Department of the Air Force
HQ AEDC (AFMC)
Arnold AFB, TN 37389

Safety, Health, and Environmental Standard

Title: **POWERED INDUSTRIAL TRUCKS**

Standard No.: D1

Effective Date: 07/16/2010

The provisions and requirements of this standard are mandatory for use by all AEDC personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Contractor /ATA Director
Safety and Health Group

Air Force Functional Chief

Record of Review/Revision

Date/POC	Description
6/29/10 R.Tate & C. Bidmead	Two-year review: Revised Training And Qualifications section to reflect minimum AEDC requirement. ATA specific guidance has been moved to ATA specific publications. Modified the requirement for hardhats while operating forklifts per PPE Committee's guidance and moved the information to Operating Rules. Defined Operating Contractor and Outside Contractor/Subcontractor.
02/26/09 – 03/05/09 F. Kelly	Annual review: Minor administrative changes to correct typographical errors regarding forms and references, clarify positioning of the mast when moving the forks, and clarify location of hard hat decal for AEDC certified operators; no changes in current operations. Section 4.3 has been realigned to separate training qualifications for AEDC personnel from those for outside contractors; clarified certification requirement per OSHA 1910.178 (1)(6). Changes are highlighted and marked with a vertical line in the right margin.
03/05/08 F. Kelly	Annual review: Minor changes to bring clarity to the text. Added the following: definition of *operating*; Paragraph 4.18.26 to require use of proper lighting and signals; Section 4.14 Rules for Changing or Inflating Tires Mounted on Split Rims. Revised References.
02/09/07 T. Lavelle	Revised Paragraphs 4.1.8.14 and 4.1.9.16 for consistency (height of forklift travel to be 4 to 6 inches). Deleted Paragraphs 4.3.12 and 4.3.14 regarding issuance of AF Form 2293 USAF Motor Vehicle Identification Card. This card is no longer issued; hard hat decals identify certified operators. Renumbered subsequent paragraphs.
04/12/06 K. Cooper & R. Wheeler	Annual Review: Minor administrative changes and reformatting. Revised Section 4.3.11 to include explanation of hard hat decals used to identify certified operators.
15 Nov 2004 R.E. Jones	Total revision. Removed reference to AWP and Utility Carts which will be covered under new Safety Standard. Revised format of entire standard to the COI format. Added a Training and Inspection and Qualification section. Added Responsibilities section. Revised section 5.0 references.

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POWERED INDUSTRIAL TRUCKS

1.0 INTRODUCTION/SCOPE/APPLICABILITY

1.1 Introduction – This standard describes the tasks, activities and actions required when using various types of powered industrial trucks at AEDC.

1.2 Scope –This standard shall be considered to be the Operating Contractor-developed powered industrial trucks operating activities, which incorporates the requirements and objectives of OSHA, ANSI, Air Force and other nationally recognized national consensus standards to assure implementation at AEDC.

1.3 Applicability – This standard applies to all AEDC personnel and operations, including Air Force, Navy, U. S. Army Corps of Engineers and contractors (including subcontractors) at the Tennessee location and operations conducted by AEDC personnel outside the confines of Arnold AFB. Training requirements (to include use and inspection) for subcontractor personnel training requirements are established and provided by their management.

2.0 BASIC HAZARDS/HUMAN FACTORS

Material handling equipment and motorized hand trucks pose serious safety hazards to both the operator and surrounding employees. Each year the use of powered industrial trucks account for over 100 fatalities and tens of thousands of serious injuries throughout the nation. These incidents are the result of inattention, lack of knowledge or skills, or procedural non-compliance. Most if not all these types of incidents can be prevented by following the safe work practices identified in this standard.

3.0 DEFINITIONS

Approved Industrial Truck – A truck that is listed or approved for fire safety purposes for the intended use by a nationally recognized testing laboratory, using nationally recognized testing standards and shall bear a label or some other identifying mark indicating such approval.

Operating – Anytime that an approved forklift operator is sitting in the seat of a forklift.

