

Specification 5100-340b
August 1997
Superseding
Specification 5100-340a
February 1980

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SPECIFICATION FOR
REEL, HOSE, BOOSTER

1. SCOPE.

1.1. Scope. The hose reel described in this specification is designed for use with Forest Service high pressure hose on a fire engine in wildland firefighting operations. This hose reel is capable of containing at least 250 feet (76.2 m) of 1 inch 11-1/2 NPSH high pressure hard line hose with a 3/4 inch (19.1 mm) water way or 1 inch 11-1/2 NPSH cotton-synthetic jacketed fire hose. The reel consists of a drum, 2 side rims, a water inlet with a revolving joint, self-aligning bearings, a brake, a discharge hose connection, mounting frame and an electric motor or manual rewind. There are 6 sizes of hose reels with working pressures up to 600 psig (4137 kPag).

2. APPLICABLE DOCUMENTS.

2.1. Government Documents. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals (see 6.2).

USDA Forest Service Standard

5100-190 - Threads, Gaskets, Rocker Lugs, Connections and Fittings, Fire Hose

USDA Forest Service Specifications

5100-185 - Hose, Rubber, High Pressure, 3/4 Inch

5100-186 - Hose, Cotton-Synthetic, Lined, Woven Jacket, 1 Inch and 1-1/2 Inch

Federal Standard

FED-STD-595 - Colors

Beneficial comments, recommendations, additions, deletions and any pertinent data that may be used in improving this document should be addressed to: USDA Forest Service, San Dimas Technology and Development Center, 444 East Bonita Avenue, San Dimas, CA 91773-3198 by using the Specification Comment Sheet at the end of this document or by letter.

Copies of federal specifications are available from General Services Administration, Federal Supply Service Bureau, Specification Section, Suite 200, 470 East L'Enfant Plaza SW, Washington DC 20407.

Copies of USDA Forest Service Specifications and Standards are available from USDA Forest Service, San Dimas Technology and Development Center, 444 East Bonita Avenue, San Dimas, CA 91773-3198.

2.2. Non-Government Publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

American National Standards Institute Inc. (ANSI)/American Society For Quality Control (ASQC)

Z 1.4 - Sampling Procedures and Tables for Inspection by Attributes.

Address requests for copies to the American National Standards Institute Inc., 11 West 42nd Street, New York, NY 10036.

American Society for Testing and Materials (ASTM)

E 380 - Practice for Use of the International System of Units

Address requests for copies to American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

Non-Government standards and other publications normally are available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.

2.3. Order of Precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. Requirements.

3.1. First Article. Unless otherwise specified, first article inspection shall be performed on a product sample(s), in accordance with 4.4.3.

3.2. Construction. The hose reel shall consist of a drum, 2 side rims, a water inlet with a revolving joint on one end and a self aligning bearing on the other end of the frame, electric motor or manual rewind, manually operated brake, discharge hose connection and mounting frame. The hose reel shall turn freely. Reel sizes are numbered 1 through 6. The reel shall be right or left handed as shown in Figure 1. The reel working pressure shall be 600 psig (4137 kPag). The booster hose reel configuration shall be as shown in Figure 1. Figure 1 is included for information only and is not intended to designate a particular design or manufacturer.

3.2.1. Drum. The drum shall be fabricated from plate steel and shall have a diameter "D" of 10 ± 1 inches (254.0 ± 25.4 mm) and a length "A" as shown in Figure 1 and Table 1. If otherwise specified in the solicitation, the drum shall be fabricated from an aluminum alloy material.

3.2.2. Rims. The side rims shall be fabricated from sheet steel or other type formed steel. They shall have a diameter "B" as shown in Figure 1. The rim edges shall serve as hand wheels and shall be shaped and sized for hand gripping. When assembled with the drum and other components, the rims shall be truly aligned on the drum axis. Safety guards shall be placed around the spokes. The drum shall be arc welded to the 2 side rims or suitably mechanically fastened.

