr>
<td>AFFIRMATIVE: 22</td>
</tr>
<tr>
<td><strong>NOT RETURNED:</strong> 5 Craven, Darley, Guyotte, Ruth, von Zehle</td>
</tr>
</tbody>
</table>

| 1901-204 - (A-9.8.11(a) (New)): Accept in Principle |
| **SUBMITTER:** Ken Menke, Fire Service Research Inst. |
| **RECOMMENDATION:** Add the following appendix text: |
| **A-9.8.11(a) Flashing headlights are used in many areas as warning lights and provide an inexpensive way to obtain additional warning to the front of the apparatus. Daylight flashing of the high beam filaments is very effective and is generally considered safe. Nighttime flashing is more controversal and may blind oncoming drivers as well as make driving the apparatus more difficult. Most headlight flashers permit the selection of day only or day and night modes of operation. In some jurisdictions, daytime flashing is prohibited or limited to daylight hours or to certain types of emergency vehicles. If flashing headlights are employed on fire apparatus, they are to be turned off in the blocking mode along with all other white warning lights. |
Apparatus side of the pump. Losses due to additional piping or valves added to the suction piping or the addition of valves to the suction side of the pump may affect the pump performance.

**RÉCOMMENDATION:** Add a second sentence to the appendix to read: "The performance of a fire pump can be adversely affected by the design of the suction piping or the addition of valves to the suction side of the pump. Losses due to additional piping or valves added to the fire pump suction can be calculated and used to determine pump performance." 

**SUBSTANTIATION:** The committee feels there is a need for a warning on the design limitation so purchasers will understand that extra piping and valves may affect the pump rating and performance.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5

VOTE ON COMMITTEE ACTION:

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5

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**RECOMMENDATION:** Add the following appendix text:

- **A-17-3.6:** Some foam proportioning systems that inject foam concentrate on the discharge side of the water pump may require a means to automatically prevent foam concentrate from flowing back into the water pump or water tank. Backflow prevention devices, or any device that creates additional friction loss in the system, should be installed only with the approval and specific instructions of the foam proportioning system manufacturer.

**SUBSTANTIATION:** A condition can develop in some foam proportioning systems that will result in foam concentrate being forced into the water pump discharge. Typical foam concentrate backflow is caused by system in-balance, leaking metering valves, and leaving the system in operation when no foam is flowing. The ability to activate or deactivate the foam proportioning system during high capacity water discharge operation is not a feature of some systems which would require automatic backflow devices. However, all foam proportioning systems do not need these backflow prevention devices if operated in accordance with manufacturers' instructions.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5

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**RECOMMENDATION:** Revise A-17-9.3 to read as follows:

- "It is recommended that the foam proportioning system be calibrated and tested in accordance with the requirements of 17-10 for each type of foam concentrate listed on the Foam Proportioning System Specification Nameplate.

(a) Class A foam concentrates differ greatly from Class B foam concentrates in application rate requirements and physical properties.

(b) Class B foam concentrates exhibit wide variations in physical properties including substantial viscosity differences within the basic generic types.

It is recommended that for in-line eductor systems, the Foam Proportioning System Specification Nameplate have a label that indicates the system flow rate, the maximum usable hose length, the hose size required, the nozzle type, and allowable elevation changes in addition to the information required in 17-9.3."

**SUBSTANTIATION:** Additional information recommended to educate the manufacturer and user regarding the various properties of foam concentrates and to display this information on the Foam Proportioning System.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** This is not practical because of the large variety of foams that could be used with any system.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5

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**RECOMMENDATION:** Add appendix item to read as follows:

- "Special operating conditions such as high temperatures or cold weather might require the use of modified or special equipment, specially designed components, or special installation arrangements by the body manufacturer. Fire departments must be specific in operating temperature range and special requirements for air system assembler and/or manufacturer."

**SUBSTANTIATION:** The operating temperature ranges noted in 21-2.1 do not reflect all operating conditions in the fire service.

**COMMITTEE ACTION:** Accept.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5

---

**RECOMMENDATION:** Add the following appendix text:

- **A-21-9.3:**

- "Add appendix item to read as follows:

It is recommended that the foam proportioning system be calibrated and tested in accordance with the requirements of 17-10 for each type of foam concentrate listed on the Foam Proportioning System Specification Nameplate.

