

INCH-POUND
MIL-PRF- 32470
29 October 2013

PERFORMANCE SPECIFICATION

TRUCK, FORKLIFT, 10,000 LB CAPACITY, VARIABLE REACH, ROUGH TERRAIN

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers a 10,000 pound rated variable reach, rough terrain forklift truck, henceforth referred to as a 10K Telehandler. The forklift will operate on hard paved surfaces, soft soil, mud, snow, and sand, on level and hilly terrain. This forklift has a minimum forward reach of 40 feet and is air transportable on C-5 and C-17 aircraft.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. 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 cited in the solicitation or contract.

FEDERAL STANDARDS

FED-STD-595C/14052 Green, Gloss

Comments, suggestions, or questions on this document should be addressed to:
AFLCMC/WNZEB, 235 BYRON ST STE 19A, Robins AFB GA 31098-1813. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

FSC 3930

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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FED-STD-595C/31136	Red, Flat or Lusterless
FED-STD-595C/37038	Black, Miscellaneous, Flat or Lusterless

COMMERCIAL ITEM DESCRIPTIONS

A-A-52557	Fuel Oil, Diesel; for Posts, Camps and Stations
A-A-52624	Antifreeze, Multi-Engine Type
A-A-59295	Corrosion Preventive Compounds, Cold Application (for New and Fielded Motor Vehicles and Trailers)

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-2104	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-DTL-5624	Turbine Fuel, Aviation, Grades JP-4 and JP-5
MIL-DTL-6458	Chain Assemblies, Single Leg, Aircraft Cargo Tie Down
MIL-B-18013/1	Battery, Storage, Support Equipment
MIL-PRF-23377	Primer Coatings: Epoxy, High-Solids
MIL-DTL-25959	Tie Down, Tensioners, Cargo, Aircraft
MIL-PRF-26915	Primer Coating, for Steel Surfaces
MIL-PRF-46167	Lubricating Oil, Internal Combustion Engine, Arctic
MIL-DTL-53030	Primer Coating, Epoxy, Water Reducible, Lead and Chromate Free
MIL-DTL-81706	Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys
MIL-DTL-83133	Turbine Fuel, Aviation, Kerosene Type, JP-8 (NATO F-34), NATO F-35, and JP-8+100 (NATO F-37)
MIL-PRF-83282	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-537
MIL-PRF-85285	Coating: Polyurethane, Aircraft and Support Equipment

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-209	Lifting and Tiedown Provisions
MIL-STD-461	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-882	System Safety
MIL-STD-889	Dissimilar Metals
MIL-STD-1366	Transportability Criteria
MIL-STD-1472	Human Engineering
MIL-STD-1791	Designing for Internal Aerial Delivery in Fixed Wing Aircraft

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(Copies of these documents are available online at <http://quicksearch.dla.mil/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

TEST OPERATIONS PROCEDURE (TOP)

TOP 2-2-800	Center of Gravity
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(Copies of this document can be obtained from <https://vdl.s.atc.army.mil/> .)

2.3 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 cited in the solicitation or contract.

FOREIGN SPECIFICATIONS

GOST 10227-86	Fuels for Jet Engines
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(Copies of these documents, except for GOST 10227-86, are available online at <http://quicksearch.dla.mil/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia PA 19111-5094. A copy of GOST 10227-86 can be obtained from the Procuring Contracting Officer (PCO).)

ASTM INTERNATIONAL (ASTM)

ASTM D975	Standard Specification for Diesel Fuel Oil
ASTM D1655	Standard Specification for Aviation Turbine Fuels

(Application for copies should be addressed to ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken PA 19428-2959 or online at www.astm.org)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	Structural Welding Code–Steel–22nd Edition
AWS D1.2/D1.2M	Structural Welding Code–Aluminum–Fifth Edition
AWS D1.3/D1.3M	Structural Welding Code–Sheet Steel–Fifth Edition
AWS D1.6/D1.6M	Structural Welding Code–Stainless Steel

(Application for copies should be addressed to American Welding Society, 550 N.W. LeJeune Road, Miami FL 33126 or online at www.aws.org)

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ITSDF B56.6-2005 Safety Standard for Rough Terrain Forklift Trucks

(Application for copies should be addressed to American National Standards Institute, 25 West 43rd Street, 4th floor, New York, NY 10036 or online at <http://www.ansi.org>)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 3471	Earth-moving machinery — Roll-over protective structures — Laboratory tests and performance requirements
ISO 5010	Earth-moving machinery — Rubber-tyred machines — Steering requirements - Third Edition

(Application for copies should be addressed to International Organization for Standardization, ISO Central Secretariat, 1, ch. De la Voie-Creuse, CP 56 – CH – 1211 Geneva 20, Switzerland or online at www.iso.org)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE J185	Access Systems for Off-Road Machines
SAE J386	Operator Restraint System for Off-Road Work Machines
SAE J534	Lubrication Fittings
SAE J695	Turning Ability and Off-Tracking – Motor Vehicles
SAE J994	Alarm—Backup—Electric Laboratory Performance Testing
SAE ARP1247	General Requirements for Aerospace Ground Support Equipment, Motorized and Nonmotorized

(Copies of this document are available online at www.sae.org or from SAE International, 400 Commonwealth Dr., Warrendale PA 15096-0001.)

TIRE AND RIM ASSOCIATION

TRA-YB Tire and Rim Association, Year Book

(Application for copies should be addressed to The Tire and Rim Association, Inc., 175 Montrose West Ave., Suite 150, Copley OH 44321 or online at <http://www.us-tra.org/>)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. REQUIREMENTS

3.1 First article. When specified (see 6.2), one sample shall be subjected to first article inspection in accordance with 4.2.

3.2 10K Telehandler description. The 10K Telehandler shall be designed and constructed in accordance with all applicable European Union (EU) requirements in order to have the “CE” marking affixed (see 3.3.3.1). The 10K Telehandler shall meet all requirements specified henceforth. Unless otherwise specified herein, or inherently restricted due to a movement capabilities requirement, the use of outriggers to meet these requirements is acceptable.

3.3 Design and construction. The 10K Telehandler shall be designed and constructed so that no parts will work loose in service, and to withstand the strains, jars, vibrations, and other conditions incident to shipping, storage, installation, and service. It shall be weatherproof and designed to prevent the intrusion of water, sand, and dust into critical operating components.

3.3.1 Materials, protective coatings, and finish.

3.3.1.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle cost; however, used, rebuilt, or refurbished items shall not be provided.

3.3.1.2 Protective coatings. Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during the service life of the 10K Telehandler shall not be used or shall have means of protection against such deterioration that does not prevent compliance with the performance requirements specified herein. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat shall not be used. Fasteners, handles, and fittings used in the assembly of the 10K Telehandler shall also be primed and painted.

3.3.1.2.1 Surface preparation and pretreatment. Surface preparation and pretreatment shall be in accordance with the respective primer and topcoat specifications. Structures shall be cleaned, degreased, and scuffed or blasted prior to priming; primer shall be applied before any oxidation or rusting occurs. Aluminum surfaces shall have MIL-DTL-81706, Type II, Class 1A, chemical conversion coating applied in accordance with the manufacturer’s directions prior to priming.

3.3.1.2.2 Primer. Raw metal edges, to include fastener and drain holes, shall be coated with primer before applying topcoat.

3.3.1.2.2.1 Ferrous surfaces. Ferrous structures and surfaces shall be primed with a water reducible zinc rich primer in accordance with MIL-PRF-26915, Type II, Class B; this shall be followed, within four hours, by a coat of MIL-DTL-53030 intermediate primer in a wet-to-wet primer application. This two part primer system shall yield a dry-film thickness of 2.0-2.5 mils for the zinc primer and 0.9 to 1.1 mils for the intermediate primer. The two-primer system shall

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be allowed to dry and fully cure in accordance with the primer manufacturer's directions prior to top coating.

3.3.1.2.2.2 Aluminum and mixed aluminum and ferrous surfaces. Aluminum and mixed aluminum and ferrous structures and surfaces shall be primed with an epoxy primer, Type II, Class N of MIL-PRF-23377. This single part primer system shall yield a dry-film thickness of 0.6 to 0.8 mils.

3.3.1.2.3 Topcoat. Topcoat shall be polyurethane in accordance with Type I, Class H of MIL-PRF-85285. Neither Chemical Agent Resistant Coating (CARC) nor powder coating shall be used. Topcoat shall be applied to a dry film thickness of 1.6 to 2.4 mils in all instances, regardless of the primer system utilized. The coating shall be free from runs, sags, orange peel, or other defects.

3.3.1.2.4 Tropical rust proofing. When specified (see 6.2), tropical rust proofing shall be provided. The forklift shall be treated with a corrosion preventative compound in accordance with A-A-59295. At a minimum, these areas shall be coated:

- a. Cab, interior
- b. Cab, exterior
- c. Seams
- d. Welds
- e. Hidden recessed areas
- f. Locations where dissimilar metals come in contact
- g. Area above fuel tank(s)
- h. Engine oil pan and transmission oil pan
- i. Radiator support structure
- j. Battery box

3.3.1.3 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall not be in contact with each other. Metal plating or metal spraying of dissimilar base metals to provide electromotively compatible abutting surfaces is acceptable. The use of dissimilar metals when separated by suitable insulating material is permitted, except in systems where bridging of insulation materials by an electrically conductive fluid can occur. Sealants or gel type gasket materials shall be used between faying surfaces and butt joints.

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3.3.1.4 Finish. Unless otherwise specified, the exterior finish color of the 10K Telehandler shall be at the discretion of the manufacturer. When specified (see 6.2), the exterior finish color shall be gloss green, Color Number 14052 of FED-STD-595.

3.3.1.5 Exclusion of water. The design of the 10K Telehandler shall be such as to prevent water leaking into, or being driven into, any part of the 10K Telehandler interior when either in an operating or traveling configuration. All windows, doors, panels, covers, etc., shall be provided with sealing arrangements such that the entry of water is minimized when these items are correctly closed. Particular care shall be taken to prevent wetting of equipment and heat and sound proofing materials. Sharp corners and recesses shall be avoided so that moisture and solid matter cannot accumulate to initiate localized attack. Sealed floors with suitable drainage shall be provided for storage compartments, engine compartments, and other areas in the 10K Telehandler that could collect and retain water.

3.3.1.5.1 Fluid traps and faying surfaces. There shall be no fluid traps on the 10K Telehandler. Faying surfaces of all structural joints, except welded joints, shall be sealed to preclude fluid intrusion.

3.3.1.5.2 Ventilation. Ventilation shall be sufficient to prevent moisture retention and buildup.

3.3.1.5.3 Drainage. Drain holes shall be provided to prevent collection or entrapment of water or other unwanted fluid in areas where exclusion is impractical. All designs shall include considerations for the prevention of water or fluid entrapment and ensure that drain holes are located to effect maximum drainage of accumulated fluids. The number and location of drain holes shall be sufficient to permit drainage of all fluids when the unit is in a 20% incline in any plane. The minimum size of the drain holes shall be 0.25 inch. Any drain holes in locations where insects or other possible intrusions that could be detrimental to the vehicle shall be sealed with a removable plug.

3.3.2 Markings. All external devices which require an operational or maintenance interface shall be marked in accordance with MIL-STD-130. Markings shall be applied with decals and shall be 1-inch high block letters unless prohibited by the available space. In such cases, the markings shall be the largest size possible, but shall not be less than ½-inch high. Markings of Information/Caution shall be Lusterless Black, Color Number 37038 of FED-STD-595, and Markings of Warning/Danger shall be Lusterless Red, Color Number 31136 of FED-STD-595. The center of gravity of the 10K Telehandler shall be stenciled on the unit within 1.0 inch of the calculated center of gravity.

3.3.3 Identification and information plates.

3.3.3.1 Identification plate. An identification plate in accordance with MIL-STD-130 shall be securely attached to the 10K Telehandler in a readily accessible location. The identification plate shall contain the following information: nomenclature, part number, manufacturer's serial number (VIN), date of manufacture, manufacturer's name, Commercial and Government Entity (CAGE) code, date of warranty expiration, and National Stock Number (NSN). The "CE"

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marking shall be affixed in accordance with EU requirements on or adjacent to the identification plate.