Operating Contractor – A long-term contractor directly accountable to the Air Force for the AEDC mission.

Outside Contractor/Subcontractor – An organization employed by a contractor or the Air Force to do construction, maintenance, repair or other work at AEDC. There is no employment relationship, control or supervision of the subcontractor's employees by AEDC contractors. Also referred to as the construction contractor.

Powered Industrial Truck/Vehicle – Forklift, tractor, platform lift truck, motorized hand truck, and other specialized industrial trucks powered by electric motors or internal combustion engines. Excluded from this definition are compressed air or nonflammable compressed gas-operated industrial trucks, mobile cranes, farm vehicles, and other vehicles intended primarily for earth moving or over-the-road hauling.

Unattended Vehicle – The vehicle is not in plain view of the operator or the operator is 25 feet or more away from a vehicle that remains in his or her plain view.

4.0 REQUIREMENTS/RESPONSIBILITIES

4.1 REQUIREMENTS

4.1.1 Each powered industrial truck shall have a durable, corrosion-resistant nameplate, legibly inscribed with the following information:

4.1.1.1 Truck model and serial number.

4.1.1.2 Truck weight.

4.1.1.3 Designation of compliance with the mandatory requirements of ASME B56.1 a, “Safety Standard for Low and High Lift Trucks,” applicable to the manufacturer.

4.1.1.4 Type designation to show conformance with the requirements, such as those prescribed by Underwriters Laboratories, Inc., and Factory Mutual Research Corporation.

4.1.1.5 Rated capacity.

4.1.2 Fork Arm Stamping by the manufacturer is required for forklift trucks purchased after December 1984. Each fork arm shall be clearly stamped with its rated capacity in an area readily visible and not subject to wear.

4.1.3 Removable attachments (excluding fork extensions) will have a nameplate legibly inscribed with the following information:

4.1.3.1 Model number.

4.1.3.2 Serial number on hydraulically actuated attachments.

4.1.3.3 Maximum hydraulic pressure (on hydraulically actuated attachments).

4.1.3.4 Weight.

4.1.3.5 Capacity.

4.1.3.6 The following instructions (or equivalent): “Capacity of truck and attachment combination may be less than capacity shown on attachment. Consult truck nameplate.”

4.1.4 Modifications and additions which affect capacity and safe operation shall not be performed without manufacturer’s prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

4.1.5 Fork extensions shall be approved by the manufacturer in writing. Each extension should not be longer than 150% of the supporting fork’s length and shall be clearly stamped with its individual load rating and supporting fork size.

4.1.6 Manufacturer posted decals and safety information shall be maintained in legible condition.

4.1.7 Forklift usage in hazardous atmospheres and environments shall be reviewed and approved by Safety.

4.1.8 Operating Rules:

4.1.8.1 Only trained and qualified operators as outlined in this safety standard shall operate a forklift.

4.1.8.2 Operators shall review the operating instructions, warnings, and precautions for the type(s) of truck the operator is qualified to operate.

4.1.8.3 Each forklift shall be thoroughly inspected prior to use. This inspection shall be documented and signed by the person performing the inspection and kept on the truck.

4.1.8.4 All established traffic regulations shall be followed by forklift operators.

4.1.8.5 Seatbelts shall be worn during forklift operation.

4.1.8.6 Personal Protective Equipment (PPE) shall be donned in accordance with AEDC SHE standard F2. Operators may remove hardhats during forklift operation and movement if the vehicle is designed with overhead protection for the operator. Hardhats shall be readily available to the operator at all times and donned prior to dismounting the forklift in a hardhat required location.

4.1.8.7 Avoid sudden stops, starts and skidding.

4.1.8.8 Avoid rough/uneven surfaces and debris if possible.

4.1.8.9 Travel slowly on slippery surfaces.

4.1.8.10 Horseplay such as racing, traveling at high speeds, spinning, etc. is not permitted.

4.1.8.11 Never permit anyone to ride on any part of the forklift.

4.1.8.12 Operators shall not place any part of their body outside the running lines of an industrial truck or between the mast uprights or other parts of the truck where shear or crushing hazards exist.

