

**Interpretation: 1-1**

Subject: B56 Standards (General)

Date Issued: May 16, 1984

Question: Are any B56 standards applicable to a machine designed to remove water from sports grounds, football and baseball fields, golf courses, race courses, etc., meeting the following description.

The machine runs on three 22 in. diameter stainless steel rollers (drums) which are covered with foam rubber to an outside diameter of 26 in. The two rear drums, each 20 in. wide, on separate axles approximately 16 in. apart, are both driven. The front drum is 40 in. wide which is made of two 20 in. wide drums mounted on a single axle. This is also used to steer the machine. The machine contains an 11 hp engine and a 12 in. diameter round PVC tank holding a maximum of 20 gal. The cowlings covering engine, chains drives, etc., are made in fiberglass. An overhead canopy and tractor-type headlamps are fitted. In operation, water can be collected and pumped out at a rate in excess of 100 gal/min. Total weight is 850 lb. Flattening of foam on ground contact spreads the load over ca. 8 sq ft so that actual ground pressure is ca. 100 lb/sq ft. Maximum speed is 5 mi/hr.

Reply: The machine described above was not represented or even imagined during the development of the B56 standards, and is not covered by any of the existing B56 standards. Some B56 paragraphs may coincidentally apply, but there is a question if, in fact, this machine falls within the B56 scope.

ASME participates in the development of American National Standards by soliciting the expertise of volunteer personnel related to the design, inspection, and use of equipment to be studied and by publishing standards.

For ASME to sponsor a standards committee to cover such a vehicle, we require a formal request, accompanied with recommended personnel or companies of interest to serve in the development of a suitable standard. The inquirer mentioned that this machine was developed in Ireland. It would hasten the process if this group was advised of applicable standards in other countries.

**Interpretation:** 1-2

**Subject:** ANSI B56.1-1975

**Date Issued:** February 7, 1985

**Question:** Does para. 512 of ANSI B56.1-1975 apply to a lessor of a forklift truck or the lessee of the truck? What is the definition of the term *user* as referenced in ANSI B56.1-1975?

**Reply:** While the glossary in B56.1-1975 does not define user, the intended definition seems fairly straightforward. It seems clear that the Committee intended for the user of an industrial truck to be anyone using (employing) the truck, whether a lessee or an actual owner, but not the truck manufacturer. A truck manufacturer would be a user when a truck he manufactured was used in his own plant.

Part II of B56.1-1975 outlines the manufacturer's requirements during the design and manufacture process; Section 424, page 43, covers the warning device. The truck manufacturer is responsible for compliance. Part III outlines requirements for the users of industrial trucks. Section 512, page 57, covers the warning device. The user is responsible for compliance. If the user determines that his operating conditions require warning capability in addition to that provided by the truck manufacturer, he must then take whatever action is necessary to see that the additional capability is provided. He may request that the manufacturer provide the additional capability he desires.

**Interpretation: 1-3**

**Subject:** ANSI/ASME B56.1-1983

**Date Issued:** July 31, 1985

**Question:** Would para. 7.27, Overhead Guard for High Lift Rider Powered Industrial Trucks, be applicable to the following installation: Very large lift trucks (92,500 lb at 48 in.) on which the operator's position is elevated considerably above the normal location. The floor level of the new position coincides with the top of the cab or overhead guard in the standard machine.

**Reply:** It appears that the type of truck described above was not one considered during development of the B56.1 Standard.

The objectives of para. 7.27 should be considered in offering the operator protection from objects falling off the load being carried or from adjacent stacking. The impact of such objects should determine the guard's design integrity.

**Interpretation: 1-4**

**Subject:** ANSI/ASME B56.1-1983

**Date Issued:** October 25, 1985

**Question:** Is a physical exam including an eye and hearing test needed prior to an employee becoming a lift truck operator, and are periodical physical exams needed for forklift operators as long as they are performing that job?

**Reply:** It is required that every fork truck operator be examined to assure that he has no impairment that could contribute to an accident. It is equally important that he be trained to operate the truck to which he is assigned. The B56 Standards offer this advice to the astute user for voluntary conformance.

The Standard does not set requirements for operator qualification. Since the user is most familiar with the truck's use and area of operation, he must determine the specific requirements to enhance the safe operation in his facility. The physical examination(s) should support this interest.

**Interpretation: 1-5**

**Subject: USAS B56.1-1969 and ANSI B56.1-1975**

**Date Issued: November 26, 1985**

**Question:** Section 603 L. of B56.1-1969 discusses requirements for elevating personnel when the truck is equipped with elevatable controls. The 1969 Standard does not address elevating personnel unless there are elevatable controls. The 1975 Standard, Section 513, makes a distinction at A. and B., when trucks are used to elevate personnel for any reason and where controls are elevatable. What considerations brought about this change?

**Reply:** The B56 Standards are ever expanding to include new materials, to clarify existing paragraphs, etc., as the need develops.

B56.1-1969 included consideration of the "Order Picker," which became a common and popular configuration. The "Order Picker" consists of a truck with an elevatable operator platform and controls.

In 1975, the Standard was revised to include other trucks which might occasionally be used to elevate personnel so that protection would be provided for personnel on the elevatable platform.

**Interpretation: 1-6**

**Subject:** ANSI/ASME B56.1-1983

**Date Issued:** September 3, 1986

**Question:** With regard to paras. 4.15 and 7.31, what are the operating conditions that would require additional warning devices?

**Reply:** The B56 Scope does not include the determination of and specifications of conditions in the work area. However, the User's section includes general statements suggesting that the user consider certain factors to enhance a safe operation. He may use his own judgement or that of one with more experience.

The myriad combinations related to lighting, ambient noise levels, traffic routes for both materials and personnel, floor conditions, proximity of machinery, equipment and work stations, etc., suggest that this would be a difficult subject to cover in a standard with finite verbiage.

The support for using additional audio and/or visual alarms is that it may promote safety. The argument against indiscriminate use of additional alarms is that it might encourage the driver to ignore his responsibility of looking in the direction of travel and being alert to impending danger. Also, automatic continuous alarms can become so commonplace that they will soon be ignored by persons in the area.

With or without the alarms, management and the trained operator shall abide by the requirements of the B56.1 Standard.

**Interpretation: 1-1**

**Subject:** ANSI/ASME B56.1-1983

**Date Issued:** August 4, 1987

**Question:** Section 7.7, Counterbalanced Lift Trucks — Tilting Platform Tests, does not include a paragraph allowing the use of brakes or chocks to maintain truck position on the tilt platform. Paragraphs 7.8.2.8, 7.9.2.8, 7.10.2.7, and 7.11.2.5 permit the use of brakes or chocks for other types of lift trucks. Why does Section 7.7 not include such a paragraph?

**Reply:** The tilting platform tests for counterbalanced lift trucks in Appendix A of B56.1-1959 contained the following statement for each of the four tests:

“The truck position on the platform shall be maintained by brakes or other similar means, but not by means of wheel chocks.”

Equivalent statements appeared in B56.1-1969 and B56.1-1975 but was inadvertently missed in B56.1-1983.

It is not possible to maintain the truck position on the tilt platform without the use of brakes. The use of brakes is permitted when conducting the tests and this subject will be included on the agenda for the next B56.1 Subcommittee meeting.

**Interpretation: 1-2**

Subject: ANSI/ASME B56.1-1983

Date Issued: August 19, 1987

The questions detailed below apply to the following machine:

A personnel carrying machine which is a vehicle-mounted aerial device intended to be used to elevate personnel to job sites above ground. The machine has 4 wheels with rubber tires, is self-propelled and has a turntable mounted on the chassis such that it can rotate 360 deg. On the turntable is mounted a three-section extensible boom which can be elevated to near-vertical from the ground level and extended to reach the desired job site. On the outer end of the boom is a permanently attached, self-leveling platform with a railing around it in which the workers are located.

The machine is intended to be operated by a workman in the platform where controls are located for all machine motions, including driving the chassis. There is an auxiliary ground control panel for starting, maintenance, and possible emergencies, but the chassis cannot be driven across the ground from that panel and there is no "driver's position" except in the platform.

The machine is not designed to carry material except for individual tools of the workmen being carried to the job site and individual parts or components, which may be installed by the workmen at that site. It is not and cannot be equipped with forks or a flat platform and cannot carry pallets or equivalent material.

Question (1): Is this type machine described above covered by any ANSI/ASME B56 Standards written and approved by the ASME B56 Committee and published by the ASME? If so, which B56 Standard applies to this machine?

Reply (1): By definition in the Glossary of B56.1, a *powered industrial truck* is a "mobile, power propelled truck used to carry, push, pull, lift, stack, or tier material." Their primary utility is handling materials and their functions are controlled by an operator located within the chassis configuration. The machine described above is primarily a people handler and does not fall within the scope of the B56 Committee, and therefore, is not addressed in any of the B56 Standards.

Question (2): Is this machine a *powered industrial truck*, as that term is used by the B56 Committee?

Reply (2): See Reply (1), above.

Question (3): Is the B56 Committee aware of any other machines classified as powered industrial trucks which are not covered by the standards written by the ASME B56 Committee? If so, please identify any such machines and applicable standards, if any.

Reply (3): There are trucks that fall within the scope of the B56 Committee that are not covered by an existing standard. For example, the "straddle carrier" is one of the so-called common trucks, to which some of the paragraphs may apply. However, there has been no study to determine the needed modifications or additions to truly identify the requirements. ASME has, for years, been unable to enlist volunteers to serve on a subcommittee to study the subject.

Question (4): Is the B56 Committee aware of any powered industrial truck covered by OSHA 29 CFR 1910.178 other than those powered industrial trucks covered by ASME/ANSI B56 Standards? If so, please identify such vehicles and applicable standards, if any.

Reply (4): The coverage of OSHA documents can best be obtained by direct communication with their office.

Question (5): In the Safety Standard for Low Lift and High Lift Trucks, ANSI/ASME B56.1-1983, is the *user* as addressed in Part II, For the User, the party who is putting the machine in use who is normally either the employer of the operator or the operator himself?

Reply (5): The *user* is that party buying or leasing a truck(s) for operation in his own or contracted facilities. He, with possible help from consultants, is responsible for the proper application of the vehicle, providing good maintenance, and training operators in safe practices. In a small plant, the user may be the owner, operator, and maintenance man.

Question (6): Does the manufacturer of a machine intended to be in compliance with the Safety Standard for Low Lift and High Lift Trucks, ANSI/ASME B56.1-1983, have any responsibility as defined in the Standard to determine the classification of a hazardous location as identified in para. 4.8 of the Standard, except as might be specifically requested by a purchaser of the machine?

Reply (6): In-plant hazardous locations are established by insurance coverage agencies with the guidance of ANSI/NFPA standards. It is then the responsibility of the purchaser to specify the truck type required. The manufacturer is responsible for compliance with the truck type requirements.

Question (7): Does any party, other than the user, have any responsibilities as defined in the Safety Standard for Low Lift and High Lift Trucks, ANSI/ASME B56.1-1983, to determine the classification of a location as defined under para. 4.8, Hazardous Locations, including paras. 4.8.1, 4.8.2, and 4.8.3?

Reply (7): See Reply (6) above.

**Interpretation: 1-3**

Subject: ANSI/ASME B56.1-1983

Date Issued: December 3, 1987

Question: With regard to para. 7.34.1.3(b)(6)(b) of ANSI/ASME B56.1-1983, what is meant by the term *free-fall distance* and what is the total stopping fall distance accepted by the Standard?

Reply: Paragraph 7.34.1.3(b)(6)(b) describes the test used to determine the mechanical integrity and operational performance of the deceleration device.

The 300 lb (136 kg) load is supported directly below the deceleration device. The support is removed and the falling load must come to a complete stop in no more than 4 ft (1200 mm).

**Interpretation: 1-4**

Subject: ANSI/ASME B56.1-1983

Date Issued: November 28, 1988

Question: What was the rationale for choosing this brake specification and why was the limit of 30% reduced to 25% in 1975?

