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FORKLIFTS

Army Test and Evaluation Command
Aberdeen Proving Ground, Maryland

12 March 1973

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13. ABSTRACT

Provides guidance for conducting development tests I, II (ET), and III of forklifts. Applies to electric and engine driven forklifts and to rough terrain forklifts. Covers test planning, inspection, test team training, and vehicle run-in requirements; and technical performance, operational performance, and high and low temperature storage tests.

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U. S. ARMY TEST AND EVALUATION COMMAND
DEVELOPMENT TEST II (ET) - SYSTEM TEST OPERATIONS PROCEDURES

AMSTE-RP-702-101

Test Operations Procedure 2-2-106

12 March 1973

FORKLIFTS

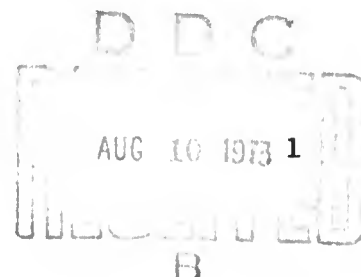
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SECTION I
GENERAL

1. Purpose and Scope. This TOP provides guidance for planning tests of forklifts to assure their conformance with Required Operational Capabilities (ROC's), Development Plans (DP's), or other governing documents. Subtests suitable for meeting the requirements of development tests I, II, or III (formerly development suitability tests, engineering tests, initial production tests) or other customer sponsored tests can be selected from those listed in section II. For a development test II (ET), scope will be dependent on the criteria of the governing ROC/DP. For a development test III, scope will be in accordance with the contractual provisions of the applicable military specifications and suitability criteria as established by the test directive. Environmental tests, as dictated by the size and nature of the test items, may require a combination of chamber testing and on-site climatic tests. This procedure is a basic guide and may not include techniques required for some special forklifts.

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2. Background.

a. **Forklift Uses.** A forklift is a device of mobile materials handling equipment, usually in truck form, used to lift, transfer, and stack materials in warehousing and other logistic operations. It is particularly suited to combination vertical and lateral transfer of packaged materials over relatively short distances and within limited lift heights. Forklifts are designed for various environments, with small solid tires for hardstand operation, larger pneumatic tires for limited off-road applications, and large aggressive-tread tires for rough terrain operations. The forklift is an essential tool for military logistics, moving vast amounts of supplies in depots and warehouses, at marine terminals, and in logistical over-the-shore applications.

b. **Forklift Design.** The forklift consists of a wheeled chassis which houses the engine or batteries and the operator's station, a pivoted or pantographic mast, and horizontal forks that slide up and down the mast or are positioned vertically by the pantographic arms. Motive power may be electrical (motors and batteries) or engine (gasoline, diesel, or gas-burning). The conventional forklift is compact, low-centered, and counterbalanced (in critical balance when a load of 125 percent of its rated capacity, with mast vertical, is placed on the forks), with front wheel drive and rear wheel steering. Masts may be either a fixed height or the telescoping type to provide added lift height with low headroom. Standard size forklifts at 24-inch load centers include those with capacities of 1,000, 2,000, 4,000, 6,000, or 10,000 pounds. Electric trucks use lead-acid or nickel-alkaline type rechargeable batteries, 400 to 1,000 ampere-hour rated; and series-wound, high-torque motors, reduction-g geared to the driving axle.

c. **Rough Terrain Forklifts.** Rough terrain forklifts employ 2- or 4-wheel drive, or both, and 2- (truck) or 4-wheel (crab) steering, or both. They possess special capabilities, such as forks that tilt up to 45° (from the horizontal) and move laterally on the mast in addition to vertical movement. (This side-shift feature is available on some conventional forklifts.) They can traverse grades to 45-percent forward and 30-percent side slopes, and can ford specified water depths. Standard capacities are 6,000 and 10,000 pounds. Under development are forklifts in the 2,500- to 4,000-pound range for stuffing and unstuffing the 8-foot family of containers, and in the 15,000- and 50,000-pound ranges for handling large palletized loads and containers in the field. Rough terrain forklifts may travel on highways for distances of 5 miles or more, at speeds to 25 mph, as compared to conventional forklifts which are much slower and are generally limited to short line-hauls of 1,200 feet or less. Load centers for rough terrain forklifts may be 24, 35, or 51 inches, with 24 inches (half of a standard pallet) being the most common.

