

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES  
BUREAU OF SAFETY AND REGULATION  
GENERAL INDUSTRY SAFETY STANDARDS COMMISSION

(By authority conferred on the general industry safety standards commission by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, being SS408.1016 and 408.1021 of the Michigan Compiled Laws)

PART 72. AUTOMOTIVE SERVICE OPERATIONS

GENERAL PROVISIONS

R 408.17201 Scope.

Rule 7201. This part sets forth rules for the safe maintenance and operation of equipment in, around, and about places of employment where vehicles or tire and wheel assemblies are serviced, repaired, and salvaged. Manufacturing, research, and development facilities are excluded.

History: 1979 AC; 1990 AACS.

R 408.17204 Definitions; A to E.

Rule 7204. (1) "Automotive lift" means a vehicle lifting device, the purpose of which is to raise an entire vehicle to provide accessibility for convenient under chassis service.

(2) "Class I flammable liquid" means those having a flash point below 100 degrees Fahrenheit. Representative examples of class I liquid are:

ether, gasoline, lacquer thinner, acetone, and methyl acetate.

(3) "Combustible" means to be readily ignitable and easily burnable.

(4) "Extractor" means a machine, except a vacuum cleaner, used to remove moisture from fabrics.

History: 1979 AC.

R 408.17205 Definitions; F to L.

Rule 7205. (1) "Flammable liquid" means a liquid having a flash point less than 100 degrees Fahrenheit and having a vapor pressure of not more than 40 pounds per square inch (absolute) at 100 degrees Fahrenheit.

(2) "Jack" means a portable mechanical or hydraulic device for lifting or lowering a load by application of a force.

(3) "Lockout" means to lock by key or padlock.

History: 1979 AC.

R 408.17206 Definitions; P to S.

Rule 7206. (1) "Pinch point" means a point at which it is possible to be caught between the moving parts of a machine, between moving and stationary parts of a machine, or between a moving object and a stationary object.

(2) "Restraining device" means a mechanical apparatus, such as a safety cage, rack, or safety bar arrangement or other machinery or equipment, that will constrain all rim wheel components following their release during an explosive separation of the wheel components.

(3) "Rim manual" means a publication containing instructions from the manufacturer or other qualified organization for the correct mounting and demounting, maintenance, and safety precautions peculiar to the type of wheel being serviced.

(4) "Safeguard" means a device or part of a product designed for the protection of equipment or an employee.

(5) "Safety factor" means the ratio of the breaking strength of a piece of material or object to the maximum designed load or stress applied when in use.

(6) "Service" means to adjust, install, repair, replace, wash, wax, change or exchange, polish, sand, grind, refinish, paint, or coat.

(7) "Single-piece rim wheel," for purposes of this part, means a vehicle wheel or rim which consists of 1 part, which is designed to hold the tire on the rim when the tire is inflated, and which is intended for use with tires designed for an inflation pressure of more than 44 psig.

History: 1979 AC; 1990 AACS.

R 408.17207 Definitions; V to Y.

Rule 7207. (1) "Vehicle" means a powered conveyance operating on 2 or more wheels, including, but not limited to, an automobile, truck or trailer.

(2) "Wet operations" means those operations which involve the drainage, splash or running of liquids such as, but not limited to those found in car washing or dipping of radiators in solutions.

(3) "Yield point" means the point where material begins to take a permanent deformation.

History: 1979 AC.

R 408.17211 Employer responsibility.

Rule 7211. An employer shall:

(a) Provide training to an employee as to the hazards, safe operations of the assigned job and applicable rules of this part.

(b) Assure that job required tools, equipment and the work area are maintained in a manner free of recognized hazards which would cause an injury.

(c) Prohibit smoking, flames and sparks within 15 feet of where class I flammable liquids are dispensed or used, unless separated by an approved wall. "No Smoking" signs shall be posted in these restricted areas.

(d) Maintain a copy of this part for employees' review.

(e) Not circumvent, bypass or make inoperative any safeguard unless required during servicing. The safeguard shall be replaced before resuming operation of the equipment.

History: 1979 AC.

R 408.17212 Employee responsibility.

Rule 7212. An employee shall:

(a) Use personal protective equipment required by this part.

(b) Use tools and equipment only when authorized and trained in their use.