Reply: The *drawbar drag method* of evaluating the brake system was introduced in ASA B56.1-1959. Its purpose was to provide a repeatable test that assures smooth deceleration without dislodging any portion of the load being transported.

Later, the *stopping distance method* was added to permit users, who may not have equipment or facilities for draw bar testing, to run checks on their vehicles.

Over the years, the standards have been considered by foreign standards and regulatory groups. They have adopted the subject standard, except specified the 25% rather than our 30%, without detrimental results. In the interest of worldwide uniformity, the B56 Committee changed its standard to read, "but not required to exceed 25%."

**Interpretation: 1-5**

Subject: ANSI/ASME B56.1-1983

Date Issued: November 28, 1988

Question: What are minimum requirements for refresher training as to frequency, need for written exam, and demonstration of employee ability?

Reply: Paragraph 3.1 states, "to carry out the provisions of this Standard, all items in Parts II and III are mandatory except those including the word *should*, which are recommendations."

Paragraphs in 4.19 make recommendations for the guidance of the user in establishing his program as required by his objectives and environment in providing safety for the operators and other personnel.

Additional guidance is available from several sources including truck manufacturers, other users, and government agencies, etc.

**Interpretation: 1-6**

Subject: ANSI/ASME B56.1-1983

Date Issued: December 28, 1988

Question: Why is the length of stopping distance greater than that of an automobile traveling at the same speed?

Reply: The industry has no reason to be guided by automotive performance since it has more stringent specific conditions and concerns related to the work place.

Brake effort and stopping distance are the result of concerted effort with foreign standards and regulatory groups. The main objective is to prevent dislodging even a portion of the load being carried. This is in the interest of the operator, fellow workers, equipment, and product.

Industrial truck operators are trained or at least learn to be more alert than the average automobile driver. A perception and reaction time of 0.66 to 0.75 sec. is used. By coincidence, using 0.7 sec. reaction time, the stopping distance is less than the calculations for an automobile.

**Interpretation: 1-7**

Subject: ASME/ANSI B56.1-1988

Date Issued: May 1, 1989

Question: In Table 1, sketch (1), does distance D out from the vertical surface of the fork account for loaded deflection of the fork?

Reply: To verify stability at rated capacity (para. 7.4), tests are conducted with a homogeneous capacity load (para. 7.3), having a fixed D dimension, following para. 7.6.6. If forks have a significant deflection, it may either reduce the rated capacity or require additional counterweight to satisfy longitudinal tilt table test requirements.

**Interpretation: 1-8**

**Subject: ASME/ANSI B56.1-1988**

**Date Issued: January 2, 1990**

**Question: With regard to Section 7.27.1:**

- (1) What factors were considered when formulating the relationship between impact test energy and truck rated capacity at a 24-inch load center?
- (2) Once these factors were chosen, how were the numerical energy values presented in Table 12 derived?
- (3) What relationship between truck rated capacity and test energy was used, and what was the basis for that relationship?
- (4) What specific role did truck stability play in the selection of the best energy requirements?
- (5) What influence, if any, did the Oregon State Code have?

**Reply:** Rationale statements are not included in the B56 Standards and record retention procedures do not provide access to meeting minutes of the earlier discussions of overhead guards.

The present paragraphs on the subject reflect the coordinated experience of the Committee members as well as those reflected in State Codes (including Oregon), European and U.K. standard developing bodies. Suggested improvement in the applicable paragraph will be considered so long as they add to the Committee's safety objectives without impairing the vehicle utility.

The overhead guard design needs to provide its protection without negative effect on the operator's entry and visibility as well as truck stability and utility. The Committee's overall experience with present designs does not indicate a deficiency in guards built to B56.1 requirements.

**Interpretation: 1-9****Subject: ASME/ANSI B56.1-1988****Date Issued: January 29, 1990**

**Question:** With regard to Section 4.2.1, does the use of a platform, in and of itself, constitute a "modification or addition that affects capacity or safe operation" requiring prior written approval of the manufacturer?

**Reply:** The consensus of the B56 Committee is that only those vehicles designed and supplied by a manufacturer for lifting personnel are to be used for that purpose. Requirements for these vehicles are included in the B56.1 Standard.

Recognizing that there are many users that will alter trucks for lifting personnel, and in the interest of safety, the Standard also includes guidance for these modifications. These items in no way imply safety equivalents to those in vehicles designed for lifting and/or transporting personnel. A diligent user would be expected to clear their alterations with the truck manufacturer to assure that none of the design safety considerations have been negated.

The B56 Committee consists of some users that have in house expertise and do not think it necessary to consult the manufacturer. They assume responsibility for the changes.

OSHA had extracted from the B56.1 Standard as they deemed advisable for their interest and their interpretation. The B56 Committee has no direct influence on their extraction, interpretation or citations.

**Interpretation: 1-10**

**Subject: ASME/ANSI B56.1-1988**

**Date Issued: February 16, 1990**

**Question:** Does this standard require a set of controls be installed on personnel baskets which are used by personnel for maintenance type work or taking inventory? If controls are required, is a switch which will shut off all power to the forklift sufficient (i.e., a kill switch)?

**Reply:** The paragraphs under Section 4.17 of B56.1-1988 should contain the answers to the questions.

If a vehicle is used only occasionally to elevate personnel, an operator shall be in the control position for minor adjustments in positioning the worker on the elevated platform. There are no requirements for controls on the platform.

If controls are provided to enable the elevated worker to position himself, it is imperative that only his controls are operable and any other control station is locked out. However, to rescue an incapacitated elevated worker, ground level means to override the lock out shall be provided.

The Standard applies to all trucks shown on pages 46 to 49. Where a paragraph does not apply to a specific type or relates only to a specific type, it is so noted. Truck manufacturers are guided by the paragraphs in Part III of the Standard.

**Interpretation: 1-11**

**Subject: ASME/ANSI B56.1-1988**

**Date Issued: March 5, 1990**

**Question (1):** For a truck that has been fitted with a side shift attachment and is undergoing platform tests, should the centerline of the load have to be maintained on the centerline of the truck or should the load be positioned in the least stable position?

**Reply (1):** The stability requirements in paragraphs under Section 7.6 of B56.1-1988 are based on the premise that a side shift is used only to permit the operator to engage the forks if the truck is not aligned properly with the load. The operator then side shifts to bring the load on the longitudinal axis. If the capacity of the truck/attachments combination is not exceeded, stability as verified by truck tests is maintained.

**Question (2):** In the case of a fully side shifted load test, which test number should be applied to test this condition for a conventional counterbalanced lift truck?

**Reply (2):** If a side shift, other attachments, or combinations is used such that the load cannot be centered prior to traveling, then a prudent user or manufacturer shall perform all stability tests with the load in the least stable position.

**Interpretation: 1-12****Subject: ASME/ANSI B56.1-1988****Date Issued: April 20, 1990**

**Question:** Does the B56.1 Standard include a specific recommendation which dictates the load testing of industrial trucks?

**Reply:** The evaluation of components or structures in an industrial truck is conducted by the manufacturer to verify conformance with his design criteria. However, the B56 Standards require additional tests to determine if the criteria does, in fact, support areas of our concern for safety.

Using ASME/ANSI B56.1-1988 as an example, the following paragraphs in Part III dictate the loading and, where necessary, the testing procedures:

7.3	Capacity
7.4	Rated Capacity
7.6 to 7.11	Stability Tilting Platform Tests
7.14	Service Brake System
7.25	Forks
7.27	Overhead Guards

**Interpretation: 1-13**

**Subject:** ASA B56.1-1950, ASA B56.1-1955, ASA B56.1-1959, and ANSI B56.1-1975

**Date Issued:** August 14, 1990

**Question (1):** Is the proper interpretation of Section 608 of ASA B56.1-1959 that a guard for an end control platform truck must prevent pinching and collapsing from any object that could crush the operator above his ankles? If so, how high is the guard to be?

**Reply (1):** ASA B56.1-1959 has been revised. The historical knowledge that the Committee feels is needed to respond to the request for interpretation of ASA B56.1-1959 is no longer available to the Committee.

**Question (2):** Is the interpretation for Question (1) also applicable to Section 607 of ASA B56.1-1950 and ASA B56.1-1955?

**Reply (2):** ASA B56.1-1950 and ASA B56.1-1955 have been revised. The historical knowledge that the Committee feels is needed to respond to the request for interpretation of ASA B56.1-1950 and ASA B56.1-1955 is no longer available to the Committee.

**Question (3):** What is the rationale for the change from Section 608 of ASA B56.1-1959 to Section 426 of ANSI B56.1-1975?

**Reply (3):** The rationale for the provisions of this Standard reflects the consensus of the individuals in the categories of interest who approved the wording in the Standard through ASME Committee and Supervisory Board actions, and by public review.

**Question (4):** What is the interpretation for the 1959 Standard regulation that states: "Special guards shall be provided to afford protection from overhanging and projecting hazards." What is the requirement of the manufacturer under those circumstances to determine the existence or nonexistence of those situations in the work place?

**Reply (4):** See reply (1) above.

**Interpretation: 1-14**

Subject: ASME/ANSI B56.1-1988

Date Issued: November 8, 1990

Question (1): Are retracting lifelines the same as deceleration devices?

Reply (1): "Deceleration device" is defined in Appendix B as "any mechanism that serves to reduce the falling speed and provide a complete stop in falling without interference and manipulation of the device." Further, in para. 7.34.1.3(b)(4), "Deceleration devices shall incorporate an integral lanyard or lifeline that automatically limits free fall."

"Retracting lifeline" is a term not used in the Standard, although "lifeline" is defined in Appendix B as "a rope, suitable for supporting one person, to which a lanyard, deceleration device, or body belt (or harness) is attached."

Thus, retracting lifelines can be considered the same as deceleration devices.

Question (2): Do retracting lifelines have to meet the requirements outlined in para. 7.34.1.3(b)(6)(a), or only for para. 7.34.1.3(b)(6)(b)?

Reply (2): Para. 7.34.1.3 differentiates between body belts and lanyards, with requirements defined in para. 7.34.1.3(b)(6)(a), and deceleration devices, with recommended performance given in para. 7.34.1.3(b)(6)(b). Thus, retracting lifelines "should" meet the test described in the latter section, but need not meet the requirements of the former.

Question (3): Does the retractable lifeline tested per para. 7.34.1.3(b)(6)(b) pass the test if dropped not more than 4 feet and *if the weight doesn't hit the ground*?

Reply (3): The second sentence of Interpretation 1-3 of para. 7.34.1.3(b)(6)(b) of ANSI/ASME B56.1-1983, issued December 3, 1987 reads as follows: "The 300 lb (136 kg) load is supported directly below the deceleration device. The support is removed and the falling load must come to a complete stop in no more than 4 ft (1200 mm)."

Question (4): What is the *minimum* fall distance for the 300 lb test weight used on the deceleration devices as noted in para. 7.34.1.3(b)(6)(b)?

Reply (4): No minimum fall distance is specified.

Question (5): Has the Committee considered "shock absorbers" on fixed length lanyards as deceleration devices?

Reply (5): Wherever possible, the Standard attempts to define performance requirements necessary to promote safety, and tries to avoid restrictions on design. If a device or system meets the tests in paras. 7.34.1.3(b)(6)(a) or 7.34.1.3(b)(6)(b), as appropriate, its design need only meet the further requirements within para. 7.34.1.3 to qualify.

**Interpretation: 1-15**

Subject: ANSI B56.1-1975

Date Issued: February 12, 1991

Question (1): Is a side loader a narrow aisle vehicle or an end-controlled vehicle?

Question (2): If a side loader can be classified as either a narrow aisle vehicle or an end-controlled vehicle,

- (a) Under what circumstances is a side loader classified as a narrow aisle vehicle, and
- (b) Under what circumstances is a side loader classified as an end-controlled vehicle?

