(f) *Shear section.* A shear section or sacrificial device is required for the valves specified in the following locations:

(1) A section that will break under strain must be provided adjacent to or outboard of each valve specified in § 178.337–8(a)(3) and (4).

(2) Each internal self-closing stop valve, excess flow valve, and check valve must be protected by a shear section or other sacrificial device. The sacrificial device must be located in the piping system outboard of the stop valve and within the accident damage protection to prevent any accidental loss of lading. The failure of the sacrificial device must leave the protected lading protection device and its attachment to the cargo tank wall intact and capable of retaining product.

[Order 59–B, 30 FR 581, Jan. 16, 1965. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 178.337–10, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 178.337–11 Emergency discharge control.

(a) *Emergency discharge control equipment.* Emergency discharge control equipment must be installed in a liquid discharge line as specified by product and service in § 173.315(n) of this subchapter. The performance and certification requirements for emergency discharge control equipment are specified in § 173.315(n) of this subchapter and are not a part of the cargo tank motor vehicle certification made under this specification.

(b) *Engine fuel lines.* On a truck-mounted cargo tank, emergency discharge control equipment is not required on an engine fuel line of not more than ¾ NPT equipped with a valve having an integral excess flow valve or excess flow feature.

[64 FR 28050, May 24, 1999]

§ 178.337–12 [Reserved]

§ 178.337–13 Supporting and anchoring.

(a) A cargo tank that is not permanently attached to or integral with a vehicle chassis must be secured by the use of restraining devices designed to prevent relative motion between the cargo tank and the vehicle chassis when the vehicle is in operation. Such restraining devices must be readily accessible for inspection and maintenance.

(b) On a cargo tank motor vehicle designed and constructed so that the cargo tank constitutes in whole or in part the structural member used in place of a motor vehicle frame, the cargo tank must be supported by external cradles. A cargo tank mounted on a motor vehicle frame must be supported by external cradles or longitudinal members. Where used, the cradles must subtend at least 120 degrees of the shell circumference.

(c) The design calculations of the support elements must satisfy the requirements of § 178.337–3, (a), (b), (c), and (d).

(d) Where any cargo tank support is attached to any part of a cargo tank head, the stresses imposed upon the head must be provided for as required in paragraph (c) of this section.

[68 FR 19280, Apr. 18, 2003]

§ 178.337–14 Gauging devices.

(a) *Liquid level gauging devices.* See § 173.315(h) of this subchapter.

(b) *Pressure gauges.* (1) See § 173.315(h) of this subchapter.

(2) Each cargo tank used in carbon dioxide, refrigerated liquid or nitrous oxide, refrigerated liquid service must be provided with a suitable pressure gauge. A shut-off valve must be installed between the pressure gauge and the cargo tank.

(c) *Orifices.* See § 173.315(h) (3) and (4) of this subchapter.

[Amdt. 178–29, 38 FR 27599, Oct. 5, 1973, as amended by Amdt. 178–89, 54 FR 25018, June 12, 1989; Amdt. 178–118, 61 FR 51340, Oct. 1, 1996]

§ 178.337–15 Pumps and compressors.

(a) Liquid pumps or gas compressors, if used, must be of suitable design, adequately protected against breakage by collision, and kept in good condition. They may be driven by motor vehicle power take-off or other mechanical, electrical, or hydraulic means. Unless they are of the centrifugal type, they