3.3.3.2 Transportation data plate. A transportation data plate shall be securely attached to the 10K Telehandler in a readily accessible location. The plate shall contain at least the following information:

- a. Side and rear silhouette views of the 10K Telehandler.
- b. Horizontal and vertical location of the center of gravity of the 10K Telehandler in air transportable configuration, marked on the silhouette views.
- c. Shipping weight (pounds).
- d. Loading cubage (inches³).
- e. Overall height, width, and length (inches).
- f. Front and rear axle loads (pounds).
- g. Tie down information.

3.3.3.3 Instruction plates. All warning and instruction plates normally installed by the forklift manufacturer, describing procedures or safety items, shall be included.

3.3.3.4 Load chart. A corrosion resistant plate, showing the load capacity of the forklift at all boom extensions and lift heights, shall be permanently installed both inside and outside the vehicle in a location clearly visible to the operator.

3.3.4 Safety.

3.3.4.1 System safety. The design of the 10K Telehandler shall not contain any system safety mishap risk categories greater than medium as defined in Table III of MIL-STD-882.

3.3.4.2 Component protection. All space in which work is performed during operation, service, and maintenance shall be free of hazardous protrusions, sharp edges, or other features which may cause injury to personnel. All rotating and reciprocating parts and all parts subject to high operational temperatures or subject to being electrically energized, that are of such nature or so located as to be hazardous to personnel, shall be guarded or insulated to eliminate the hazard. All wires, cables, tubes, and hoses shall be supported and protected to minimize chafing and abrasion and shall be located so as to provide adequate clearance from moving parts and high operational temperatures. Grommets shall be provided wherever wires, cables, tubes, or hoses pass through bulkheads, partitions, or structural members.

3.3.4.3 Foreign object damage (FOD). All loose metal parts, such as pins or connector covers, shall be securely attached to the 10K Telehandler with wire ropes or chains. "Dog tag" style

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beaded chains shall not be provided. Removable panels, if provided, shall be attached with captive fasteners. Tire valve stem caps shall be made of plastic.

3.3.4.4 Sound levels. The sound level measured at the operator's station should not exceed 84 dB(A). If the sound level is above 84 dB(A), the contractor shall provide a hazardous noise warning plate stating that operator's hearing protection is required when operating this forklift. The plate shall be made of a corrosion resistant material and shall be at least 4.0 square inches. It shall have black lettering on a yellow background and shall be located to be visible as the operator enters the cab, or is seated. Sound level shall not exceed 93 dB(A).

3.3.4.5 Backup alarm. A backup alarm in accordance with SAE J994, type A, B or C, shall be furnished.

3.3.4.6 Seatbelts and operator restraint.

3.3.4.6.1 Seatbelt. An operator's seatbelt with a retractor shall be installed inside the operator's cab. The seatbelt shall be in accordance with SAE J386, Type One.

3.3.4.6.2 Decal. A warning decal shall be provided advising of the hazards of tip over and the importance of using the restraint system.

3.3.4.7 Horn. A horn audible to those within near proximity of the forklift shall be provided.

3.3.5 Electromagnetic interference (EMI). The 10K Telehandler shall be in accordance with the following radiated emission and susceptibility requirements of MIL-STD-461: RE102 and RS103.

3.3.6 Human engineering. The 10K Telehandler shall be designed in accordance with MIL-STD-1472 for ease of operation, inspection, and maintenance, including the use of arctic mittens and Mission-Oriented Protective Posture (MOPP) Level 4 Chemical Warfare Gear.

3.3.7 Fastening devices. All screws, bolts, nuts, pins, and other fastening devices shall be properly designed, manufactured, and installed with adequate means of preventing loss of torque or adjustment. Cotter pins, lock washers, or nylon patches shall not be used for this purpose, except for the attachment of trim items or as provided in commercial components. Tapped threads shall have a minimum thread engagement in accordance with Table I.

TABLE I. Minimum thread engagement.

Material	Minimum Thread Engagement
Steel	1.0 times the nominal fastener diameter
Cast iron, brass, or bronze	1.5 times the nominal fastener diameter
Aluminum, zinc, or plastic	2.0 times the nominal fastener diameter

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3.3.8 Welders and welding. All welders shall be certified to weld in accordance with AWS D1.1/D1.1M for structural steel, AWS D1.2/D1.2M for aluminum, AWS D1.3/D1.3M for sheet steel, and AWS D1.6/D1.6M for stainless steel, as applicable. The contractor shall make available to the Government certifications for all welders being utilized on the 10K Telehandler. Welding procedures and all welding on the 10K Telehandler shall be in accordance with AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M, and AWS D1.6/D1.6M, as applicable. The surface parts to be welded shall be free from rust, scale, paint, grease, and other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the welded parts. Welds shall transmit stress without cracking or permanent distortion when the parts connected by the welds are subjected to test, proof, and service loadings. Cast components, structural steel components with an ultimate tensile strength greater than 100,000 psi, and threaded fasteners (except for weld studs and weld nuts) shall not be welded. Heat treated components shall be in the annealed, normalized condition when welded.

3.3.9 Design. The forklift shall be designed for safe operation with the rated load capacity (see 3.3.9.1) at all lift heights, reaches, fork tilts, and fork positions that the forklift is capable of achieving. The forklift shall be designed for a safety factor (based on material yield strength) of at least three times the rated load.

3.3.9.1 Rated load. The rated load shall be 10,000 pounds at a horizontal and vertical load center of 36 inches. The fork tines shall be rated for at least 10,000 pounds for use in operations that require little (minimum 10 ft) or no horizontal reach. The horizontal load center is defined as the horizontal distance from the load carrying surface of the load backrest to the center of gravity of the load. The vertical load center is the vertical distance from the upper (load carrying) surfaces of the forks to the center of gravity of the load.

3.3.9.2 Fork spacing, side shift, and dimensions. The forks shall be capable of being adjusted laterally by hydraulic power, and meeting the requirements of 3.13.19. Additionally, the forklift shall be capable of side shifting the forks by hydraulic power and meeting the requirements of 3.13.20. See Table II for fork dimensions.

TABLE II. Fork dimensions.

Length of forks	72 ± 0.5 in.
Width of forks	6 in. (maximum)
Thickness of forks	2 in. (maximum, except at bend in fork heel)
Fork tip thickness	0.75 in. (maximum)
Bottom taper of forks	18 – 24 in.

3.3.9.3 Load backrest. A metal backrest shall be provided that is capable of being easily removed within 5 minutes by no more than 2 personnel. The backrest shall have a stowage location on the forklift once removed. The backrest shall be the same width as the carriage. The top of the backrest shall be no more than 48 inches above the horizontal load carrying surfaces of the forks. Two ring type devices to restrain the load shall be located on the load backrest at 30.0 inches ±2.0 inches above the load carrying surfaces of the forks. The devices shall have an inside diameter of 3.0 – 4.0 inches, and made of a material not more than 0.75 inches thick. The

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devices shall have a safety factor of at least 3 when a forward horizontal load, equal to the rated load, is equally applied to both devices. Location of the devices shall not interfere with positioning the load against the backrest.

3.3.9.4 Steering. The 10K Telehandler shall have power steering and operate in 2-wheel front, 4-wheel crab, and 4-wheel circle steering. In the event of a power failure the 10K Telehandler shall be equipped with an emergency power steering mechanism (mechanical or electrical) in accordance with ISO 5010. This supplement power steering mechanism shall allow the vehicle to be controlled while moving.

3.3.9.5 Load handling controls. All load motion controls shall be right hand joystick operation and shall be of the self-centering type, i.e., controls shall return to the neutral position when released.

3.3.9.6 Cab. The 10K Telehandler shall be equipped with the manufacturer's standard enclosed cab that shall incorporate the overhead protection requirements of ANSI/ITSDF B56.6-2005, and roll over protective structure (ROPS) requirements of ISO 3471. There shall be a door on each side; or one door and one side, front, or rear window that meets the emergency exit requirements of SAE J185. There shall be at least two windows, one on each side, which can be opened for ventilation. The front and rear windows shall have windshield wipers. The doors and windows shall be capable of securely locking in both the closed and open positions. The cab shall be equipped with an internal rear view mirror and two side view mirrors attached to the doors, fenders, or other acceptable location that will allow the cab operator to view the sides of the vehicle. The cab shall be equipped with air conditioning and an overhead fan. The cab shall be designed in such a way that removal is not required to meet the air-transport requirements.

3.3.9.6.1 Adjustable cab. If the vehicle is designed to operate with the cab in multiple discrete positions, the roll over protective structure/falling object protective structure (ROPS/FOPS) shall meet the requirements of ANSI/ITSDF B56.6-2005 and ISO 3471 in each discrete position.

3.3.9.6.2 Heater and defroster. A heater and defroster shall be provided that operates within the operating temperature requirements in 3.4.1. The heater shall be of sufficient capacity to maintain the temperature of the cabin floor at 40 °F or higher at ambient temperatures of -25 °F.

3.3.9.7 Towing hitch. A pintle-type towing hitch shall be installed at the center rear of the forklift, with the center of the hitch opening 22 to 30 inches above ground level. The pintle and mounting hardware shall be capable of sustaining a rearward, horizontal force of at least three times the gross vehicle weight (GVW) of the forklift. The pintle-type towing hitch shall be designated as a retrieval device only, by marking on the forklift and in the operator's manual.

3.3.9.8 Towing lugs. One lug on each side of the towing hitch shall be installed for securing safety chains. The lugs shall be of sufficient diameter to accept common chains and hooks three inches in diameter and capable of sustaining a rearward, horizontal force of at least three times the GVW of the forklift for a maximum of 500 feet.

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3.3.9.9 Tires. The tires shall be pneumatic, with an off-road tread pattern. When specified (see 6.2), the 10K Telehandler shall be furnished with all-terrain, foam filled tires. Tire loading shall not exceed the tire load limits specified in TRA-YB, *Tire and Rim Association Yearbook*, when using the off the road 5 MPH tables.

3.3.9.10 Aircraft loading fork attachment. When specified (see 6.2), the 10K Telehandler shall be equipped with an aircraft loading fork attachment to be used for positioning fixed tongue, rolling stock of one or two fixed axles, at least 2,000 lbs tongue weight, and at least 10,000 lbs gross weight when measured with horizontal tongue. It is acceptable to provide a means of stopping the boom from extending to meet this requirement. If a stop is required, the boom stopper shall be engaged and disengaged by the seated operator.

3.3.9.10.1 Aircraft loading operations. Use of the aircraft loading attachment may be limited to operations that support loading rolling stock into and out of C-17 and C-5 cargo aircraft. The aircraft loading ramp shall be no steeper than the level-kneeled, aft ramp of the C-5 (see Figure 1) with a sufficient loading envelope to allow the forklift to enter the aircraft in operational mode (see 6.3.5). Operations are limited to hard paved surfaces with level terrain with the forklift in first gear. The operator, without leaving their seat and while maintaining full control of the forklift, shall be able to see the pintle on the aircraft loading fork attachment during all operations. The aircraft loading fork attachment shall be retained using MIL-DTL-25959 qualified tie down adjusters and the associated MIL-DTL-6458 qualified chain connected to the aircraft loading fork attachment. The aircraft loading fork attachment shall be removed to meet air-transport mode requirements (see 3.6.2.1). The aircraft loading fork attachment shall not be used for any other operations. The following features shall be included:

- a. Two steel D-ring devices with a minimum inside diameter of 2.0 inches and not more than 0.75 inches thick allowing secure retention on the forks/fork carriage and to remain securely attached to the forklift during all aircraft loading operations. The devices shall have a yield safety factor of at least 2 when the rated load is equally applied to both devices.
- b. A pintle type towing hitch shall be located at the center, end of the aircraft loading attachment opposite the fork insertion pockets.
- c. The aircraft loading fork attachment shall be of adequate length, width, height, and strength to support aircraft loading operations on C-5 and C-17 aircraft.
- d. Unless otherwise specified (see 6.2), the final paint (see 3.3.1.4) and markings (see 3.3.2) shall be consistent with the colors of the forklift on which the aircraft loading attachment is attached. The top of the aircraft loading attachment shall have "XX, XXX LBS" (where XX, XXX equals the final push/pull capacity of the vehicle) stenciled in 1-1/2 inch high letters with paint.
- e. Storage devices shall be included to allow storage of the aircraft loading fork attachment on the forklift without modification of the forklift.