Question (3): If a side loader is intended for use in a narrow aisle work environment, such as a steel service center, is it considered a narrow aisle vehicle or as an end-controlled vehicle for purposes of ANSI B56.1-1975?

Question (4): Is the side loader depicted in ANSI B56.1-1975 a narrow aisle vehicle or an end-controlled vehicle, and explain the answer.

Question (5): Is a side loader intended for use in a narrow aisle work environment, such as a steel service center, subject to the provisions of Section 1 of Section 426 or Section 2 of Section 426?

Question (6): Considering the above references and questions, is there any other information which may be helpful regarding the differences in classification?

Reply: The side loader is a specific and unique type of powered industrial truck. It is designed to handle long loads, such as structural steel, steel bars, and plate. The truck is configured so that the load is carried on one side of the truck. Storage or retrieval of loads is accomplished by extending the mast and carriage to the side of the truck. The load handling motion is at right angles to the direction of travel of the truck.

Strictly speaking, neither "Section 1 End Control Trucks" nor "Section 2 Reach and Narrow Aisle Trucks" applies to a side loader since a side loader does not fit the definitions for the type of trucks covered by the noted sections. The B56.1 Standard contains a Glossary of Commonly Used Words and Phrases, (Section 8 of the Standard), which provides these definitions.

Referring to the specific questions:

Reply (1): Since a side loader does not make a right angle turn in the aisle to either store or retrieve a load, it is not a **NARROW AISLE TRUCK**.

Since the operator control position is beside the load position rather than at the end opposite the load end, it is not an **END CONTROL TRUCK**.

Reply (2): The side loader is not classified as indicated. See above.

Reply (3): Side loaders, when used in steel service centers, are in work environments which have come to be known as "very narrow aisle" work environments. The distinguishing factor between narrow aisle and very narrow aisle is that no right angle turn is required to stack material in a very narrow aisle environment. This is accomplished through the truck's ability to extend its load engaging means lateral to the truck's direction of travel.

Reply (4): Figure AA on Page 58 depicts a generic representation of a side loader type truck. It can travel in a direction generally “into” or “out of” the page. The load engaging means extends and retracts to the right of the depicted vehicle. It does not have to make a turning maneuver to store or retrieve a load and therefore is not classified as a **NARROW AISLE TRUCK**. The operator control position is not on the opposite end of the truck from the load and therefore the truck is not an **END CONTROL TRUCK**.

Reply (5): Side loaders are intended to be used in the very narrow aisle work environments typically found in steel service centers. See discussions above.

Reply (6): There are no other ASME/ANSI references that will further the definitions given herein.

**Interpretation: 1-16**

Subject: ASME/ANSI B56.1-1988

Date Issued: March 26, 1991

Question (1): With regard to para. 7.17.1, does this mean a seat switch that will deactivate the travel when the operator dismounts the seat?

Reply (1): There is no requirement to provide a seat switch, per se. Some truck manufacturers use a seat switch to disconnect the travel circuit when the operator leaves the operating position (para. 7.17.2), and this might be used as part of the means to comply with para. 7.17.1. Not all electric trucks use seat switches to deactivate controls. Some have a seat-operated park brake, with additional means to disconnect the travel circuit. Other trucks have foot-controlled travel circuits which are disconnected when the operator's foot is removed from the pedal.

Question (2): Why does the electric vehicle have to have the travel circuit activated only "when the operator assumes the operating position" and the internal combustion powered vehicle does not have this same "operating position" restriction?

Reply (2): The emphasis in this requirement for electric trucks is on the need to reset travel controls after the operator has assumed the operating position. This requirement arose from the widespread use of electric trucks in which the direction and/or speed control(s) did not return to neutral when the travel circuit was disconnected by the operator's departure from the operating position. Unlike the internal combustion powered truck, the typical electric truck gives no indication by sound or vibration that it would be ready to move if the travel circuit were reconnected by the operator's return to the truck. Thus the need exists for a conscious action on the part of the operator to reset the speed and directional control(s) before travel can start.

Question (3): If an *electrical vehicle* meets the criteria: "Travel controls shall be so arranged that power will be applied to the wheels only when the transmission or direction control has been activated. A positive neutral position or control shall be provided." (para. 7.19.1 of ASME/ANSI B56.1), why is this not sufficient when it is the requirement for an internal combustion powered vehicle?

Reply (3): Much of the answer to this question has been given in response to question (2). Internal combustion powered trucks at rest will typically have the engine shut off or be running at low idle (para. 7.19.2) with the transmission in neutral and the park brake applied. The engine, if stopped, cannot be started by the operator if drive wheel rotation would result (para. 7.19.9). In either case, the operator must take additional action (para. 7.19.1) to initiate travel. Simply assuming the operating position would not result in movement of the truck, as could happen with an electric truck without the provisions of para. 7.17.1.

**Interpretation: 1-17**

Subject: ANSI B56.1-1975

Date Issued: May 6, 1991

Question: What was the rationale for the "Impact Test Load  $\times$  Drop Distance" values contained in Table 1?

Reply: Rationale statements are not included in the B56 Standards and record retention procedures do not provide access to meeting minutes of the earlier discussions of overhead guards.

The present values reflect the coordinated experience of the Committee members as well as those reflected in State Codes (including Oregon), European and U.K. standard developing bodies. Suggested improvement in the applicable values will be considered so long as they add to the Committee's safety objectives without impairing the vehicle utility.

The overhead guard design needs to provide its protection without negative effect on the operator's entry and visibility as well as truck stability and utility. The Committee's overall experience with present designs does not indicate a deficiency in guards built to B56.1 requirements.

**Interpretation: 1-18**

Subject: ASME/ANSI B56.1-1988

Date Issued: May 7, 1991

Question: In para. 7.27.2(c)(4), what is meant by a horizontal plane tangent to the underside of the guard at the operator's position? Is the operator's position considered to be where the operator is sitting in the seat fully forward and/or rearward, or is there a particular area designated as the operator's position?

Reply: Interpretation of the results of an overhead guard impact test in para. 7.27.2(c)(4) depends upon an understanding of the term "operator's position," which has not been defined in the Standard. This is an item on the agenda for the next B56.1 Subcommittee meeting. Unless changed by the results of that meeting, "the guard at the operator's position" can be taken as the section of the guard under which the operator's head is located in his normal position during truck operation, with the seat at the midpoint of its adjustment. The test requirement is that the lowest deformed or displaced point on the underside of this section of the guard not intrude through a horizontal plane 10 inches above the upper surface of the steering wheel.

**Interpretation: 1-19**

Subject: USAS B56.1-1969

Date Issued: November 12, 1991

Question (1): Is there an interpretation or quantitative definition of the term "speed greater than inching speed" as used in Section 4.13 of USAS B56.1-1969?

Reply (1): The Committee is not aware of any interpretation or quantitative definition of the term "speed greater than inching speed" having been made subsequent to its incorporation in Section 4.13 of USAS B56.1-1969. It has been the usual practice of the Committee not to define words or phrases thought to be sufficiently defined in commonly available dictionaries. For example, The American Heritage Dictionary, Second College Edition: "inch ... to move or cause to move slowly or by small degrees." The Random House Dictionary of the English Language, Unabridged Edition: "inch ... to move by inches or small degrees: *We inched our way along the road.*"

Question (2): What is the rationale for the removal of the reference to inching speed from, and the inclusion of reference to a positive neutral in, the 1983 Edition of B56.1?

Reply (2): The rationale for the provisions of this standard reflects the consensus of the individuals in the categories of interest who approved the wording in the standard through ASME Committee and Supervisory Board actions and by public review. It may be worth noting that when ANSI/ASME B56.1-1983 said, in part, in 7.19.1, "A positive neutral position or control should be provided," a new para. 7.19.2 was also included which said, "Engine speed should be no greater than low idle unless the acceleration control has been intentionally actuated." By the use of the word "should", both these items were recommendations rather than requirements.

**Interpretation: 1-20**

Subject: ASME/ANSI B56.1-1988

Date Issued: November 26, 1991

Question (1): Once a given forklift truck's capacity is established, are there factors that may change the capacity except the center of load placement horizontally and laterally?

Reply (1): There are other factors than the horizontal (longitudinal) and lateral placement of the center of load which may change the capacity of a given forklift truck. The capacity (para. 7.3) and rated capacity (para. 7.4) are established based on the strength of the various components of the truck and on stability tests specified in para. 7.6. Changes to any of the factors involved in either strength or stability may therefore have a direct effect on capacity.

Some of the factors influencing stability in normal application and operation are described in para. 7.6.2. Use of front end attachments, covered in paras. 4.2.2, 4.4.2 and 5.4.2, would require establishment of new or alternative ratings. Changes to the truck configuration could affect capacity and are addressed in paras. 4.2.1, 5.2.21 and 6.2.16. For electric trucks, this includes compliance with the specified battery weight range, paras. 4.4.3, 4.7.4 and 6.2.19.

Improper operation, faulty maintenance or poor housekeeping may contribute to a condition of instability and invalidate the established capacity, even though the truck configuration is not altered. Some of these conditions are set forth in para. 4.4.

Operation with a load having a higher or lower vertical center of gravity than the specified load center dimension could change the capacity, as might operation to different load elevations, per para. 7.5.4(a). Operation with loads having dimensions exceeding those of the cube used to establish capacity, paras. 4.2.4 and 5.4.1(c), may affect truck operation and stability because of increased moment of inertia or increased area exposed to wind forces, even though load weight and load center are as specified on the nameplate. Operation with suspended loads is another special case, discussed in para. 5.4.5.

The above discussion and examples are not intended to be exhaustive, but only to indicate that many factors influence capacity. A prudent user will consult with the truck manufacturer if there are questions about the capacity of a truck in a particular application.

Question (2): Except for worn or thin tines, are there other factors that may affect a change in a forklift tines' capacity except the center of load placement horizontally and laterally?

Reply (2): In addition to the horizontal (longitudinal) and lateral placement of the center of load, the factors such as wear, cracks and deformation covered in para. 6.2.8.1 may cause a change in the capacity of forks in service. Forks which have been altered or repaired (for example, by drilling, grinding or welding) without approval by the manufacturer may also have their capacity impaired. See para. 6.2.8.2.

**Question (3):** Assuming a forklift truck's tines are shorter than the insertion depth of the pallet and extends past the load center sufficiently to safely pick up the loaded pallet, would a change in the length of the tines change the forklift truck's capacity?

**Example:** Pallet is 48 in. square, load is evenly spread on the pallet which is properly placed on the tines resulting in a 24 in. center of load. Would the forklift truck's capacity change if the tines' length were 40, 42, 44, or 46 in.?

**Reply (3):** A change in the length of fork tines over the range stated in the question would almost certainly not change the forklift truck's capacity, provided the forks are all rated in accordance with para. 6.2.8(b). All exceed the minimum recommended  $\frac{2}{3}$  fraction of load length set forth in para. 5.4.3.

In some cases of trucks with forks very much longer than standard, the truck manufacturer may find it necessary to decrease the capacity of the truck to account for the additional weight and possibly increased shank thickness of the forks.

**Interpretation: 1-21**

Subject: ASME/ANSI B56.1-1988

Date Issued: December 4, 1991

Question (1): The wording used in para. 7.37.1 indicates that this section is a recommendation as opposed to a requirement for meeting the standard ("should not" as opposed to "shall not"). Is this a correct interpretation of the wording used in this section?

Reply (1): Section 3.1, Mandatory and Advisory Rules, states, "To carry out the provisions of this Standard, all items in Parts II and III are mandatory except those including the word *should*, which are recommendations." Thus, para. 7.37.1 is advisory rather than mandatory.

Question (2): Assuming that all other *requirements* of the standard are met, can fork extensions longer than 150% of the original fork length be considered as complying with the standard?

Reply (2): Assuming that all other requirements of the Standard are met, fork extensions longer than 150% of the original fork length could be considered as complying with the Standard. But see responses (3) and (4).