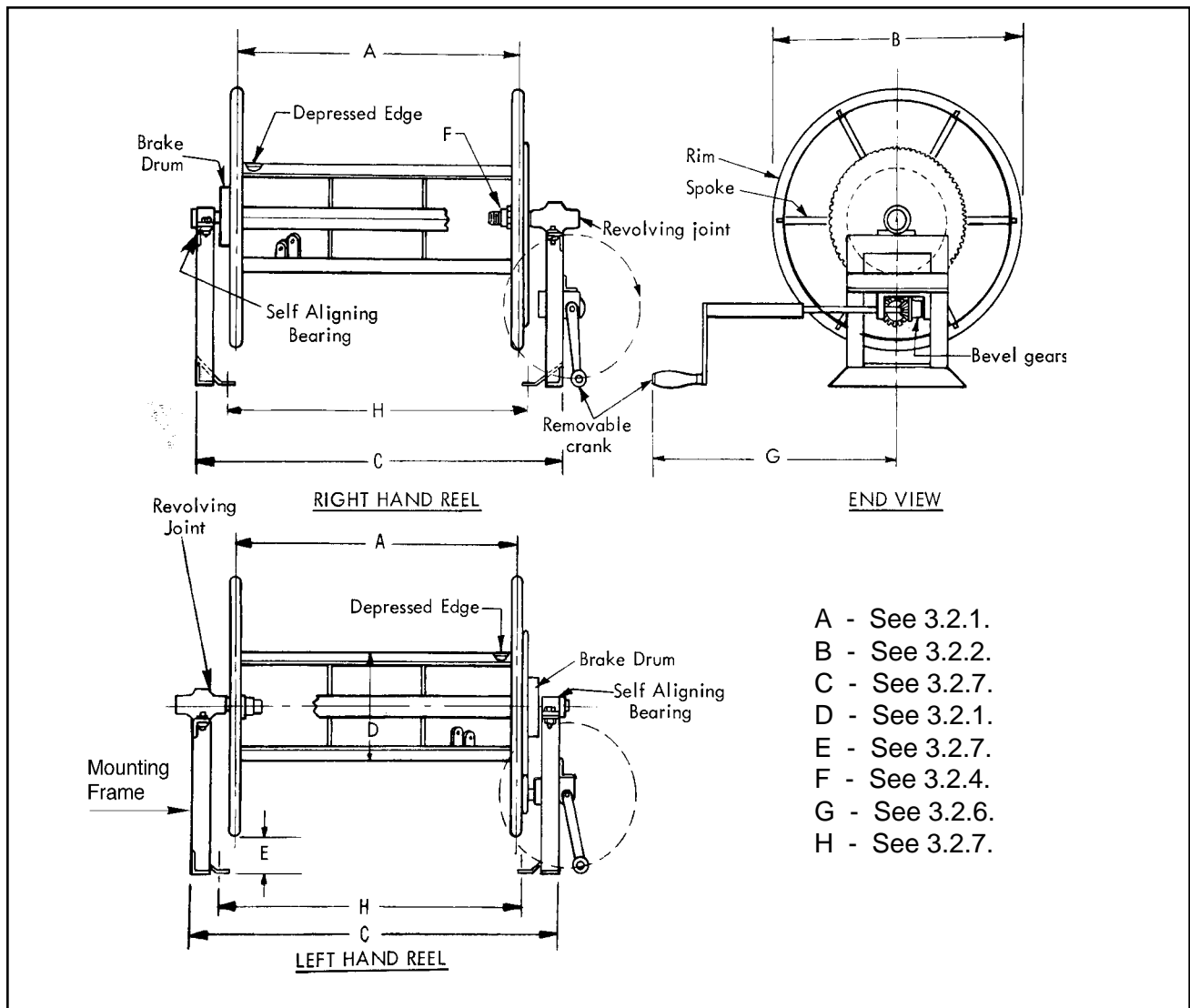


Figure 1. Hose Reel Configuration.

Table 1. Hose Reel Sizes and Dimensions

Size Reel	A Width (C/C of Rims) inch (mm) ± 1.0 inches (± 25.4 mm)	B Diameter (Rim O. D.) inch (mm) ± 1.0 inches (± 25.4 mm)	C Width (Outer Edges Frame) inch (mm) ± 0.063 inches (± 1.6 mm)	E Height (Clearance) inch (mm) ± 0.5 inches (± 12.7 mm)	H Width (C/C Inner Bolt Holes) inch (mm) ± 0.063 inches (± 1.6 mm)
1	28.0 (711.2)	22.0 (609.6)	35.5 (901.7)	3.0 (76.2 mm)	30.0 (762.0)
2	33.5 (850.9)	18.0 (457.2)	45.0 (1143.0)	3.0 (76.2 mm)	36.5 (927.1)
3	25.0 (635.0)	22.0 (558.8)	32.5 (825.5)	3.0 (76.2 mm)	27.0 (685.8)
4	22.75 (577.9)	21.0 (533.4)	30.0 (762.0)	3.0 (76.2 mm)	24.5 (622.3)
5	20.25 (514.4)	22.0 (558.8)	26.0 (660.4)	2.2 (57.2 mm)	20.5 (520.7)
6	14.25 (362.0)	23.0 (584.2)	N/A	N/A	N/A