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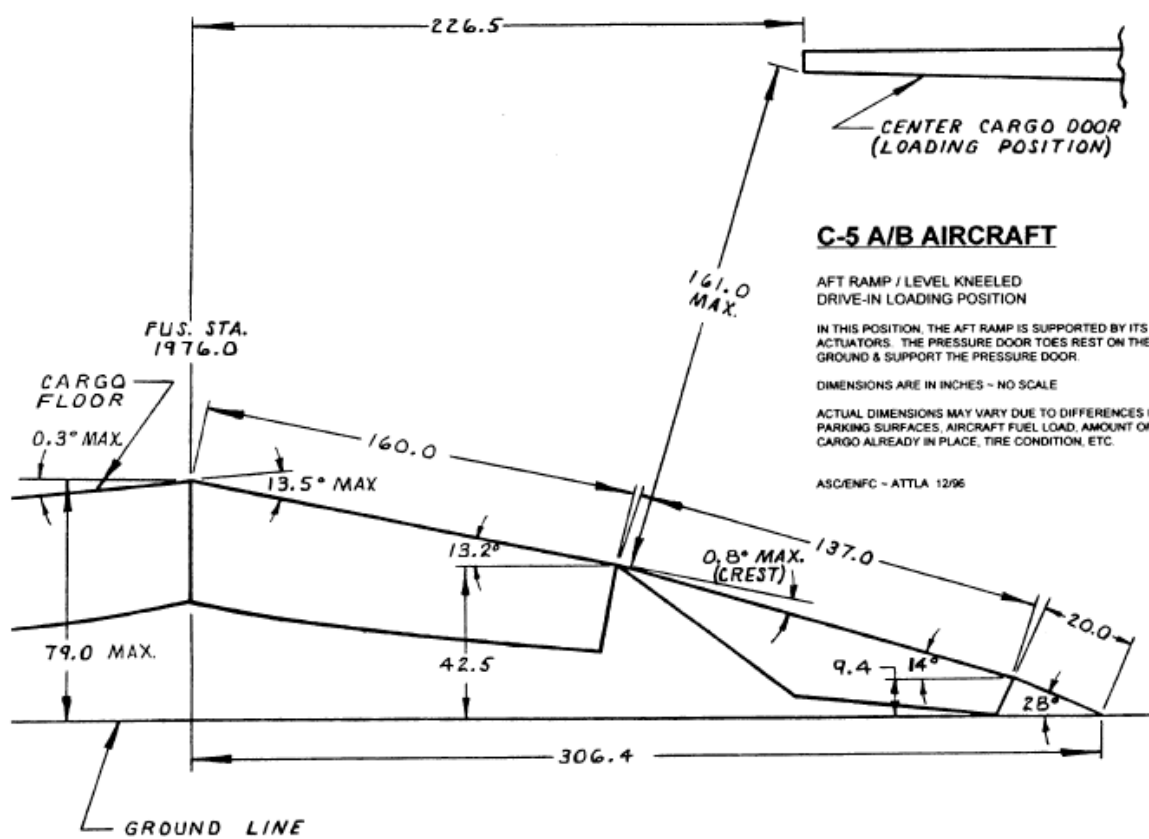


FIGURE 1. Aircraft loading angle.

3.3.9.11 Wheel guards. The forklift shall be designed so that material is not thrown off the rotating tires onto cab windows or light assemblies. If wheel guards are used, each wheel guard shall be capable of supporting at least 300 pounds in any one square foot area without evidence of permanent deformation.

3.3.9.12 Boom assembly. The boom shall be designed to provide fore and aft (horizontal) extension and retraction, and tilting movement for raising and lowering the fork carriage. The maximum angle that the boom can be tilted, with rated load on the forks, shall be limited to 70 degrees relative to the ground. The forklift shall be capable of meeting all requirements of this document with this limitation.

3.3.9.13 Boom attachments. The boom shall be designed for use with different attachments as needed. Each attachment shall have its own set of instructions and load chart. Attachments may have up to one standardized hydraulic fitting to allow for hydraulically powered operations by the attachment. When specified (see 6.2), the forklift shall be provided with any combination of an engine installation/removal attachment or a pintle hook attachment. Attachments shall be easily installed and removed, requiring at most 2 people, and not more than 15 minutes per attachment for installation or removal.

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3.3.9.13.1 Pintle hook attachment. When specified (see 6.2), the forklift shall be equipped with a pintle hook attachment. The pintle hook attachment shall provide all of the capabilities as described in 3.3.9.10 and its subparagraphs. If the pintle hook attachment is offered, then a separate fork tine attachment is not necessary to meet the requirements of 3.3.9.10 and 3.3.9.10.1.

3.3.9.13.2 Engine installation/removal attachment. When specified (see 6.2), the forklift shall be equipped with an engine installation/removal attachment. The engine installation/removal attachment shall have sufficient capacity to remove a C-130 engine and propeller combination weighing up to 5,500 lb. at 16 ft. load center (when measured from the forward most part of the forklift), without the use of outriggers. The attachment shall provide at least 24” of horizontal travel while the vehicle remains stationary. The horizontal travel shall be hydraulically operated by the vehicle operator from the cab.

3.4 Environmental conditions.

3.4.1 Operating temperature range. The 10K Telehandler shall be capable of operating in ambient temperatures ranging from -25 °F to 140 °F. When specified (see 6.2), the 10K Telehandler shall be furnished with Type A Winterization (see 3.4.8.2) and shall be capable of operation at ambient temperatures ranging from -40 °F to 140 °F.

3.4.2 Storage temperature range. The 10K Telehandler shall be capable of being stored in ambient temperatures ranging from -25 °F to 140 °F. When specified (see 6.2), the 10K Telehandler shall be furnished with Type A Winterization (see 3.4.8.2) and shall be capable of storage at ambient temperatures ranging from -65 °F to 140 °F.

3.4.3 Precipitation.

3.4.3.1 Snow. The 10K Telehandler shall be capable of storage and operation during accretion of wet snow up to 2-inches per hour for at least 12 hours on exposed horizontal surfaces.

3.4.3.2 Ice. The 10K Telehandler shall be capable of storage and operation with ice accretion up to 1.5-inches on exposed horizontal surfaces. An operator may use an ice scraper on exposed horizontal surfaces for five minutes during the start-up process.

3.4.4 Solar radiation. The 10K Telehandler shall not be adversely affected by full time exposure to solar radiation, such as those conditions encountered in desert environments and high altitudes.

3.4.5 Fungus. All materials used in the 10K Telehandler shall be fungus resistant or shall be suitably treated to resist fungus. Materials treated for fungus resistance shall retain their original electronic and physical properties, shall not present toxic hazards, and treatment shall last for the entire service life of the part. The 10K Telehandler shall be suitable for operation and storage in conditions encountered in a tropical environment.

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3.4.6 Salt fog. The 10K Telehandler shall be capable of storage and operation in high temperature, high humidity, salt laden, sea coast environments without damage or deterioration of performance.

3.4.7 Sand and dust. The 10K Telehandler shall be capable of storage and operation during exposure to wind-blown sand or dust without damage or deterioration of performance.

3.4.8 Winterization. (Minimum Requirements)

3.4.8.1 Type C winterization. The forklift, at a minimum, shall be furnished with Type C winterization that shall protect to -25° F. The forklift shall start within 5 minutes using only the engine or other component preheating designated below, and it shall be fully operable within 15 minutes.

3.4.8.2 Type A winterization. When specified (see 6.2), the forklift shall be furnished with Type A winterization that shall protect to -65° F. If within the operating temperature range, the forklift shall start within 5 minutes using only the engine or other component preheating designated below, and it shall be fully operable within 15 minutes. The forklift with Type A winterization shall consist of the following:

3.4.8.2.1 Power plant heaters. Engine coolant, engine oil and battery heaters shall be provided. All heaters shall operate on 110 volts @ 60 Hz alternating current. A three wire, 25 feet long weatherproof power cable of adequate capacity for all heaters being used simultaneously shall be provided. The power cable shall be able to connect to NATO and American connectors. A stowage place shall be provided on the forklift to keep the cable when not in use. The heaters shall be as follows:

- a. The coolant heater shall be installed in the engine block or lower coolant inlet hose. A coolant circulating pump, driven by a 110 volt alternating current motor shall be provided when a coolant inlet hose heater is furnished. The heater shall have adequate capacity to maintain engine coolant at a temperature of 10° F in an ambient temperature of -65° F. It shall be controlled to limit engine coolant to not more than 150° F.
- b. An engine oil heater with adequate capacity to maintain engine oil at a temperature of at least $+10^{\circ}$ F in an ambient temperature of -65° F shall be furnished. It shall be controlled to limit engine oil temperature to not more than 150° F.
- c. A battery heater shall be provided. It shall have adequate capacity to maintain battery electrolyte at a temperature of at least $+10^{\circ}$ F in an ambient temperature of -65° F, and shall have a thermostat to limit temperature of the electrolyte to not more than $+80^{\circ}$ F.

3.4.8.2.2 Cab. The cab shall meet the requirements described in 3.3.9.6, and shall contain thermal insulation, if necessary, to meet the heating requirements described in 3.4.8.2.3.

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3.4.8.2.3 Heater and defroster. The heater shall be of sufficient capacity to maintain temperature of +40° F at cab floor level in an ambient temperature of -40° F.

3.4.8.2.4 Anti-freeze engine. To protect the engine from freezing, the coolant system shall be protected to -65° F with antifreeze.

3.5 Dimensions. Overall dimensions in air transport configuration (see 3.6.2) shall be in accordance with MIL-STD-1791.

3.6 Transportability.

3.6.1 Surface transportability. The 10K Telehandler shall be transportable via all modes of surface shipment (highway, rail, and water) in accordance with MIL-STD-1366, and shall be capable of withstanding the mechanical shock and vibration characteristics of highway, rail, and water transport, except that design for rail impact testing (see 5.2.5 of MIL-STD-1366) is not required.

3.6.2 Air transportability. The 10K Telehandler shall be transportable on C-5 and C-17 aircraft in accordance with MIL-STD-1791. In all air transport configurations, the 10K Telehandler shall be capable of being restrained and withstanding, without loss of serviceability, 2.0 G up and 4.5 G down accelerations, and shall be capable of being restrained and withstanding, without loss of structural integrity, 3.0 G forward, 1.5 G aft, and 1.5 G lateral accelerations. The 10K Telehandler shall be equipped with pressure relief devices or configured for air transport to prevent any part from becoming a projectile in the event of catastrophic loss of aircraft cabin pressure. The 10K Telehandler shall drive on and off the aircraft, negotiating the required maximum ramp angles without shoring.

3.6.2.1 Air-transport mode. Air-transport mode shall be the fully operational forklift with only the following items removed, if necessary.

- a. Counterweight (see 3.6.2.6)
- b. Aircraft loading fork attachment (see 3.3.9.10)

3.6.2.2 Shoring. The 10K Telehandler shall be air transportable without shoring.

3.6.2.3 Axle weight. Axle weight shall not exceed 20,000 pounds.

3.6.2.4 Tire pressure. Tire pressure for pneumatic tires shall not exceed 100 pounds per square inch (psi) and shall not be reduced for air transport.

3.6.2.5 Equipment removal and reconfiguration. Preparation for air transport and restoration to operating configuration shall take no more than 1 man-hour for 5 persons using common hand tools (see 6.3.1). All equipment removed shall be stored on the 10K Telehandler.

