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July 17, 2008

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SPECIFICATION

DRIP TORCH – EXTENDED BURNER (Diesel and Gasoline Mixture)

1. SCOPE

1.1 Scope. This document covers the minimum requirements for the design and construction of a drip torch with an extended burner used to ignite fires in vegetation with a mixture of diesel and gasoline.

2. APPLICABLE DOCUMENTS

2.1 Government documents. The following Government 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 solicitation.

U.S. DEPARTMENT OF TRANSPORTATION

49 CFR Parts 100-185

U.S. DEPARTMENT OF LABOR

29 CFR Part 1910

(The Code of Federal Regulations is for sale from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 220402-9325. Reprints of certain regulations may be obtained from the Federal agency responsible for issuing them. 49 CFR is available electronically at http://hazmat.dot.gov and 29 CFR is available electronically at www.osha.gov)

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 solicitation or request for proposals.

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be used in improving this document should be addressed to: USDA Forest Service, Missoula Technology and Development Center, 5785 Highway 10 West, Missoula, MT 59808.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 1974 - Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers
D 3951 - Standard Practice for Commercial Packaging
SI-10 - Standard For Use of the International System of Units (SI): The Modern Metric System (IEEE/ASTM Standard available from ASTM)

(Copies are available from ASTM, 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.)

AMERICAN SOCIETY FOR QUALITY (ASQ)

Z1.4 - Sampling Procedures and Tables for Inspection by Attributes

(Copies are available from the American Society for Quality, PO Box 3005, Milwaukee, WI 53201-3005.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Copies are available from the American Trucking Association, Inc., Traffic Department, 1616 P St. NW, Washington, DC 20036.)

(Non-Government standards and other publications normally are available from the organizations that prepare and 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 the item shall be subjected to first article inspection (see 6.3) in accordance with 4.6. During the term of the contract the contractor shall be required to notify the contracting officer in writing when a component, or the component supplier, changes in any way; when a major manufacturing process changes in any way; and when a manufacturing location changes. The contracting officer may at any time require the contractor to submit a new first article sample when substantive changes occur during the term of the contract.

3.2 Design

3.2.1 Diameter. The outside diameter of the drip torch tank, including the welds shall not be less than 5-3/4” or exceed 6-1/4” to allow the drip torch to fit in drip torch holders designed for 6" diameter drip torches.

3.2.2 Capacity. The capacity of the drip torch shall be a minimum of 1-1/4 gallons and a maximum of 1-1/2 gallons.

3.2.3 Materials of Construction. The drip torch shall be constructed of the following materials:

Tank and handle assembly:	Stainless steel
Filler cap:	Aluminum
Burner with fuel trap:	Steel
Nozzle:	Brass or bronze
Regulating valve:	Brass or bronze
Vent valve:	Brass or bronze
Seals and o-rings:	Neoprene, Buna N, or Viton

The materials for components not listed must be compatible with diesel/gasoline fuel mixtures.

3.2.4 Burners. Burners shall be available in 12 inch, 15 inch, and 19 inch lengths. The length of the burner shall be measured from the inlet of the burner to the end of the burner wick. The wick shall be configured such that flame from the wick will reliably ignite the fuel stream as it exits the nozzle. Burners shall be easily removable for transportation or replacement. All lengths of burners shall be interchangeable with each other.

3.2.5 Fuel Mixture. The drip torch shall be capable of operating with diesel/gasoline fuel mixtures.

3.2.6 Stowage of the Burner. The torch shall be designed such that the 12 inch long burner can be stowed inside of the fuel tank when the torch is not in use. Longer burners are not required to be stowed inside of the fuel tank.

3.2.7 Flashback Protection. As a minimum each drip torch shall be equipped with a fuel trap in the burner.

3.2.8 Vent Valve. Each drip torch shall be equipped with a vent valve to provide smooth flow of fuel when the drip torch is in use. The vent valve shall be capable of being closed to provide a leak-tight seal for storage or transportation. The head of the vent valve thumb screw shall be a minimum of 1/2 inch in diameter and located to allow easy opening and closing with a gloved hand.

3.2.9 Vent Tube. Each tank shall be provided with an interior tube that extends from the vent valve tank fitting to a location near the bottom of the tank. The tube shall be located so that it does not interfere with stowage of the 12 inch burner.

3.2.10 Regulating Valve. Each drip torch shall be equipped with a regulating valve to control fuel flow. The regulating valve shall be capable of being closed to provide a leak tight seal for storage or transportation. The regulating valve handle shall be a minimum of 1 inch in diameter and located to allow easy adjustment of the fuel flow.