Question (3): What is the intent of the 150% length limitation of para. 7.37.1?

Reply (3): Rationales are not published in the body of a standard, however, the intent of the 150% length limitation was in part to indicate practices believed to have proven satisfactory in the past. Among the concerns with longer fork extensions are the likelihood of increased bearing loads at the fork tip, heel and top hook, higher bending moment at the fork heel, and greater carriage roller and parapet loads. In the example provided with the inquiry, 108 in. fork extensions are proposed, to give a 6000 pound load at 54 in. load center on trucks equipped with 48 in. forks and rated 10000 or 11000 pounds at 24 in. load center. The increased bending moment (+35% for the 10000 pound truck, +23% for the 11000 pound unit) may exceed the design limits of some components, particularly the forks.

Fork extensions are considered to provide extended support for long loads and are not a substitute for the original forks. Therefore, the center of gravity of the load should always remain on the original fork and not only on the fork extension. An extension providing a load center greater than the length of the supporting fork would not distribute the load over the top surface of the fork, but would load it only at the tip and heel.

Consideration must also be given to the effect of a change in load or load center upon the rest of the truck, including especially its stability. Again considering the example proposed, the new rating may exceed the inch-pound capacity of the truck, depending upon the value of load moment constant (dimension from drive axle centerline to front face of fork shank). These concerns are further addressed in reply (4).

Question (4): Assuming that the 150% length recommendation is a load rating consideration only, it is felt that it should be possible to rate longer fork extensions without violating the intent of ASME/ANSI B56.1 and, in effect, remain in compliance with the standard. Depending on the intended use of the fork extensions, the load rating desired may in many cases be considerably less than the lift truck nameplate rating. What alternatives exist for rating longer fork extensions while maintaining compliance with ASME/ANSI B56.1?

Reply (4): Although the 150% limitation on extension length is a recommendation rather than a requirement, consideration of other factors including those mentioned in (3), necessitate that the truck manufacturer be involved. This is set forth in the Standard in para. 4.2.1 which states, "Modifications and additions that affect capacity or safe operation shall not be performed without the manufacturer's prior written approval. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly." Fork extensions are specifically addressed in para. 4.2.2, "If the truck is equipped with front end attachment(s), including fork extensions, the user shall see that the truck is marked to identify the attachment(s), show the approximate weight of the truck and attachment combination, and show the capacity of the truck with attachment(s) at maximum elevation with load laterally centered."

Alternative approaches which could be considered in consultation with the manufacturer in the example given might include the use of 72 in. forks with the 108 in. extensions, or use of 108 in. forks directly.

**Interpretation: 1-22**

Subject: ASME/ANSI B56.1-1988

Date Issued: December 18, 1991

Question (1): With regard to para. 4.17.3 and 7.35.4, if a forklift truck that *is not equipped* with controls that are elevatable with the lifting carriage or forks is used to elevate personnel, should there be a means whereby personnel on the work platform can shut off power to the truck?

Reply (1): There is no requirement that a truck not equipped with controls elevatable with the lifting carriage or forks have means whereby personnel on the elevating platform can shut off power to the truck.

Paragraph 7.35.4 appears to be in error. The first sentence conveys a meaning at odds with the sense of the remainder of the paragraph. In addition, the reference to compliance with para. 7.34.1 should be to 7.35.1.

Paragraph 427D of B56.1-1975 stated in part: "All platforms except for those in 427B and 427C, equipped with hoisting controls only, shall comply with 427A and in addition have:" Para. 427B covered platforms for order picker high lift trucks and 427C concerned work platforms.

Paragraph 7.34.4 of B56.1-1983 began "All platforms, except for operator and work platforms which are equipped with hoisting controls only, shall comply with 7.33.1 and in addition have:" The remainder of the paragraph was very nearly identical to the wording of B56.1-1975. However, absence of a comma between "platform" and "which" changed the sense of the paragraph from that of the earlier standard. Here, too, was introduced the erroneous citation of 7.33.1 instead of 7.34.1. Except for renumbering, the 1983 wording has been carried forward to the present standard.

Paragraph 7.35 has been under review and revision by the B56.1 Subcommittee and will be addressed further at its next meeting.

Question (2): If a means to shut off power is required, then the truck's controls would have to be modified. Wouldn't this negate the approval given to the truck?

Reply (2): For the truck in Question (1), a means to shut off power is not required. The truck must not be modified to provide such means without the involvement of the manufacturer per para. 4.2.1.

**Interpretation: 1-23**

Subject: ANSI B56.1-1975 and ASME/ANSI B56.1-1988

Date Issued: January 29, 1992

Question: Figure E of B56.1-1975 shows a reach truck with an articulating rear axle. The standard instructs you to place the truck on the tip table, such that a line, parallel to the tip axis, runs through the center of the axis about which the axle articulates. In B56.1-1988, para. 7.8.2(d)(3), they instruct you to set up a truck having a "steering axle" this same way (sketch 6), but make no mention of how to set up a truck with an articulating axle. How do you set up (in order to run test N3) a truck which has an articulating axle and a non-steerable caster?

In addition, B56.1-1975 (para. 405 F.3.a) instructs you to run the tip line through the rear most load wheel if tandem load wheels are used. This information never made it to B56.1-1988. Should one use the center between the two load wheels? Please clarify.

Reply: The principle involved in the placement of the truck for test N3 (and N4 and N5) is that the *least stable* lateral axis of initial tipping of the truck be parallel to the axis of tilting of the platform, and the rear wheels be placed in their least stable position. For a truck with a laterally pivoting rear wheel mounting (articulating axle, steering axle), this axis will pass through the projection onto the platform of the intersection of the longitudinal axis of the truck with the pivot axis of the axle (point M of sketch 6, table 3). For a truck with tandem load wheels, the axis will pass through the projection onto the platform of the intersection of the lateral and longitudinal center lines of the rearmost tire (point N). For reference, tandem load wheels are depicted in the tests for high lift order picker trucks, sketches 2 and 4 of table 6, and although these are different trucks, the principle of least stable lateral axis of initial tipping still applies.

If a steerable wheel and a non-steerable caster are mounted to the axle, they should be turned 90° to the tipping axis (as in sketch 4, table 3, except that point M is now at the axle center). The truck should be tipped toward the side (steerable wheel or swivel caster) which indicates the lower stability, although this may prove significant only in test N5.

**Interpretation: 1-24**

Subject: ASME/ANSI B56.1-1988

Date Issued: April 29, 1992

Question: Does ASME/ANSI B56.1-1988 cover counterbalanced forklift trucks with a rated capacity of 80 tons at a load center of 24 inches? If not, are there any standards that would apply to this type of truck?

Reply: ASME/ANSI B56.1-1988 covers counterbalanced forklift trucks with a rated capacity of 80 tons at a load center of 24 inches, assuming that the trucks are controlled by a riding or walking operator and intended for use on compacted, improved surfaces.

Some of the performance requirements in the manufacturer's section of the standard are limited in scope. The tilting platform stability tests of para. 7.7 are intended for trucks having capacities through 30,000 pounds at 24 in. load center. The service and parking brake requirements of paras. 7.14 and 7.15 are for trucks through 70,000 pounds loaded weight.

These limitations may reflect the relatively small numbers of very large trucks in use, and/or the scarcity of test facilities capable of handling them. But the standard is clearly intended to address trucks larger than 30,000 pound capacity, as shown in para. 7.4.3(b). Also, para. 7.6.3(b) allows for the calculation of stability values in place of tilting platform tests.

It is recommended that the large trucks be designed to the same requirements as those at the limits of capacity or loaded weight shown in the standard. If this is not practical, the details of the alternative requirements should be agreed upon among the interested parties.

**Interpretation: 1-25**

Subject: ASME/ANSI B56.1-1988 (including Addenda)

Date Issued: July 27, 1992

Question: Is the intent of para. 7.21.3 to limit the speed of the truck, whether loaded or unloaded, to a maximum of 3.5 mph, or to provide the operator the capability to travel at or less than 3.5 mph?

Reply: The intent of para. 7.21.3 is to limit the speed of the truck, whether loaded or unloaded, to a maximum of approximately 3.5 mph while the truck is controlled by a walking operator. This is to help keep the truck from running away from or overtaking the operator. Note that the same requirement is incorporated into the "coasting" system covered in para. 7.21.5 for low lift order picker trucks.

Higher speeds can be provided for the riding operator, as set forth in para. 7.21.4. In practice, this is often done by locating a separate high-speed control where it is not accessible to the walking operator.

**Interpretation: 1-26**

Subject: ASME/ANSI B56.1-1988 (including Addenda)

Date Issued: August 14, 1992

Question: With regard to the B56 Interpretation 1-6, how do the various factors relate to the decision whether or not to equip the truck with automatic sounding alarms and flashing lights?

Reply: The rationale for the provisions of the B56.1 Safety Standard reflects the consensus of the individuals in the categories of interest who approved the wording in the standard through ASME Committee and Supervisory Board actions and by public review.

Since the B56 Interpretation 1-6, concerning Sections 4.15 and 7.31 of ANSI/ASME B56.1-1983 (now Sections 4.15 and 7.32 of ASME/ANSI B56.1-1988, with addenda through 1991), no consensus has developed for change to the wording of these sections. As stated in B56 Interpretation 1-6, the B56 Committee scope does not include the determination of and specification of conditions in the work area.

Other bodies, including the Occupational Safety and Health Administration, the Mine Safety and Health Administration, the Bureau of Mines, and the Human Factors Society, may be able to provide information concerning the factors favoring and opposing the use of automatic sounding alarms and flashing lights.

**Interpretation: 1-27**

Subject: ASME/ANSI B56.1-1988

Date Issued: August 19, 1992

Question (1): Are "hand trucks/dollies" considered "industrial trucks" and therefore subject to the 29 CFR Ch. XVII (7-1-85 edition) section 1910.178 para. (2), (3)?

Reply (1): The scope of the ASME/ANSI B56.1-1988 Safety Standard for Low Lift and High Lift Trucks includes "...low lift and high lift powered industrial trucks controlled by a riding or walking operator, and intended for use on compacted, improved surfaces." Low lift and high lift trucks are each defined in the Glossary of the B56.1 Standard as "...equipped with an elevating mechanism..."

The hand trucks described in the inquiry are not covered by B56.1-1988. The first is not a powered truck, and the second is powered only for climbing stairs. Neither has a means for elevating the load relative to the truck frame.

The coverage of OSHA documents can best be obtained by direct communication with their office.

Question (2): Please provide information as to what "hand trucks/dollies" are classified under (i.e., what CFR or ANSI regulations cover them)?

Reply (2): It does not appear that such trucks fall within the scope of any of the other existing B56 Standards.

The coverage of OSHA documents can best be obtained by direct communication with their office.

**Interpretation: 1-28**

Subject: ASME B56 Standards

Date Issued: October 19, 1992

Question: What ASME or ANSI Standards would apply to a machine that fits the following description?

The machine is used for moving containers between railroad flatbeds and flatbed trailer trucks where these large containers are moved by rail and then by truck.

The function of this piece of equipment is to lift and move containers approximately 35 to 40 feet in length between flatbed railroad cars and flatbed trailer trucks. These containers are quite heavy, weighing between 60,000 and 70,000 lbs.

This piece of equipment is powered by a diesel engine. It has hydraulic cylinders to operate the arms that lift and lower the containers. The containers are either lifted by attachments to the top of the container or lifted by hanging hooks that connect to the underside of the containers.

The containers, once attached to this machine, are lifted only about 5 ft. normally.

This piece of equipment can travel at a speed of approximately 15 mph and is not normally used on highways but is used in railroad transfer cars.

Reply: It appears that the piece of equipment described above is a type of straddle carrier or van container handler. Neither of these types of vehicles is covered by the B56 Standards and we are not aware of any other standards that would apply.

