MIL-H-28538B(YD)
12 October 1984
SUPERSEDING
MIL-H-28538A(YD)
5 November 1974

MILITARY SPECIFICATION

HOISTS, WIRE ROPE OR CHAIN, AIR MOTOR POWERED WITH TROLLEY

This specification is approved for use by the Naval Facilities Engineering Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for air motor powered wire rope or chain hoists with a trolley.

1.2 Classification. The hoists covered by this specification shall be of the following sizes, as specified (see 6.2.1):

SIZES

Size 1/4 - 1/4 ton (500 pounds) rated lifting capacity.
Size 1/2 - 1/2 ton (1,000 pounds) rated lifting capacity.
Size 1 - 1 ton (2,000 pounds) rated lifting capacity.
Size 2 - 2 ton (4,000 pounds) rated lifting capacity.
Size 3 - 3 ton (6,000 pounds) rated lifting capacity.
Size 5 - 5 ton (10,000 pounds) rated lifting capacity.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified (see 6.2.1), the following specifications, standards, and handbooks

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 3950

of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

RR-W-410	- Wire Rope and Strand.
TT-P-664	- Primer Coating, Synthetic, Rust-Inhibiting Lacquer Resisting.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-B-1055	- Barrier Material, Waterproofed, Flexible.
PPP-T-60	- Tape, Packaging, Waterproof.

MILITARY

MIL-P-116	- Preservation, Methods of.
MIL-R-196	- Repair Parts, Accessories, and Kits, Mechanical, Packaging of.
MIL-C-5501	- Caps and Plugs, Protective, Dust and Moisture Seal.
MIL-T-22085	- Tape, Adhesive, Preservation and Sealing.
MIL-P-46093	- Primer, Coating, Synthetic (For Brake Drums).

STANDARDS

MILITARY

MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-794	- Parts and Equipment, Procedures for Packaging of.
MIL-STD-1186	- Cushioning, Anchoring, Bracing, Blocking and Waterproofing, with Appropriate Test Methods.

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

B30.16 - Overhead Hoists (Underhung).

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

AMERICAN GEAR MANUFACTURERS ASSOCIATION (AGMA)

390.03 - Gear Classification, Materials and Measuring Methods For Unassembled Gears.

(Applications for copies should be addressed to the American Gear Manufacturers Association, No. 1 Thomas Circle, N.W. Washington, DC 20005.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A275 - Magnetic Particle Examinations of Steel Forgings.
D3951 - Commercial Packaging, Practice for.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

J534 - Standard For Lubrication Fittings.

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

(Industry association specifications and standards are generally available for reference from libraries. They also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Description. The hoist shall be complete with controls, plain trolley, hook, block, wire rope or load chain, air line filter and oil lubricator, air exhaust silencer, and a 40-foot air supply hose assembly.

3.2 Standard commercial product. The hoist shall as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the hoist being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3 First article. When specified (see 6.2.1), the contractor shall furnish one complete hoist for first article inspection and approval (see 4.2.1 and 6.3).

3.4 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the

same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipments, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to use of used or rebuilt products are allowed under this specification unless otherwise specified.

3.5 Design and construction. The design and construction of the hoist and all load bearing parts shall conform to ANSI B30.16 and as specified herein. Load bearing parts of the hoist shall be designed so that the static stress, calculated for the rated load, shall not be greater than 20 percent of the ultimate material strength. The hook and elements specifically provided to give a visible warning of severe overload shall be designed so that the static stress calculated for the rated load, shall not be greater than 35 percent of the average ultimate material strength. The hoist shall be an integral lug type with provision for trolley attachment to provide for minimum end approach distance. Parts subject to replacement and service shall be readily accessible. When specified (see 6.2.1), hoists shall be designed for special service, such as all weather outdoor, hazardous dust and fumes, and extreme hot or cold working conditions.

3.5.1 Bearings. The load shaft shall be supported in high grade anti-friction ball or roller bearings capable of continuous cycle operation at an average speed of 10 revolutions per minute (rpm) for not less than 2,000 hours with the rated load of the hoist attached. Hook bearings shall be thrust type, rated for continuous operation of 10 rpm. All bearings shall be the products of manufacturers specializing in commercially standardized bearings, with Anti-Friction Bearing Manufacturers Association coded identification numbers. Design loading for all bearings shall be based on dead load, direct reactions of the hook load applied on a dead load, and torque reactions during operation with rated load.