3.2.3. Revolving Joint and Self-aligning Bearing. A ball bearing type revolving joint shall be mounted on one end of the drum. A self-aligning type bearing shall be mounted on the other end. A central tubing, sized to mate the revolving joint and self-aligning bearing shall connect the two parts. The revolving joint shall be Metal Master Model 101, or an equivalent in size and performance. The revolving joint shall have a 1 inch (25.4 mm) tapered iron pipe thread inlet connection.

3.2.4. Discharge Hose Connection. The discharge hose connection "F" shall be located as shown in Figure 1 and connected to the revolving joint. The connection may consist of a spiraled metal tubing or some other method of hose connection may be used providing the central tubing is attached to both rims. To avoid damage to the hose or connection, a positive method of fastening and anchoring the hose to the drum shall be provided. The discharge connection "F" as shown in Figure 1 shall be 1 inch 11-1/2 NPSH external thread in accordance with USDA Forest Service Standard 5100-190. The discharge connection shall be on the right or left side as shown in Figure 1.

3.2.5. Electric Motor and Manual Crank Rewind. The reel shall be equipped with an electric motor rewind. A manual rewind may be specified in lieu of, or in addition to, an electric motor rewind (see 6.2). Size 6 reel shall not include any rewind.

3.2.5.1. Electric Motor Rewind. The electric motor shall be 12 volt with minimum 1/2 horsepower (373 W). Chain or gear drive reduction shall be included to provide sufficient torque as required in 3.9.2. A guard shall be furnished around the chain or gear drive mechanism. A starter switch shall be furnished with the motor.

3.2.5.2. Manual Crank Rewind. If a manual crank rewind is specified, it shall have a chain or gear drive reduction with a minimum ratio of 3.6 to 1. The shaft shall be a minimum 0.25 inches (6.35 mm) with bearings, joints, and lubrication fittings. The crank handle shall be removable, with brackets provided on the frame for storage of the handle. The handle length, "G" shall be 22.0 ± 1.0 inches (558.8 ± 25.4 mm). See Figure 1.

3.2.6. Manually Operated Brake. The reel shall be equipped with a band and drum braking mechanism. Adjustment for wear and drag tension shall be included. The brake shall be quick release from drag to free wheeling. There shall be no interference between the brake and other

operating functions of the reel. Brake handle length shall be measured from the drum centerline to the handle tip end. The brake handle length shall not protrude beyond the manual crank rewind dimension, "G" of 22.0 ± 1 inches (558.8 ± 25.4 mm) as indicated in Figure 1.

3.2.7. Mounting Base Plate. The reel shall be mounted onto vertical support frames on each end, similar as shown in Figure 1 with sufficient clearance between rim edges and frame bottom, see "E", as shown in Figure 1 and Table 1 unless otherwise specified. The inside edge of the frames shall be located distance "H" apart, and the outside edge of the frames shall be distance "C" apart, as shown in Figure 1 and Table 1. In addition, the frame shall be attached to a mounting base plate with dimensions as shown in Figure 2 unless otherwise specified. The mounting base plate shall be fabricated from sheet steel or other type formed steel with a minimum thickness of 3/16 inch (4.8 mm). The size 6 reel shall be furnished without mounting frames.

