

MIL-S-80034C
25 January 1985
SUPERSEDING
MIL-S-80034B
11 August 1977

MILITARY SPECIFICATION

SAWS, JIG, WOODWORKING

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

1. SCOPE.

1.1 Scope. This specification covers jig saws suitable for both straight and curved sawing of wood, plastic, sheet metal and similar materials.

1.2 Classification. This specification covers jig saws of the following sizes. The size required shall be as specified (see 6.2.1).

Size 24 - 24-inch throat

Size 36 - 36-inch throat

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards and handbooks 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.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Industrial Plant Equipment Center, ATTN: DIPEC-SSM, Memphis, Tennessee 38114-5297, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 3220

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SPECIFICATIONS

MILITARY

MIL-M-18058 - Machinery, Metal and Woodworking, Packaging of.

STANDARDS

FEDERAL

FED-STD-H28 - Screw Thread Standards for Federal Services.

2.1.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

U. S. DEPARTMENT OF LABOR

OSHA 2206 - General Industry, OSHA Safety and Health Standards
(29 CFR 1910).

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, DC 20402.)

(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 issue 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

ANSI/NFPA 79 - Metalworking Machine Tools and Plastics Machinery,
Electrical Standards for.

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

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AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM-D-3951 - Commercial Packaging, Standard Practice for.

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

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 First Article. When specified (see 6.2.1), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

3.2 Design. The machine shall be new and one of the manufacturer's current models capable of performing sawing operations in accordance with the requirements herein. The machine shall include all components, parts, and features necessary to meet the performance requirements specified herein. All parts subject to wear, breakage, or distortion shall be accessible for adjustment, replacement, and repair.

3.2.1 Reclaimed materials. The machine may contain reclaimed materials provided such materials will not jeopardize the machine's intended use and performance. The reclaimed materials shall have been reprocessed, remanufactured or recycled in a manner which will restore them to the same chemical composition and physical properties as the materials originally selected for use on the machine.

3.2.2 Energy efficiency. The machine and all its applicable components that directly consume energy in normal operation shall be designed and constructed for the highest degree of energy efficiency as governed by the latest developments available within the industry.

3.2.3 Controls. All operating controls shall be located convenient to the operator at his normal work station.

3.2.4 Safety and health requirements. Covers, guards, or other safety devices shall be provided for all parts of the machine that present safety hazards. The safety devices shall not interfere with the operation of the machine. The safety devices shall prevent unintentional contact with the guarded part, and shall be removable to facilitate inspection, maintenance and repair of the parts. All machine parts, components, mechanisms, and assemblies furnished on the machine, whether or not specifically required herein, shall comply with all of the requirements of OSHA 2206 that are applicable to the machine itself. Additional safety and health requirements shall be as specified (see 6.2.1.).

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3.2.5 Lubrication. Means shall be provided to insure adequate lubrication for all moving parts. Recirculating lubrication systems shall include a filter which is cleanable or replaceable. Each lubricant reservoir shall have means for determining fluid level. All oil holes, grease fittings and filler caps shall be accessible.

3.2.6 Interchangeability. To provide for replacement of worn or damaged parts, all parts shall be manufactured to definite dimensions and tolerances that will permit installation of replacement parts without modification to the part or the machine.

3.3 Construction. The saw shall be constructed of parts which are new, without defects and free of repairs. The structure shall be capable of withstanding all forces encountered during operation of the machine to its maximum rating and capacity without permanent distortion.

3.3.1 Castings and forgings. All castings and forgings shall be free from defects such as scale and mismatching. Processes such as welding, peening, plugging, or filling with solders or pastes shall not be used on castings or forgings to reclaim any defective components for use on the machine. Such processes may be used only for enhancing surface finish and appearance.

3.3.2 Welding, brazing or soldering. Welding, brazing, or soldering shall be employed only where specified in the original design. None of these processes shall be employed as a repair measure for any defective part.

3.3.3 Fastening devices. All screws, pins, bolts, and other fasteners shall be installed in a manner to prevent change of tightness. Fastening devices subject to removal or adjustment shall not be swaged, peened, staked, or otherwise permanently installed.