(c) Report employers' defective tools and equipment and hazardous conditions, when detected, to his supervisor.

(d) Maintain his personal tools, equipment and work area in a manner to prevent a hazardous condition.

(e) Not smoke, create a spark or flame within 15 feet of an exposed flammable liquid or articles which have been wetted by a flammable liquid.

(f) Not circumvent, bypass or make inoperative any safeguard or tie down any control unless required during servicing. The safeguard shall be replaced before resuming operation of the equipment.

(g) Not use any device emitting air or other material in a manner which may inject a foreign material into a human body part.

(h) Use tools and equipment within their rated capacity.

History: 1979 AC.

R 408.17213 Personal protective equipment.

Rule 7213. (1) An employer shall provide and an employee shall wear eye protection in accordance with and as prescribed in the occupational safety standards commission standard, Part 35. Face and Eye Protection, being R 408.13501 to R 408.13569, of the Michigan Administrative Code.

(2) Other personal protective equipment such as, but not limited to, rubber gloves, aprons, boots, welding helmets and respirators shall be provided by the employer and worn by the employee to protect against the hazards of wet operations, welding and cutting, radiator cleaning and battery charging and spray painting.

(3) When respiratory and hearing protection is required by a department of public health rule, the protection shall be provided by the employer and used by the employee.

(4) Where corrosive liquids or other liquid materials that would be harmful to an employee are normally used and where an employee is exposed to splash of the materials, a readily accessible means of flushing with water shall be provided.

(5) Cloth shoes, open sandals and exposed rings and necklaces shall not be worn in the work area. A ring may be worn if covered by gloves or tape.

History: 1979 AC.

R 408.17221 Illumination.

Rule 7221. When hazardous work is performed where a hazard could be lessened by adequate lighting, a minimum of 25 footcandles intensity shall be provided.

History: 1979 AC.

R 408.17222 Machinery and equipment installation.

Rule 7222. (1) Electrically powered machinery or equipment, other than double insulated equipment, shall be grounded.

(2) Nonportable machinery or equipment shall be secured to the floor, platform, table or bench to prevent displacement or tipping.

(3) Machinery or equipment shall be equipped with a disconnect switch which shall be locked in the off position, unless the machinery or equipment is equipped with a plug-in cord which shall be disconnected and tagged, when the machinery or equipment is repaired or serviced if unexpected motion would cause injury.

(4) When electrical equipment is used within a spray booth and flammable materials are applied, the equipment shall be suitable for class I, division I hazards.

(5) Machinery and equipment equipped with a foot control shall be provided with a cover or guard to prevent unintentional operation of the machinery or equipment where such operation would cause injury. The cover or guard shall be capable of withstanding a static load of 200 pounds without permanent deformation. The edges of the cover or guard shall be rolled, broad or covered to prevent injury or discomfort due to contact by the operator's foot or leg.

History: 1979 AC.

R 408.17223 Housekeeping.

Rule 7223. (1) Until disposal is made, wiping cloths, when soiled from oil, grease, paints, or solvents, shall be placed in their own covered metal container, which shall be labeled or identified as combustible material.

(2) Rubbish shall be placed in containers. The container for combustible rubbish shall be of metal.

(3) Floors shall be maintained free of water, oil, grease, and paint or other accumulations which would cause a slipping, tripping, or falling hazard.

(4) After a vehicle is serviced, tools, loose parts, materials and general debris shall be cleaned up and placed in their designated places.

History: 1979 AC.

R 408.17224 Ventilation and air receivers.

Rule 7224. (1) Ventilation shall be provided and used to exhaust toxic vapors or fumes if such vapors or fumes exceed the maximum allowable limits prescribed by a department of public health rule.

(2) The blades of a fan less than 7 feet from a floor, platform or ground shall be guarded on all sides. Openings in a guard shall be not more than 1 inch and the distance shall be not less than the values in table 1.

(3) A fan shall not be located where fumes of flammable liquids can be induced into an area where sparks or flame may be present.

(4) An air receiver shall be equipped with an operable relief valve set at not more than the working load limit of the receiver.

TABLE 1

Minimum distance Smallest dimension in guard (in): from guard to blade

Greater than 0 up to 1/4 inclusive. 1/2 in.

Greater than 1/4 up to 3/8 inclusive. 1 1/2 in.