d. **Special Forklifts.** Special types of forklifts include side loaders (for carrying long items such as pipe or lumber); straddle trucks (capable of very heavy lifts - to 80,000 pounds); and forklifts with special clamps, hooks, grabs, or toplifting devices to suit items

of particular shapes or particular lifting tasks. Electrically powered trucks provide quiet, fume-free operation making them desirable for internal warehouse and plant use. Gas-burning engines provide a relatively fume-free exhaust and permit continuous operation without the need for rejuvenation of batteries. Internal combustion engine drives provide the rugged power needed for many military applications.

e. Basic Test Specifications and Standards. Forklift testing is accomplished essentially in accordance with procedures described in MIL-STD-268C (particularly applicable to commercial type forklifts) and military specifications for rough terrain forklifts (such as MIL-T-0021863C for 6,000-pound forklifts and MIL-T-0021864C for 10,000-pound forklifts). Test procedures in these documents may be supplemented or modified as dictated by the specific test directive or as indicated herein.

3. Equipment and Facilities. Facilities as described in MIL-STD-268C and specification MIL-T-0021863C are required. Other equipment and facilities required are indicated in the applicable paragraphs below or in the referenced documents.

SECTION II TEST PROCEDURES

4. Supporting Tests. Subtests (generally in the preferred order of completion with respect to high-risk, short duration) to be considered in formulating a test plan are listed below with references. (See also para 5, Test Planning.)

<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
a. Preliminary Activities (refer to para 6)	
(1) Initial Inspection	2-2-502
(2) Pretest Inspection	MIL-STD-268C; MIL-T-0021863/4; para 4.4
(3) Training and Familiarization	10-2-501
(4) Run-In (refer to para 7)	
b. Technical Performance (refer to para 8)	
(1) Electric Forklifts	MIL-STD-268C
(2) Gasoline Engine-Driven Forklifts	MIL-STD-268C
(3) Rough Terrain Forklifts	MIL-T-0021863/4.

<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
c. Operational Performance (refer to para 9)	
d. Environmental (Storage) (refer to para 10)	
e. Transportability	1-2-500
f. Reliability	MIL-STD-781B, para 5
g. Maintenance Evaluation	1-2-501
h. Safety Evaluation	2-2-508, 10-2-508
i. Human Factors	2-2-803
Noise Level	3-2-811

SECTION III
SUPPLEMENTARY INSTRUCTIONS

5. Test Planning.

a. Development test (DT) planning requires review of test guidance literature and safety statement from the developer, familiarization with preceding development and test phases, study of test criteria, and selection of appropriate samples, methods, sequence, facilities, and test equipment (see Background Document 1-1-045). Risk/cost and safety provisions must be given prime consideration. Data from previous and similar tests should be considered in order to avoid duplication and reduce scope of further testing.

b. In preparing the test plan, the type and scope of test are determined from the test directive. Depending on the number of samples available, the specific subtests and sequence are established. It is desirable to have three test samples, two for running performance tests concurrently and one for conducting transportability, maintenance evaluation, and human factors subtests. The number of samples available will affect the test sequence. Note that MIL-T-0021863/4 (para 4.6.2.2) has a specified sequence of tests for rough terrain forklifts.

c. The test agency is responsible for preparing a test plan for all ET I and DT II and some DT III tests of forklifts. Other DT III tests will not require a test plan. This occurs with warehouse forklifts that fall under the classification of commercial nondevelopment items (CNDI). The directive will state that no test plan is required.

d. The DT II test plan for the forklifts being developed should assure that sufficient test data will be obtained for the following: After completion of the tests and analysis of the data, it must be possible to state not only whether the technical characteristics have been met but also the degree to which they have been exceeded or not met. In addition, the data should be adequate for an assessment of the overall operational safety of the vehicle for testing in the DT II Service Use Phase.

e. By use of tables 1 and 2 (para 8) and other tests as described in this section the specific test plan is formulated.