3.3.4 Surfaces. All surfaces shall be clean and free of sand, dirt, fins, sprues, flash, scale, flux, and other harmful or extraneous materials. All edges shall be either rounded or beveled unless sharpness is required to perform a necessary function. Except as otherwise specified herein, the condition and finish of all surfaces shall be in accordance with the manufacturer's commercial practice.

3.3.5 Painting. All surfaces to be painted shall be cleaned of all foreign matter. Unless otherwise specified (see 6.2.1), the machine shall be painted in accordance with manufacturer's standard commercial practice which shall be not less than one coat of primer and one coat of finish color.

3.3.6 Threads. All threaded parts used on the machine and its related attachments and accessories shall conform to FED-STD-H28 and the applicable "Detailed Standard" section referenced therein.

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3.3.7 Gears. All gears shall be constructed from a material suitable for the intended purpose. All metal gears shall be machined and heat treated by a process that will impart the hardness, surface finish and toughness that will enable the gear train to transmit full-rated torque of the drive motor without gear damage, failure or premature deterioration and wear. All gears shall be manufactured to definite established standards to provide for interchangeability and parts replacement.

3.4 Components.

3.4.1 Frame. The frame shall be of such mass and rigidity to support the reciprocating saw blade, blade drive device and the workpiece support table with hand fed workpieces.

3.4.2 Base. Unless otherwise specified, the 24-inch saw shall have a floor mounted frame and the saw shall have a separate base designed for removing from the frame and mounting on a work bench. When specified (see 6.2.1), the 24-inch shall be provided without the floor mounting frame. The 36-inch saw shall have a base integral with the frame for floor mounting and the base shall provide for mounting to the floor or foundation.

3.4.3 Table. The table workpiece support surface shall be finished and flat within ± 0.005 inch per foot. When specified (see 6.2.1), the table shall be drilled for mounting optional jigs, guides, or other fixtures. The table shall have tilting characteristics as required by table I. Means shall be incorporated to securely retain the table in any adjusted position. A dial or scale shall indicate the degree of adjusted table positions within an accuracy of \pm one degree.

3.4.4 Blade drive mechanism. The 24-inch saw shall have a blade drive mechanism providing either infinite or four step blade speed conforming to the blade speed range in table I. The 36 inch saw shall have a single blade speed of not less than 1200 strokes per minute conforming to table I. The 36-inch saw blade drive mechanism shall have a brake that will stop the mechanism in 10 seconds. Blade stroke lengths shall conform to table I. Either a blade chuck or vise shall securely retain the lower end of the saw blade to the blade drive mechanism.

3.4.4.1 Upper blade control assembly. The upper blade control assembly shall maintain blade tension and allow reciprocal strokes and blade speeds compatible to the blade drive mechanism.

3.4.4.2 Workpiece holddown clamps. The saw shall have workpiece holddown clamps which prevent the workpiece from rising on the upstroke of the blade. The workpiece holddown shall be adjustable within the workpiece thickness range of table I.

3.4.4.3 Blade guides. Blade guides shall maintain alignment and back support to the blade. The guides shall be of the self-centering type, adjustable and shall either be carbide faced or of material having equal wear qualities.

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3.4.4.4 Air pump. The saw shall have an air pump, of either a plunger or blower type, to supply air flow directly to the work table area. Air quantity and pressure shall be sufficient to remove sawdust from the sawing line.

3.4.4.5 Electrical system. Unless otherwise specified (see 6.2.1), the electrical system shall conform to ANSI/NFPA 79. Each machine shall draw all of its electrical power from a single 230/460 volt, 3 phase, 60 Hz circuit. Each machine shall have a fused safety disconnect switch or circuit breaker. The machine shall be initially wired for operation on 230 volts. An identified terminal for grounding the machine when it is installed shall be mounted in or near the disconnect switch. The terminal shall be suitable for connecting the size grounding conductor specified in ANSI/NFPA 79 for the disconnect fuse rating.

3.4.4.5.1 Motors. Motors shall be rated for continuous duty and shall have ball or roller bearings of the sealed and permanently lubricated type. Unless otherwise specified (see 6.2.1), each motor enclosure shall meet the requirements for a dripproof enclosure.

3.5 Sizes and capacities. The sizes and capacities of the saw shall meet or exceed the requirements of table I. Saw size shall be determined by the throat dimension, which is the distance, in inches, between the blade and the frame section that supports the upper blade control assembly.

TABLE I. Sizes and capacities.