4.1.8.13 When backing up, always proceed with caution and look in the direction of travel.

4.1.8.14 The backup alarm should sound at all times when the unit is in reverse. If the forklift is not equipped with a backup alarm, the horn shall be used initially prior to backing and at periodic intervals while backing to warn personnel in close proximity of forklift movement.

4.1.8.15 Prior to movement, forks shall be adjusted Prior to movement; forks shall be adjusted as low as practical above the operating surface to clear all expected hazards. When not transporting a load; the forks should be placed at a maximum of 6 inches above the operating surface and tilted slightly back.

4.1.8.16 Before crossing railroad tracks, stop and make sure the way is clear. Hold the steering wheel firmly and cross the tracks diagonally. Never park a forklift within 8 feet of the center of railroad tracks.

4.1.8.17 Never use reverse as a brake. Stop the vehicle with the brakes before changing your direction of travel.

4.1.8.18 Always sound your horn before rounding corners, entering or exiting doorways or blind intersections, and to warn pedestrians that may not see your approach.

4.1.8.19 When it is necessary to use the forklift for towing items such as job trailers, welding machines, etc., be sure the forklift was designed for this purpose, and use only the attachments designed for towing.

4.1.8.20 Never tow rail cars or attempt to open rail car or trailer doors with your forklift.

4.1.8.21 Pushing a forklift with another forklift (or any other vehicle) is prohibited.

4.1.8.22 Always know the position of the rear wheels, as they swing wide during turning.

4.1.8.23 When traveling between indoors and out, allow your eyes time to adjust to the lighting differences.

4.1.8.24 Never use a gasoline or diesel powered forklifts inside buildings, trucks, trailers, or railcars without proper ventilation. Carbon monoxide can accumulate resulting in serious injury or death.

4.1.8.25 Vehicles shall not block fire aisles, fire extinguishing equipment, fire alarm boxes, stairway access, elevators, or fire exits.

4.1.8.26 A minimum 10-foot clearance shall be maintained between parked equipment and combustible materials.

4.1.8.27 Proper use of lights (turn signals, running lights, head lights, etc) shall be used when operating the forklift.

4.1.8.28 Stop work immediately if any practices are observed that might endanger the safety of the Operator, co-workers, equipment, etc.

4.1.9 Rules for Lifting and Transporting Loads:

4.1.9.1 Never exceed the rated capacity of the forklift and attachments.

4.1.9.2 When approaching the load, slow down gradually, stop, and adjust the forks. Depending on the way that the forks are attached to the mast, it may be necessary to raise the mast and tilt it forward to allow the forks to hang clear of the mast before moving the forks. Position the forks so they are spread as wide as practical to support the load while maintaining firm contact, then slowly proceed under the load.

4.1.9.3 Engage the load as far as safely possible ensuring at least 2/3 load engagement. Be aware of the potential of puncturing materials that are placed against the load and on the opposite side from the operator.

4.1.9.4 Be very cautious the forks do not puncture the load due to improper positioning of fork height.

4.1.9.5 Ensure all loads are properly stacked, arranged and stable. Never attempt to handle an unstable load. Loads of excessive width, length or height shall be so balanced, braced, and secured to prevent tipping and falling.

4.1.9.6 Avoid carrying loose material on the forks; use pallets. Pallets shall be maintained in good condition and replaced when necessary.

4.1.9.7 Operate at a speed that will permit stopping in a safe manner.

4.1.9.8 Be aware of overhead clearances.

4.1.9.9 If forward view is obstructed, travel with the load trailing. Always look in the direction of travel and keep a clear view of the path of travel.

4.1.9.10 When negotiating turns, reduce speed and turn the hand steering in a smooth, sweeping motion unless traveling at a very low speed.

4.1.9.11 When moving a load on an incline, *always* move down the incline in *reverse* and up the incline going forward. In other words, always have the load on the upgrade side of the forklift. Reverse this procedure if the forklift is not loaded.