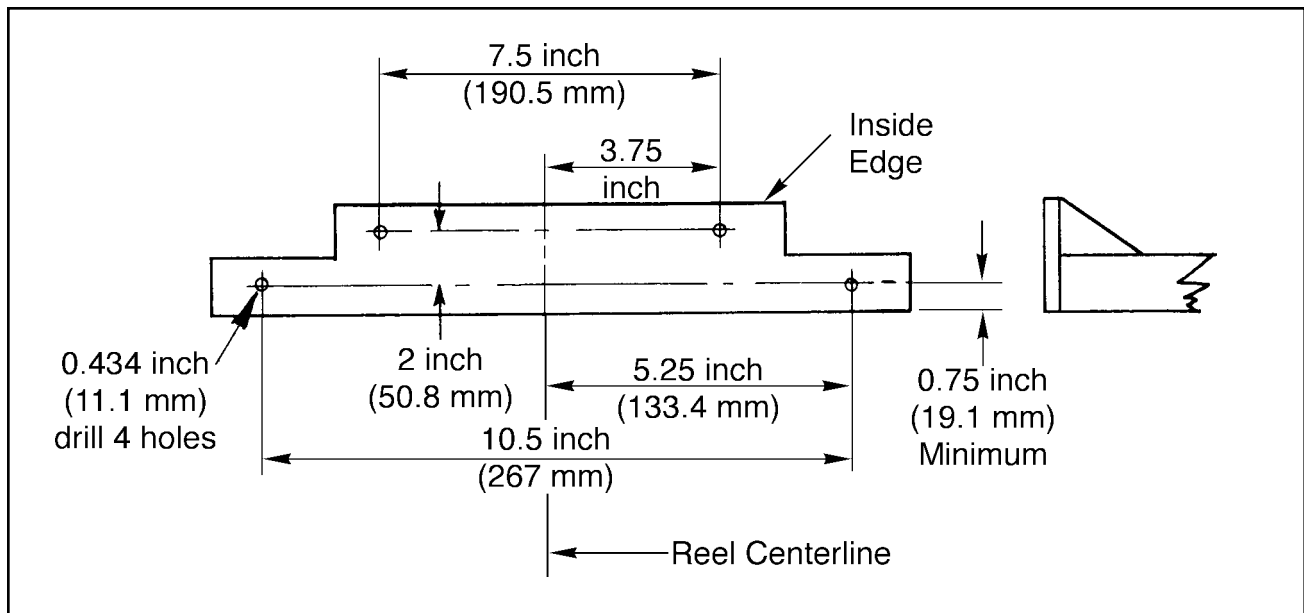


Figure 2. Bottom View of Mounting Base Plate.

3.3. Materials. Where more than one type of material is used in various components, there shall be no incompatibility between materials which may cause corrosion.

3.3.1. Reel, Drum, Rim, Spoke, Mounting Base Plate, Frame and Component Materials. Unless otherwise specified, the reel, drum, rim, spoke, mounting base plate, frame and other component materials, as applicable shall be made of steel or steel plate. If otherwise specified by the solicitation, the previous items shall be made of an aluminum alloy material. The revolving joint shall be a brass or stainless steel material. All fasteners shall be a stainless, cadmium, or zinc plated steel material.

3.3.2. Recoverable Materials. The contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR), provided all performance requirements of this specification are met.

3.4. Dimensions. Dimensions shall be as shown in Figures 1 and 2 and Table 1.

3.4.1. Decimal Dimensional Tolerance. Unless otherwise noted, the following tolerances apply: one place (x.x) ± 0.1 inch (2.5 mm); two places (x.xx) ± 0.01 inch (0.25 mm) and three places (x.xxx) ± 0.010 inch (0.254 mm).

3.5. Workmanship. Workmanship shall be equal to the best commercial practices consistent with the highest engineering standards in the industry and shall be free from any defect which may impair serviceability or detract from the product's appearance.

3.5.1. Symmetry. All metal part sections shall be symmetrical and concentric to 0.030 inch (0.762 mm).

3.5.2. Welding. Welding shall be electric arc throughout for steel or heli arc for aluminum alloy. Weld fillets shall be equivalent to adjacent material thickness and be capable of carrying the complete load of the individual member. All welded members shall be thoroughly fused together. Slag shall be removed between repasses and finished welds, and all weld spatter removed. Welds which shall interfere with proper mating of adjoining parts shall be adequately relieved to ensure proper joining of parts.

3.6. Marking. Markings shall be permanently and legibly marked, on the outside surface of the reel in a readily visible and accessible area, with the manufacturer's name or trademark, model designation, serial number and the letters "FSS". The minimum letter height shall be 0.25 inch (6.4 mm). A durable decal or corrosion resistant metal nameplate may be used and shall be permanently attached to the reel. Controls, such as on and off switches, shall be clearly and permanently identified. Markings for the discharge threaded connection shall conform to requirements of USDA Forest Service Standard 5100-190.