**Interpretation: 1-29**

Subject: ASME/ANSI B56.1-1988

Date Issued: December 16, 1992

Question: Does the B56.1 Standard require a kill switch in the bucket to enable the employee to shut down power to the truck when forklifts are being used as work platforms by attaching a bucket to the forks?

Reply: The consensus of the B56 Committee is that only those vehicles designed and supplied by a manufacturer for lifting personnel are to be used for that purpose. Requirements for those vehicles are included in the B56.1 Standard.

Recognizing that there are many users that will alter trucks for lifting personnel, and in the interest of safety, the standard also includes guidance for these modifications. These items in no way imply safety equivalents to those in vehicles designed for lifting and/or transporting personnel. A diligent user would be expected to clear their alterations with the truck manufacturer to assure that none of the design safety considerations have been negated.

The B56.1 Safety Standard for Low Lift and High Lift Trucks addresses the issue of trucks used to elevate personnel based on the construction and use of the truck. It covers a variety of requirements based on the design purpose of the truck being used. This includes trucks specifically designed to lift personnel as well as for trucks that have no built in provisions for lifting personnel. The latter situation applies in this case.

In the B56.1 Standard there are several references defining requirements for safe operation of lift trucks used in this manner. These include information on the construction of work platforms as well as for proper operational procedures.

Section 5 of the standard relates to Operating Rules and Practices. It includes the responsibilities of the operators for various operating conditions. Para. 5.2.24(i) states that "Whenever a truck *without* (emphasis added) controls that are elevated with the lifting carriage or forks is used to elevate personnel" the truck operator shall "remain in control position on the truck, or be available to operate controls." This is just one of several requirements for proper operation.

The purpose of this is to be able to protect the elevated personnel from any unplanned movement of the truck, including the operation of any "kill switch" function should the need arise. Therefore, in this mode of operation, a "kill switch" is not required on the work platform.

**Interpretation: 1-30**

Subject: ASME/ANSI B56.1-1988

Date Issued: January 28, 1993

Question: Do the following types of machines fall under the scope of the B56.1 Standard or any other B56 Standard?

(1) a manually propelled truck equipped with a manually elevated fork carriage, and provided with a "glide" to ease negotiation of stairways;

(2) a manually propelled truck as in (1) above, except having a power operated stair climbing feature;

(3) a manually propelled truck as in (1) above, except having a power elevated fork carriage;

(4) a manually propelled truck as in (3) above, except having a power operated stair climbing feature.

All four trucks are equipped with a load elevating mechanism, and all four are manually propelled for horizontal movement. In addition, the design intent of these trucks is to be tipped toward the operator for horizontal travel on the two rear wheels.

Reply: It is the view of the B56 Committee that these trucks are not covered under B56.1-1988.

It is also felt that these trucks are not covered by any existing B56 Standard. The scope of the new standard, ASME B56.10-1992, Safety Standard for Manually Propelled High Lift Industrial Trucks, clearly states that manually propelled high lift industrial trucks are *intended for use on level, improved surfaces*. It is clear that the types of trucks described above are not.

In addition, by definition of a manually propelled high lift industrial truck, there is an exclusion which states that an elevating-type hand truck whose design intent is to be tipped toward the operator for horizontal travel on the two rear wheels is not a manually propelled high lift industrial truck. It is clear that, for the types of trucks described above, the majority of horizontal movement is in the tipped position.

**Interpretation: 1-31**

Subject: ASME/ANSI B56.1-1988

Date Issued: February 18, 1993

Question: Please clarify what is meant by "maintaining of the original overhang" as referred to in para. 7.6.5. Does the standard permit the carriage to be retracted to achieve the "original overhang?"

Reply: "Overhang" refers to the forward projection of the load beyond the center line of the load axle of the truck. In para. 7.6.5(a), a plumb line from the intersection of the front and top surfaces of the forks is taken as a measure of this overhang with the truck level, the mast vertical, and the fork top surfaces approximately 12 in. above the test platform.

When the forks and load are elevated to maximum height, with the platform still level, it may be found that the plumb line projection onto the platform has moved forward of its original location because of mast deflection. Para. 7.6.5(b) requires the change in projection to be eliminated by varying the tilt of the mast, or for fixed masts, by varying the tilt of the forks or carriage, within the design limits of the truck. This is what is meant by "maintaining the original overhang". No other adjustments are addressed; thus, reducing the reach of mast, carriage, or forks would not be permitted.

Para. 7.6.6(c) concerns the need to secure the test load against possible sliding on the forks. This may be especially important if the forks are tilted downward to maintain the overhang per para. 7.6.5(b).

**Interpretation: 1-32**

Subject: ASME/ANSI B56.1-1988

Date Issued: March 4, 1993

- Questions: (1) When is a load backrest required on a lift truck?  
(2) What are the current regulations covering the use of a maintenance platform on a forklift?  
(3) When are seatbelts, back-up alarms, flashing lights, and headlights required?  
(4) Are there guidelines covering walkie trucks?  
(5) Is a new identification tag required when retrofitting an attachment to a lift truck?

Replies: The wording of the inquiry refers to "regulations" while asking for interpretation of the B56.1 Standard. It is important to point out that while the Standard may be used as a guide by governmental authorities such as OSHA in formulating regulations, the Standard is not in itself a regulation.

The replies to the questions are as follows:

(1) The vertical shanks of the forks and/or the front face of the carriage are considered to be the load backrest. Paras. 4.5.2 and 5.2.18 cover situations where it is necessary to add a load backrest extension. Para. 7.26 describes design and construction requirements for such extensions.

(2) A maintenance platform is defined in the Glossary to be a work platform. Paras. 4.17, particularly 4.17.3, and 5.2.24 cover operation with a work platform, while para. 7.35, especially 7.35.3, is concerned with design and construction requirements of such platforms.

(3) Para. 5.3.19 provides in part that, "an active operator protection device or system, when provided, shall be used". Seat belts have been supplied by many manufacturers of counterbalanced, center control, high lift trucks which have a sit-down nonelevating operator position, in partial fulfillment of the provisions of para. 7.2.2 currently in effect. Seat belts will undoubtedly continue to be furnished as part of the means of compliance with the new para. 7.39, which is effective for trucks manufactured after December 31, 1993. Also, some manufacturers have instituted retrofit programs for the installation of operator restraints to older trucks. Installation or removal of an operator restraint device or system by the user would be a modification or addition requiring approval by the truck manufacturer per para. 4.2.1.

Paras. 4.10 and 4.15 describe the conditions to be considered by the user in determining what lighting and audible warning equipment is necessary for the intended operation. Para. 7.32 requires the truck manufacturer to provide an operator controlled sound-producing device, and allows for installation of other devices when requested by the user.

(4) Motorized hand trucks ("walkies") are included in the scope of the Standard. Para. 5.3.20 has particular application to such trucks, in addition to other provisions of the Standard. Also, para. 7.5.10 requires the truck manufacturer to label such trucks against riding.

(5) Paras. 4.2.1, 4.2.2, and 4.2.3 cover the retrofitting of attachments. This is a modification or addition which requires approval by the truck manufacturer, who can determine the appropriate values of weight and capacity to be included on a new or revised nameplate.

In addition to the replies above, it is suggested that the user refer to other Standards as necessary for trucks not covered by B56.1. These Standards are listed in the General section of each volume, on page 1.

**Interpretation: 1-33**

Subject: ASME/ANSI B56.1-1988

Date Issued: May 17, 1993

Questions: (1) With regard to para. 7.12.5, can the steering described be termed "directional reverse steering"?

(2) For consistency of truck steering in a plant where trucks' directional forward steering is used, can a manufacturer whose trucks have the operator facing at right angles to the direction of travel offer directional forward steering?

Replies: (1) By analogy with the steering relationships of para. 7.12.4, the steering arrangement described in para. 7.12.5 could be termed "directional reverse steer".

(2) By analogy with the exception set forth in para. 7.12.4, it would seem reasonable to permit "directional forward steer" to be offered for consistency of operation in a plant. This matter will be taken up at a future meeting of the B56.1 Subcommittee.

**Interpretation: 1-34**

Subject: ASME/ANSI B56.1-1988

Date Issued: June 30, 1993

Questions: (1) What is the proper truck orientation for engaging a loaded motorized hand truck on a grade when walking?

(2) What is the proper truck orientation for ascending or descending grades less than 5% for loaded rider trucks?

Replies: (1) The intent of paras. 5.3.8(a) and (b) is to minimize the risk to the operator when traveling in the modes listed. For a walking operator, this would indicate that the operator should always be upgrade when the truck is loaded. This was stated in an earlier version, specifically ANSI/ASME B56.1-1975, para. 605G.2. This instruction was not carried over to the 1983 version. The B56.1 Subcommittee will address this item at its next meeting.

(2) If the grade is less than 5%, either orientation, load upgrade or downgrade, would be appropriate.

**Interpretation: 1-35**

**Subject:** ASME/ANSI B56.1-1988

**Date Issued:** July 23, 1993

**Questions:** (1) For compliance to Section 7.5.8, who has the responsibility for marking the battery with the battery type identification, the truck manufacturer or the battery manufacturer?

(2) Is there a difference between a nameplate, as designated in the B56.1 Standard, and a decal as designated by UL 583?

**Replies:** (1) Section 7.5.8 identifies information which is associated with the battery, irrespective of the source of the truck. The information requested is that which the battery manufacturer, not the truck manufacturer, is in a position to produce. Additionally, many batteries are sold independent of the truck, either with new truck sales or for battery replacement purposes.

The battery manufacturer is responsible for marking the information on the battery.

The truck manufacturer is responsible for identifying the type battery required for the truck.

(2) The information requested in the B56.1 Standard is the same as required in Section 60 of UL 583 as published in September 1991. The B56.1 Standard does not intend to impose any requirement not specified by UL. Therefore, any method for legibly and permanently marking the battery which meets UL 583 would be in conformance with the B56.1 Standard.

**Interpretation: 1-36**

Subject: ASME/ANSI B56.1-1988

Date Issued: January 18, 1994

Question: Certain trucks, typically high lift motorized hand trucks, may be equipped by the manufacturer with remote lift/lower controls which allow the truck to be used as a mobile, elevatable work table. This remote control device allows the operator to change the level of the forks while standing in the vicinity of those forks, and not at the traditional operator's position at the tiller handle or swing arm. Paragraph 5.2.11(g) tells the operator to lower engaging means before leaving the operator's position. Please provide clarification of this paragraph in light of the above described operation.

Reply: The intent of this provision is that when leaving an industrial truck unattended, that it be put in a neutral condition. In the situation described in the question, the truck is not unattended. In fact, while not the standard operating position because a remote operating device has been built into the controls of the truck, operating these secondary lift/lower controls constitutes being in an intended operating position and thus has no conflict with the identified paragraph. The operator is using the industrial truck in an intended mode of operation to accomplish the work assignment.

**Interpretation: 1-37**

Subject: USAS B56.1-1969  
ANSI/ASME B56.1-1983

Date Issued: January 24, 1994

Question (1): How was Graph A (page 6 of USAS B56.1-1969) derived?

Reply (1): This initial stability limit was established through extensive testing of trucks that were being built at that time. This empirical value resulted from the data collected of products known to have acceptable lateral travel stability characteristics. It is interesting to note that this value became the basic accepted value for other similar standards being developed around the world.

Question (2): Was there consideration of an occupant in the process of deriving the graph? If yes, what was the assumed weight of the occupant? If no, why was this not considered, as the lift truck cannot drive itself?

Reply (2): No. The weight of an operator compared to the total weight of the lift truck, and the effect of that weight on the center of gravity of the total system, is negligible and thus ignored in this test scenario.

Question (3): What dimensions were assumed (center of gravity, wheel base, etc.) to derive this graph?

Reply (3): Since the graph was developed through evaluation of empirical data, the dimensions of the equipment had no bearing on this derived value, they were the dimensions of product that existed and were known to provide acceptable stability.