Greater than 3/8 up to 1/2 inclusive. 2 1/2 in.

Greater than 1/2 up to 3/4 inclusive. 4 in.

Greater than 3/4 up to 1 inclusive. 6 times the smallest dimension

History: 1979 AC.

R 408.17225 Flammables; painting and coating.

Rule 7225. (1) A class I flammable solvent stored inside a building shall be in an approved safety can with an automatic closing cap and flame arrestor or original unopened container having a capacity of not more than 5 gallons. Quantities in excess of 5 gallons shall be stored as prescribed by flammable liquid regulations of the fire marshal promulgated under Act No. 207 of the Public Acts of 1941, as amended.

(2) When pouring a flammable solvent from 1 container to another, continuous contact between the containers shall be maintained or a bonding or grounding strap shall connect the containers.

(3) A class I flammable solvent shall not be used for cleaning tools, parts, floors, or booths.

(4) Application by spraying of paint or coatings with a flammable ingredient to an area of more than 9 square feet shall be made within a booth or room constructed of noncombustible materials. The booth or room shall be ventilated as prescribed by a department of public health rule.

Sparks, flame, and spark producing equipment and smoking shall be prohibited in the booth or room and the area shall be posted: "No Smoking."

(5) When a flammable liquid is removed from a vehicle tank, an approved pumping device equipped with a ground strap shall be used.

History: 1979 AC.

R 408.17226 Belt servicing.

Rule 7226. An employee adjusting or testing the tension of a belt or installing or removing a belt on a vehicle, shall do so when the motor is off and without turning the engine over.

History: 1979 AC.

R 408.17227 Air conditioning and refrigeration servicing.

Rule 7227. A check valve shall be used to prevent refrigerant system pressures from flowing back to the refrigerant charging container unless such containers are equipped with a pressure relief valve.

History: 1979 AC.

## SPECIFICS

R 408.17231

Rescinded.

History: 1954 ACS 82, Eff. Dec. 31, 1974; rescinded 1954 ACS 93, Eff. Oct. 18, 1977.

R 408.17232 Cranes and winches, hoists, and chain falls.

Rule 7232. (1) A crane, hoist and chain fall or winch, fixed or portable, shall have affixed to it a permanent tag showing the rated capacity and name of manufacturer and, if available, the model and serial numbers.

(2) A crane, hoist and chain fall or winch shall not be used to lift more than its rated capacity.

(3) Wire rope or cable used on a crane, hoist or winch shall be inspected monthly, and shall be replaced if:

(a) In any length of 8 diameters, the total number of visible broken wires exceeds 10% of the total number of wires.

(b) The wire rope or cable has been kinked, crushed or bird caged or sustained other damage which distorts the wire rope structure.

(c) The wire rope or cable shows heat or corrosive damage.

History: 1979 AC.

R 408.17233 Wreckers.

Rule 7233. (1) A wrecker cable and boom shall have a designed safety factor of not less than 5.

(2) Wire rope or cable used on a wrecker shall be inspected as prescribed in R 408.17232(3).

(3) A wrecker pulling or lifting a vehicle shall be used within its rated capacity.

(4) When pulling a vehicle with a wrecker cable, the employee shall stand aside from the line of pull.

(5) When towing a boom supported vehicle, safety chains shall be connected between the wrecker and the towed vehicle.

(6) A wrecker boom shall be equipped with a permanent tag showing rated capacity and name of manufacturer and, if available, the model and serial numbers. Where this information is not available, an outside source, knowledgeable in wrecker booms, shall be used to determine the rated capacity which shall be permanently labeled on the wrecker boom. The boom shall be installed on the vehicle in a manner capable of sustaining the imposed load.

(7) The winch controls shall be located in a manner to prevent accidental contact with cable and winch pinch points or the pinch point shall be guarded.

History: 1979 AC.

R 408.17234 Jacking and blocking.

Rule 7234. (1) A vehicle being serviced, adjusted or repaired while the motor is running shall have 2 wheels chocked from front and rear or parking brake set or other vehicle restraint controls provided.

(2) An employee shall not place his body under a vehicle supported only by a jack, overhead hoist or chain fall. Safety stands having a yield point of not less than 1 1/2 times its rated capacity shall be used to support the vehicle.

(3) A jack shall not be used to lift more than its rated capacity.

History: 1979 AC.