3.7. Surface Treatment. Aluminum alloy threaded surfaces shall be hardcoated in accordance with USDA Forest Service Standard 5100-190.

3.8. Surface Finish. The finish for all threaded surfaces shall be in accordance with USDA Forest Service Standard 5100-190.

3.8.1. Painting. All exposed bare steel or aluminum alloy surfaces except sprocket teeth, chain, and gears shall be primed and painted. No runs, inadequate coverage, peeling, flaking, bubbling, or other inferior quality painting shall be permitted. Finish coat shall be enamel gloss color No. 14260, green in accordance with Federal Standard FED-STD-595. If an alternate color is specified, it shall be color No. 11105, red, in accordance with FED-STD-595.

3.9. Performance.

3.9.1. Electric Motor Rewind. When tested in accordance with 4.6.2, the reel shall not stall or be damaged while rewinding onto the reel. The reel shall develop a minimum stall torque of 400 foot-pounds. The torque shall be adequate to rewind 250 feet (76.2 m) of 1 inch 11-1/2 NPSH high pressure hose, charged with water, at the rated motor speed. The time required to rewind 250 feet (76.2 m) of hose, with the hose fully extended and positioned on a flat, level surface, shall be less than 4 minutes and greater than 1.5 minutes.

3.9.2. Manual Rewind. When tested in accordance with 4.6.3, the reel shall not stall or be damaged while rewinding onto the reel. The hose reel shall be designed for a manual rewind of 250 feet (76.2 m) of 1 inch 11-1/2 NPSH high pressure hose, charged with water. The time required to rewind 250 feet (76.2 m) of hose, with the hose fully extended and positioned on a flat, level surface, shall be measured.

3.9.3. Proof Pressure Test With and Without Hose. When tested in accordance with 4.6.4, the hose reel shall withstand a hydrostatic pressure of 600 psig (4137 kPag) with no leakage, permanent deformation, mechanical damage or structural failure.

3.10. Metric Products. Metric dimensions are provided for information only, inch-pound units shall be the required units of measure for this specification. Thread series designation is indicated as 1 inch 11-1/2 NPSH. Since this is a thread series designation, not an indication of a specific dimension, the metric equivalent is not given. Products manufactured to metric dimensions shall be considered on an equal basis with those manufactured using inch-pound units, provided they fall within the tolerances specified using conversion tables contained in the latest revision of ASTM E 380, and all other requirements of this specification are met.

4. INSPECTION, SAMPLING AND TEST PROCEDURES.

4.1. General Inspection and Tests. Unless otherwise specified in the contract or purchase order, the contractor is responsible for performance of all inspection requirements prior to submission for Government acceptance inspection and tests. The contractor may utilize their own facilities or any commercial laboratory acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government.

4.1.1. Inspection and Test Site. The Government shall conduct lot acceptance inspection and tests to determine compliance with the specification. If lot acceptance and tests are conducted at locations other than the manufacturing facilities, the contracting officer shall specify location and arrangements. In the case of on-site inspections at the contractor's facility, the contractor shall furnish the inspector all reasonable facilities for their work. During any inspection, the inspector may take from the lot one or more samples and submit them to an independent test laboratory approved by the Government or to a Government test facility for inspection and tests.

4.1.2. Testing With Referenced Documents. The contractor is responsible for insuring that components and materials used were manufactured, examined and tested in accordance with referenced specifications and standards. The Government reserves the right to perform any of the inspections or tests set forth in this section where such action is deemed necessary to assure supplies and services conform to prescribed requirements.

4.2. Responsibility for Compliance. All items shall meet all requirements of sections 3 and 4. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.3. Sampling for Inspection. When inspection is performed, sampling shall be in accordance with ANSI/ASQC Z 1.4.

4.3.1. Lot. All hose reels of one size presented together in one delivery shall be considered a lot for the purpose of inspection. A sample unit shall be one reel.

4.3.2. Sampling for Visual and Dimensional Examination. Sampling for visual and dimensional examination shall be S-2, with an Acceptable Quality Level (AQL) of 1.0 percent defective.

4.3.3. Sampling for Lot Acceptance Tests. Sampling for lot acceptance testing shall be S-2 with an AQL of 1.0 percent defective.

4.4. Inspection and Tests.

4.4.1. Visual and Dimensional Examination. When selected in accordance with 4.3.2, each sample hose reel shall be visually and dimensionally examined to determine conformance with this specification. Visual or dimensional defects shall be classified as major or minor. A defect not listed in Table 2 shall be classified as a minor defect. If the number of defects in any sample exceeds the indicated AQL, the lot shall be rejected.