Characteristics	Size	Size
Throat, inches	24	36
Table dimensions, inches	14 x 14	34 x 34
Workpiece thickness, inches	1-3/4	2
Blade length, inches	5	10
Blade stroke, inches	1	2-1/2
strokes per minute	825 - 1600	1200
Step-Speeds (4)	600, 900, 1250, 1700	-- --
Motor, HP	1/3	1
Speed, RPM	1725	1200
Table tilt, degrees		
Right	45	30
Left	12	30
Table height, inches	40 + 3	40 + 3
(Floor to workpiece support surface)		

NOTE: Machine sizes and capacities shall be not less than the stated requirements of the size ordered nor greater than the requirements of the next larger size shown in above table. When the largest size and capacity machine shown in above table is ordered, the size and capacity of the machine offered shall not exceed the stated requirements by more than 10 percent. When a range is shown, the required performance is from the stated minimum or less to the stated maximum or greater.

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3.6 Performance. The saw shall be capable of sawing hardwood of a thickness equal to the work thickness specified in table I. The saw shall be capable of sawing a straight line and circular pattern with a deviation not greater than $\pm 1/32$ inch on the cut surface. The saw shall be capable of sawing inside corners and making vertical and angular cuts, with a deviation not greater than \pm one angular degree of the table surface and table tilt adjustment.

3.7 Standard equipment. Unless otherwise specified (see 6.2.1), the saw shall be furnished with one set of wrenches normally furnished with the saw and blades for hard and soft wood (six each), veneer (six each), and light sheet metal (six each).

3.8 Optional equipment. Optional equipment shall be furnished as specified and shall be fully described (see 6.2.1).

3.9 Marking of instruction plates, indicating plates and name plates. All words on instruction and indicating plates shall be in the English language. Characters shall be engraved, etched, embossed or stamped in boldface on a contrasting background.

3.9.1 Lubrication chart or plate. Unless otherwise specified (see 6.2.1), a lubrication chart or plate shall be permanently and securely attached to each machine. If a chart is furnished, it shall be placed in a transparent plastic folder, or permanently sealed between clear plastic sheets, with suitable means of mounting. The chart or plate shall contain the following information:

- Points of lubricant application
- Servicing interval
- Type of lubricant
- Viscosity

3.9.2 Nameplate. Unless otherwise specified (see 6.2.1), a nameplate shall be securely attached to each machine. The nameplate shall contain the information listed below. If the machine is a special model, the model designation shall include the model of the basic standard machine and a suffix identified in the manufacturer's permanent records. The captions listed may be shortened or abbreviated, provided the entry for each caption is clear as to its identity.

- Nomenclature
- Manufacturer's name
- Manufacturer's model designation
- Manufacturer's serial number
- Power input (volts, total amps, phase, frequency)
- Contract Number or Order Number
- National Stock Number or Plant Equipment Code
- Date of manufacture

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3.10 Technical data. When technical data is required it shall be furnished in accordance with the requirements of the contract.

3.11 Workmanship. Workmanship of the machine and accessories shall be of a quality equal to that of the manufacturer's commercial equipment of the type specified herein.

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 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 inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article inspection is required, it shall be applied to the first article submitted in accordance with 3.1. Unless otherwise specified (see 6.2.1), first article inspection shall consist of the examination in 4.5 and all tests in 4.6. Failure of the item to pass the first article tests shall be cause for rejection.

4.4 Quality conformance inspection. Quality conformance inspection shall be applied to each item prior to being offered for acceptance under the contract. Unless otherwise specified (see 6.2.1) quality conformance inspection shall consist of at least the examination in 4.5 and the tests in 4.6.1 through 4.6.2.5. Failure of the item to pass the examination or tests shall be cause for rejection.

4.5 Examination. The machine and equipment shall be examined to determine compliance with the requirements herein.

4.6 Tests.

4.6.1 Operational test. The machine shall be operated at no load for not less than 15 minutes. Proper operation of all controls, motors, adjusting mechanisms, and accessories shall be verified during the trial period.