(a) Class A foam concentrates differ greatly from Class B foam concentrates in application rate requirements and physical properties.

(b) Class B foam concentrates exhibit wide variations in physical properties including substantial viscosity differences within the basic generic types.

It is recommended that for in-line eductor systems, the Foam Proportioning System Specification Nameplate have a label that indicates the system flow rate, the maximum usable hose length, the hose size required, the nozzle type, and allowable elevation changes in addition to the information required in 17-9.3."

**SUBSTANTIATION:** Additional information recommended to educate the manufacturer and user regarding the various properties of foam concentrates and to display this information on the Foam Proportioning System.

**COMMITTEE ACTION:** Reject.

**COMMITTEE STATEMENT:** This is not practical because of the large variety of foams that could be used with any system.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

- **AFFIRMATIVE:** 22
- **NOT RETURNED:** 5

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Therefore, special attention must be paid by manufacturers and installers, as well as the users, to denote their specific requirements.

**COMMITTEE ACTION:** Accept in Principle.

Add new appendix text to read as follows:

A-21-2.11.4: Due to the extremely complicated nature of breathing air compressors and installations, and the requirement to provide pure air in a safe operating condition, the purchaser should require "on site" training by the air compressor manufacturer or fire department.

**SUBSTANTIATION:** The Air Committee seriously considers this item to be required and not an appendix item due to the highly technical operational requirements and maintenance requirements for air compressors. This chapter reflects training necessary for an aerial device.

**COMMITTEE ACTION:** Accept in Principle.

Add new appendix text to read as follows:

A-21-2.11.4: Due to the extremely complicated nature of breathing air compressors and installations, and the requirement to provide pure air in a safe operating condition, the purchaser should require "on site" training by the air compressor manufacturer or fire department.

**COMMITTEE STATEMENT:** The committee agrees with the proposal but has made a couple of changes to improve understanding of the recommendation.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5  Craven, Darley, Guyotte, Ruth, von Zehle

1901-214 - (A-21-2.11.4 (New)): Accept in Principle

**SUBMITTER:** Alan Saulsbury, Saulsbury Fire Apparatus

**RECOMMENDATION:** Add the following appendix text to read as follows:

A-21-2.11.4: Due to the extremely complicated nature of breathing air compressors and installations, and the requirement to provide pure air in a safe operating condition, the purchaser should require "on site" training by the air compressor manufacturer or fire department.

**COMMITTEE STATEMENT:** The committee agrees with the proposal but has made a couple of changes to improve understanding of the recommendation.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5  Craven, Darley, Guyotte, Ruth, von Zehle

1901-215 - (A-21-5.1 (New)): Accept in Principle

**SUBMITTER:** Alan Saulsbury, Saulsbury Fire Apparatus

**RECOMMENDATION:** Add the following appendix text:

A-21-5.1 In some states (in the U.S.) OSHA interpretations require that DOT approved cylinders be used for mobile systems to transport air on state highways. ASME cylinders should be utilized if design presents a severe difficulty in removal of DOT approved cylinders for testing. STANDARDS: Fire departments may have to use DOT or ASME cylinders due to state requirements. ASME cylinders do not require removal for testing as DOT does.

**COMMITTEE ACTION:** Accept in Principle.

Add the following appendix text:

A-21-5.1 In some states (in the U.S.) the regulations of the Occupational Safety and Health Administration (OSHA) of the Department of Labor have been interpreted to require that DOT cylinders be used for mobile systems to transport air on state highways. If DOT cylinders are not required by state regulation, ASME cylinders should be utilized if the design of the apparatus presents a severe difficulty to the removal of cylinders for testing. COMMITTEE STATEMENT: The committee agrees with the proposal but has made a couple of changes to improve understanding of the recommendation. The term "approved" has been deleted as neither ASME nor DOT approve cylinders.

**NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE:** 27

**VOTE ON COMMITTEE ACTION:**

**AFFIRMATIVE:** 22

**NOT RETURNED:** 5  Craven, Darley, Guyotte, Ruth, von Zehle

1901-216 - (Entire Document): Accept

**SUBMITTER:** David White, Industrial Emergency Response Working Group

**RECOMMENDATION:** Recommend that NFPA 11C be brought into NFPA 1901 and applicable sections be put into either a separate chapter or the foam section.