Table 2. Major and Minor Defects

Defect	Classification	
	Major	Minor
1. Reel not complete	X	
2. Hardcoating or anodizing not as required	X	
3. Dimensions not as required	X	
4. Material not as required.	X	
5. Reel drags when turned.	X	
6. Improper welding.	X	
7. Workmanship and finish not as required.	X	
8. Threads dimensions not within specified dimensions and failure to pass thread tests.	X	
9. Reel rewind not as required.	X	
10. Paint not as required.		X
11. Threads not smooth and not free of imperfections.		X
12. Illegible or improper marking.		X

4.4.2. Lot Acceptance Tests. Each of the samples selected in accordance with 4.3.3, shall be tested in accordance with 4.6, to determine conformance with requirements of this specification.

4.4.3. First Article Inspection. Unless otherwise specified (see 6.2), the first article sample(s) indicated in 3.1, shall be inspected as specified in 4.4.1 and 4.6. All inspection and testing of the first article sample(s) shall stop upon a single failure and the sample(s) rejected. The contractor shall be informed as to the nature of the failure, but the Government shall not be obligated to continue testing a defective item, once it is known to be defective or when it is considered in the best interest of the Government.

4.4.4. Quality Conformance Inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with ANSI/ASQC Z 1.4. The inspection level and AQL shall be as specified in 4.3.3.

4.5. Certificate of Conformance. A Certificate of Conformance shall meet the requirements of USDA Forest Service Standard 5100-190. Where certificates of conformance are required, the Government reserves the right to verify test any such items to determine the validity of certification. These certificates shall be based on the testing of component materials and may be performed by the component material supplier. The contractor shall provide certificates of conformance for all materials used in 3.3.1 and 3.7 (see 4.5.2 and 4.5.3).

4.5.1. Certificates of Conformance in Lieu of Testing. Unless otherwise specified, certificates of conformance may be acceptable in lieu of testing end items.

4.5.2. Reel, Drum, Rim, Spoke, Mounting Base Plate, Frame and Component Material. As required by 3.3.1, hose reel, drum, rim, spoke, mounting base plate, frame and component materials shall meet the indicated material physical property requirement listed.

4.5.3. Surface Treatment. As required by 3.7, aluminum alloy threaded surfaces shall meet the indicated requirements, when tested to the defined test methods.

4.6. Performance Testing. Samples shall be subjected to the following tests to determine if the samples meet the requirements of this specification.

4.6.1. Fluid Medium. All testing requiring the use of a fluid medium shall be performed using municipally supplied potable water; this shall include, but is not limited to working pressure and required torque. If the contractor does not have access to a municipal water supply, the testing shall be performed using any clear fresh water normally available for firefighting. First article testing performed by the Government shall be conducted using municipally supplied potable water.

4.6.2. Electric Motor Torque Test. As required by 3.9.1, the reel shall be tested for torque. The reel shall be mounted on a platform and positioned on a flat, level surface. The revolving joint inlet of the reel shall be connected to a water pressure source. A length of 250 feet (76.2 m) high pressure hose conforming to USDA Forest Service Specification 5100-185, shall be connected to the reel discharge connection. The hose shall be fully extended the hose and position perpendicular to the reel axis on unpaved ground. The hose shall be charged to 10 psig (68.95 kPag). Rewind the hose onto the reel by using the electric rewind motor. The reel shall be examined after completely rewinding for any permanent deformation, mechanical damage or structural failure. The electric motor rewind shall be timed.

4.6.3. Manual Rewind Test. As required by 3.9.2, the manual rewind mechanism shall be tested. Test preparation for the manual rewind test shall be the same as 4.6.2. The hose shall be charged to 10 psig (68.95 kPag) and wound onto the reel by using the manual rewind hand crank. The reel shall not stall. The reel shall be examined for any permanent deformation, mechanical damage or structural failure. The time to rewind shall be measured.

4.6.4. Proof Pressure Test With and Without Hose. As required by 3.9.3, the reel shall be tested for proof pressure with and without hose.