R 408.17235 Rim wheel servicing.

Rule 7235. (1) An employer shall ensure that each employee who is engaged in servicing multi-piece and single-piece rim wheels demonstrates and maintains his or her ability to service the rims safely and in accordance with these rules.

(2) All wheel components shall be inspected before assembly. Rims, rim bases, side rings, or lock rings that are bent out of shape, pitted from corrosion, broken, or cracked shall not be used or welded, brazed, or otherwise heated in an attempt to repair them. The defective components shall be rendered unusable for tire mounting.

(3) Tires shall be completely deflated by removing the components.

(4) A restraining device, as defined in R 408.17206(2), shall be provided by the employer and maintained in a safe condition and shall be in compliance with all of the following requirements:

(a) Each restraining device or barrier shall have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation that occurs at 150% of the maximum tire specification pressure for the type of rim wheel being serviced.

(b) Restraining devices and barriers shall be capable of preventing the rim wheel components from being thrown outside or beyond the device or barrier for any rim wheel that is positioned within or behind the device.

(c) Restraining devices and barriers shall be visually inspected before each day's use and after any separation of the rim wheel components or sudden release of contained air. A restraining device or barrier that exhibits evidence of damage, such as any of the following defects, shall be immediately removed from service:

(i) Cracks at welds.

(ii) Cracked or broken components.

(iii) Bent or sprung components caused by mishandling, abuse, tire explosion, or rim wheel separations.

(iv) Pitting of components due to corrosion.

(v) Other structural damage that would decrease the effectiveness of the restraining device or barrier.

(d) A restraining device or barrier that is removed from service shall not be returned to service until it is repaired and reinspected. A restraining device or barrier that requires structural repair, such as component replacement or rewelding, shall not be returned to service until it is certified by either the manufacturer or a registered professional engineer that the device or barrier meets the strength requirements specified in subdivision (a) of this subrule.

(5) A clip-on chuck with a sufficient length of hose to permit the employee to stand clear of the potential trajectory (see figure 1) of the wheel components and an in-line valve with a gauge or a pressure regulator preset to the desired pressure shall be furnished by the employer and used to inflate tires.

(6) Industry-accepted tire lubricant shall be applied to the bead and the rim mating surfaces during assembly of the tire and wheel.

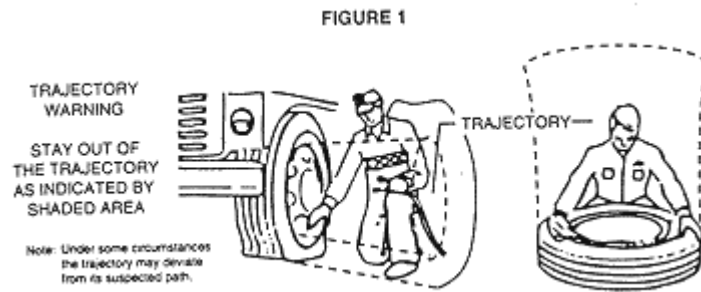
(7) When a tire is in a restraining device, an employee shall not rest or lean any part of his or her body or equipment on or against the device.

(8) An attempt shall not be made to correct the seating of the wheel components, rim, rim base, or side and lock rings by hammering, striking, or forcing the components while the tire is pressurized.

(9) Heat shall not be applied to an inflated wheel tire assembly.

(10) Figure 1 reads as follows:

Figure for 408.17235



History: 1979 AC; 1990 AACS; 1993 AACS.

R 408.17236 Multi-piece rim wheels.

Rule 7236. (1) Wheel components shall not be interchanged except as permitted pursuant to the publication entitled "Multi-piece Rim/Wheel Matching Chart" or any other publication containing, at a minimum, the same instructions, safety precautions, and information as the charts identified in subrule (2) of this rule.

(2) The publications entitled "Multi-piece Rim/Wheel Matching Chart" and "Safety Precautions for Mounting and Demounting Tube/Type Truck/Bus Tires," as revised January, 1978, which are hereby incorporated in these rules by reference, shall be accessible and available in the service area.

These publications may be purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, or from the Safety Standards Division, Michigan Department of Labor, 7150 Harris Drive, Box 30015, Lansing, Michigan 48909, at a cost of \$2.00 and \$2.25 respectively.