6. Preliminary Activities.

a. Facilities and Test Support. The test course is adjusted to insure that loads, aisles, and lift stations comply for the size and type of forklift to be tested with drawings A through L and paragraph 5.2 of MIL-STD-268 or figures A-2 through A-5 of MIL-T-0021863/4. Other test conditions are arranged as required (see para 4.6.2.1 of MIL-T-0021864). Test schedules, shift operations, scheduled maintenance, and logistic support are arranged.

b. Test Item. The test item is inspected, inventoried, depreserved, and serviced, and physical characteristics are determined in accordance with TOP/MTP 2-2-502. When specified, the inspections required by MIL-STD-268C or MIL-T-0021863/4 are also conducted.

c. Personnel. Test personnel are instructed with appropriate lectures, study, and on-the-job training on the test item in accordance with applicable procedures of TOP/MTP 10-2-501. Training includes supervised driving of test items on the test courses until proficiency in forklift handling and course negotiation is demonstrated. All aspects of safety awareness are emphasized. Adequacy of technical manuals for the purpose of training is assessed at this time.

7. Run-In. A run-in period of operation is required when the test item has not experienced previous complete functional checkout, or does not receive adequate operation during the initial servicing or training period.

a. Objective. To operate the forklift through all vehicle functions for a break-in period.

b. Standards. Requirements paragraphs of the applicable specification will apply.

c. Method. The run-in test is conducted following the Hydraulic-System Test (Test Method No. 1, MIL-T-0021864); is of at least 3 hours' duration; and includes operation at maximum speed in each gear and use of all controls, switches, brakes, safety devices, and hydraulic functions. No vehicle payload is used.

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d. **Data Required.** Vehicle speed, engine rpm, and other installed gages are read and recorded for different vehicle operating conditions. Problems encountered and remedies used are described.

e. **Analytical Plan.** The plan is essentially observational for proper functioning of the forklift and accomplishment of adjustments and corrective actions as required.

8. **Technical Performance.** Most forklifts are described by general specifications MIL-T-21869 (electrical), MIL-T-21870 (gasoline engine-driven), MIL-T-0021863 (6,000 pounds rough terrain), and MIL-T-0021864 (10,000 pounds rough terrain). Test procedures described in appendixes to these documents are applicable to the majority of military forklifts. For a specific forklift the following format is used, and the appropriate document titles, subtest titles, paragraph references, and test methods as selected from table 1 or 2 are inserted. (This procedure is particularly applicable to development test III.)

a. **Objective.** To determine whether the forklift complies with the requirements document.

b. **Standards.** The test item shall comply with the applicable requirements of the cited contract in accordance with MIL-T-21869 (or other) as tested in accordance with MIL-STD-268C (or MIL-T-0021863/4), specifically as indicated in the following paragraphs:

<u>Subtest Title</u>	<u>Paragraphs of MIL-T-21869 (or other)</u>
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(Insert appropriate entries from table 1 or 2.)

c. **Method.** Tests are conducted as described in MIL-STD-268C (or MIL-T-0021863/4), using test forms and procedures prescribed therein except as noted. The subtests marked with an asterisk (*) below will be conducted only if satisfactory test data are not obtained from preproduction or other tests or if failure of the forklift to complete the prescribed number of circuits per hour on the endurance course is due to failure of the test item to meet requirements of the subtest.

<u>Subtest Title</u>	<u>Portion of MIL-STD-268C (or MIL-T-0021863/4)</u>
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(Insert appropriate entries from table 1 or 2.)

d. **Data Required.** The following data are obtained:

(1) Data as required by the appropriate checklist and test form data sheets of MIL-STD-268C (or MIL-T-0021863/4).

(2) A daily log of events throughout the entire test recording test conditions, unusual occurrences, and test personnel comments.

(3) Certification by the developing agency or commodity command for previously conducted tests having valid results that need not be repeated.

Table 1 - Subtests, Criteria, and Test Method References for Electrical and Gasoline Engine-Driven (GED) Forklifts