3.2.11 Tank Opening and Filler Cap. The tank fill opening shall be no less than 2 inches in diameter and shall be sealed by a threaded filler cap. The filler cap shall provide a leak tight seal when it is hand tightened. The filler cap shall be designed to hold the 12 inch burner inside of the tank for transportation and storage.

3.2.12 Tank Handle. The handle shall be permanently attached to the tank and fabricated using tubing with a minimum diameter of 3/4 inch and a maximum diameter of 1-1/8 inch. The handle shall be designed to provide a minimum of 1-3/4 inches clearance between the inside of the handle and the outside of the fuel tank to allow the torch to be used with a gloved hand. The length of the clearance space between the inside of the handle and the outside of the tank shall be at least 8 inches. The handle must have a straight section at least 5" in length. The straight section may be at an angle to the outside of the tank to aid in holding the drip torch in the spout down position during use. When the handle is manufactured from bended tubing, intrusion into the space between the inside of the handle and the outside of the tank by the radius of the bends is acceptable.

3.2.13 Holder. A holder shall be available that can securely hold the torch during transport and has a provision to store 15 inch and 19 inch burners when not in use.

3.2.14 Leak Tightness. All closures such as the filler cap, regulating valve, and vent valve shall provide a leak-tight seal when hand tightened. Closures shall be designed such that the closure seal cannot be displaced from its sealing surface during hand tightening of the closure.

3.2.15 Markings. The drip torch shall be legibly and permanently marked with the manufacturer's name, catalog or model number, and the month and year of manufacture. These markings may be applied by casting, engraving, stamping or any other method that cannot be rubbed off or affected by contact with drip torch fuel or other substances. In addition, the drip torch shall be marked with the specification markings required in 3.3.4.

3.3 Department of Transportation requirements.

3.3.1 Construction requirements. Construction of the drip torch shall comply with the applicable portions of 49 CFR Part 178 Subpart L - Non-bulk Performance-Oriented Packaging Standards.

3.3.2 Design Qualification Testing Requirements. With the burner removed and the regulating and vent valves installed, the drip torch assembly must meet the design testing requirements for Packing Group II liquids with a specific gravity of 1 listed in 49 CFR Part 178 Subpart M - Testing of Non-bulk Packaging and Packages.

3.3.3 Production Testing Requirements. Each drip torch must pass a leak test that at a minimum meets the requirements for Packing Group II liquids listed in 49 CFR Section 178.604.

3.3.4 Specification Markings. Each drip torch shall be marked with UN standard or DOT specification markings per 49 CFR Sections 178.3 and 178.503. This marking shall be permanently cast or engraved in the drip torch fuel container.

3.3.5 Labeling. Each drip torch shall be labeled with a Flammable Liquid label that meets the requirements of 49 CFR Sections 172.407 and 172.419.

3.4 Color. The outside of the tank and the handle shall be painted red (see 3.4.1) to meet the OSHA requirements of 29 CFR 1910.144(a)(1)(ii). The paint shall not render the markings required in 3.2.15 and 3.3.4 unreadable. The paint shall not be applied to the tank, vent valve, or regulating valve threads.

3.4.1 Red. The color red as defined by RAL (German Institute for Quality Assurance, see 6.4) Color Numbers 3001 or 3002 are known to meet this requirement, however, other standards exist and conformance to RAL is not required.

3.5 Instructions. The manufacturer's instructions included with the drip torch shall specify the requirements to safely use the drip torch, and shall refer to agency or bureau policy regarding the types of fuel mixtures to be used. The instructions shall include a spare parts list and specify an ordering address where to obtain parts.

3.6 Delivery. Each drip torch shall be delivered in a completely assembled, tested, and ready to use condition except that the burner may be removed from the tank for shipment. The drip torch shall be packaged in such a manner as to prevent damage during shipping.

3.7 Workmanship. All items shall conform to the quality of product established by this document. The occurrence of nonconformities shall not exceed the applicable acceptable quality levels. There shall be no nonconformities that affect use, appearance, or serviceability.

3.8 Metric products. Products manufactured to metric dimensions will 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 IEEE/ASTM SI-10, and all other requirements of this specification are met.

3.9 Recovered materials. The contractor/offeror is encouraged to use recovered materials to the maximum extent possible in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his/her own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.2 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. 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 the 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 nonconforming material, either indicated or actual, nor does it commit the Government to accept nonconforming material.