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3.6.2.6 Counterweight(s). If it is necessary to remove counterweight(s) to reduce the axle weights to 20,000 pounds, they shall be removed and installed by a furnished crane or hoist, and individual weights shall not weigh more than 900 pounds. The maximum number of personnel allowed to assist in the removal of the counterweight(s) is five people. An optional method shall be to remove and install the counterweights by a system on the forklift that uses its own power to lower and raise counterweight(s) to and from installed position, to and from ground level. In this case, the 900 pound maximum weight does not apply.

3.6.3 Tie downs. The 10K Telehandler shall be symmetrically restrained during air and ground transport. Tie down points shall be rated at a minimum of 25,000 pounds, marked for capacity, with a clear opening compatible with MIL-DTL-25959 tie down devices. Each end of each tie down device shall terminate at a tie down point and not pass through any other tie down point. There shall be no interference between tie down devices and the 10K Telehandler. The tie down provisions shall be in accordance with 4.1 through 4.12 of MIL-STD-209.

3.6.4 Lifting provisions. The 10K Telehandler shall be equipped with sufficient attachment points so located that it can be lifted by crane; each attachment point shall be marked "Lift Point". The lifting provisions shall be in accordance with 5.1 through 5.1.4 of MIL-STD-209.

3.7 Maintainability. The 10K Telehandler shall be designed for maintainability in accordance with 5.9 of MIL-STD-1472. The 10K Telehandler shall be capable of being mechanically maintained by one person not to exceed 1 hour using common hand tools (see 6.3.1) except where otherwise specified. Grease lubrication fittings shall be in accordance with SAE J534. The following items shall be capable of being performed within the allotted timeframe:

- a. Remove, replace, and adjust all engine-driven belts – $\frac{3}{4}$ hour
- b. Remove and replace alternator – $\frac{3}{4}$ hour
- c. Remove and replace all hydraulic system filters, screens, and strainers – 1 hour
- d. Remove and replace engine coolant system hoses – 1 hour
- e. Drain engine oil, remove, and replace oil filter, and refill crankcase – $\frac{1}{2}$ hour
- f. Remove and replace fuel filter elements – $\frac{1}{2}$ hour
- g. Remove, replace, and connect battery – $\frac{1}{2}$ hour
- h. Drain transmission fluid, remove and replace all transmission filters and refill transmission fluid – 1 hour
- i. Remove and replace starter – 1 hour
- j. Bleed and adjust brakes and refill master cylinder (2 persons) – 1 hour

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- k. Remove and replace floodlights and taillight bulbs – ¼ hour per bulb
- l. Lubricate all lubrication fittings with 2 strokes per fitting - 1 hour

3.7.1 Inspection and servicing provisions.

- a. Routine servicing tasks and pre-use inspections shall require no tools.
- b. Drain plugs and filters shall be directly accessible from the ground and oriented to have unimpeded drainage to a catch pan.
- c. The 10K Telehandler shall be designed with maximum usage of sealed lifetime lubrication bearings.

3.7.2 Servicing. The following items shall be easily accessible for inspection and servicing with the engine at operating temperature, without subjecting personnel to injury or burns. The items shall be in a covered area(s) that can be accessed (opened and closed) by one person without the need for tools:

- a. Engine oil dipstick, oil filler, oil drain plug, and fuel filter.
- b. Transmission fluid level indicator and filler tube.
- c. Radiator or engine coolant filler cap.
- d. Hydraulic fluid reservoir level indicator and filler.
- e. Battery for inspection, jumper cable attachment, and removal.
- f. Power steering reservoir (if provided).
- g. Brake fluid.

3.8 Special tools. The design of the 10K Telehandler shall minimize the requirement for special tools (see 6.3.6). All special tools shall be provided with, and stored on, the 10K Telehandler.

3.9 Diagnostic software. A copy of any diagnostic software required or recommended for maintaining the 10K Telehandler shall be provided with each 10K Telehandler on CD-ROM or DVD-ROM.

3.10 Engine and related equipment. The 10K Telehandler shall be equipped with a diesel engine rated at a minimum of 100 horsepower. The engine shall be of sufficient capacity to meet all requirements of this specification. Consistent with the requirement to operate on fuels containing over 15 parts per million (ppm) sulfur, the engine shall be certified to comply with the Environmental Protection Agency (EPA) non-road diesel engine emission requirements at the time of engine manufacture.

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3.10.1 Engine starting system.

3.10.1.1 Starter switch. The starter switch shall not activate the engine starter while the engine is running, nor when the engine is not running and the transmission is in any forward or reverse gear.

3.10.1.2 Engine starting aids. The engine shall start within 15 seconds cranking in any ambient temperature within the required operating range of the 10K Telehandler. Internal engine starting aids, fluid starting aids, and heat from the winterization system may be used prior to and during the start period to facilitate engine starting under the following conditions listed in Table III.

TABLE III. Engine starting aids.

Temperature Range	Starting Aids Permitted
0 °F through 140 °F	None
-25 °F through 0 °F	Internal engine starting aids and fluid starting aids
-45 °F through -25 °F	Internal engine starting aids, fluid starting aids, and heat from the winterization system

3.10.2 Engine air intake system. The engine air intake system shall be in accordance with 3.13.1.4.3 of SAE ARP1247. The inlet shall not draw air from directly beneath the 10K Telehandler and shall not be located near the cooling system air outlet nor the engine exhaust outlet. Joints shall be minimized between the air filter outlet and the actual engine air inlet and shall be designed to ensure no leakage of unfiltered air into the engine. A differential pressure air filter service indicator shall be provided.

3.10.3 Engine cooling system. The engine cooling system shall be in accordance with 3.13.1.4.2 of SAE ARP1247. Silicone radiator and heater hoses, constant-torque clamps, a coolant filter, and a coolant recovery system shall be provided. Engine coolant shall be in accordance with A-A-52624, Type I, and of adequate strength to provide protection to -25 °F. The engine out (top of radiator) coolant temperature shall not exceed 210° F or the engine manufacturer's recommendations at an ambient temperature of 140 °F. The coolant filter shall be rated for one year or 2,000 hours between replacements, with supplementary coolant additives (SCA) either included in the filter or added separately.

3.10.4 Engine lubrication system. The engine lubrication system shall be designed so that the 10K Telehandler can be operated on a 20% incline in any plane.

3.10.4.1 Engine oil. The engine shall be compatible with Grade 15W40 of MIL-PRF-2104 from 0 °F to 140 °F. Oil pre-heat for operation below 0° F is allowed. The engine shall be compatible with arctic engine oil in accordance with MIL-PRF-46167 from -25 °F to 60 °F.

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3.10.4.1.1 Engine oil operating temperature. The engine oil sump temperature shall not exceed 250 °F or the engine manufacturer's recommendations at an ambient temperature of 140 °F.

3.10.4.1.2 Engine oil consumption. The engine oil consumption shall not exceed 0.0035 pounds per brake horsepower-hour (lbs/bhp-hr) under any operating condition.

3.10.4.2 Engine oil filter. The engine oil filter shall be in accordance with 3.13.1.4.4 of SAE ARP1247.

3.10.5 Exhaust system. The exhaust system shall be constructed of stainless steel. The muffler(s) shall be constructed of aluminized steel or stainless steel. Exhaust system outlet(s) shall be directed away from personnel accessing any control panel or equipment compartment and the engine air intake, and shall not be directed toward the ground.

3.10.6 Engine fuels and fuel system.

3.10.6.1 Engine operating fuels. The following shall be standard operating fuels:

- a. 1-D S15, 1-D S500, 1-D S5000 in accordance with A-A-52557 and ASTM D975, below 60° F ambient air temperature.
- b. 2-D S15, 2-D S500, 2-D S5000 in accordance with A-A-52557 and ASTM D975, above 32° F ambient air temperature.
- c. JP-5, in accordance with MIL-DTL-5624, -25 °F to 140 °F ambient air temperature.
- d. JP-8, in accordance with MIL-DTL-83133, -25 °F to 140 °F ambient air temperature.
- e. TS-1 in accordance with GOST 10227-86 with JP-8 additives, -25 °F to 140 °F ambient air temperature.

3.10.6.2 Engine emergency fuels. The following shall be emergency fuels:

Jet A, Jet A1 in accordance with ASTM D1655, all ambient temperatures.

Note:

Jet A and Jet A1 may contain corrosion inhibitor/lubricity improver and icing inhibitors which shall result in properties equal to JP-8.

3.10.6.3 Fuel system. The fuel system shall be in accordance with 3.13.1.5.1 through 3.13.1.5.11 of SAE ARP1247 except as otherwise specified herein. The fuel system shall be constructed of materials which are compatible with the fuels listed in 3.10.6.1 and 3.10.6.2. Copper shall not be used in the fuel system. The fuel system shall be equipped with a fuel shut-off valve(s) to prevent continuous spillage when fuel lines are disconnected for service.

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3.10.6.3.1 Fuel filters. Primary and secondary fuel filters and a heated fuel/water separator shall be provided. The fuel/water separator shall include a water coalescer and a drain valve that is readily accessible by an operator or a mechanic. A combination fuel filter and fuel/water separator may be provided. Fuel filter elements shall be easily replaceable by a mechanic using nothing more than common hand tools (see 6.3.1) without loss of engine prime.

3.10.6.3.2 Fuel tank. The fuel tank shall be in accordance with 3.13.1.5.5 through 3.13.1.5.9 of SAE ARP1247. The tank shall be designed so that the 10K Telehandler can be operated on a 20% incline in any plane. The tank shall be provided with corrosion protection and baffles. A 0.25 to 0.375-inch nominal drain valve shall be provided for emptying fuel and sediment into a container underneath the 10K Telehandler without removal of the tank or any other major component. The fuel tank shall have a fuel fill opening of not less than three inch inside diameter and shall be designed to drain fuel spillage overboard for collection outside the 10K Telehandler. The fuel cap shall be equipped with a retention device to prevent loss and FOD. The fuel fill opening, fuel cap, and fuel cap retention device shall be fabricated from non-sparking material. The fuel tank capacity shall be of sufficient capacity to allow a minimum of 8 hours of continuous operation without refueling.

3.10.7 Engine diagnostic and emergency shutdown systems.

3.10.7.1 Engine diagnostic system. A diagnostic system shall be provided with a means to indicate engine faults; it shall be equipped with a CAN (controller area network) bus connector. If the 10K Telehandler is equipped with a diagnostic or built-in-test system, the engine diagnostic system shall be integrated with it; if not, it shall be a stand-alone system.

3.10.7.2 Engine emergency shutdown system. The engine shall be equipped with an engine emergency shutdown system consisting of a fuel cutoff solenoid activated by the following conditions:

- a. Low oil pressure, less than 10 psi or in accordance with the engine manufacturer's recommendations.
- b. Coolant over heat or cylinder head temperature over heat condition in accordance with the engine manufacturer's recommendations.
- c. Engine over speed should the engine exceed 110% rated speed.

3.10.8 Engine operator instruments. All instruments, except the hour meter, shall be lighted using LCD lighting when the front floodlights (see 3.11.3) are illuminated. The gauge configuration package shall be supplied in the engine operator's cab and shall include, at a minimum, the following instruments:

- a. Tachometer.
- b. Coolant temperature gauge.

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- c. Low coolant level indicator.
- d. Oil pressure gauge.
- e. Oil temperature gauge.
- f. Fuel level gauge.
- g. Hour meter.
- h. Ammeter.

3.10.9 Transmission. The transmission shall be the full torque, power-shift type in combination with a torque converter. The transmission shall provide at least two forward and two reverse speeds. Selective forward and reverse directional controls activated by the operator's foot are not acceptable. A manually shifted transmission or clutch is not acceptable. The transmission shall provide for positive inching or declutch control throughout the entire engine rpm range, in both forward and reverse directions. The inching or declutch control shall permit lifting of rated load, at maximum engine speed, while the transmission is in a forward or reverse gear, with no vehicle motion.

3.11 Electrical system. The 10K Telehandler shall have a 12-volt, negative ground electrical system in accordance with 3.13.1.2 of SAE ARP1247 except as otherwise specified herein.