3.5.2 Gearing. All gears shall be designed to meet the standards of the AGMA 390.03 with strength horsepower rating equal to or exceeding the motor horsepower ratings of the hoists.

3.5.3 Hoist medium. Unless otherwise specified (see 6.2.1), the hoist medium shall be load chain as specified herein. When specified (see 6.2.1), the hoist medium shall be wire rope as specified herein.

3.5.3.1 Load chain. The load chain, when used, shall be the roller or link type. Chains shall be free from scale and burrs at the welds. Each link shall be of uniform size and shape so as to fit the seats of the sprockets or sheave pockets. The hoist load chain shall be manufactured from a steel alloy suitable in all respects for the purpose intended and shall be of a size selected by the manufacturer. The chain shall be free from any tendency to snarl. Elongation of a link type load chain before failure shall be not more than 5 percent. Link type load chain wheels shall be made of steel, with deep pockets accurately shaped to fit the links of the load chain, which shall operate freely and smoothly over the load wheel without excessive wear.

Guides shall be provided to insure that the chain engages the chain wheel in proper position. Chain hoists of 10 feet or more shall be equipped with a load chain bucket.

3.5.3.2 Wire rope. The wire rope, when used, shall be rated for the speeds, lift range, capacity, and duty class of the hoist. The static load stress shall not be greater than 20 percent of the nominal breaking strength of the rope. Unless otherwise specified (see 6.2.1), the wire rope shall conform to the requirements of RR-W-410, type I, class 3, 6 by 37 for general hoist use and type IV, class 2, 18 by 7 for hoists with non-spinning wire rope requirements. Unless otherwise specified (see 6.2.1), the rope ends shall be fitted with speltered or swaged sockets.

3.5.4 Rope drums and sheaves. Rope drums, when used, shall be grooved with edges rounded to minimize wear on the rope. Flanges or other means shall be provided to prevent jamming of the rope. Drums shall be proportioned to store all rope required for the lift in one layer on the drum, with not less than two full turns of rope remaining on the drum when the hook is in the lowest elevation of the lift range. In terms of rope diameter units, the drum diameter shall be not less than 18, the running sheave diameter shall be not less than 16, and the equalizer sheave shall be not less than 12. When specified (see 6.2.1), rope drums shall be right-hand and left-hand grooved for true vertical lift. Sheaves shall be of steel, modular or ductile cast iron, and shall have contoured rope grooves concentric with the axle. Grooves shall have a uniform roughness not greater than 200 microinches. Sheaves shall be fitted with bearings.

3.5.5 Load block and hook. The block, if used, shall be an enclosed safety type with sheave or sprocket protection. The hook shall be plain or latch type as specified (see 6.2.1). The hook shall be of drop forged steel, designed for not less than the rated load capacity of the hoist. The hook shall be suspended by the block through a shielded ball or roller thrust bearing designed to swivel freely through 360 degrees rotation with the rated hook load. Hook nuts shall be keyed to hook shanks by means of a setscrew installed in a plane parallel to the longitudinal axis of the hook shank, or by any other similar easily removable securing device. All hooks and hook nuts shall be magnetic-particle inspected over the entire area in accordance with ASTM A275.

3.5.6 Air motor. The hoist motor shall be an air driven piston or rotary vane type, and shall be provided with an air inlet connection fitted for the use of air hose assemblies. The motor shall have adequate capacity to lift 125 percent of the rated load.

3.5.7 Hoist control. The hoist control shall meter the air supply to the hoist motor to provide variable speeds. Hoist controls shall be a lever operated pendant type or a rope or chain operated pull handle type as specified (see 6.2.1). When a pendant type hoist control is provided, the pendant shall be furnished with a strain relief capable of supporting the pendant with an operator imposed load of 200 pounds. The reach of the hoist control, measured as the distance from the underside of the track beam to the hoist control, shall be as specified (see 6.2.1).

3.5.8 Trolley. A plain trolley, designed to operate from the specified beam section (see 6.2.1) shall be provided. When specified (see 6.2.1), means for attaching a powered, or a geared manual drive trolley (hoist tractor), shall be provided. The assembled hoist and trolley shall have headroom (hook saddle to underside of the beam) distance of not more than 30 inches. The trolley shall be designed for not less than the rated load capacity of the hoist.