4.3 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

4.4 Certification of compliance. Unless otherwise specified, certificates of compliance supplied by the manufacturer of the item, component, or material, listing the specified test method and test results obtained, may be furnished in lieu of actual lot by lot testing performed by the contractor (see 4.7). When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.5 Sampling for inspections and tests. Sampling for inspections and tests shall be made in accordance with ANSI/ASQ Z1.4. The inspection level and acceptable quality level (AQL) shall be as specified. All drip torches manufactured at one time shall be considered a lot for purposes of acceptance inspection and test. A sample unit shall be one complete drip torch.

4.6 Quality conformance inspection. Each end item lot shall be sampled and inspected as specified in 4.8. The packaging shall be sampled as specified in 4.9. Unless otherwise specified (see 6.2), first articles submitted in accordance with 3.1 shall be inspected as specified in 4.8. Packaging and packing is not part of the first article inspection. The presence of any nonconformity or failure to pass any test shall be cause for rejection of the first article.

4.7 Certification. Unless otherwise specified (see 6.2), as part of first article presentations and lot inspections, all test results and other documentation showing compliance with the requirements of this specification and Department of Transportation requirements (3.3) shall be provided.

4.8 End item visual examination. The end items shall be examined for compliance with the requirements and dimensions of this specification (3.2) in accordance with Table I. The lot size shall be expressed in units of complete drip torches. The inspection level shall be S-3, and the acceptable quality level (AQL), expressed in terms of nonconformities per hundred units, shall be 4.0. Unless otherwise specified, nonconformities shall be scored on an individual basis, i.e each dimension, etc.

Table I - End Item Visual Examination

Examine	Nonconformity
Dimension	Tank less than 5-3/4 inches or more than 6 -1/4 inches in diameter
Capacity	Tank less than 1-1/4 gallons or greater than 1-1/2 gallons
Design	Not designed to utilize the diesel and gasoline mixtures as specified in 3.2.5
	12 inch burner not stowable as specified in 3.2.6
	No fuel trap in the burner
	No vent valve provided, vent valve does not seal, thumb screw is not ½" in diameter and usable with gloved hand
	No regulating valve provided, regulating valve does not seal, valve handle not 1" in diameter and usable with gloved hand
	Vent tube does not extend near bottom of tank, interferes with stowage of 12 inch burner as specified in 3.2.9
	Tank fill opening diameter less than 2 inches as specified in 3.2.11
	Handle not as specified in 3.2.12
	Material not as specified in 3.2.3
Markings	Markings not per 3.2.15
	Markings not permanent or unreadable
Color	Tank and handle not painted red per 3.4
Instructions	Does not refer user to agency or bureau policy regarding fuel mixtures
	Does not include spare parts list

4.9 Packaging examination. The fully packaged end items shall be examined for the nonconformities in Table II. The sample unit shall be one shipping container fully prepared for delivery except that it need not be closed. Nonconformities of closure listed in Table II shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL, expressed in terms of nonconformities per hundred units, shall be 2.5.

Table II. Packaging Examination

Examine	Nonconformity
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing or not as specified.
	Any component damaged, affecting serviceability.
Workmanship	Inadequate application of components, such as: incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling.
	Bulged or distorted container.
Contents	Number of drip torches per container is more or less than required

5. PREPARATION FOR DELIVERY

5.1 Preservation. Preservation shall be in accordance with ASTM D 3951 and as specified herein and in the contract or purchase order.

5.2 Packing. Each drip torch, with burner, shall be packed in a close-fitting fiberboard box, minimum edge crush strength 32 lbs per inch, meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.9.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipping and unit containers shall be marked in accordance with FED-STD-123 with the addition of the applicable National Fire Equipment System (NFES) number (which includes the nomenclature "NFES"), which shall appear on a separate line below the National Stock Number (NSN).

6. NOTES

6.1 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification
b. Special packing requirements

6.2 Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility or any obligation whatsoever.

6.3 First article. When first articles are required, they shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation 52.209. The first article shall consist of three completely assembled items covered under this specification and shall be preproduction samples. The contracting officer should include specific instructions regarding arrangements for selection, inspection, and approval of the first articles.

6.4 RAL. German Institute for Quality Assurance and Certification e. V.
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6.5 Preparing Activity. USDA Forest Service, Missoula Technology and Development Center (MTDC), 5785 Highway 10 West, Missoula, Montana 59808.