**SUBSTANTIATION:** Almost all of NFPA 11C sections related to fires in storage tanks and other flammable liquid spills.

**COMMITTEE ACTION:** Accept.

Revise NFPA 1901 to incorporate Mobile Foam Fire Apparatus. Add a new chapter 9 to cover mobile foam fire apparatus and renumber the remaining chapters. Also modify chapters 1, 2 and 8 (renumbered as 10) as shown to incorporate this addition.

Add a definition in 1-5 to read:

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

Add a new (g) to 2-2.1 to read:

"(g) Mobile foam fire apparatus shall comply with Chapter 9."

Modify table 2.2.2 to add a column as follows: (note that there is also a proposal to add a new chapter 7 and that is reflected in this table.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Apparatus Function</th>
<th>Mobile Foam Fire Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administration</td>
<td>Required</td>
</tr>
<tr>
<td>2</td>
<td>General Requirements</td>
<td>Required</td>
</tr>
<tr>
<td>3</td>
<td>Pumping Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>Initial Attack Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>Mobile Water Supply Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>6</td>
<td>Aerial Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>Quint Fire Apparatus</td>
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</tr>
<tr>
<td>8</td>
<td>Special Service Fire Apparatus</td>
<td>N/A</td>
</tr>
<tr>
<td>9</td>
<td>Mobile Foam Fire Apparatus</td>
<td>Required</td>
</tr>
<tr>
<td>10</td>
<td>Chassis and Vehicle Components</td>
<td>Required</td>
</tr>
<tr>
<td>11</td>
<td>Low Voltage Electrical Systems and Warning Devices</td>
<td>Required</td>
</tr>
<tr>
<td>12</td>
<td>Driving and Crew Areas</td>
<td>Required</td>
</tr>
<tr>
<td>13</td>
<td>Body, Compartments, and Equipment Mounting</td>
<td>Required</td>
</tr>
<tr>
<td>14</td>
<td>Fire Pump and Associated Equipment</td>
<td>Required</td>
</tr>
<tr>
<td>15</td>
<td>Auxiliary Pump and Associated Equipment</td>
<td>If specified</td>
</tr>
<tr>
<td>16</td>
<td>Water Transfer Pump and Associated Equipment</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Water Tanks</td>
<td>If specified</td>
</tr>
<tr>
<td>18</td>
<td>Aerial Devices</td>
<td>If specified</td>
</tr>
<tr>
<td>19</td>
<td>Foam Proportioning Systems</td>
<td>Required</td>
</tr>
<tr>
<td>20</td>
<td>Compressed Air Foam Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>21</td>
<td>Line Voltage Electrical Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>22</td>
<td>Command and Communications</td>
<td>If specified</td>
</tr>
<tr>
<td>23</td>
<td>Air Systems</td>
<td>If specified</td>
</tr>
<tr>
<td>24</td>
<td>Watchers</td>
<td>If specified</td>
</tr>
<tr>
<td>25</td>
<td>Referenced Publications</td>
<td>Required</td>
</tr>
</tbody>
</table>

Add a new chapter after current Chapter 7 (being renumbered as Chapter 8) and renumber existing chapters after that. The new chapter shall read:

Chapter 9 Mobile Foam Fire Apparatus

9-1 General. If the apparatus is to function as a mobile foam fire apparatus, it shall meet the requirements of this chapter.
9-2 Fire Pump. The apparatus shall be equipped with a fire pump that meets the requirements of Chapter 12 and has a minimum rated capacity of 750 gpm (2850 L/min).

9-3 Aerial Device.

9-3.1 If the mobile foam fire apparatus is equipped with an aerial device, the aerial device shall meet the requirements of Chapter 16.

9-3.2* The aerial device shall be equipped with a permanently mounted waterway, and the fire pump shall be capable of supplying the hose requirements of 16-6.1.2, 15-12.1, or 16-16.2 with a maximum intake pressure of 20 psig (138 KPag).

9-3.3 Provisions shall be made to ensure that the pump and aerial operator is not in contact with the ground. Signs shall be placed to warn the pump and aerial operator(s) of electrocution hazards.

9-4 Foam Proportioning System. The apparatus shall be equipped with a foam proportioning system that meets the requirements of Chapter 17.

9-5 Foam Tank. The mobile foam fire apparatus shall be equipped with a foam concentrate tank(s) that meet the requirements of Chapter 17 and that have a minimum certified capacity of 500 gal (1900 L).