3.6 Lubrication. Unless otherwise specified (see 6.2.1), means for lubrication shall be in accordance with the manufacturer's standard practice. The lubricating points shall be easily visible and accessible. Hydraulic lubrication fittings shall be in accordance with SAE J534. Where use of high pressure lubricating equipment, 1,000 pounds-force per square inch gage (psig) or higher, will damage grease seals or other parts, a suitable warning shall be affixed to the equipment in a conspicuous location. The wire rope, when furnished, shall be lubricated for service with a dry film lubricant or preservative. Chains shall be preserved as specified (see 5.1.1.7).

3.7 Interchangeability. All hoists of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

3.8 Performance characteristics.

3.8.1 Rated load. When supplied with air, between 80 and 100 psig, the hoist shall operate as specified herein with the following rated loads:

a. Size 1/4 - 1/4 ton (500 pounds) rated lifting capacity.
b. Size 1/2 - 1/2 ton (1,000 pounds) rated lifting capacity.
c. Size 1 - 1 ton (2,000 pounds) rated lifting capacity.
d. Size 2 - 2 ton (4,000 pounds) rated lifting capacity.
e. Size 3 - 3 ton (6,000 pounds) rated lifting capacity.
f. Size 5 - 5 ton (10,000 pounds) rated lifting capacity.

3.8.1.1 Raising and lowering. Raising and lowering of the rated load shall be without jerk or hesitation. The load shall remain suspended when the air supply is shut off and shall not lower without application of the air supply. Speed increments from 0 to maximum shall be in proportion to throttle valve openings from closed to open to provide for accurate positioning of the rated load.

3.8.1.2 Control handles. When released, control handles shall return without sticking to the closed (neutral) position.

3.8.1.3 Lifting speed. Unless otherwise specified (see 6.2.1), the lifting speed of the hoist, when supplied with air between 80 and 100 psig, shall be not greater than the highest speed specified in table I at rated load under full throttle.

TABLE I. Hoist lifting speed ranges.

Size of hoist	Hoist lifting speed range (feet per minute) Low		High
Size 1/4	0	to	65
Size 1/2	0	to	30
Size 1	0	to	30
Size 2	0	to	30
Size 3	0	to	17
Size 5	0	to	12

3.8.1.4 Hook lift. Unless otherwise specified (see 6.2.1), the travel distance of the load hook saddle shall be not less than 10 feet.

3.8.2 Proof load. The hoist shall be capable of handling a proof load of 125 percent of the rated load specified in 3.8.1 without damage, permanent deformation, drift at stationary suspended elevation, and dropping or override when lowering.

3.8.3 Brakes. Each hoist shall be equipped with load braking in accordance with ANSI B30.16. Each brake shall be capable of holding 125 percent of rated load without slip, with or without air supply. Each brake, except for combination load brake and control (see 3.8.3.3), shall have a means to provide controlled lowering of 125 percent of the rated load without air supply.

3.8.3.1 Pneumatic brake. A diaphragm, clutch, or piston released brake shall be provided. The brake shall be normally set, and shall be released when air pressure is applied for either raising or lowering the load.

3.8.3.2 Mechanical load lowering brake. A mechanical load lowering brake shall be provided. The brake shall operate independently from the pneumatic brake and shall provide for controlled lowering of the rated load when loss of air supply occurs.

3.8.3.3 Combination load brake and control. In lieu of independent pneumatic and mechanical brakes, a load brake and dynamic motor braking arrangement may be provided. The control shall simultaneously release the brake and open the air valve for up or down travel. When air supply is shut off with the control in "down" position, the lowering speed shall be reduced and the hoist, with the rated load, shall stop all lowering motion when the air trapped in the system has bled off. There shall be no slip or drift under any condition, with a 125 percent rated load, when the control is in neutral position.

3.8.3.4 Maintainability. The hoist shall be designed and constructed to facilitate field maintenance. All adjustments and replaceable accessories shall be readily accessible.

3.8.3.5 Overtravel protection. The hoist shall be so designed and constructed that the load hook, either empty or loaded, shall not exceed the upper limit or lower limit of travel.

3.9 Technical manuals. The contractor shall provide technical manual(s) conforming to the Data Item Description (DID) listed on the Contract Data Requirements List (CDRL) (DD Form 1423) (see 6.2.2).

3.10 Treatment and painting. Unless otherwise specified (see 6.2.1), the hoist shall be treated and painted in accordance with the manufacturer's standard practice. All surfaces of the hoist other than corrosion-resisting steel shall be protected against corrosion and present a neat appearance.