Question (4): Why was the standard changed [as published in ANSI/ASME B56.1-1983, Section 7.7.2.4(c), Table 1] as to how to determine the platform slope in reference to the lateral stability test traveling?

Reply (4): The B56.1 subcommittee constantly reviews the content of the B56.1 standard. Through this review process, the standard is regularly revised, both through modifications to existing language and through the addition of new language which the subcommittee believes advances the general safety for the industry. When the 1983 Edition was being developed, the referenced portion of the Standard underwent some modifications which included an increase to the minimum slope values for the Lateral Traveling Test, Test 4.

Question (5): What was the basis or rationale for these changes?

Reply (5): The rationale for the provisions of this standard reflects the consensus of the individuals in the categories of interest who approved the wording in the standard through ASME Committee and Supervisory Board actions and by public review.

Question (6): Was there consideration of an occupant in the process of deriving the graph? If yes, what was the assumed weight of the occupant? If no, why was this not considered as the lift truck cannot drive itself?

Reply (6): See Reply (2).

Question (7): Why are numbers produced for the platform slope for a given speed different when utilizing the graph in the 1969 edition vs. the table in the 1983 edition?

Reply (7): These differences reflect the changes incorporated in the minimum values for Test 4. The requirement changed from  $15 + 1.75 V$  in 1969 to  $15 + 2.25 V$  in 1983 ( $V$  in mph).

**Interpretation: 1-38**

Subject: ASME/ANSI B56.1-1988

Date Issued: January 18, 1994

Question (1): Section 7.39 suggests a major change to operator restraints. Please clarify what is meant by this Section, with examples of suitable devices.

Reply (1): The inclusion of Section 7.39 does not suggest so much a change to operator restraints as it does a positive statement of the need for some device or system with the purpose of assisting the operator in reducing the risk of injury in an overturn accident. The means to accomplish this is purposely left nondescript. The Standard does not intend to provide design requirements for acceptable means to accomplish the intent. The Standard leaves it open to the ingenuity of the designer to accomplish that task in whatever way is felt by the manufacturer to best answer the need.

Question (2): This Section would tend to rule out the use of standard lap type seatbelts. Is this clause meant to include wings on the operator's seat or other such devices?

Reply (2): Standard lap type seatbelts, winged seats, and many other such devices would all be included in the definition of restraint device, system, or enclosure.

Question (3): How should existing counterbalanced type forklifts, which currently do not have such devices fitted, be treated?

Reply (3): The requirements published in the Standard become effective one year after their respective Date of Issuance. Section 7.39 became effective as of October 1, 1993. While there is no requirement to retrofit existing trucks to bring them into conformance, truck owners who wish to do so should contact the original truck manufacturer to obtain information and factory approval on the manufacturer's recommendation.

**Interpretation: 1-39**

Subject: ANSI/ASME B56.1-1983

Date Issued: February 23, 1994

Question: With reference to Section 5.3.8, when operating motorized hand pallet trucks, what is the recommended procedure for traveling down ramps?

Reply: This question has previously been answered by Interpretation 1-34.

**Interpretation: 1-40**

Subject: ASME/ANSI B56.1-1992

Date Issued: August 26, 1994

Question: Does Fig. B5 define a truck configuration that would not permit a design wherein the operator stands with his shoulders parallel to the direction of travel?

Reply: No. The figures found at the back of the B56.1 Standard are intended to aid in the visualization of the general style of truck indicated in the Figure. There is no intent that the figures represent any specific design feature of the truck, such as how the operator would be positioned or where the controls are specifically located. Any design definition that is necessary is contained in the body of the Standard itself.

**Interpretation: 1-41**

Subject: ASME B56.1-1993

Date Issued: January 6, 1995

Question: Is “an active operator protection device or system,” as noted in para. 5.3.19 of ASME B56.1-1993, seatbelts?

Reply: A seatbelt would be an active operator protection device. Seatbelts would not be the only possible device or system.

**Interpretation: 1-42**

Subject: ASME B56.1-1993

Date Issued: May 9, 1995

Question (1): Are paras. 7.25.3(a), (b), and (d) applicable to a fork tine that is designed for and used on a construction site for the purpose of being attached to a front-end loader, but not used on a forklift truck?

Reply (1): No. ASME B56.1 is not a fork standard, it is a forklift truck standard. References to fork parameters are applicable to forks used on forklift trucks only.

ASME B56.11.4 is the standard that covers hook-type forks for use on an industrial truck. This Standard specifically states that it does not include vehicles intended primarily for earth moving.

Question (2): If ASME B56.1 does apply to this type of fork tine, what is the proper way of determining the restraint for testing.

Reply (2): Not applicable.

Question (3): Is it the intent of ASME B56.1 to maintain a factor of safety of 3 on the yield strength of the fork tine?

Reply (3): Yes.

**Interpretation: 1-43**

Subject: ASME B56.1-1993

Date Issued: May 9, 1995

Question: ASME B56.1-1993, para. 4.19.2 indicates that the training program should include the specific truck the trainee will operate. I would like a clarification of *specific truck*. Is specific truck the actual truck, the same brand, capacity and size, or would it be either rough terrain or high/low lifts? I am trying to determine how many different types of fork trucks I have to train operators on to comply with the Standard.

Reply: The *specific truck* would not need to be the specific truck the trainee will operate. It should, however, be the same type of truck. If there are operational or control differences between models of the same type of truck being used in your facility, the trainee should be trained on each if he or she will be asked to operate them.

In your question you note "either rough terrain or high/low lifts". Please note that ASME B56.1 does not cover rough terrain trucks. Please see ASME B56.6 for training requirements for this type lift truck.

**Interpretation: 1-44**

Subject: ASME B56.1-1993

Date Issued: May 9, 1995

Question: Please provide in writing the rationale behind using a 10% reduction in the fork blade and shank thickness as stated in ASME B56.1. Also, please include any relevant calculations used in this determination.

Reply: The rationale for the provisions of this Standard reflects the consensus of the individuals in the categories of interest who approved the wording in the Standard through ASME Committee and Supervisory Board actions and by public review.

As such, we cannot respond to questions seeking the rationale since these requirements are based upon consideration of technical data and the experience and expertise of the individual committee members. Consequently, it is not possible to furnish the complete background for all technical changes.

**Interpretation: 1-45**

Subject: ASME B56.1a-1989

Date Issued: August 25, 1995

Question (1): Do the requirements in ASME B56.1 paras. 4.2.2 and 7.5.4(b) apply to attachments that temporarily slip over the forks of a lift truck?

Reply (1): Yes. Paragraphs 4.2.2 and 7.5.4(b) apply to all attachments.

Question (2): It appears that paras. 4.2.2 and 7.5.4(b) apply to factory-supplied attachments, and para. 7.5.9 applies to purchased attachments. Is that correct?

Reply (2): Paragraph 4.2.2 addresses the responsibilities of the user. It covers all attachments, those supplied as original equipment by the truck manufacturer and those purchased and added separately by the user.

Paragraph 7.5.4(b) addresses the responsibilities of the truck manufacturer. It covers those attachments provided as original equipment and those which the truck manufacturer may approve later based on the user's written request per para. 4.2.1.

Paragraph 7.5.9 addresses the responsibilities of the attachment manufacturer and applies to all attachments.

**Interpretation: 1-46**

Subject: ASME B56.1-1993

Date Issued: January 18, 1996

Question: Is it the intent of para. 5.2.11 to prohibit the work practice wherein the operator would dismount the truck with the forks raised no more than waist height for the purpose of loading or unloading materials? This practice adjusts the height of the forks for the best ergonomic transfer of materials by an operator who will do the loading and unloading after leaving the operator's position.

Reply: This question has previously been answered in Interpretation 1-36.

**Interpretation: 1-47**

Subject: ASME B56.1-1993

Date Issued: April 16, 1996

Question (1): Do the forks referred to in para. 7.25 mean forks of solid material or does it refer as well to forks formed from sheets of steel?

Reply (1): The requirements in para. 7.25 were developed for forks made of solid steel bars. However, the wording does not exclude fabricated forks. Any cantilevered fork would be tested in the same manner.

Question (2): Who is supposed to approve trucks, the manufacturer or an external test institute?

Reply (2): In the United States, we do not have a certification process for trucks as is the case in Europe. Except for Underwriters Laboratories (UL) approval for the requirements of UL 583 or UL 558, all approval and certification is done by the manufacturer, including certification of the conformance to UL requirements.

**Interpretation: 1-48**

Subject: ASME B56.1-1993

Date Issued: July 8, 1996

Question (1): Is it mandatory that both tests be used on the same overhead guard?

Reply (1): No. You may use separate samples, or if you follow the sequence defined, you may use the same sample for both tests.

Question (2): Should both test procedures be conducted consecutively and is there a particular order to the test?

Reply (2): If only one sample of overhead guard is to be tested, there is a specific order. Paragraph 7.27.2(a)(2) states that if the 100 lb cube drop test is conducted first, the same overhead guard and mounting can be used to conduct the impact drop test. Conversely, if the impact drop test defined in para. 7.27.2(c) is conducted first, it would be necessary to use a second sample for the cube drop test.

**Interpretation: 1-49**

Subject: ASME B56.1-1993

Date Issued: December 2, 1996

Question: Was it the intent of para. 7.35.3(b) to exclude fully welded platforms with a 4 ft or 6 ft high base?

Reply: Yes. The standard establishes the design limit that will not allow the "stand on surface" of a work platform to be higher than 8 in. (200 mm) above the upper face of the supporting truck fork blade.

**Interpretation: 1-50**

Subject: ASME B56.1-1993

Date Issued: December 2, 1996

Question: Section 7.35.1(d)(2)(d) states that free-fall shall be limited to 5 ft. If lanyards are provided of no more than 5 ft in length, thus limiting maximum free-fall to that length, is a deceleration device required?

Reply: No. The issue is the maximum amount of free-fall irrespective of the restraint means used. If a deceleration device is used, it must function before a free-fall of 5 ft has been exceeded. If no deceleration device is used, the length of lanyard must limit the free-fall to 5 ft or less.

**Interpretation: 1-51**

Subject: ASME B56.1-1993

Date Issued: December 2, 1996

Question: Does a high lift motorized hand truck, if equipped with a fold down ride platform that converts it to a high lift motorized hand/rider truck, require an overhead guard if, when being ridden, lift is restricted to 24 in.?

Reply: No. Paragraph 7.27.1(d) states that the overhead guard shall not extend beyond the plan view outline of the truck. When stacking higher than 72 in., the operator is standing on the floor, and he is outside the plan view outline of the truck. Therefore, an overhead guard cannot extend over the operator as is also required in para. 2.27.1(d). As a practical matter, no high lift motorized hand truck can be equipped with any overhead guard.

**Interpretation: 1-52**

Subject: ASME B56.1-1993

Date Issued: March 5, 1997

Question: What is the correct interpretation of para. 7.35.1(g) and what is the correct test method?

Reply: The statement requires that the materials used in the design of the platform, and the means for retaining that platform on the lift truck, must be of sufficient strength to withstand a loading of at least three times the rated capacity of that platform.

There is no specified testing method to determine that the required safety factor has been attained. The manufacturer may resort to any normally acceptable method of determination, including, but not limited to, Stress Calculations or Finite Element Analysis of the complete structure or a laboratory test in which a prototype is subjected to the appropriate test load without suffering permanent damage.

**Interpretation: 1-53**

Subject: ASME B56.1-1993

Date Issued: July 3, 1997

Question: I agree with the above standard when trucking loads down travel aisles or relatively long distances. However, when picking a load off the floor or pallet rack and maneuvering on the dock into a semi-trailer, it feels safe and more natural to face the stacker with truck with both hands on the controls, even during those parts of the maneuver when the load is trailing. Please give me an interpretation.