3.11.1 Alternator. The alternator shall have sufficient output at normal engine operating RPM to supply full electrical operating load, including all lights, and still provide electrical current to charge the battery.

3.11.2 Batteries and battery compartment.

3.11.2.1 Batteries. Batteries shall be of the commercial maintenance-free sealed lead acid, starved electrolyte, gas recombination, spiral wrapped, absorbent gas mat (AGM), top post type in accordance with MIL-B-18013/1.

3.11.2.2 Battery compartment. The batteries shall be enclosed in a corrosion-resistant, weatherproof box or compartment and shall be readily accessible.

3.11.2.3 Battery cables. The battery cables shall be sized to handle the system voltage and current levels, be clearly identified with "+" and "-" or red and black markings, and shall not be spliced.

3.11.3 Lights. There shall be at least one forward and one rearward directed sealed beam floodlight sufficient for night time operation. Tail lights, four way flashers, and brake stop lights shall be installed. All lights shall be protected by location or guards. Individual operator controlled switches shall be provided for the front lights and the rear lights. A rotary switch that provides all possible options that the individual switches provide is acceptable. The forklift shall

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be equipped with an amber colored strobe light with an intensity of at least 40 candela. If installed, the rotating beacon light is permitted to be removed for air-transportability.

3.11.4 Wiring schematic. A corrosion resistant metal plate containing the electrical schematic of the forklift shall be installed in an area where normal usage will cause it no damage. The plate may be located behind a panel that can be opened without tools.

3.11.5 Electrical accessories wiring. The 10K Telehandler shall be equipped with a 12V converter, an outlet, and all associated wiring.

3.11.6 Radio preparation package. The 10K Telehandler shall be equipped with mounting hardware and all associated wiring necessary to install a radio.

3.11.7 Master switch. A keyless master switch, with a corrosion resistant identification plate, shall be installed in a convenient location to permit disconnect of the battery from all electrical load.

3.12 Hydraulic system. The hydraulic system shall be in accordance with 3.13.1.3 of SAE ARP1247 except as otherwise specified herein. O-ring face seal hydraulic fittings may be used in lieu of flared fittings (see 3.13.1.3.12 of SAE ARP1247). Hydraulic fluid shall be in accordance with MIL-PRF-83282. All hydraulic system components, including the hydraulic tank, shall comply with all corrosion resistance requirements specified herein.

3.12.1 Fail-safe hydraulic system. The 10K Telehandler shall be equipped with a fail-safe hydraulic lift system which will automatically prevent load lowering and fork forward tilting in the event of electrical, hydraulic, or pneumatic failure; hydraulic or pneumatic failure includes any component, line, or hose. Drift due to hydraulic system failure shall be limited to 0.5 inch per hour. Tilt of the cylinders shall be limited to 2 degrees per hour. Pressure relief valves or regulators shall be provided in the hydraulic and pneumatic systems to prevent overpressure. Additionally, a means shall be provided to manually override the system to allow safe and slow lowering (not more than 10 feet per minute) of loaded or unloaded forks.

3.12.2 Hydraulic schematic. A corrosion resistant plate containing the hydraulic schematic of the forklift shall be permanently installed in an area where normal usage will cause it no damage. The plate may be located behind a panel that can be opened without tools.

3.13 Performance.

3.13.1 Lifting speed. The forks with rated load shall be able to raise at a speed of not less than 55 feet per minute (fpm) over the entire distance from ground level to maximum lift height. With the engine idling at engine manufacturer's idle speed, the unloaded forks shall be able to raise at a speed of not less than 5 fpm over the entire lift range.

3.13.2 Lowering speed. The lowering speed of the forks with rated load shall be between 40 and 80 fpm. The lowering speed of the unloaded forks shall be between 20 and 80 fpm. The forks, either unloaded or with rated load, shall lower at a controlled rate, that is, no free-fall,

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uncontrolled operation, jerking, or condition which could cause damage to the lift system or forklift is permitted.

3.13.3 Boom extension and retraction speeds. The forklift shall be capable of extending the boom, with rated load, at maximum lift angle of the boom at a speed of not less than 55 fpm. It shall be capable of retracting the boom at maximum lift angle, from maximum boom extension to retracted boom position at a speed of not less than 55 fpm with no load, and not greater than 100 fpm with rated load on the forks. It shall also be capable of extending and retracting rated load when the boom is horizontal, from fully retracted position to maximum extension and from maximum extension to fully retracted position at a speed of not less than 55 fpm.

3.13.4 Travel speed. The travel speed with rated load shall be at least 15.0 miles per hour (mph) in forward direction, and not less than 7.0 mph in reverse.

3.13.5 Lift height. The forklift shall be capable of raising the loaded forks to a height of at least 55 feet when measured from ground to top surfaces of horizontal forks.

3.13.6 Lowest fork position. With the load backrest at 6.0 feet forward reach, the top surface of the forks shall be capable of being positioned at least 6.0 inches below ground level.

3.13.7 Horizontal reach. With the boom horizontal, the 10K Telehandler shall be capable of extending the vertical load bearing surface of the load backrest at least 40 feet forward of the forward-most portion of the 10K Telehandler, including outriggers if necessary to meet the requirement. The 10K Telehandler shall be rated for the following minimum horizontal reach requirements as measured from the forward-most portion of the 10K Telehandler:

- a. 6,000 lbs at 15 feet (without the use of outriggers)
- b. 6,000 lbs at 24 feet (with the use of outriggers)
- c. 3,000 lbs at 24 feet (without the use of outriggers)
- d. 3,000 lbs at 33 feet (with the use of outriggers)
- e. 2,000 lbs at 40 feet (with the use of outriggers)
- f. 3,000 lbs at 30 feet radius and 24 feet high (with the use of outriggers)

3.13.8 Longitudinal slope operation. The 10K Telehandler, with rated load, shall be capable of ascending and descending a 20% slope at a minimum of 2.0 mph when the load is in the uphill direction during both ascent and descent. It shall also be capable of accelerating upslope from a complete stop to at least 2.0 mph on a 20% slope.

3.13.9 Lateral slope operation. With rated load on the forks, the forklift shall be capable of full circle operation, in both directions, at maximum steer angle, at a speed of not less than 2.0 mph, on a 20% slope without any wheel leaving the ground.

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3.13.10 Drift. The boom assembly shall be capable of holding the rated load at maximum lift angle and full boom extension for 60 minutes with not more than 0.5 inch of vertical drift, when the hydraulic fluid is initially at ambient temperature.

3.13.11 Turning radius. The maximum curb-to-curb turning radius of the forklift shall be 17.25 feet.

3.13.12 Fork tilt. With no load on the forks, the minimum forward tilt (fork tips lowered) shall be 12 degrees from horizontal and the minimum rearward tilt (fork tips raised) shall be 12 degrees from horizontal. The forward tilt shall be with the boom retracted and at the maximum lift angle and the rearward tilt shall be at the retracted carry position.

3.13.13 Constant tilt. The forklift shall be capable of maintaining a constant fork tilt angle (± 2 degrees), as the forks are raised (either empty, or loaded with any load up to and including the rated load) from ground level to maximum lift height and lowered back to ground level with no change to the tilt control lever position being necessary. The tilt angle setting at the initiation of fork motion shall be the reference point from which the four degree variation is determined, and can be any tilt angle the forklift is capable of achieving, including the horizontal plane (0 degree tilt).

3.13.14 Ground clearance. When the forklift is fully fueled and serviced, the ground clearance of the forklift shall be not less than 15 inches with the rated load at retracted carry position. The forklift, when empty or fully loaded, shall be able to go from a horizontal surface up a 25 degree ramp, to another horizontal surface with only the tires contacting the ramp.

3.13.15 Ceiling clearance. To unload stacked boxes from 20 foot ISO containers, the vertical distance from the top of the boom, or carriage (whichever is highest) to the lowest point on the forks, or carriage, (whichever is lowest) shall be not more than 30.0 inches. This dimension shall be with the backrest removed.

3.13.16 Stability. The forklift shall meet the “longitudinal stability stacking”, “longitudinal stability travel”, “lateral stability stacking,” and “lateral stability travel” stability requirements of ANSI/ITSDF B56.6-2005.

3.13.17 Service brakes. The service brakes shall stop the 10K Telehandler with rated load, within the distance specified in the Stopping Distance Method of ANSI/ITSDF B56.6-2005, with not more than 80 pounds of force on the brake pedal. The service brakes shall meet the Drawbar Drag Method of ANSI/ITSDF B56.6-2005, except a drawbar drag equal to 25% of 10K Telehandler gross weight shall be produced with not more than 80 pounds of force on the brake pedal.

3.13.18 Parking brake. The parking brake shall be capable of holding the fully loaded forklift, on a minimum 20% grade, in both up and down slope directions. The force required to fully set the parking brake shall be 70 pounds or less, if hand actuated, or 150 pounds or less if foot actuated.

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3.13.19 Fork lateral spacing. The forks shall be capable of spreading to at least 38.0 inches when measured from the outside of the forks. They shall be capable of closing to 10.5 inches or less, again measured from the outside of the forks.

3.13.20 Fork side shifting. The forks shall be capable of side shifting at least 5.0 inches off center, in both directions, throughout the fork spread specified in 3.13.19.

3.13.21 Fork visibility. The seated operator, while maintaining full control of the forklift, shall be able to see at least one fork tip at any fork height, fork tilt, or fork spacing when there is no load on the forks.

3.13.22 Drawbar pull. The 10K Telehandler shall be rated to a minimum of 24,000 pounds of drawbar pull on dry level concrete.

3.14 Workmanship. The 10K Telehandler, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Workmanship objectives shall include freedom from blemishes, defects, burrs and sharp corners and edges; accuracy of dimensions, surface finish, and radii of fillets; thoroughness of welding, painting, and riveting; marking of parts and assemblies; and proper alignment of parts and tightness of assembly fasteners.

3.14.1 Bolted connections. Bolt holes shall be accurately punched or drilled and shall be deburred. Threaded fasteners shall be tight and shall not work loose during testing or service usage.

3.14.2 Riveted connections. Rivet holes shall be accurately punched or drilled and shall be deburred. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the component.

3.14.3 Gear and lever assemblies. Gear and lever assemblies shall be properly aligned and meshed and shall be operable without interference, tight spots, loose spots, or other irregularities. Where required for accurate adjustment, gear assemblies shall be free of excessive backlash.

3.14.4 Cleaning. The 10K Telehandler shall be thoroughly cleaned. Loose, spattered, or excess solder; welding slag; stray bolts, nuts, and washers; rust; metal particles; pipe compound; and other foreign matter shall be removed during and after final assembly.

4. VERIFICATION

The products provided shall meet the requirements of this specification, conform to the manufacturer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace only modified to the extent necessary to meet the requirements specified herein. The Government reserves the right to require proof of such conformance.

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4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2).
- b. Conformance inspection (see 4.3).

Requirements shall be verified in accordance with Table IV.

TABLE IV. Requirement verification matrix.