3.11 Safety. Each hoist furnished shall conform to the applicable mandatory and advisory safety requirements of ANSI B30.16 and as specified herein.

3.12 Identification and rated load markings. Identification and rated load shall be permanently and legibly marked directly on the hoist or on a corrosion-resisting metal plate securely attached to the hoist in a conspicuous location as specified in ANSI B30.16. When an identification plate is used, identification shall include name of manufacturer, manufacturer model or serial number, rated load, and rated air pressure.

3.13 Warning information. All hoists shall have the necessary warning labels as specified in ANSI B30.16.

3.14 Workmanship.

3.14.1 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.14.2 Bolted connections. Boltholes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

3.14.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

3.14.4 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.14.5 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the casting's ability to perform its intended function.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

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

a. First article inspection (see 4.2.1)
b. Quality conformance inspection (see 4.2.2)

4.2.1 First article inspection. The first article inspection shall be performed on one complete hoist when a first article is required (see 3.3 and 6.2.1). This inspection shall include the examination of 4.3, and the tests of 4.4. The first article may be either a first production item or standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.3, the tests of 4.4, and the packaging inspection of 4.5.

4.3 Examination. Each hoist shall be examined for compliance with the requirements specified in section 3. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Non-compliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection. A defect for the magnetic-particle inspection in 3.5.5 is defined as a linear indication that is greater than 1/8 inch long whose length is equal to or greater than three times its width.

4.4 Tests. Each hoist shall be adjusted, lubricated, and otherwise made ready for operation. Each hoist shall then be tested in accordance with the test requirements, and recommendations of ANSI B30.16. Rough and noisy operation, poor and unsafe response to controls, or failure of parts shall be cause for rejection.

4.4.1 Certificate of compliance. The contractor shall prepare a certificate of compliance for the 5 to 1 design factor for the load chain breakage strength or the wire rope breakage strength as specified in 3.5 and a certificate of compliance for the magnetic-particle inspection of each hook and hook nut as specified in 3.5.5.

4.5 Packaging inspection. The preservation, packing, and marking of the item shall be inspected to verify conformance to the requirements of section 5.

5. PACKAGING

5.1 Preservation. The preservation shall be level A or C as specified (see 6.2.1).

5.1.1 Level A.

5.1.1.1 Methods of preservation. Cleaning processes, drying procedures, preservatives, and methods of preservation specified in the following paragraphs are listed in MIL-P-116 and shall conform to the requirements of MIL-P-116 and any applicable specifications.

5.1.1.2 Disassembly. Disassembly shall be the minimum necessary to protect parts subject to damage or loss, and to accomplish reduction in cube. Removed bolts, nuts, pins, screws and washers shall be reinstalled in mating parts and secured to prevent their loss.

5.1.1.3 Matchmarking. Parts removed and mating parts on the equipment and attachments shall be matchmarked to facilitate reassembly. Parts and accessories removed, and mating parts on the equipment, shall be identified with weather proof tags attached to mating parts and locations. Markings shall be applied to the tags with waterproof material.

5.1.1.4 Cleaning and drying. Prior to the application of preservative compounds or paint, surfaces shall be cleaned by process C-1 and dried by any applicable procedure of MIL-P-116.

5.1.1.5 Unprotected surfaces. Unprotected exterior metal surfaces requiring the application of a contact preservative in accordance with MIL-P-116 and not specifically provided for herein shall be preserved with P-1 preservative.

5.1.1.6 Gears

5.1.1.6.1 Exposed gears. All unpainted surfaces of exposed gears shall be coated with type P-1 preservative or with primer conforming to TT-P-664 or MIL-P-46093.

5.1.1.6.2 Enclosed gears. Enclosed gears shall be filled to the operating level with the approved lubricant required for operation. The gear housing shall be identified with a weatherproof tag to indicate "The housing is filled to the operating level with lubricant required for operation. Do not drain until first required lubrication change." Markings shall be applied to the tags with a waterproof material. The tags shall be attached in a conspicuous location.

5.1.1.7 Exposed drive chains. Exposed drive chains shall be coated with enough type P-9 preservative to insure penetration of the preservative to the inner surface of the rollers, pins, and bushings. After the excess preservative has drained, the entire chain and the unpainted surfaces of the sprocket shall be coated with type P-1 preservative.