(3) Mating surfaces of the rim gutter ring shall be free of any dirt, surface rust, scale, or rubber buildup before mounting and inflation.

(4) A tire shall be completely deflated by removal of the valve core before a wheel is removed from the axle in either of the following situations:

- (a) When the tire has been driven underinflated at 80% or less of its recommended pressure.
- (b) When there is obvious or suspected damage to the tire or wheel components.

(5) Tires shall be inflated only when constrained by a restraining device, except when the wheel assembly is on a vehicle. Tires may be inflated without being constrained by a restraining device if remote control inflation equipment is used and no employees remain in the trajectory path during inflation in either of the following situations:

- (a) Tires are underinflated, but have more than 80% of the recommended pressure.
- (b) Tires are known not to have been run underinflated.

(6) When a tire is being partially inflated without a restraining device for the purpose of seating the lock ring or to round out the tube, such inflation shall not exceed 3 psig (0.21 Kg/cm<sup>2</sup>).

(7) After tire inflation, the tire rim and rings shall be inspected while still constrained in the restraining device to assure they are properly seated and locked.

History: 1990 AACS.

R 408.17237 Single-piece rim wheels.

Rule 7237. (1) Subrules (2) to (8) of this rule apply to the servicing of single-piece wheel rims used on vehicles such as trucks, trailers, buses, and off-road machines which have a tire inflation pressure that

is 45 psig or greater. Subrules (2) to (8) of this rule do not apply to single-piece rim wheels used on automobiles and light-duty trucks or vans utilizing automobile tires.

(2) A rim manual, as prescribed in R 408.17206(2), which contains instructions for the types of wheels serviced shall be available in the service area.

(3) The size and type of both the tire and the wheel shall be checked for compatibility before assembly of the rim and wheel.

(4) Mounting and demounting of the tire shall be done only from the narrow ledge side of the wheel. Care shall be taken to avoid damaging the tire beads while mounting tires on wheels.

(5) If a bead expander is used to seat the beads, it shall be removed before the tire is inflated to more than 10 psig (.7031 Kg/cm).

(6) To seat the bead while the rim wheel is restrained on a tire changing machine, the tire shall not be inflated to more than the operating pressure indicated on the tire or the posted capacity of the machine, whichever is the lesser. If, during inflation, the tire beads do not progress toward the flanges in a normal manner or are not fully seated by the time the tire is inflated to its designated operating pressure, the tire shall be deflated and the rim wheel disassembled. The wheel and tire shall be rechecked for compatibility, relubricated, repositioned, and then reinflated in accordance with this rule.

(7) A tire inflated in accordance with subrule (3) of this rule which reaches the tire changing machine's posted capacity before becoming inflated to its designated operating pressure or which has to be inflated in excess of its operating pressure to fully seat shall be placed in a restraining device positioned behind a barrier or shall be bolted on the vehicle, with lug nuts fully tightened.

(8) Employees shall stay out of the potential trajectory of the wheel when inflating a tire and shall not lean or place a rim wheel on or against any flat solid surface.

History: 1990 AACS.

#### R 408.17241 Radiators and gas tanks.

Rule 7241. (1) A radiator cap shall not be removed until the pressure has been relieved.

(2) Where radiators are repaired and cleaned by use of caustic solutions, the employee shall be protected by boots, gloves, rubber apron, safety glasses and face shield. A deluge water supply at a fixed location shall be available within 25 feet of the hazard source. This equipment shall be posted: "Emergency Shower."

(3) When the top of an open tank or vat containing a hazardous substance is less than 36 inches from the floor, platform or ground level, a barrier shall be erected to a height of not less than 36 inches on all exposed sides.

(4) Gasoline tanks shall be thoroughly evacuated and maintained free of all explosive vapors or gasoline before commencing welding or soldering repairs.

History: 1979 AC.

#### R 408.17243 Transmissions.

Rule 7243. When removing or replacing a transmission from below a vehicle, a cradle-type device shall be used to hold and carry the transmission.

History: 1979 AC.

#### R 408.17245 Extractors and wringers.

Rule 7245. (1) An extractor shall be equipped with a metal cover interlocked in a manner to prevent opening when the basket is in motion and power operation of the basket when the cover is open.

(2) An extractor shall be equipped with a motor brake.

(3) A power wringer used to remove moisture from fabrics shall be equipped with a safety release bar which shall remove the tension of the wringer rolls when struck.