Section 3 Requirement	Verification Method	Section 4 Verification
3.1 <u>First article.</u>	Not Applicable (N/A)	
3.2 <u>10K Telehandler description.</u>	N/A	
3.3 <u>Design and construction</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1 <u>Materials, protective coatings, and finish.</u>	N/A	
3.3.1.1 <u>Recycled, recovered, or environmentally preferable materials.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2 <u>Protective coatings.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.1 <u>Surface preparation and pretreatment.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.2 <u>Primer.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.2.1 <u>Ferrous surfaces.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.2.2 <u>Aluminum and mixed aluminum and ferrous surfaces.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.3 <u>Topcoat.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.2.4 <u>Tropical rustproofing.</u>	Test	4.5.7.4 <u>Salt fog test.</u>
3.3.1.3 <u>Dissimilar metals.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.4 <u>Finish.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.5 <u>Exclusion of water.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.5.1 <u>Fluid traps and faying surfaces.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.5.2 <u>Ventilation.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.1.5.3 <u>Drainage.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.2 <u>Markings.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.3 <u>Identification and information plates.</u>	N/A	
3.3.3.1 <u>Identification plate.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.3.2 <u>Transportation data plate.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.3.3 <u>Instruction plates.</u>	Examination	4.5.1 <u>Examination of product.</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.3.3.4 <u>Load chart.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4 <u>Safety.</u>	N/A	
3.3.4.1 <u>System safety.</u>	Analysis	4.5.2 <u>System safety hazard analysis.</u>
3.3.4.2 <u>Component protection.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4.3 <u>Foreign object damage (FOD).</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4.4 <u>Sound levels.</u>	Test	4.5.3 <u>Sound level test.</u>
3.3.4.5 <u>Backup alarm.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4.6 <u>Seatbelts and operator restraint.</u>	N/A	
3.3.4.6.1 <u>Seatbelt.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4.6.2 <u>Decal.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.4.7 <u>Horn.</u>	Demonstration	4.5.3.1 <u>Horn demonstration.</u>
3.3.5 <u>Electromagnetic interference (EMI).</u>	Test	4.5.6 <u>Electromagnetic interference test.</u>
3.3.6 <u>Human engineering.</u>	Demonstration	4.5.1 <u>Examination of product.</u>
		4.5.9.3 <u>Equipment removal and reconfiguration demonstration.</u>
		4.5.10 <u>Maintainability analysis and demonstration</u>
3.3.7 <u>Fastening devices.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.8 <u>Welders and welding.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9 <u>Design.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.1 <u>Rated load.</u>	Test	4.5.5 <u>Material handling.</u>
3.3.9.2 <u>Fork spacing, side shift, and dimensions.</u>	Test	4.5.5 <u>Material handling.</u>
3.3.9.3 <u>Load backrest.</u>	Test	4.6.18 <u>Load backrest restraints.</u>
3.3.9.4 <u>Steering.</u>	Test	4.5.12 <u>Steering.</u>
3.3.9.5 <u>Load handling controls.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.6 <u>Cab.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.6.1 <u>Adjustable cab.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.6.2 <u>Heater and defroster.</u>	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.3.9.7 <u>Towing hitch.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.8 <u>Towing lugs.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.9 <u>Tires.</u>	Examination	4.5.1 <u>Examination of product.</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.3.9.10 <u>Aircraft loading fork attachment.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.10.1 <u>Aircraft loading operations.</u>	Test	4.6.21 <u>Aircraft loading fork attachment.</u>
3.3.9.11 <u>Wheel guards.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.12 <u>Boom assembly.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.13 <u>Boom attachments.</u>	Test	4.6.22 <u>Boom attachments.</u>
3.3.9.13.1 <u>Pintle hook attachment.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.3.9.13.2 <u>Engine installation/removal attachment.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.4 <u>Environmental conditions.</u>	N/A	
3.4.1 <u>Operating temperature range.</u>	Test	4.5.7.1 <u>High temperature storage and operation test.</u> 4.5.7.2 <u>Low temperature storage and operation test.</u>
3.4.2 <u>Storage temperature range.</u>	Test	4.5.7.1 <u>High temperature storage and operation test.</u> 4.5.7.2 <u>Low temperature storage and operation test.</u>
3.4.3 <u>Precipitation.</u>	N/A	
3.4.3.1 <u>Snow.</u>	Analysis	4.5.7.3.1 <u>Snow load analysis.</u>
3.4.3.2 <u>Ice.</u>	Test	4.5.7.3.2 <u>Ice accretion test.</u>
3.4.4 <u>Solar radiation.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.4.5 <u>Fungus.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.4.6 <u>Salt fog.</u>	Test	4.5.7.4 <u>Salt fog test.</u>
3.4.7 <u>Sand and dust.</u>	Test	4.5.7.5 <u>Sand and dust test.</u>
3.4.8 <u>Winterization.</u>	N/A	
3.4.8.1 <u>Type C winterization.</u>	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.4.8.2 <u>Type A winterization.</u>	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.4.8.2.1 <u>Power plant heaters.</u>	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.4.8.2.2 <u>Cab.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.4.8.2.3 <u>Heater and defroster.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.4.8.2.4 <u>Anti-freeze engine.</u>	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.5 <u>Dimensions.</u>	Test	4.5.8.2 <u>Dimension measurement.</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.6 <u>Transportability.</u>	N/A	
3.6.1 <u>Surface transportability.</u>	Analysis	4.5.9.1 <u>Surface transportability analysis.</u>
3.6.2 <u>Air transportability.</u>	Analysis	4.5.9.2 <u>Air transportability analysis.</u>
3.6.2.1 <u>Air-transport mode.</u>	Demonstration	4.5.9.3 <u>Equipment removal and reconfiguration demonstration.</u>
3.6.2.2 <u>Shoring.</u>	Analysis	4.5.9.2 <u>Air transportability analysis.</u>
3.6.2.3 <u>Axle weight.</u>	Test	4.5.8.1 <u>Weight and center of gravity test.</u>
3.6.2.4 <u>Tire pressure.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.6.2.5 <u>Equipment removal and reconfiguration.</u>	Demonstration	4.5.9.3 <u>Equipment removal and reconfiguration demonstration.</u>
3.6.2.6 <u>Counterweight(s).</u>	Test	4.5.9.3 <u>Equipment removal and reconfiguration demonstration.</u>
3.6.3 <u>Tie downs.</u>	Test	4.5.9.4.2 <u>Tie down provision test.</u>
3.6.4 <u>Lifting provisions.</u>	Test	4.5.9.5.2 <u>Lifting provision test.</u>
3.7 <u>Maintainability.</u>	Demonstration	4.5.10 <u>Maintainability analysis and demonstration.</u>
3.7.1 <u>Inspection and servicing provisions.</u>	Demonstration	4.5.10 <u>Maintainability analysis and demonstration.</u>
3.7.2 <u>Servicing.</u>	Demonstration	4.5.10 <u>Maintainability analysis and demonstration.</u>
3.8 <u>Special tools.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.9 <u>Diagnostic software.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10 <u>Engine and related equipment.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.1 <u>Engine starting system.</u>	N/A	
3.10.1.1 <u>Starter switch.</u>	Test	4.6.14 <u>Starter disconnect switch.</u>
3.10.1.2 <u>Engine starting aids.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.10.2 <u>Engine air intake system.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Demonstration	4.5.10 <u>Maintainability analysis and demonstration</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.10.3 <u>Engine cooling system.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Test	4.5.7.1 <u>High temperature storage and operation test.</u>
3.10.4 <u>Engine lubrication system.</u>	Test	4.6.19 <u>Longitudinal slope operation.</u>
3.10.4.1 <u>Engine oil.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.4.1.1 <u>Engine oil operating temperature.</u>	Test	4.5.7.1 <u>High temperature storage and operation test.</u>
3.10.4.1.2 <u>Engine oil consumption.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.4.2 <u>Engine oil filter.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.5 <u>Exhaust system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.6 <u>Engine fuels and fuel system.</u>	N/A	
3.10.6.1 <u>Engine operating fuels.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Test	4.5.7.1 <u>High temperature storage and operation test.</u> 4.5.7.2 <u>Low temperature storage and operation test.</u>
3.10.6.2 <u>Engine emergency fuels.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.6.3 <u>Fuel system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.6.3.1 <u>Fuel filters.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Demonstration	4.5.10 <u>Maintainability analysis and demonstration</u>
3.10.6.3.2 <u>Fuel tank.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.7 <u>Engine diagnostic and emergency shutdown systems.</u>	N/A	
3.10.7.1 <u>Engine diagnostic system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.7.2 <u>Engine emergency shutdown system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.8 <u>Engine operator instruments.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.10.9 <u>Transmission.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11 <u>Electrical system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.1 <u>Alternator.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Test	4.5.7.2 <u>Low temperature storage and operation test.</u>
3.11.2 <u>Batteries and battery compartment.</u>	N/A	
3.11.2.1 <u>Batteries.</u>	Examination	4.5.1 <u>Examination of product.</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.11.2.2 <u>Battery compartment.</u>	Examination	4.5.1 <u>Examination of product.</u>
	Demonstration	4.5.10 <u>Maintainability analysis and demonstration</u>
3.11.2.3 <u>Battery cables.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.3 <u>Lights.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.4 <u>Wiring schematic.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.5 <u>Electrical accessories wiring.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.6 <u>Radio preparation package.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.11.7 <u>Master switch.</u>	Test	4.6.15 <u>Master switch.</u>
3.12 <u>Hydraulic system.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.12.1 <u>Fail-safe hydraulic system.</u>	Test	4.6.17 <u>Fail-safe hydraulic lift system.</u>
3.12.2 <u>Hydraulic schematic.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.13 <u>Performance.</u>	N/A	
3.13.1 <u>Lifting speed.</u>	Test	4.6.1 <u>Lifting and lowering speed.</u>
3.13.2 <u>Lowering speed.</u>	Test	4.6.1 <u>Lifting and lowering speed.</u>
3.13.3 <u>Boom extension and retraction speeds.</u>	Test	4.6.2 <u>Boom extension and retraction speed.</u>
3.13.4 <u>Travel speed.</u>	Test	4.6.3 <u>Travel speed.</u>
3.13.5 <u>Lift height.</u>	Test	4.6.4 <u>Maximum forklift height.</u>
3.13.6 <u>Lowest fork position.</u>	Test	4.6.5 <u>Lowest fork position.</u>
3.13.7 <u>Horizontal reach.</u>	Test	4.6.6 <u>Forward (horizontal) reach.</u>
3.13.8 <u>Longitudinal slope operation.</u>	Test	4.6.19 <u>Longitudinal slope operation.</u>
3.13.9 <u>Lateral slope operation.</u>	Test	4.6.20 <u>Lateral slope operation.</u>
3.13.10 <u>Drift.</u>	Test	4.6.13 <u>Drift.</u>
3.13.11 <u>Turning radius.</u>	Test	4.6.10 <u>Turning radius.</u>
3.13.12 <u>Fork tilt.</u>	Test	4.6.7 <u>Fork tilt.</u>
3.13.13 <u>Constant tilt.</u>	Test	4.6.8 <u>Fork tine operation (constant tilt).</u>
3.13.14 <u>Ground clearance.</u>	Test	4.5.8.2 <u>Dimension measurement.</u>
3.13.15 <u>Ceiling clearance.</u>	Test	4.5.8.2 <u>Dimension measurement.</u>
3.13.16 <u>Stability.</u>	Test	4.6.12 <u>Stability.</u>
3.13.17 <u>Service brakes.</u>	Test	4.5.11.1 <u>Service brake test.</u>
3.13.18 <u>Parking brake.</u>	Test	4.5.11.2 <u>Parking brake test.</u>
3.13.19 <u>Fork lateral spacing.</u>	Test	4.5.8.3 <u>Fork and fork carriage.</u>
3.13.20 <u>Fork side shifting.</u>	Test	4.6.9 <u>Fork side shifting mechanism.</u>

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TABLE IV. Requirement verification matrix - Continued

Section 3 Requirement	Verification Method	Section 4 Verification
3.13.21 <u>Fork visibility.</u>	Test	4.6.11 <u>Fork visibility.</u>
3.13.22 <u>Drawbar pull.</u>	Test	4.6.23 <u>Drawbar pull.</u>
3.14 <u>Workmanship.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.14.1 <u>Bolted connections.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.14.2 <u>Riveted connections.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.14.3 <u>Gear and lever assemblies.</u>	Examination	4.5.1 <u>Examination of product.</u>
3.14.4 <u>Cleaning.</u>	Examination	4.5.1 <u>Examination of product.</u>

4.2 First article inspection. The first article 10K Telehandler shall be subjected to the analyses, demonstrations, examinations, and tests described in 4.5.1 through 4.6.23. The contractor shall provide or arrange for all test equipment and facilities. Unless otherwise approved by the procuring activity, all first production 10K Telehandler shall be in the same configuration at all times and configuration changes shall not be made during the first article inspection. Except as otherwise specified, all testing in which the engine is operated shall be performed using JP-8 turbine fuel. The approved first production 10K Telehandler shall be refurbished to a like new condition.