5.1.1.8 Hoists. All openings in the hoist shall be sealed with tape conforming to PPP-T-60 or MIL-T-22085, type II, or covered with barrier material conforming to PPP-B-1055, class E-1 or E-2 and secured in place with tape specified above.

5.1.1.9 Air motor. Coat interior surfaces of air motors with type P-10 preservative by applying the preservative through the lubricating system or by feeding the preservative into the air inlet. Attach airhose and operate the motors until preservative appears at the exhaust port. Cover all openings into the interior of the motors, such as air inlets and outlets, with caps or plugs conforming to MIL-C-5501 or with waterproof tape. Coat exterior unpainted metal surfaces of the air motor and hose couplings and fittings with type P-1 preservative.

5.1.1.10 Technical publications. Technical publications for each piece of equipment shall be preserved method IC-1 or IC-3.

5.1.1.11 Repair parts. The preservative application criteria and applicable methods of preservation of MIL-P-116 shall be used to preserve repair parts. When specified (see 6.2.1), the repair parts shall be preserved in accordance with level A requirements of MIL-R-196, or when parts are not specifically covered in MIL-R-196, an applicable submethod of preservation of MIL-P-116 shall be used.

5.1.1.12 Consolidation. Repair parts and publications for each hoist shall be consolidated in containers conforming to PPP-B-636, class weather-resistant. Contents shall be cushioned, blocked, and braced to prevent movement in accordance with MIL-STD-1186.

5.1.2 Level C. The hoist shall be preserved in accordance with ASTM D3951.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2.1).

5.2.1 Levels A and B. Packing shall be in accordance with MIL-STD-794. Containers shall be selected from table I of MIL-STD-794 for the appropriate level. Only closed containers shall be used.

5.2.2 Level C. The hoists shall be packed in accordance with ASTM D3951.

5.3 Marking. Marking shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Air motor powered hoists are used in shop, assembly line, and service areas where a compressed air supply is available.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Size of hoist required (see 1.2).
c. Applicable specifications, standards, and handbooks, if other than as specified. (see 2.1.1).
d. First article, if required (see 3.3 and 4.2.1).
e. Special service requirements (see 3.5).
f. When wire rope is required for hoist medium (see 3.5.3).
g. Type of wire rope, if other than as specified (see 3.5.3.2).
h. Wire rope end fittings, if other than as specified (see 3.5.3.2).
i. When rope drums are to be right-hand and left-hand grooved for true vertical lift(see 3.5.4).
j. Type of hook (plain or latch type) required (see 3.5.5).
k. Type of hoist control and reach of hoist control (see 3.5.7).
l. Track beam section on which trolley wheels shall be designed to run (see 3.5.8).
m. When means for attaching a powered, or a geared manual drive trolley is required (see 3.5.8).
n. Means of lubrication, if other than as specified (see 3.6).
o. Lifting speed of the hoist, if other than as specified (see 3.8.1.3 and Table 1).
p. Travel distance of the load hook saddle, if other than as specified (see 3.8.1.4).
q. Treatment and painting, if other than as specified (see (see 3.10).
r. Level of preservation and level of packing (see 5.1 and 5.2).
s. When the level A requirements of MIL-R-196 are required for repair parts (see 5.1.1.11).

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved DD Form 1664, Data Item Description (DID), and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of paragraph 52.227-7031 of the Federal Acquisition Regulations are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs:

Paragraph No	Data requirements title	Applicable DID No.	Option
3.9	Manual with supplementary data, commercial equipment	DI-M-2050	None
4.4.1	Certificate of compliance	DI-E-2121	None

(DIDs related to this specification, and identified in section 6 will be approved and listed as such in DoD 5000.19L, Vol II, Acquisition Management Systems and Data Requirements Control List. Copies of DIDs required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.3 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one hoist. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.4 Cross reference of classification. The following is a cross reference of classifications between MIL-H-28538A(YD) and this revision:

MIL-H-28538A(YD)	MIL-H-28538B(YD)
	Size 1/4 (new)
	Size 1/2 (new)
	Size 1 (new)
Size 2	Size 2
Size 3	Size 3
Size 5	Size 5

6.5 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodian:

Navy - YD

Preparing Activity:

Navy - YD

(Project 3950-N185)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-H-28538B(YD)	HOISTS, WIRE ROPE OR CHAIN, AIR MOTOR POWERED WITH TROLLEY

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ USER
	☐ MANUFACTURER
	☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426 PREVIOUS EDITION IS OBSOLETE.

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