4.6.4.1. Proof Pressure Without Hose. The reel shall be mounted on a platform and positioned on a flat, level surface. The revolving joint inlet of the reel shall be connected to a water pressure source. The water supply line and hose reel discharge connection shall be charged and the discharge connection capped. A hydrostatic pressure of 600 psig (4137 kPag) shall be applied and held for 3 minutes. The rate for applying the hydrostatic pressure shall be not less than 300 psig (2069 kPag) per minute and not more than 600 psig (4137 kPag) per minute, i.e., at a uniform rate over a 1 to 2 minute time interval. There shall be no leakage, permanent deformation, mechanical damage or structural failure of the hose reel.

4.6.4.2. Proof Pressure Test With Hose. The reel shall be mounted on a platform and positioned on a flat, level surface. The revolving joint inlet of the reel shall be connected to a water pressure source. A length of 250 feet (76.2 m) of 1 inch 11-1/2 NPSH cotton-synthetic fire hose qualified to

USDA Forest Service Specification 5100-186 shall be attached to the reel discharge connection. A combination nozzle shall be connected to the hose outlet. Fully extend the hose and position on a flat, level surface. The hose reel assembly and hose shall be charged with water to 10 psig (69 kPag). The hose shall be wound on the reel. A hydrostatic pressure of 600 psig (4137 kPag) shall be applied and held for 3 minutes. The rate for applying the hydrostatic pressure shall be not less than 300 psig (2069 kPag) per minute and not more than 600 psig (4137 kPag) per minute, i.e., at a uniform rate over a 1 to 2 minute time interval. There shall be no leakage, permanent deformation, mechanical damage or structural failure.

5. PACKAGING, PACKING AND MARKING

5.1. Packaging, Packing and Marking. The packaging, packing and marking shall be as specified in the contract or order.

6. NOTES.

6.1. Intended Use. The hose reel described in this specification is designed for use with USDA Forest Service high pressure hose on a fire engine in wildland firefighting operations. The reel consists of a drum, 2 side rims, a water inlet with a revolving joint, self-aligning bearings, a brake, a discharge hose connection, mounting frame and an electric motor or manual rewind.

6.2. Acquisition Requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. If a first article sampling and inspection is not required (see 3.1, 4.4.3, and 6.3).
- c. Size of hose reel required.
- d. If left or right hand reel is required.
- e. If an alternate material is required, it shall be an aluminum alloy material (see 3.2.1 and 3.3.1).
- f. If a manual rewind is required in lieu of, or in addition to, an electric motor rewind (see 3.2.5).
- g. If alternate dimensions for the mounting base plate are required (see 3.2.7).
- h. If an alternate color is specified, it shall be color No. 11105, red (see 3.8.1).
- i. If the color coat is to be applied by the truck builder, require reels made of steel to be painted with primer only and delete all paint requirements for reels made of an aluminum alloy material.
- j. If certificates of conformance are acceptable in lieu of lot by lot testing (see 4.4.2 and 4.5).
- k. Packaging, packing and marking (see 5.1).
- l. Date of the invitation for bids or request for proposals (see 2.1).

6.3. First Article. When a first article sample(s) is required, it shall be inspected and approved in accordance with the First Article clauses set forth in the solicitation. Specific instructions shall be included regarding arrangements for selection, inspection, and approval of the first article sample(s).

6.4. Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever.

6.5. Preparing Activity. USDA Forest Service, San Dimas Technology and Development Center, 444 East Bonita Avenue, San Dimas, CA 91773-3198.

**United States Department of Agriculture, Forest Service
Standardization Document Improvement Proposal**

Instructions: This form is provided to solicit beneficial comments which may improve this document and enhance its use. Contractors, government activities, manufacturers, vendors, or other prospective users of this document are invited to submit comments to the USDA Forest Service, San Dimas Technology and Development Center, 444 East Bonita Avenue, San Dimas, California 91773-3198. Attach any pertinent data which may be used in improving this document. If there is additional documentation, attach it to the form and place both in an envelope addressed to the preparing activity. A response will be provided when a name and address are included.

Note: This form shall not be used to submit request for waivers, deviation, or for clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

Standard Number and Title: **Specification 5100-340b, Reel, Hose , Booster**

Name of Organization and Address:

_____ Vendor _____ User _____ Manufacturer

1. _____ Has any part of this document created problems or required interpretation in procurement use?
 _____ Is any part of this document too rigid, restrictive, loose or ambiguous? Please explain below.

Give paragraph number and wording:

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Reason for recommended change(s):

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