Subtest Title	Criteria		Tests, Electrical/GED, MIL-STD-268
	Electrical, MIL-T-21869	GED MIL-T-21870	
a. Pretest Inspection	3.2 Propulsion 3.3 Structure 3.4 Controls and instrumentation 3.5 Accessories	3.2 Propulsion 3.3 Structure 3.4 Controls and instrumentation 3.5 Accessories	Para 5.1.3 and pretest inspection checklist
b. Maximum Lift, Free Lift Height, Collapsed Mast Height, Drift	3.6.8 Upright height 3.6.10 Free lift height 3.6.12 Lift assembly	3.6.8 Upright height 3.6.10 Free lift height 3.6.12 Lift assembly	Test Form 1
c. Lifting Speed, Lowering Speed, Shock Test	3.6.1 Lifting speed 3.6.2 Lowering speed	3.6.1 Lifting speed 3.6.2 Lowering speed	Test Form 2
d. Clutch Pedal Force	-----	3.2.3.1.2 Mechanical transmission	Test Form 3
e. Steering Force	3.6.4 Steering	3.6.4 Steering	Test Form 4
f. Service Brake Sensitivity, Towing Hook Strength	3.6.5.3 Towing hook 3.6.15 Service brakes	3.6.5.5 Towing hook 3.6.15 Service brakes	Test Form 5
g. Service Brake Pressure	3.6.15 Service brakes	3.6.15 Service brakes	Test Form 6
h. Lifting Attachments Strength	3.3.5.4 Lifting attachments, also MIL-STD-209D	3.3.5.6 Lifting attachments, also MIL-STD-209D	Test Form 7 and requirements of MIL-STD-209D

Table 1 (Cont)

Subtest Title	Criteria		Tests, Electrical/GED, MIL-STD-268
	Electrical, MIL-T-21869	GED MIL-T-21870	
i. Vehicle Speed	3.6.5 Speed	3.6.5 Speed	Test Form 8
j. Slope Ascension, Parking Brake, Underclearance	3.6.6 Slope ascension, first speed, forward direction 3.6.11 Underclearance 3.6.21 Parking brake	3.6.6 Slope ascension, first speed, forward direction 3.6.11 Underclearance 3.6.21 Parking brake	Test Form 9
k. Upright Tilt, Fork Tilt	3.3.1.2 Forks 3.6.7 Upright tilt	3.3.1.2 Forks 3.6.7 Upright tilt	Test Form 10
l. Longitudinal Stability - Stacking	3.6.16.1 Stacking	3.6.16.1 Stacking	Test Form 11
m. Longitudinal Stability - Traveling	3.6.16.2 Traveling	3.6.16.2 Traveling	Test Form 12
n. Lateral Stability - Stacking	3.6.17.1 Stacking	3.6.17.1 Stacking	Test Form 13
o. Lateral Stability - Traveling	3.6.17.2 Traveling	3.6.17.2 Traveling	Test Form 14
p. Wear of Steering Mechanism	3.6.4 Steering	3.6.4 Steering	Test Form 15
q. Acceleration - Acceleration Responses	3.6.19 Acceleration	3.6.19 Acceleration	Test Form 16
r. Stopping Distances	3.6.20 Stopping distance	3.6.20 Stopping distance	Test Form 17

Table 1 (Cont)

Subtest Title	Criteria		Tests Electrical/GED, MIL-STD-268
	Electrical, MIL-T-21869	GED MIL-T-21870	
s. Right Angle Stacking	3.6.3 Right angle turn	3.6.3 Right angle turn	Test Form 18
t. Overload Test	3.3.1 Chassis and frame 3.3.1.2 Forks	3.3.1 Chassis and frame 3.3.1.2 Forks	Test Form 19
u. Overhead Safety Guard	3.6.1.8 Drivers' overhead guard	3.6.1.8 Drivers' over-head guard	Test Form 20
v. Inching Mechanism	3.2.3.1.1 Power shifted transmission	-----	Test Form 21
w. Frame Racking Test	3.3.1 Chassis and frame	3.3.1 Chassis and frame	Test Form 22
x. Power Train, Static Torque Test	3.3.2.3 Wheels and tires	3.3.2 Wheels and tires	Test Form 23
y. Operating Temperature Test	3.2.1.2 Motors - type EE and EX trucks	-----	Test Form 24
z. Tire Loading	3.3.2.1 Tires	3.3.2.2.1 Pneumatic tires	Test Form 25
aa. Maintenance Operations Check	3.1.3.8 Maintainability	3.3.1.7 Maintainability	Test Form 26
ab. Rain Leakage Test	-----	3.3.5.2 Cowl or hood	Test Form 27
ac. Load Backrest Test	3.3.1.3 Load backrest	3.3.1.3 Load backrest	Test Form 28
ad. Test Course (Endurance)	3.6 Performance	3.6 Performance	Para 5.2

Table 1 (Cont)