History: 1979 AC.

R 408.17246 Car wash conveyors.

Rule 7246. (1) A conveyance used to move a vehicle along a line of working equipment or moving such equipment along a vehicle, shall have the conveyor, track or chain outlined by a 4-inch strip of yellow zone paint or other warning means located within 8 inches of the hazardous area.

(2) Pinch points exposed to contact shall be guarded as prescribed by the occupational safety standards commission standard, Part 14. Conveyors, being R 408.11403 to R 408.11461 of the Michigan Administrative Code.

History: 1979 AC.

R 408.17251 Automotive lift; adoption by reference; auxiliary support device; permanent tag; lifting more than rated capacity prohibited.

Rule 7251. (1) An automotive lift installed, or the modifications made, after the effective date of this subrule, shall be as prescribed in sections 2, 3, and 5, except paragraph 5.7, of the ANSI standard, B 153.1-1974, safety requirements for the construction, care and use of automotive lifts, which is incorporated herein by reference and may be inspected at the Lansing office of the department of labor. This standard may be purchased at a cost of \$3.50 from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Labor, 7150 Harris Drive, Box 30015, Lansing, Michigan 48909.

(2) When an employee is required to work underneath a vehicle supported by a hydraulic lift installed before the effective date of this part, the lift shall be used only when an auxiliary support device is engaged and capable of supporting the rated capacity of the lift.

(3) An automotive lift purchased after December 28, 1974, shall have affixed to it a permanent tag showing the name of the manufacturer, model number, serial number, and rated capacity.

(4) An automotive lift purchased before December 28, 1974, shall be equipped with a permanent tag showing the name of the manufacturer and its rated capacity. Where this information is not available, an outside source knowledgeable in automotive lifts shall be used to determine the rated capacity. This capacity shall be permanently labeled on the lift.

(5) An automotive lift shall not be used to lift more than its rated capacity.

History: 1979 AC.

R 408.17252 Automotive lift; inspections.

Rule 7252. (1) Wire rope used on a mechanical-type lift shall be inspected as prescribed in R 408.17232(3).

(2) Effective December 31, 1976, the following items shall be inspected and the inspections shall be repeated not less than annually thereafter:

the bolster, bolster connections, lifting arms and pads, lift control devices, oil reservoir level, cylinder packing, and all other critical components. Defects shall be repaired before the hoist is returned to service.

History: 1979 AC.

R 408.17253 Automotive lift; color coding obstructions or hazards in work area; vehicle positioning means; corrosive protective methods.

Rule 7253. (1) Fixed obstructions, protrusions, and other tripping or stumbling-type hazards located in the work area of a lift shall be color-coded as prescribed in rule 18 of general industry safety standard, Part 1. General Rules, being R 408.10018 of the Michigan Administrative Code.

(2) Vehicle positioning means, such as locating ribs, positioning dishes, or floor markings, shall be used with frame axle engaging lifts.

(3) A hydraulic automotive lift cylinder installed underground in a fixed position after the effective date of this amendment shall be protected from possible catastrophic failure by electrolytic corrosion at the bottom of the cylinder. At least 1 effective means, such as 1 of the following corrosive protective methods, shall be used to protect the cylinder:

(a) The cylinder bottom shall be imbedded in concrete to a depth of not less than 3 inches and with not less than a 1-inch wall thickness.

(b) A square plate which is not less than 1/2 inch greater in diameter than the cylinder bottom and which is thicker than the cylinder wall shall be continuously welded to the cylinder bottom.

(c) The cylinder shall be encased in a watertight electrical insulating housing, wrap, or coating.

(d) The cylinder shall be equipped with a sacrificial anode system sufficient to protect the cylinder.

(4) An electromechanical power lift shall have all of the following devices:

(a) A separate deadman-type raise-lower switch mounted on the power column.

(b) A separate power disconnect switch that is readily accessible to the operator in the lift area.

(c) A device to automatically de-energize the lift when it has reached the limits of its travel.

(5) A screw-driven lift shall be provided with a safety nut to follow the main drive nut, which shall be capable of sustaining the imposed load in the case of failure of the main drive nut.

(6) The lift control mechanism shall automatically return to neutral or "off" position when released by the operator.

History: 1979 AC; 1990 AACS.