4.1.9.12 Never allow anyone to walk on the downgrade side of the forklift/load while on an incline.

4.1.9.13 Do not allow anyone to stand or walk under elevated forks or loads.

4.1.9.14 Never raise the load while on the way to the destination. As you approach the destination, slow down, stop, raise the load, and proceed to slowly set it in place.

4.1.9.15 Apply brakes slowly and evenly.

4.1.9.16 After placing the load, back slowly until the forks are clear of the stack. Stop the forklift, position the forks as low as practical above the operating surface (maximum of 6 inches), and tilt the forks back slightly.

4.1.9.17 Always look behind you before you start to back up and sound the horn. Slowly back away from the stack and proceed to the next destination.

4.1.9.18 *Never* move a load that is loosely stacked or poorly positioned. A load should be tied down if that is the only way to secure it.

4.1.9.19 Before entering trucks, trailers or rail cars ensure:

4.1.9.19.1 The brakes on the vehicle being entered are set.

4.1.9.19.2 Trailer being entered is adequately supported with fixed jack or other recognized positive protection if not attached to vehicle.

4.1.9.19.3 Chocks are secured under the rear wheels of the vehicle being entered to eliminate movement.

4.1.9.19.4 Dock/bridge plates are firmly secured in place and rated to support the both the forklift and the load.

4.1.9.19.5 Flooring of the vehicle to be entered is capable of supporting the weight of the forklift and load.

4.1.9.19.6 Traffic lanes are clear of obstructions and debris and lighting is adequate.

4.1.9.20 Never overload floors or storage areas when traveling or stacking material.

4.1.9.21 Do not park forklift or place material in roadways, aisles, exits, fire lanes, in front of emergency equipment or in any other location not designated for this purpose.

4.1.10 Rules for Dismounting or Parking:

4.1.10.1 Lower the empty forks to the ground and slightly tilt them forward. Raised forks pose a tripping hazard.

4.1.10.2 Apply the brakes and place the directional control in neutral.

4.1.10.3 Set the parking brake.

4.1.10.4 Stop the engine prior to dismounting and remove the ignition key when the vehicle is left unattended as defined in Section 3.

4.1.10.5 Wheels shall be chocked if the truck is parked or dismounted on an incline.

4.1.11 Rules for Lifting Personnel with a Forklift:

4.1.11.1 Only personnel baskets and platforms designed and approved for use with forklifts shall be used to hoist personnel.

4.1.11.2 The personnel basket or platform shall be firmly secured to the lifting carriage and/or forks.

4.1.11.3 Persons working from the basket or platform **with elevatable controls** shall be provided with a means to shut off the power to the forklift.

4.1.11.4 A forklift operator shall remain seated at the controls while personnel are working from the basket or platform.

4.1.11.5 Never travel with personnel in the basket or platform.

4.1.11.6 Directional controls shall be placed in neutral and the parking brake set prior to lifting personnel.

4.1.11.7 Approved fall protection shall be used by personnel working from the personnel basket or platform.

4.1.12 Rules for Refueling Forklifts:

4.1.12.1 Refueling and recharging of forklifts shall be conducted in areas with good ventilation and away from any ignition sources such as sparks, open flames, electrical arcs, etc.

4.1.12.2 Fire protection devices, such as fire extinguishers, shall be readily available in any refueling or recharging areas.

4.1.12.3 Smoking is not permitted at any refueling or recharging area.

4.1.12.4 Refueling of gas and diesel engine forklifts shall be conducted outdoors due to the possibility of spills and vapor accumulation.

4.1.12.5 Refueling shall not be conducted with the engine running. Properly dismount prior to refueling.

4.1.12.6 Connect the bonding wire if required; otherwise, ensure the pump nozzle makes contact with the tank while filling. This will prevent static electricity that could cause a fire or explosion.

4.1.12.7 Avoid spillage. Spillage of oil or fuel on the forklift shall be carefully wiped away, or completely evaporated, and the fuel tank cap replaced before restarting the engine. Spillage of more than a cup of oil or fuel around the forklift shall be contained, properly absorbed, and reported to the AEDC Operations Center. Do not restart the engine or move the forklift until the spill has been completely removed.