Subtest Title	Criteria		Tests Electrical/GED, MIL-STD-268
	Electrical, MIL-T-21869	GED MIL-T-21870	
ae. Power Consumption Test	3.1.3.8 Maintainability	-----	Test Form 29
af. Electromagnetic Interference	3.9 Electromagnetic interference suppression	3.9 Electromagnetic interference suppression	Para 4.4.1 of MIL-T-21869 or 21870, MIL-STD-461
ag. Post-Test Inspection	4.2 Preproduction sample inspection	4.2 Preproduction sample inspection	Para 5.3 and post-test inspection checklist

Table 2 - Subtests, Criteria, and Test Method References for Rough Terrain Forklifts

Subtest Title	Criteria (MIL-T-0021863 or MIL-T-0021864)	Tests
a. Inspection	3.1 Description 3.4 Material 3.9 Forklift and systems, assembly and adjustment 3.19 Workmanship	Para 4.6.1
b. Hydraulic System	3.9.2 Hydraulic	Test Method 1
c. Acceleration	3.6(b) Performance	Test Method 2
d. Service Brake	3.6(g) Performance	Test Method 3
e. Brake Fade	3.6(g) Performance	Test Method 4
f. Wet Brake	3.6(g) Performance	Test Method 5
g. Parking Brake	3.6(h) Performance	Test Method 6
h. Turning Diameter	3.6(i) Performance	Test Method 7
i. Steering	3.9.5 Steering	Test Method 8
j. Low Temperature (-25° F)	3.5.2 Operating temperature	Test Method 9
k. High Temperature (120° F)	3.5.2 Operating temperature	Test Method 10
l. Winterization (-50° F)	3.10 Winterization	Test Method 11
m. Lifting Attachment	3.13 Lifting attachments	Test Method 12
n. Tiedown Attachment and Rail Transport	3.7 Transportability	Test Method 13
o. Rain	3.5.4 Rain	Test Method 14
p. Static Load	3.9.6 Structural	Test Method 15
q. Performance (High-Speed)	3.6(b) Performance	Test Method 16
r. Performance (Durability)	3.6(e) Performance	Test Method 17
s. Performance (Load Placement)	3.6(f) Performance	Test Method 18

Table 2 (Cont)

Subtest Title	Criteria (MIL-T-0021863 or MIL-T-0021864)	Tests
t. Performance (Sea Water)	3.6(d) Performance	Test Method 19
u. Performance (Engine)	3.10 Winterization	Para 4.6.3
v. Drawbar Pull vs Speed	3.6(c) Performance	Para 4.6.5
w. Electromagnetic Interference (EMI)	3.11 EMI	Para 4.6.16 and MIL- STD-461
x. Lifting Characteristics	3.6(1) Performance	Para 4.6.17
y. Differential Lock	3.9.3 Drive line	Para 4.6.19
z. Torque Converter Stall	3.9.3 Drive line	Para 4.6.20
aa. Lighting	3.6(e) Performance	Para 4.6.21
Ab. Post-Test Inspection	Section 3	Para 4.6.23

e. Analytical Plan. Measurements and instrumentation are used to collect data as applicable. The pass-fail technique is used in judgmental areas. Test data and certification are evaluated against the cited criteria, using numerical and comparative analysis to determine the degree to which the test item meets requirements. In the event of a negative indication for any item of the checklists or test forms, the developing agency or commodity command is asked to take corrective action. Failures not corrected are analyzed as to classification, and the resulting judgment determines whether test objectives are met.

9. Operational Performance.

a. Objective. To evaluate the operational mobility and performance of the forklift when used in actual environments.

b. Standards.

(1) The forklift shall be capable of accomplishing a 24-hour mission consisting of three 7-1/2-hour shifts of operation, each preceded by a 15-minute period allocated to preoperational maintenance and followed by a 15-minute period allocated to postoperational maintenance.

(2) The forklift shall be capable of handling and stacking palletized and containerized loads up to its maximum rated lift height in a safe manner over the surfaces or terrain of its intended use.

(3) The forklift shall perform satisfactorily military tasks such as the loading and unloading of military trucks, railcars, and amphibians, and the stacking, unstacking, and transfer of palletized and containerized loads up to maximum rated capacity.

(4) The forklift shall be capable of stacking loads to its maximum rated lift height and performing in the standard operating aisle with width and load commensurate with the forklift size and rating.

c. Method.

(1) The forklift is inspected and prepared for sustained operation. The test director insures that the test team is familiar with the technical literature, operation, maintenance, and safety aspects of the test item. A test log is maintained on all operations and results.