9-6* Equipment Storage. A minimum of 40 ft³ (1.13 m³) of enclosed weather-resistant compartmentation that meets the requirements of Chapter 11 shall be provided for the storage of equipment.

9-7* Hose Storage. Hose bed area(s), compartments, or reels that comply with Section 11-10 shall be provided to accommodate the following. These areas need not be contiguous.

(a) A minimum hose storage area of 30 ft² (0.85 m²) for 2 1/2-in. (65-mm) or larger fire hose;

(b) Two areas, each a minimum of 3.5 ft² (0.1 m²), to accommodate 1 1/4-in. (38-mm) or larger preconnected fire hose lines.

9.8 Equipment Supplied by the Contractor. The equipment shall be supplied and installed by the contractor. The contractor shall provide such brackets or compartments as are necessary to mount the equipment.

9-8.1 Ground Ladders. The mobile foam fire apparatus shall carry at least one extension ladder, one straight ladder equipped with roof hooks, and one attic ladder. All ground ladders carried on the apparatus shall meet the requirements of NFPA 1981, Standard on Design of and Design Verification Tests for Fire Department Ground Ladders.

9-8.2* Suction Hose. A minimum of 15 ft (4.6 m) of soft suction hose or 20 ft (6.0 m) of hard suction hose shall be furnished. Suction hose shall meet the requirements of NFPA 1961, Standard for Fire Hose. The purchaser shall specify whether hard or soft suction hose is to be provided, the length and size of the hose, the size of the couplings, the quantity in which the suction hose is to be carried on the apparatus, and the style of brackets desired.

9-8.2.1 Where hard suction hose is provided, a suction strainer shall be furnished. The friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 12.4.1(b).

9-8.2.2 Where soft suction hose is provided, it shall have long handle female couplings with the local hydrant outlet connection on one end and the pump intake connection on the other.

9-9 Minor Equipment. The list of equipment in 9-9.1 and 9-9.2 shall be available on the mobile foam fire apparatus before it is placed in service. A detailed list of who is to furnish the items shall be supplied to the purchasing authority. Brackets or compartments shall be furnished to organize and protect the equipment.

9-9.1* Fire Hose and Nozzles. The following fire hose and nozzles shall be carried:

- 800 ft (244 m) of 2 1/2-in. (65-mm) or larger fire hose; in any combination
  - 400 ft (122 m) of 1 1/2-in. (38-mm), 1 3/4-in. (44-mm), or 2-in. (51-mm) fire hose; in any combination
  - One foam nozzle, 200 gpm (757 L/min) minimum;
  - Two foam nozzles, 95 gpm (360 L/min) minimum;
  - One pumpt pipe with shutoff and 1-in. (25-mm), 1 1/8-in. (29-mm), and 1 1/4-in. (32-mm) connections;
  - One portable monitor, 500 gpm (1900 L/min) minimum;

9-9.2* Miscellaneous Equipment. The following additional equipment shall be carried:

- One 6lb (2.7-kg) flathead axe mounted in a bracket fastened to the apparatus;
- One 6lb (2.7-kg) pickhead axe mounted in a bracket fastened to the apparatus;
- One 6ft (2.4-m) or longer pike pole or plater hook mounted in a bracket fastened to the apparatus;

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

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

One approved dry chemical portable fire extinguisher with a minimum 80 BC rating mounted in a bracket fastened to the apparatus.

One 2 1/2-gal (9.5-L) or larger water extinguisher mounted in a bracket fastened to the apparatus.

One gated swivel intake connection with pump intake threads on one end and one or more female connections compatible with the supply hose carried on the other.

One self-contained breathing apparatus complying with NFPA 1081, Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters, for each assigned seating position, but not less than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.

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

One first aid kit;

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

Two hydrant wrenches mounted in brackets fastened to the apparatus;

Two double female adapters, sized to fit 2 1/2-in. (65-mm) or larger fire hose mounted in brackets fastened to the apparatus;

Two double male adapters, sized to fit 2 1/2-in. (65-mm) or larger fire hose mounted in brackets fastened to the apparatus;

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

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

Two wheel chocks, mounted in readily accessible locations, that meet or exceed the requirements of SAE J348, Standard for Wheel Chocks, for the wheel diameter on which the chocks are to be used;

9-9.2.1 If the mobile foam fire apparatus is equipped with an aerial device with a permanently mounted ladder, four ladder belts or ladder/escape bels meeting the requirements of NFPA 1981, Standard on Fire Service Life Safety Rope and System Components shall be provided.