4.1.12.8 Only trained personnel shall conduct refueling of liquefied petroleum gas (LPG) forklifts. Always consult and follow the manufacturer's instructions for LPG cylinder change out. As a minimum:

4.1.12.8.1 Close the main LPG cylinder valve.

4.1.12.8.2 Restart the forklift and allow it to run out of fuel; this will purge all LPG and pressure from the lines.

4.1.12.8.3 After the engine stops, turn the ignition off, verify that the LPG valve is closed and disconnect the cylinder from the forklift.

4.1.12.8.4 Remove and replace the cylinder.

4.1.12.8.5 Reconnect the cylinder, open the LPG valve, and check for leaks.

4.1.13 Rules for Changing Batteries or Recharging Forklifts:

4.1.13.1 Only trained personnel shall conduct battery charging and battery replacement. Always consult and follow the manufacturer's instructions for battery replacement or recharging.

4.1.13.2 Battery charging operations shall be conducted in adequately ventilated areas designated for that purpose.

4.1.13.3 Smoking is prohibited in battery charging areas. "No Smoking" signs shall be posted in plain view of incoming personnel.

4.1.13.4 Emergency eye/face and skin flushing and drenching facilities shall be provided.

4.1.13.5 Forklifts shall be properly positioned and dismounted before charging or replacing batteries.

4.1.13.6 Ensure vent caps are functioning properly. The battery compartment shall be open to dissipate heat.

4.1.13.7 Facilities shall be provided for flushing and neutralizing spilled electrolyte.

4.1.13.8 A carboy tilter or siphon shall be provided for handling electrolyte.

4.1.13.9 When charging batteries, acid shall always be poured into water. **Never pour water into acid**.

4.1.13.10 An adequate lifting device, such as an overhead hoist or conveyor, shall be available for changing batteries.

4.1.13.11 Tools and other metallic objects shall be kept away from the top of uncovered batteries.

4.1.13.12 Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging areas.

4.1.14 Rules for Changing or Inflating Tires Mounted on Split Rims

4.1.14.1 Tires shall be completely deflated by removing the valve core before a rim wheel is removed from the axle.

4.1.14.2 If a tire is underinflated at 80% or less of manufacturer's recommended pressure; it cannot be reinflated until it has been inspected and serviced by a qualified maintenance technician. This process includes fully deflating the tire by removing the valve core, removing the tire from the axle, inspecting and servicing the rim wheel, reassembling the rim wheel, and then placing it into a tire safety cage for reinfaltion.

4.1.14.3 If a tire or the rim wheel components are obviously or even suspected to be damaged, it must be inspected and serviced by a qualified maintenance technician.

4.1.14.4 If a tire is underinflated but contains more than 80% of the manufacturer's recommended pressure; it can be reinflated while it remains mounted on the vehicle. However, it must be accomplished by using remote

control inflation equipment (clip-on type air chuck). This will allow the employee to be away from the front of the rim wheel and out of the trajectory path.

4.1.15 Inspection

4.1.15.1 A thorough pre-use inspection shall be conducted and documented at the beginning of each shift, prior to use.

4.1.15.2 AEDC-owned or -leased material handling equipment inspection shall be documented via AF Form 1800.

4.1.15.3 Deficiencies or unusual conditions shall be reported to the responsible supervisor. Conditions adversely affecting safety shall be corrected before the vehicle is placed into service.

4.2 RESPONSIBILITIES

4.2.1 Operating Contractor Department Directors shall:

4.2.1.1 Classify hazardous locations and ensure appropriate building signs are posted before a forklift truck is assigned to work in the area.

4.2.1.2 If electric-powered forklift trucks are used, designate an area for charging batteries.

4.2.2 Supervisors/Managers shall:

4.2.2.1 Ensure that a properly classified forklift has been assigned to hazardous areas.

4.2.2.2 For operating contractor vehicles, ensure each forklift has been assigned a Vehicle Control Representative.

4.2.2.3 Coordinate with and acquire concurrence from operating contractor safety before using forklift trucks in a hazardous area.