(2) The forklift is operated to perform cargo handling tasks that subject it to the conditions (simulated or actual) of the above stated standards. A variety of palletized and containerized loads weighing up to 100 percent of rated capacity are handled by the forklift over designated maneuver areas. (For rough terrain forklifts, this will include fordable water, muddy and sandy terrain. Solid tire vehicles are operated on hardstand surfaces only.) The forklift is used to load and unload vehicles, railcars, amphibians, and landing craft as appropriate to its mission. It maneuvers, stacks, and unstacks cargo in a simulated open storage depot.

d. Data Required. Results of inspection and handling are recorded. Damages or defects disclosed during operations are reported on STE Form 1025 (Equipment Performance Report). Records are kept of mission operations including types, amounts, and unit weights of cargo handled, hours operated, and particular operations performed. Comments of operating personnel are obtained concerning effectiveness and capabilities of the forklift.

e. Analytical Plan. Data obtained by measurement, instrumentation, and observation are analyzed and evaluated against the standards to determine the degree to which the forklift meets the stated requirements. Failure of the forklift to perform within the parameters of specified reliability or availability characteristics is considered as failure to meet the objective.

10. Environmental (Storage).

a. Objective. To determine capability of the forklift to withstand storage for a predetermined time period at high and low temperature extremes.

b. Standards. AR 70-38.

c. Method.

(1) Low Temperature. Appropriate lubrication and storage preparations are accomplished, including installation of antifreeze for -65° F. Ambient temperatures in the environmental chamber and in the forklift hydraulic oil reservoir are monitored. When the monitored temperatures reach -65° F, that temperature is maintained for 4 hours. Following this period, temperatures are returned to outside ambient. The forklift is operated through various performance functions. It is observed for any leakage of lubricant or coolant, rubber deterioration, seal splitting, cracking of boots, inoperability, or any unusual phenomenon attributed to the low temperature storage.

(2) High-Temperature. Appropriate lubrication and storage preparations are accomplished. The engine coolant is water. Ambient chamber temperature and hydraulic reservoir temperature are monitored. When the monitored temperatures reach 155° F, that temperature is maintained for 12 hours. Following this period, temperatures are returned to outside ambient. The forklift is operated and observed as indicated in the preceding paragraph.

d. Data Required. The following data are required for both high and low temperature phases:

- (1) Ambient temperatures.
- (2) Hydraulic oil temperature.
- (3) Duration of storage if different from that specified.
- (4) Observed effects of storage.

e. Analytical Plan. Observed effects and performance are judged to determine whether storage conditions indicate any deterioration or degradation of the forklift.

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APPENDIX
REFERENCES

1. AR 70-38, "Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions."
2. MIL-STD-162C, "Materials Handling Equipment, Preparation for Shipment, Storage, Cyclic Maintenance, Routine Testing and Processing."
3. MIL-STD-209D, "Slinging and Tiedown Provisions for Lifting and Tying Down Military Equipment."
4. MIL-STD-268C, "Test and Inspection of Trucks, Lift, Fork."
5. MIL-STD-461A, "Electromagnetic Interference Characteristics Requirements for Equipment."
6. MIL-STD-781B, "Reliability Tests, Exponential Distribution."
7. MIL-STD-1472A, "Human Engineering Design Criteria for Military Systems, Equipment, and Facilities."
8. MIL-T-0021863C(ME), "Truck, Lift, Fork: Diesel, Pneumatic-Tire, All Purpose, 6,000-Pound Capacity at 24-Inch Load Center."
9. MIL-T-0021864C(ME), "Truck, Lift, Fork: Diesel, Pneumatic-Tire, All Purpose, 10,000-Pound Capacity at 24-Inch Load Center."
10. MIL-T-21869, "Trucks, Lift, Fork, Electric."
11. MIL-T-21870, "Trucks, Lift, Fork, Gasoline."
12. Standard HEL S-6-66, "Human Factors Engineering Design Standard for Wheeled Vehicles," U. S. Army Human Engineering Laboratory, Aberdeen Proving Ground, Md.
13. Underwriters' Laboratories Publication UL 558, "Standards for Safety for Internal Combustion Engine Powered Industrial Trucks."
14. American Standards Association Bulletin 561, "Safety Code for Industrial Trucks."