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4.6.2 Performance test. The saw shall be tested for conformance with 3.4 by sawing patterns from a kiln dried hardwood workpiece using a standard blade 1/4 inch wide and seven (7) teeth per inch. For pattern numbers a and b the worktable shall be set and locked at the horizontal or "0" degree tilt. The top of the table or bottom of the workpiece shall be not less than 12 inches wide, 30 inches long, and of the thickness of workpiece specified in table I. The workpiece shall be marked in two patterns:

a. A circular pattern, four inches in diameter, with center 2-1/2 inches from the edge, and 6 inches from one end.

b. A square pattern, four inches square, with center, two inches from the same edge, and six inches from one end.

4.6.2.1 Circular test. The workpiece shall be sawed on pattern number a, with deviations of not more than $\pm 1/3$ -inch out of round, and not more than \pm one (1) angular degree out of square.

4.6.2.2 Squareness test. The workpiece shall be sawed on pattern number b, with deviations of not more than \pm one (1) angular degree out of square on any cut.

4.6.2.3 Table tilt test. The table shall be tested for tilt as specified in table I.

4.6.2.4 Blade motion test. The blade motion shall be tested for length of stroke and frequency as specified in table I.

4.6.2.5 Brake test. The brake on size 36 saw shall be tested for an effective stopping time of 10 seconds.

4.7 Packaging inspection. Packaging shall be inspected to determine compliance with requirements of section 5.

5. PACKAGING

5.1 Packaging, packing and marking. Unless otherwise specified, packaging, packing, and marking shall be in accordance with ASTM-D 3951. When specified (see 6.2.1), level A packaging, level A or level B packing and special marking shall be accomplished in accordance with MIL-M-18058.

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6. NOTES

6.1 Intended use. The saws covered herein are intended for use in sawing straight and circular shapes normally required in woodworking and pattern shops.

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 required (see 1.2).
- c. When first article is required for inspection and approval (see 3.1).
- d. Additional safety and health requirements, if required (see 3.2.4).
- e. Painting, if different (see 3.3.5).
- f. Bench mounting, if required (size 24 only, see 3.4.2).
- g. Table drilled for optional items, if required (see 3.4.3).
- h. Electrical system requirements, if different (see 3.4.4.5).
- i. Motor and control enclosure, if different (see 3.4.4.5.1).
- j. Standard equipment, if different (see 3.7).
- k. Optional equipment, if required (see 3.8).
- l. Lubrication chart or plate, if different (see 3.9.1).
- m. Nameplate, if different (see 3.9.2).
- n. First article inspection, if different (see 4.3).
- o. Quality conformance inspection, if different (see 4.4).
- p. Level of packaging, packing and marking, if different (see 5.1).

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6.2.2 Contract data requirements. All data requirements, such as parts lists, wiring diagrams, operating manuals, maintenance manuals, alignment and test results, shall be requested on a DD Form 1423, Contract Data Requirements List, and shall be furnished in accordance with each specified DD Form 1664, Data Item Description, as shown on the DD Form 1423.

6.3 First article. When first article inspection is required, the item to be tested should be the first item offered for acceptance under the contract. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test and approval of the first article.

6.4 Safety and health requirements. Paragraph 3.2.5 requires compliance only with those OSHA requirements that concern the machine itself. It does not require compliance with those OSHA requirements that concern "the machine in its operating environment" such as noise levels, radiation levels, electromagnetic emissions, noxious vapors, air contaminants, and heat. Since OSHA limits the total hazard level of these hazards in the environment (and does not limit the hazard level of individual machines in the environment) the procuring activity is advised to analyze the existing hazard levels in the proposed operating environment, and specify additional machine requirements that will integrate the new machine into its future operating environment. The machine shall be equipped with all points-of-operation guarding normally furnished as standard on the manufacturer's commercial machines supplied to the commercial market. If specific point-of-operation guarding is required, the procuring activity should specify the exact configuration of the guard required, as in most cases, the guard configuration is dependent on the size and configuration of the workpieces. The above, and any other additional safety and health requirements should be specified in detail under 6.2.1(g).

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.

Custodians:

Army - AL
Navy - SH
Air Force - 99

Preparing Activity:

DLA-IP

Project Number:

3220-0142

Review Activities:

Army - ME, CE
Navy - SH
Air Force - 84
DLA-GS

User Activity:

Navy - MC

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER
MIL-S-80034C2. DOCUMENT TITLE
Saws, Jig, Woodworking

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

☐ VENDOR☐ USER☐ MANUFACTURER☐ OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)

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)