Reply: Paragraph 5.3.20(j) indicates that when operating the truck forks leading, you should have both hands on the control handle. Paragraph 5.3.20(k) addresses traveling when moving with load end trailing. It does not address maneuvering, the operation described in your inquiry.

When maneuvering at slow speeds, either facing away as described in para. 5.3.20(k) or facing the load as described in para. 5.3.20(j) is appropriate. The important thing when maneuvering in this fashion is that the operator keeps a clear view of the path of travel as instructed in para. 5.3.6.

**Interpretation: 1-54**

Subject: ASME B56.1-1993

Date Issued: April 9, 1998

Question (1): Would regenerative drive motor braking be recognized as a suitable braking method for electric motorized hand trucks; providing the truck performed in accordance with ASME B56.1-1993, Part III, para. 7.14.5 for required stopping distance?

Reply (1): Yes. Brake performance may be measured by either one of two methods, Draw Bar Drag or Stopping Distance. Satisfactory performance as measured by either method is proof of meeting the design requirements of the Standard.

Question (2): Can a device normally used to control travel motion of the truck be the control throttle when the throttle is spring return to neutral, and the neutral position activates regen braking?

Reply (2): Yes. The question arises from the words "and current to drive motor cut off." The intent of the statement in the Standard is to assure that when the control device is in the neutral position, the motor is not driving against the applied brake, thereby diminishing braking efficiency. That is not happening in the design scenario described; braking effort is applied and the motor is not attempting to overcome that retarding effort.

Technically, when a control system is in regen, current *to* the motor from the control system is cut off. The motor is acting as a generator, and thus current is coming *from* the motor back to the control system.

**Interpretation: 1-55**

Subject: ASME B56.1-1993

Date Issued: May 12, 1998

Question (1): When using trucks that must sometimes travel outdoors, the practice has been to cover the top of the truck with a piece of plastic sheet, and to attach the plastic sheet to the canopy by means of plastic straps. The plastic sheet does not extend beyond the perimeter or down the sides of the canopy. No drilling or welding is done to fasten the plastic sheet in place. Is this addition or modification prohibited by para. 5.2.21?

Reply (1): Yes.

Question (2): If so, does para. 5.2.21 apply only to the "operator" as opposed to the "user"? Would it be the case that the user could be permitted to make the change under para. 4.2.1 even though the operator is prohibited from making the same change under para. 5.2.21?

Reply (2): The answer to both questions is "yes". Referring to the definitions' section, "operator" refers to the person actually responsible for driving the truck. "User" is the employer of the operator and normally owner or renter of the truck.

Question (3): This type of modification has been seen in other environments, such as covering of the canopy with cardboard when the truck is used in areas where foundry dust can fall from overhead equipment. Is this a violation of the para. 5.2.21 rule? Would it be permitted under para. 4.2.1 if the user made the addition?

Reply (3): Provided that the operator visibility is not impacted, *including while stacking loads*, the described change would not fall under the requirements of para. 5.2.21. If, however, the plastic sheet covers the front of the overhead guard, forming a kind of windshield, it would be an improper modification. If the addition is strictly to the top surface of the canopy as described, it probably would not. The reservation is dependent on the specific truck design, and what impact the addition might have on operator visibility.

Clearly, if the user is installing the addition, it does not fall under para. 5.2.21, but rather comes under control of para. 4.2.1. If the operator is installing the addition, it is a violation of para. 4.2.1.

**Interpretation: 1-56**

Subject: ASME B56.1-1993

Date Issued: May 12, 1998

Question: According to the requirements of ASME B56.1-1993, should a truck be able to lift and stack the rated capacity to the maximum rated height at double the load center?

Reply: A truck needs to be able to lift a stack load of rated capacity, to the maximum rated height. Testing is to be conducted with the load at the rated load center, not at double the load center.

**Interpretation: 1-57**

Subject: ASME B56.1-1993

Date Issued: May 12, 1998

Question (1): According to the requirements of ASME B56.1-1993, is it permitted to straighten a bent overhead guard?

Reply (1): Overhead Guards are Safety Guards (see para. 4.5). The procedure identified in the question constitutes a change (or modification) to the configuration of the original overhead guard. Therefore, the requirements of para. 4.2.1 apply. This procedure would need to be reviewed by the original truck manufacturer before a decision on the appropriateness of the change could be made.

Question (2): According to the requirements of ASME B56.1-1993, is it permitted to drill holes in an overhead guard to mount lights?

Reply (2): See Reply (1).

Question (3): According to the requirements of ASME B56.1-1993, is it permitted to weld tabs to an overhead guard?

Reply (3): See Reply (1).

Question (4): According to the requirements of ASME B56.1-1993, is it permitted to cut off a leg and weld a new leg to an overhead guard?

Reply (4): See Reply (1).

Question (5): According to the requirements of ASME B56.1-1993, is it permitted to weld a hole or tear on a overhead guard?

Reply (5): See Reply (1).

**Interpretation: 1-58**

Subject: ASME B56.1-1993

Date Issued: August 24, 1998

Question (1): Does ASME B56.1-1993 require full enclosure as standard equipment on end control stand-up riders?

Reply (1): No.

Question (2): If the answer to Question (1) is "no," please state the hazards presented by doors or full enclosures on end control stand-up riders in ASME B56.1-1993 that are a concern to the committee.

Reply (2): The concern of the committee is to provide design requirements that drive to the lowest level, the risk of injury to operators in the general and overall environments of use to which these trucks are expected to function. In that analysis, when discussions of this section of the Standard have taken place, it has been consistently decided that providing the ability to easily enter and exit the compartment is the best alternative (see para. 7.34). At the same time, it is recognized that there are specific environments of use that may benefit from some form of additional enclosure, such as a door. When these conditions are identified by the user of the truck, they need to be addressed in cooperation with the manufacturer [see para. 7.34.1(d)].

Enclosures as used in this section of the Standard are identified in Appendix B as "fixed vertical structure(s) added to the operator platform, generally to the sides or to the rear of the platform." This is traditionally interpreted to mean that the platform may be closed on three of the four sides. Doors then become application specific additions, but to conform to the requirements of the Standard, must still be constructed so as to allow easy access to the operator platform.

Question (3): Is B56.1 Subcommittee currently considering proposals, which, if passed, would require an opening in the compartment?

Reply (3): No. The current Standard requires that the compartment be constructed so as to provide easy access to the operator platform.

**Interpretation: 1-59**

Subject: ASME B56.1-1993

Date Issued: October 23, 1998

Question (1): Paragraphs 7.25.3(c) and (d) state that the test load shall be applied twice. What is the reason for applying the load twice?

Reply (1): The purpose of the test is to measure any permanent deformation after load application. The reason for the first application is to relieve any residual stresses and to fully seat the system so that any dimensional change measured after the second application can come only from yielding of the fork.

Question (2): Paragraphs 7.25.3(c) and (d) state that the fork arm shall be checked before and after the second application of the test load and that there shall be no permanent deformation. Does that mean that a permanent deformation is permissible during the first application of the test load but not the second?

Reply (2): There may be a dimensional change during the first application due to stress relief and seating of the fork as noted in Reply (1) so that the only meaningful measurements (and the only measurements required by the Standard) are those taken before and after the second application, which would indicate if there has been permanent deformation.

Question (3): Is there a later edition of this Standard, and if so does it have the same requirements as ASME B56.1-1993 for fork arm testing?

Reply (3): The latest edition of the Standard is ASME B56.1a-1995. This is an Addenda to B56.1-1993 and the requirements for fork arm testing have not changed.

**Interpretation: 1-60**

Subject: ASME B56.1-1993

Date Issued: December 4, 1998

Question: Reach trucks, because of their versatility, their ability to negotiate narrow aisles and the ability to project its load onto a storage location, are a key component in many material handling applications in and around process machinery, loading and unloading delivery trucks, and storing materials in warehouses. One issue that has come up is whether a travel lockout is required to prevent travel when the extend mechanism is operated. Does the definition for *truck, reach* on page 49 of Appendix B of ASME B56.1-1993 require that reach trucks only travel with the load in the nested or retracted position?

Reply: No. The purpose of the Appendix is to define commonly used terms found in the Standard. It is not intended to define safety requirements.

A reach truck should not travel with the reach extended, but because there are many instances where, during operation of the truck, it is necessary to maneuver the truck at some reduced speed with the reach extended. A travel lockout that stops movement when the reach is extended would severely decrease the versatility of that truck. For this reason, lockouts have not been seen as necessary. Proper training of the operator is the best way to address the stated concern.

**Interpretation: 1-61**

Subject: ASME B56.1-1993, Mast Rollers

Date Issued: January 7, 2000

Question: Does the structural safety factor mentioned in paragraph 7.35.1 (g) of ASME B56.1-1993 apply to the mast rollers?

Reply: Yes. Mast rollers would be one of the load supporting elements in the system elevating the platform, and as such, would be subjected to this requirement.

**Interpretation: 1-62**

Subject: ASME B56.1-1988, Self Dumping Hopper

Date Issued: January 7, 2000

Question: Does a two-yard capacity self dumping hopper, constitute either a fork lift truck “attachment” or “removable” as defined by ASME B56.1-1988 Appendix B?

Reply: Yes. A self dumping hopper being defined as a device that is mechanically engaged by the forks of the lift truck to allow the truck to handle loose materials in the hopper in order to dump those materials into some other container or location. Such a device allows the lift truck to handle loose and irregular materials that could not be handled with normal forks, and therefore is an “attachment”.

Since the device is placed on the forks of the lift truck, and does not require disassembly of any portion of the lifting system to install or remove, it would also fall under the definition of a “removable attachment”.

**Interpretation: 1-63**

Subject: ASME B56.1a-1995, Modifications

Date Issued: July 19, 2000

Question: ANSI/ASME B56.1a-1995 paragraph 4.2.1 states that “modifications and additions that affect capacity and safe operation shall not be performed without the manufacturer’s prior written approval.” Would a replacement seat suspension system, installed on a sit down, center controlled counterbalanced forklift truck, require prior manufacturers approval? This system is attached to the overhead guard posts by way of clamps. These clamps would not require holes in, nor any welding to, the overhead guard posts. The original seat would be removed from the truck mounting and attached to the suspension system.

Reply: Yes, for two major reasons. First, while the installation does not alter the overhead guard posts, the additional dynamic forces induced into the overhead guard posts by the weight of the seat system and operator needs to be evaluated to assure the continued integrity of the overhead guard support system.

Secondly, the operator restraint system required by paragraph 7.39 often is integral to the seat and/or seat structure. By remounting the attachment of the seat from the truck proper,

to a separately attached structure, the integrity and continued appropriateness of the restraint system needs to be analyzed and approved by the original truck manufacturer.

**Interpretation: 1-64**

Subject: ASME B56.1-1993, Wheel Chocks

Date Issued: June 8, 2001

Question: Please advise whether 4.14.1, 4.19.4(b)(3), and 5.2.14 of ASME B56.1-1993 place an affirmative duty on a forklift operator to ensure that wheel chocks are in place before driving a forklift on and off a highway trailer.

Reply: Yes. Each paragraph provides instruction as to the duty of different individuals, the user, the trainer and the operator. Please note that B56.1 has been re-issued as B56.1-2000, and the language noted in the question remains the same as in the B56.1-1993.

**Interpretation: 1-65**

Subject: ASME B56.1-2000, Brake Performance

Date Issued: June 8, 2001

Question #1: Paragraph 7.15 regarding brake performance implies the standard is applicable to fork lift trucks up to, and including 31,750 kg loaded truck weight. What rules apply for forklift trucks above the specified 31,750 kg loaded truck weight limit?

Reply #1: Currently, the standard does not address brake performance issues for trucks with a loaded weight in excess of 31,750 kg. Manufacturers of forklift trucks that large need to consider the braking capabilities based on their engineering judgment. They may wish to look to extrapolating the existing standard as a guide.