4.2.2.4 Ensure that forklift operators are trained and qualified.

4.2.2.5 Ensure the forklift is maintained in a safe condition and identified problems are corrected.

4.2.2.6 Monitor the work to assure all forklift operations are being conducted in accordance with this standard.

4.2.2.7 If LP-gas-powered forklift trucks are used, ensure personnel are assigned and trained to replace LP-gas containers.

4.2.2.8 If electric-powered forklift trucks are used, identify an area for charging batteries with adequate ventilation and away from ignition sources.

4.2.3 Vehicle Control Representative (or Equivalent for Subcontractors) shall:

4.2.3.1 Act as “owner” of the assigned powered industrial truck

4.2.3.2 Ensure that frequent (pre-use) inspection instructions are readily available to operators.

4.2.3.3 Ensure that the forklift truck manufacturer’s approval is obtained before using an attachment.

4.2.3.4 Ensure that nameplates, caution and instruction markings are in place and legible. This includes markings required on trucks using attachments.

4.2.3.5 Ensure that a planned maintenance and inspection program is implemented for each forklift truck and for any attachments used with it.

4.2.3.6 Ensure that, if the truck is obtained on a rental agreement, it is inspected and found suitable for its intended function before putting it in service.

4.2.3.7 Ensure Manufacturers Operating Manual is available to employees in the work area.

4.2.4 Operators of Powered Industrial Trucks shall:

4.2.4.1 Operate the vehicle in accordance with this standard.

4.2.4.2 Be familiar with information provided on the vehicle data plate.

4.2.4.3 Be knowledgeable of the vehicle pre-use inspection criteria and perform inspections accordingly.

4.2.4.4 Notify the responsible supervisor when a problem is detected during vehicle inspection or operation.

4.2.4.5 Ensure the vehicle is taken out of service if a problem is detected that would compromise safe operation.

4.2.4.6 Read the manufacturer’s operating manual and understand all aspects of operating the vehicle safely.

4.2.4.7 Avoid traveling on major traffic roadways (e.g., VonKarman Road) during peak traffic flow periods (Morning: 0630-0745, Midday: 1045-1245, and Evening: 1530-1630).

4.2.5 Operating Contractor Safety shall:

4.2.5.1 Approve the use of powered industrial vehicle assigned to operate in hazardous areas.

4.2.5.2 Assist operating contractor management at user facilities with safety issues regarding forklift selection, modification, inspection and use.

4.2.5.3 Where internal combustion-powered forklift trucks are proposed for use indoors, assist operating contractor management at user facilities in establishing precautions to preclude the buildup of carbon monoxide in the work atmosphere.

4.2.5.4 Provide safety and health-related information to operating contractor managers and supervisors to assist them in selecting or procuring the proper class and type of vehicle for the planned work activity.

5.0 TRAINING AND QUALIFICATIONS

5.1 Any personnel operating a forklift on AEDC shall be certified by the employer and have documentation of training and evaluation specific to the equipment being operated in accordance with OSHA Regulations (29 CFR 1910.178.)

5.2 Refresher training in relevant topics shall be provided to the operator when:

5.2.1 The operator has been observed to operate the vehicle in an unsafe manner.

5.2.2 The operator has been involved in an accident or near-miss incident.

5.2.3 The operator has received an evaluation that reveals that the operator is not operating the forklift safely.

5.2.4 The operator is assigned to drive a different type of forklift.

5.2.5 A condition in the workplace changes in a manner that could affect safe operation of the forklift.

6.0 References

OSHA 1910.177, Servicing Multi-Piece and Single-Piece Rim Wheels
OSHA 1910.178, Powered Industrial Trucks
AFOSHSTD 91-46, Materials Handling and Storage Equipment
Underwriters Laboratories (UL) 583, Electric-Battery-Powered Industrial Trucks
ANSI/ITSDF B56.1-2005, Safety Standard for Low Lift and High Lift Trucks
NFPA 505 Fire Safety Standard for Powered Industrial Trucks