4.3 Conformance inspection. Each production 10K Telehandler shall be subjected to the examination described in 4.5.1.

4.4 Inspection requirements.

4.4.1 General inspection requirements. Apparatus used in conjunction with the inspections specified herein shall be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

4.4.1.1 Test conditions. Unless otherwise specified herein (see 6.2), inspections shall be performed in accordance with the following test conditions:

- a. All tests shall be conducted at the ambient temperature and climatic conditions existing at the place of demonstration.
- b. Only that maintenance established by the contractor shall be performed during testing.
- c. For test purposes, the rated load (see 3.3.9.1) for the 10K Telehandler shall be a 10,000 pound (+200, -0 pounds) cube, 36 inches on each side, with a center of gravity located at the geometric center of the cube.

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4.4.2 Data. During all testing specified herein, at least the following data, unless not applicable, shall be recorded at intervals not to exceed 30 minutes. Additional data or shorter intervals shall be provided as appropriate for any specific test.

- a. Date.
- b. Time started.
- c. Time finished.
- d. Ambient temperature.
- e. Ambient humidity.

4.4.3 Test rejection criteria. Throughout all tests specified herein, the 10K Telehandler shall be closely observed for the following conditions, which shall be cause for rejection:

- a. Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.
- b. Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.
- c. Structural failure of any component, including permanent deformation, or evidence of impending failure.
- d. Evidence of excessive wear. If excessive wear is suspected, the original equipment manufacturer's (OEM's) specifications or tolerances shall be utilized for making a determination.
- e. Evidence of corrosion or deterioration.
- f. Misalignment of components.
- g. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.
- h. Interference between the 10K Telehandler components or between the 10K Telehandler, the ground, and all required obstacles, with the exception of normal contact by the tires.
- i. Evidence of undesirable mobility characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.
- j. Shutdown faults from:

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- (1) Engine cooling system.
- (2) Engine lubrication system.
- (3) Engine protective circuits.

4.5 Test methods.

4.5.1 Examination of product. Each 10K Telehandler shall be examined to verify compliance with the requirements herein prior to accomplishing any other demonstrations or tests listed in 4.5 or 4.6. A contractor-generated, Government-approved checklist (part of the test procedure) shall be used to identify each requirement not verified by an analysis, certification, demonstration, or test, and shall be used to document the examination results. Particular attention shall be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their application, welding, fastening, and markings. Proper operation of each 10K Telehandler function shall be verified. Certifications and analyses shall be provided in accordance with Table V. Each production 10K Telehandler shall be inspected to a Government-approved reduced version of the checklist.

TABLE V. Certifications and analyses.

Paragraph	Required Certifications and Analyses
3.3 <u>Design and construction.</u>	Contractor documentation that the 10K Telehandler is in accordance with all applicable EU requirements in order to have the “CE” marking affixed.
3.3.4.1 <u>System safety.</u>	Contractor system safety hazard analysis (see 4.5.2).
3.4.3.1 <u>Snow.</u>	Contractor analysis of the snow load requirement (see 4.5.7.3.1).
3.4.4 <u>Solar radiation.</u>	Contractor certification that the 10K Telehandler performance is not adversely affected by full time exposure to solar radiation, such as those conditions encountered in desert environments.
3.4.5 Fungus.	Contractor certification that the materials used in construction of the 10K Telehandler are fungus resistant or suitably treated to resist fungus.

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TABLE V. Certifications and analyses - Continued

Paragraph	Required Certifications and Analyses
3.6.1 <u>Surface transportability.</u>	Contractor surface transportability analysis (see 4.5.9.1) and certification that the 10K Telehandler is transportable via all modes of surface shipment (highway, rail, and water) in accordance with MIL-STD-1366, and shall be capable of withstanding the mechanical shock and vibration characteristics of highway, rail, and water transport.
3.6.2 <u>Air transportability.</u>	Contractor air transportability analysis (see 4.5.9.2).
3.6.2.1 <u>Air-transport mode.</u>	
3.6.2.2 <u>Shoring.</u>	
3.6.3 <u>Tie downs.</u>	Contractor tie down provision analysis (see 4.5.9.4.1).
3.6.4 <u>Lifting provisions.</u>	Contractor lifting provision analysis (see 4.5.9.5.1).
3.10 <u>Engine and related equipment.</u> , 3.10.3 <u>engine cooling system.</u> , 3.10.4 <u>Engine lubrication system.</u> , 3.10.6.1 <u>Engine operating fuels.</u> , and 3.10.6.2 <u>Engine emergency fuels.</u>	Engine manufacturer certification that the engine is in accordance with all applicable requirements, including exhaust emissions standards and fuels. Engine manufacturer application approval for the engine and its installation, including cooling system, lubrication system, and mounting system.

4.5.2 System safety hazard analysis. A system safety hazard analysis of the 10K Telehandler shall be conducted in accordance with 4.3.1 through 4.3.8 of MIL-STD-882 to demonstrate compliance with the mishap risk requirement of 3.3.4.1.

4.5.3 Sound level test. The noise level at operator's ear with the engine operating at maximum rpm and while lifting rated load shall be measured.

4.5.3.1 Horn demonstration. It shall be demonstrated that an individual with normal hearing can easily hear the horn of the vehicle while the engine is at maximum rpm. This shall be demonstrated at no less than 50 feet away from the vehicle.

4.5.4 Travel. The 10K Telehandler shall be driven at least 1.0 mile at varying speeds, including maximum speed. At least five right and five left turns shall be made at maximum turn angle, and horn, windshield wipers, heater, defroster, and other components shall be operated during this test. Additionally, the forks shall be fully lowered and the forklift operated in reverse for at least 0.1 mile. Once placed in reverse, verify that the backup alarm (see 3.3.4.5) is activated.

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4.5.5 Material handling. With rated load on forks, raise forks to maximum lift height, then lower at maximum lowering speed and quickly stop at one to two feet above ground level. Repeat five times for a total of 6 cycles. Side shift rated load from one extreme to the other and back to original position. Repeat five times for a total of 6 cycles. With no load, move forks from minimum to maximum fork spread, and back to minimum. Repeat five times for a total of 6 cycles.

4.5.6 Electromagnetic interference test. A first article 10K Telehandler shall be tested in accordance with MIL-STD-461: RE 102 and RS 103 to demonstrate compliance with 3.3.5. Any engine fuel in accordance with 3.10.6.1 may be utilized.

4.5.7 Environmental testing.

4.5.7.1 High temperature storage and operation test. A first article 10K Telehandler shall be tested in accordance with MIL-STD-810, Method 501.5, Procedures I and II, to demonstrate compliance with the high temperature storage and operating requirements of 3.4.1 and 3.4.2. Test duration shall be one 24-hour cycle for each procedure beginning no less than two hours after test item temperature stabilization.

4.5.7.2 Low temperature storage and operation test. A first article 10K Telehandler shall be tested in accordance with MIL-STD-810, Method 502.5, Procedures I and II, to demonstrate compliance with the low temperature storage and operating requirements of 3.4.1, 3.4.2, and 3.3.9.6.2, as well as the engine starting requirement of 3.10.1.2 and the alternator charging requirement of 3.11.1. Test duration shall be one 24-hour cycle for each procedure beginning no less than two hours after test item temperature stabilization.

4.5.7.3 Precipitation.

4.5.7.3.1 Snow load analysis. An engineering analysis shall be performed to demonstrate compliance with the snow load requirement of 3.4.3.1, using a specific gravity of snow of 0.1 (Ref. 5.3 of MIL-STD-810).

4.5.7.3.2 Ice accretion test. A first article 10K Telehandler shall be tested in accordance with MIL-STD-810, Method 521.3 with an ice thickness of 1.5-inches to demonstrate compliance with the ice accretion requirement of 3.4.3.2. The contractor shall identify those areas of the 10K Telehandler where ice removal is required prior to operation.

4.5.7.4 Salt fog test. A first article 10K Telehandler (without tropical rustproofing) shall be tested in accordance with MIL-STD-810, Method 509.5, to demonstrate compliance with 3.4.6. Test duration shall be alternating 24-hour periods of salt fog exposure and drying conditions for 24-hour periods (two wet and two dry).

4.5.7.5 Sand and dust test. A first article 10K Telehandler shall be tested in accordance with MIL-STD-810, Method 510.5, Procedures I (12 hours) and II (90 minutes per side), to demonstrate compliance with 3.4.7.

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4.5.8 Weight and dimension tests.

4.5.8.1 Weight and center of gravity test. The weight and axle weights of a first article 10K Telehandler shall be measured to demonstrate compliance with the axle weight requirement of 3.6.2.3. The center of gravity shall be measured in accordance with 4.4 of TOP 2-2-800.

4.5.8.2 Dimension measurement. A first article 10K Telehandler shall be measured to demonstrate compliance with the dimensional requirements of 3.5 and the clearance requirements of 3.13.14 and 3.13.15.

4.5.8.3 Fork and fork carriage. The length, width, thickness, thickness at tip, and bottom taper of both forks shall be measured. If applicable, side shift forks to extreme right, and then to extreme left positions, ensuring that the fork carriage does not exceed the overall width of the 10K Telehandler in either case.

4.5.8.4 Ground clearance. Place the 10K Telehandler with rated load at load carry position (see 6.3.3) on a level surface. Measure distance from ground to lowest point on the 10K Telehandler as specified (see 3.13.14).

4.5.9 Transportability verification.

4.5.9.1 Surface transportability analysis. An engineering analysis shall be performed to demonstrate compliance with 3.6.1. The engineering analysis shall utilize the data for road transportation in accordance with MIL-STD-810, Method 514.6, Table 514.6C-II.

4.5.9.2 Air transportability analysis. An engineering analysis shall be performed to demonstrate compliance with the air transportability requirements of 3.6.2, 3.6.2.2, and 3.6.2.5. The analysis shall include the tie downs and all major components and their ability to withstand the accelerations specified in 3.6.2. The evaluation shall also include a dimensional analysis for the 10K Telehandler while traversing the ramp and while loaded aboard C-5 and C-17 aircraft.

4.5.9.3 Equipment removal and reconfiguration demonstration. A first article 10K Telehandler shall be configured for transport on C-5 and C-17 aircraft and then reconfigured for operation to demonstrate compliance with 3.6.2.5. It shall be demonstrated that the forces required do not exceed those allowed in MIL-STD-1472.

4.5.9.4 Tie down provision verification.

4.5.9.4.1 Tie down provision analysis. An engineering analysis shall be performed to demonstrate compliance with the tie down provision requirements of 3.6.3.

4.5.9.4.2 Tie down provision test. A first article 10K Telehandler shall be tested to demonstrate compliance with the tie down provision requirements of 3.6.3.

4.5.9.5 Lifting provision verification.

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4.5.9.5.1 Lifting provision analysis. An engineering analysis shall be performed to demonstrate compliance with the lifting provision requirements of 3.6.4.

4.5.9.5.2 Lifting provision test. A first article 10K Telehandler shall be tested to demonstrate compliance with the lifting provision requirements of 3.6.4.

4.5.10 Maintainability analysis and demonstration. All recommended preventive maintenance tasks shall be performed and the task times shall be recorded. It shall be demonstrated that the forces required do not exceed those allowed in MIL-STD-1472. All preventive maintenance tasks recommended to be performed daily and at the routine PMI shall also be performed by personnel wearing arctic mittens, and also by personnel wearing MOPP Level 4 Chemical Warfare Gear. Additionally, the servicing requirement (see 3.7.2) shall be demonstrated.

4.5.11 Brake tests.

4.5.11.1 Service brake test. The first article shall be tested with the rated load on the forks in accordance with the Stopping Distance Method of ANSI/ITSDF B56.6-2005. It shall be demonstrated that not more than 80 pounds of force on the brake pedal need to be applied to stop the forklift. The first article shall also be tested in accordance with Drawbar Drag Method of ANSI/ITSDF B56.6-2005 to demonstrate that a drawbar drag of 25% is produced with not more than 80 pounds of force on the brake pedal.