Question #2: Paragraph 7.7 regarding tilting platform test for determining fork lift truck ratings references Table 1, which indicates it is applicable to trucks up to, and including 13,699 kg at 600mm load center. What rules should apply for forklifts having capacities above the specified 13,600 kg limit?

Reply #2: Currently, the standard does not address tilt table testing for fork lift trucks with a capacity in excess of 13,600 kg. Manufacturers of fork lift trucks that large need to consider stability and rated capacities based on their engineering judgment. They may wish to look to extrapolating the existing standard as a guide.

Question #3: The standard does not address tilt table test criteria for forklift trucks handling freight containers. What rules should apply for forklift trucks used to handle freight containers?

Reply #3: Texts for trucks used for this purpose are currently being considered and will be published when approved. Manufacturers of fork lift trucks for handling freight containers need to consider stability and rated capacities based on their engineering judgment until the standard published approved test criteria.

**Interpretation: 1-66**

Subject: ASME B56.1-2000, Operator Restraint Systems

Date Issued: June 8, 2001

Question #1: Referring to Paragraph 7.40 (Operator Restraint Systems) of ASME B56.1-2000; is this paragraph intended to include sit-down, end-controlled reach trucks?

Reply #1: No. This requirement is only directed to the trucks defined in the paragraph, counterbalanced, center control, high lift trucks that have sit-down, nonelevating operator positions.

Question #2: If sit-down reach trucks are not included in paragraph 7.40, then what is the ASME B56.1 position on restraint systems for these trucks.

Reply #2: The B56.1 Sub Committee has not addressed this specific configuration of truck as to a need for operator restraint systems. By omission, a restraint system would not be required. The analysis and decision for whether or not such a system should be included is left to the manufacturer.

**Interpretation: 1-67**

Subject: ASME B56.1-2000, High Lift Order Picker Rider Trucks

Date Issued: June 8, 2001

Question #1: Are high lift order picker rider trucks considered to be operator-up trucks?

Reply #1: Yes.

Question #2: Is it acceptable to use a work platform on a high lift order picker rider truck to transport personnel in addition to the operator for training or any other purposes?

Reply #2: Yes, provided that work platform meets all requirements of paragraphs 7.36.3.

Question #3: If a work platform is attached to a high lift order picker rider truck, is it acceptable for personnel to leave the work platform when elevated and enter into the racking or other storage location?

Reply #3: No.

Question #4: Is a cut-off switch required for the work platform so that the high lift order picker rider truck is rendered inoperable if the additional personnel leave the platform while elevated?

Reply #4: Not applicable. See answer to Question #3.

**Interpretation: 1-68**

Subject: ASME B56.1-2000, Max/Min Braking Performance

Date Issued: June 8, 2001

Question: Does B56.1 allow for Lift Trucks to stop with a consideration for the stability of the load and the safety of the operator. The concern is for trucks that stop too abruptly such that the load and/or operator is thrown forward when the brakes are applied automatically.

Reply: The ASME B56.1-2000 Safety Standard for High Lift and Low Lift Trucks specifies the minimum braking performance required for the design of the truck involved, see section 7.15. It does not specify a design requirement addressing a maximum braking performance.

**Interpretation: 1-69**

Subject: ASME B56.1-2000, Warning Devices

Date Issued: June 8, 2001

Question #1: In ASME B56.1, paragraph 4.15.1 addresses warning devices. Is there a requirement to have backup alarms on forklift trucks?

Reply #1: No. Paragraph 4.15.1 deals with warning devices under operator control, not devices that are activated automatically. See paragraph 4.15.2 for requirements for additional devices that would include backup alarms.

Question #2: At the end of paragraph 4.15.1 it states, "or other sound-producing device(s)." Would this be a back up alarm?

Reply #2: No. Backup alarms are devices that automatically sound whenever the truck is in reverse, not devices that are activated only under operator control.

**Interpretation: 1-70**

Subject: ASME B56.1-2000, Loads

Date Issued: July 12, 2001

Question #1: Paragraph 5.4.5 states in part, "When handling suspended loads: (a) do not exceed the truck manufacturer's capacity of the trucks as equipped for handling suspended loads." Does this provision imply that only trucks which have been rated by their manufacturer for handling suspended loads with certain lifting equipment may be used to handle suspended loads?

Reply #1: Yes

Question #2: Paragraphs 5.4.5 (b) thru (e) offer further advice on safely handling suspended loads but are silent with respect to the type(s) of equipment that must or may be used to suspend the load. Is the direct attachment to, or placement of, rigging equipment (slings, shackles, rings, etc.) onto the forks of a lift truck to affect a suspended lift a permissible practice or a prohibited practice?"

Reply #2: The standard does not define what device may be used for handling suspended loads. When the manufacturer provides the approval and ratings for the handling of suspended loads, the particular device to be used will be defined in the written approval for using that device, as the weight and the applied load center of the device will enter into the determination of the rated capacity.

Question #3: Paragraph 4.2.1 provides, "Modifications and additions that affect capacity or safe operation shall not be performed without the manufacturer's prior written approval. Does the handling of suspended loads by means of rigging equipment attached directly to the forks constitute a "modification or addition" that would require the user to seek the manufacturer's approval?"

Reply #3: Yes

Question #4: Paragraph 4.2.2 requires special markings "if the truck is equipped with a front end attachment(s)..." Is the use of a fork supported crane arm, manlift safety cage, or other removable attachment devices subject to this requirement?

Reply #4: Yes. Separate provisions are incorporated in the B56.1 Standard that address the requirements for elevated work platforms, see Section 7.35.3, and the special markings are required on the work platform, not on the truck itself.

**Interpretation: 1-71**

Subject: ASME B56.1a-2001  
Section 7.6.4i(1), Tilting Platform Tests

Date Issued: May 20, 2002

Question: Are the values of 100 mm and 4 inches absolute numbers or are they nominal numbers that a reasonable manufacturing tolerance (+/- 1.5 mm or 0.060 inches) may be applied to?

Reply: The 100 mm is a maximum dimension. Manufacturing and mounting tolerances of + 0 mm must be utilized. The 100 mm is the "official dimension" and the 4 inches dimension is used for reference only. The accurate equivalent to 100 mm is 3.94 inches, not 4 inches.

**Interpretation: 1-72**

Subject: ASME B56.1-2000  
Paragraph 1, Scope of the Standard

Date Issued: May 28, 2002

Question: What is the maximum size of a forklift covered by this standard? Is there a particular size or height where a vehicle is defined as a crane as opposed to a lift truck?

Reply: There is no limit to the size or lift height of high lift industrial trucks covered in the B56.1 Standard. All high lift industrial trucks need to meet the various requirements of the Standard (Stability, Braking, etc.) no matter what capacity or lift height.

No high lift industrial truck intended for use on compacted, improved surfaces is considered to be a "crane", irrespective of truck style, lift height or capacity.

**Interpretation: 1-73**

Subject: ASME B56.1-2000  
Paragraph 6.2(b), Maintenance and Inspection

Date Issued: September 17, 2002

Question: In the ASME B56.1-2000, Safety Standard for Low Lift and High Lift Trucks, paragraph 6.2(b), it states that only trained and authorized personnel shall be permitted to maintain, repair, adjust and inspect industrial trucks.

What is ASME definition of "trained and authorized personnel"? In the Glossary of Commonly Used Words and Phrases it list nothing for "trained", but it does cover "authorized personnel" as persons designated by the user to operate or maintain the equipment.

Can shop trained mechanics repair forklifts if they are not trained by the Forklift Manufacturer?

Reply: Training by the OEM is recommended, but not required. Especially in the case where the OEM is no longer in business. As there are specific safety considerations that are unique to forklift trucks, the training, no matter from what source, should be from someone with training and experience on the brands/models being serviced.

**Interpretation: 1-74**

Subject: ASME B56.1-2000  
Safety Factors of Pallet Forks, Figure 12

Date Issued: October 9, 2002

Question: Is it the intent of the B56.1 Standard to maintain a safety factor of 3 to 1 on the yield strength of the pallet forks and linkage that raises these forks a few inches above the rollers that contact the floor, the same as that for cantilever forks?

Reply: The B56.1 Standard has a safety factor of 3 to 1 on all solid forks. There are no standards for non-solid forks. There are no plans to set a Standard for non-solid forks at this time within B56.1.

**Interpretation: 1-75**

Subject: ASME B56.1-2000, Part III, Section 7.5.2 Nameplates and Markings

Date Issued: May 9, 2003

Question (1): Is it permissible that two nameplates are provided with a product one of which describes item (a) truck model designation and serial number (b) truck weight and (d) type designation, and the other nameplate shows item (c) designation of compliance with ASME?

Reply (1): Yes, 7.5.2 allows for "nameplate(s)" meaning more than one is permissible.

Question (2): In the case of multiple nameplates, is it necessary to show the company name to the above nameplate (c)?

Reply (2): No, manufacturer's name is not required, but if not, the two plates should appear in close proximity to each other.

Question (3): Is it permissible to use non-metallic durable plate for the nameplates?

Answer (3): Yes, provided it is durable and corrosive resistant.

**Interpretation: 1-76**

Subject: ASME B56.1-2000, Section 7.5.4(b) and 7.6.4(i), Sideshifting

Date Issued: May 16, 2003

Question (1): Section 7.6.4(i) indicates how to test a truck equipped with a "sideshifting" attachment that displaces the center of gravity a predetermined amount. Would the requirements of this section apply to attachments, which allow two loads to be picked side-by-side, if the operator picks a load on one side only? Doing so would offset the load center well beyond the limits listed in section 7.6.4(i). One could argue the attachment is not being used as intended by the attachment and/or truck manufacturer.

Reply (1): Side by side load capability is not a side shift operation. Rating depends on what the attachment manufacturer and the truck manufacturer say. If the users expect to be picking up on one side, then that should be rated. Most attachment manufacturers expect an evenly distributed load. Some have a label that says, "must have an evenly distributed load". Also, many of these types of attachments are single double load pick-ups meaning they can collapse the forks down so that they pick up only one load.

Question (2): Similar to question (1); how would one rate attachments such as a paper roll clamp with one fixed arm and one moving arm or a clamp with a swinging frame? Both attachments offset the load center to one side, but do so by a means other than "sideshifting".

Reply (2): The truck should be rated for the attachment and the expected use. If it is intended on carrying and stacking off set then it need to be rated. The manufacturer will rate for the expected/intended use of the truck.

Question (3): How would one mark the capacity plate on the truck to indicate the capacity of the truck equipped with a swinging-frame paper roll clamp or multi-load handler?

Answer (3): Dual rate may be needed if there are two distinct load positions/types. Or, it may have one rating based on the worst-case scenario.

Question (4): If a manufacturer ships a truck from the factory with an attachment on the truck they must list the truck capacity with the attachment, according to 7.5.4(b). Must they also stamp the plate to indicate the capacity with forks only? After reading section 7.5.4(a) the impression is that it may be required to list the capacity with forks only on trucks equipped with an attachment. The confusion is created by the use of the word “also” in the first sentence of 7.5.4(b). There are occasions when it is beneficial to list both capacities, but not every time.

Answer (4): The user need to rate for the intended use. If the attachment is most likely to stay on for the life of the truck then a single rating is adequate. If the attachment is to be permanently removed, then there will have to be a new plate for forks only usage. If it will be going from forks to attachment use on a regular basis then a dual rating for two different set ups should be considered.

Question (5): When the load exceeds the predetermined amount, the capacity derived from testing the truck with the load shifted has to be listed. Can a list be created with what the rating would be if the attachment is still on the truck but the operator centers the load?

Answer (5): Yes, there can be dual ratings.

**Interpretation: 1-77**

Subject: ASME B56.1b-2003, Section 7.5.2 (b), Nameplates and Markings

Date Issued: January 6, 2004

Question (1): If a manufacturer weighs a truck and places that exact weight on the nameplate, would the nameplate still require a tolerance?

Reply (1): No. If the actual weight is measured and recorded on the serial number plate, there would be no need to record a tolerance.