A-9-3.2 Paragraphs 16-6.1.2 or 16-12.1 require a flow of 1000 gpm at 100 psi nozzle pressure with a pressure loss of not exceeding 100 psi. To accomplish this with a minimum 20 psi intake pressure, a 1750 gpm pump is required.

A-9.6 Additional compartmentation might be required to accommodate the size, shape, and weight of special equipment. Any special equipment to be carried on the apparatus should be identified in the specifications so the apparatus manufacturer can ensure the equipment will be properly accommodated within the design of the apparatus.

A-9-7 Many departments now find it useful to use large diameter supply hose (4 in. (100 mm) or 5 in. (125 mm)) to effectively move water from its source to the fire scene. Fire departments serving areas with wide hydrant spacing or areas with no hydrants often find it desirable to carry additional hose. The hose storage area provided for in this standard is a minimum to accommodate the smallest size of the amount of hose required to be carried. The department should evaluate its needs and choose the size and amount of hose that will best support its operation and then discuss those hose storage needs with the contractor to ensure the fire hose storage space will be properly laid out and of sufficient size to accommodate the departments needs.

The purchaser should consider specifying some type of cover for this hose compartment. Hinged or removable covers might be desirable.

A-9-8.2 The size of the suction hose specified in Table 12-2.4.1(a) relates to pump certification only. Other sizes of suction hose, compatible with local operations, could be used and should be specified if they are desired.

A-9-9.1 It is recommended that the department carry at least 200 ft (61 m) of 2 1/2-in. (65-mm) hose for handline operation. If the department is aware of the limitations of the department are geared to using multiple large handlines from single apparatus, the department should consider carrying more 2 1/2-in. (65-mm) hose and additional nozzles.
Likewise, the amount and size of hose used to supply large stream devices should be considered in planning the amount and size of hose to be carried.

A-9-0.2 The requirements of service in different communities will necessitate additions to the equipment required. The operational objective is to arrive at the scene of the emergency with the necessary equipment for immediate life safety operations and emergency control.

The mandatory equipment required to be carried on the mobile foam fire apparatus weighs approximately 600 lb (272 kg). This leaves a remaining capacity of approximately 1400 lb (635 kg) for storage of optional equipment while staying within the allowance of 2000 lb (908 kg). The purchaser should advise the contractor if equipment in excess of 2000 lb (908 kg) is to be carried so the contractor can provide a chassis of sufficient size (see Sections 1-3 and 8-1).

Add a line to Table 8-1 Miscellaneous Equipment Allowance to read:
(Note that this table will be renumbered as Table 10-1)

<table>
<thead>
<tr>
<th>Apparatus type</th>
<th>Chassis</th>
<th>Equipment Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Foam fire apparatus</td>
<td>All</td>
<td>2000 lb (1134 kg)</td>
</tr>
</tbody>
</table>

COMMITTEE STATEMENT: The NFPA Standards Council at its January 1998 meeting assigned responsibility for NFPA 11C to the Fire Department Apparatus Committee. The committee reviewed NFPA 11C and feels the above recommended changes to NFPA 1901 incorporate the requirements for mobile foam fire apparatus currently contained in NFPA 11C into NFPA 1901. The committee has moved to have a single document that covers all types of fire apparatus and does not feel there is a need to maintain a separate standard for mobile foam fire apparatus. The committee will be recommending that NFPA 11C be withdrawn.

NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27

VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5 Craven, Darley, Guyotte, Ruth, von Zehle
PART III

1922-1 - (Entire Document): Accept
SUBMITTER: Technical Committee on Fire Department Apparatus
RECOMMENDATION: Withdraw NFPA 1922, Standard for Fire Service Self-Contained Pumping Units.
SUBSTANTIATION: This standard has been out for five years and it is not being used. There does not appear to be any support for continuing the development of this standard.
COMMITTEE ACTION: Accept.
NUMBER OF COMMITTEE MEMBERS ELIGIBLE TO VOTE: 27
VOTE ON COMMITTEE ACTION:
AFFIRMATIVE: 22
NOT RETURNED: 5  Craven, Darley, Guyotte, Ruth, von Zehle