4.5.11.2 Parking brake test. It shall be demonstrated that the parking brake can hold the 10K Telehandler, with rated load on the forks, in both forward and reverse directions, on the slope specified in 3.13.18, for at least 3 minutes. The force required to apply the parking brake shall be measured.

4.5.12 Steering. The 10K first article Telehandler shall be tested to demonstrate compliance with the emergency power steering requirement of 3.3.9.4.

4.6 Functional tests.

4.6.1 Lifting and lowering speed. The distance shall be measured from ground to top surface of forks in a fully lowered position. The time required to raise rated load from ground to maximum lift height shall be measured. The distance shall be subtracted from ground to top surface of forks from maximum lift height, and shall be used to calculate lifting speed. The rated load shall be lowered at maximum lowering speed (fully open lowering control) and the load shall then be abruptly stopped at 1 to 2 foot height. The time shall be recorded. The distance shall be measured from the ground to the top surface of one fork. This distance shall be subtracted from the maximum lift height and shall be used to calculate loaded lowering speed. The load shall be removed and the forks shall be raised to the maximum lift height. The time required to lower the forks to ground level shall be measured. The unloaded fork lowering speed shall be calculated. An average of multiple lifts or lowering shall be used.

4.6.2 Boom extension and retraction speed. The distance the boom travels shall be determined from the fully extended position to the fully retracted position. With the rated load on the forks,

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the time shall be measured from the fully retracted to the fully extended position with the boom horizontal and again at approximately 25 degrees. With the rated load on the forks, the time shall be measured to extend the boom to the fully retracted position with the boom horizontal and again at approximately 25 degrees. An average of at least 5 lifts and lowering shall be used.

4.6.3 Travel speed. The 10K Telehandler shall be operated on a level surface at maximum speed in both the forward and reverse directions with the rated load in load carry position (see 6.3.4).

4.6.4 Maximum fork lift height. With the rated load on the forks, with the forks level and at their maximum lift height, the distance shall be measured from the ground to the top surface of one fork to determine the maximum lift height.

4.6.5 Lowest fork position. The 10k Telehandler shall be parked on a level surface adjacent to a 12-inch minimum drop-off so that the forks extend over the drop-off. The boom shall be extended approximately 6 feet from the fully retracted position and the forks lowered to their lowest position from the level position. The vertical distance from the top of the forks to the extension of the level surface shall be measured.

4.6.6 Forward (horizontal) reach. The horizontal boom shall be extended fully forward, and with the forks level, the distance shall be measured from the foremost point on the 10K Telehandler to the vertical load backrest.

4.6.7 Fork tilt. On a level surface, the boom shall be fully retracted, the forks shall be raised to maximum lift angle, and the forks shall be tilted fully forward. The tilt angle shall be measured. The forks shall be lowered to the carry position, keeping the boom fully retracted, and the forks shall be tilted to the full rearward position. The tilt angle shall be measured.

4.6.8 Fork tine operation (constant tilt). The boom shall be full extended and the unloaded forks positioned approximately 2 degrees above horizontal, and 2 to 5 inches above ground level. The fork tilt shall be measured. Without touching the tilt control lever, the forks shall be raised to the maximum fork height, and shall then be lowered to their original position. The forks shall be verified to maintain the same tilt, within the tolerances specified in 3.13.13, while being raised and lowered. This shall be repeated with the rated load on the forks and the forks at approximately 7 degrees rear tilt. It shall be verified that the forks remain within the tolerance specified in 3.13.13 throughout the total movement.

4.6.9 Fork side shifting mechanism. The forks shall be side shifted with the rated load on the forks from extreme left to extreme right position and back to extreme left 50 times. With no load on the forks, the forks shall be adjusted from their most closed position to their most open position and then returned to their most closed position. This shall be considered one cycle. This shall be repeated until 100 cycles have been completed.

4.6.10 Turning radius. With the rated load on forks, the 10K Telehandler shall be operated in low gear at engine idle speed on a dry, flat apron in a clockwise direction, at maximum steering angle. At least two complete circles shall be made before taking any measurements. The path of the outside wheel shall be marked on the pavement using chalk along the outside of the tire while

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making the complete circle. To determine the turning radius, the distance shall be measured from the outside of the tire in accordance with 3.5 of SAE J695 to a similar point across the diameter of the trace and divide in half. This process shall be repeated in the counterclockwise direction.

4.6.11 Fork visibility. The unloaded forks shall be positioned at various lift heights, tilts, and spacings to demonstrate compliance with the visibility requirements.

4.6.12 Stability. The following stability test shall be conducted in accordance with ANSI/ITSDF B56.6-2005: "longitudinal stability stacking," "longitudinal stability travel," "lateral stability stacking," and "lateral stability travel" tilting platform tests.

4.6.13 Drift. The forks with the rated load shall be raised to the maximum lift height, with the 10K Telehandler at ambient temperature. The forks shall be placed in the horizontal position and the engine shall be shut off. The distance from the ground to the top surface of one fork shall be measured. The forklift shall be allowed to sit for the time specified in 3.13.10. After the specified time has elapsed, the same distance to the same point on fork shall be re-measured.

4.6.14 Starter disconnect switch. The engine shall be started and ran for at least 10 seconds. The starter switch shall be energized (moved to the "off" then "on" position if applicable) while the engine is running. With the engine not running, the transmission selector shall be placed in the lowest forward gear and the starter switch shall be energized. This shall be repeated for all forward and reverse gears.

4.6.15 Master switch. With the transmission in neutral, the master switch shall be turned off, and the starter shall attempt to be engaged. No engagement of the forklift shall be observed in order to demonstrate compliance with 3.11.7.

4.6.16 Overload. A stress analysis shall be performed on the forklift to determine all critical stress points (see 6.3.2). All critical stress points shall be analyzed to verify compliance with 3.3.9. Strain gauges shall be applied to all of these critical stress points to measure stress during this test. The forklift shall be placed on a level surface and supports positioned under the frame or front axle to relieve load on the front tires. The rear of the forklift shall be secured to compensate for the additional test load. With the boom fully extended, the forks shall be raised to at least 24 inches above ground level with the forks centered on the carriage. The test load used shall be the greater of 3 times the static load of 10,000 pounds, or 2 times the maximum dynamic load, as determined in 3.3.9. This test load shall be applied to the forks. The center of gravity of the test load shall be located 24 inches forward of the front backrest surface. This overload shall remain on the forks for at least 10 minutes. The load shall be removed and the forklift structure, frame, mast, boom assembly, and hydraulic system shall be inspected for deformation, cracks, broken welds, and hydraulic fluid leaks. The forks shall be inspected a minimum of 6.0 inches on either side of heel by magnetic particle or dye penetrant method. The readings shall be recorded from strain gauges and converted to the corresponding stresses.

4.6.17 Fail safe hydraulic lift system. The rated load shall be raised to maximum lift height with the forks tilted back 5 ± 0.5 degrees. The vertical distance from the ground to the top surface of

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one fork shall be measured. No personnel shall be under or in front of the load during the next step. The hydraulic line(s) that supply pressure to the lift system shall be disconnected. The vertical distance from the ground to the same point on fork surface shall be measured. The fork tilt shall be measured. The hydraulic line(s) that supply pressure to prevent forward tilting shall be disconnected. The fork tilt shall be remeasured. The over-ride provided shall be used to lower rated load to ground.

4.6.18 Load backrest restraints. A forward, horizontal force of 3.0 times rated load shall be applied to the load restraint devices for 10 minutes. The test load may be applied to all devices at once, or 3.0 times the proportional share of the load may be applied to each device. The dimensional requirements of 3.3.9.3 shall be verified. The load shall be removed and the restraint devices, welds, and supporting structure shall be inspected for deformation, cracks, broken welds, etc.

4.6.19 Longitudinal slope operation. An 18 – 22% slope shall be traversed at a speed of at least 2 mph both uphill and downhill with the rated load as specified in 3.13.8. While on the slope, the forklift shall be stopped and accelerated up the hill from a complete stop to a speed of at least 2 mph.

4.6.20 Lateral slope operation. The forklift shall be operated in a clockwise direction over a full circle, with the rated load, on a slope as specified in 3.13.9. The forklift shall be operated the same except in counterclockwise direction. This shall be repeated over a full circle operation, in both directions, with no load on the forks.

4.6.21 Aircraft loading fork attachment. A stress analysis of the forklift and aircraft loading fork attachment shall be performed to determine all critical stress points (see 6.3.2). Strain gauges shall be applied to measure critical data during this test. The aircraft loading fork attachment shall be placed on the forks and secured in place using the means specified. Operations for aircraft loading of rolling stock shall be demonstrated as specified (see 3.3.9.10 and 3.3.9.10.1):

- a. Connecting to the rolling stock
- b. Loading it onto the level kneeled, aft ramp of the C-5 aircraft
- c. Unloading it from the level kneeled, aft ramp of the C-5 aircraft
- d. Returning it to the original location and disconnecting from the rolling stock.

This shall be considered one cycle. Demonstrating operations includes 2 cycles for C-5 where the second cycle demonstrates positioning a second rolling stock into the aircraft with the initial rolling stock in place. Demonstration shall be on hard paved surfaces with level terrain. The aircraft loading fork attachment shall be removed after final operations and the attachment shall be inspected. Record instrument readings and convert to the corresponding stresses.

4.6.22 Boom attachments. It shall be demonstrated that each of the developed attachments approved for use by the manufacturer can meet the specifications for that attachment. Any

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failure of the attachment to meet the requirements of that attachment (see 3.3.9.13 thru 3.3.9.13.2) shall be cause for rejection of the attachment itself.

4.6.23 Drawbar pull. A first article 10K Telehandler shall be tested on dry level concrete to verify the requirements of 3.13.22. The drawbar position shall be level and approximately parallel to the surface of the concrete.

5. PACKAGING

5.1 For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The 10K Telehandler will primarily be used for movement of construction materials from warehouses to staging areas, including demolition debris, materials to be mixed or recycled, and other various construction materials.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. If first article inspection is required (see 3.1).
- c. Tropical rustproofing (see 3.3.1.2.4).
- d. Finish color required (see 3.3.1.4).
- e. Tire type (see 3.3.9.9).
- f. Aircraft loading fork attachment (see 3.3.9.10).
- g. Aircraft loading fork attachment color (see 3.3.9.10.1d).
- h. Engine installation and removal attachment (see 3.3.9.13.2).
- i. Type A Winterization (see 3.4.8.2).

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- j. Pintle hook attachment (see 3.3.9.13.1).
- k. Test conditions (see 4.4.1.1).
- l. Packaging requirements (see 5.1).

6.3 Definitions.

6.3.1 Common hand tool. A non-powered tool that is likely to be found in a typical mechanic's toolbox. Common hand tools include open end, boxed end, combination, socket (both 6- and 12-point in both standard and deep-well), and hex key wrenches, in SAE sizes up to and including 1-inch and metric sizes up to and including 25-mm; ratchet handles, extensions, and swivels; slotted and Phillips-head screwdrivers; regular and snap-ring pliers; and a ball-peen hammer.

6.3.2 Critical stress point. A point or area where the stress is greater than 50% of the yield strength of the material when the forklift has the rated load on the forks.

6.3.3 Load carry position. The carry position is defined as boom fully retracted, forks at maximum rear tilt, and heel of forks 24 inches above the ground.

6.3.4 Operational mode. The operational mode of the 10K Telehandler is configured to meet the performance requirements of this document, including counterweights.

6.3.5 Special tool. A tool that is not commercially and readily available from a source other than the 10K Telehandler contractor.

6.4 Subject term (key words) listing.

- C-5 aircraft
- C-17 aircraft
- Hard paved surfaces
- Hilly terrain
- Mud surfaces
- Sand surfaces
- Snow surfaces
- Soft soil surfaces

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Custodians:
Air Force – 84

Preparing Activity:
Air Force – 84

Review Activities:
Air Force – 99

Agent:
Air Force – 99

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NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil> .