DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

[Docket No. HM-110; Amdts. Nos. 173-87
177-31]

PART 173—SHIPPERS

PART 177—SHIPMENTS MADE BY WAY OF COMMON, CONTRACT, OR PRIVATE CARRIERS BY PUBLIC HIGHWAY

Handling of Hazardous Materials on Motor Vehicles; Miscellaneous Amendments

The purpose of these amendments to the hazardous materials regulations of the Department of Transportation is to (a) require the installation of liquid discharge controls on certain MC 330 cargo tanks; (b) specify location requirements for retention of manufacturer's certificates for specification cargo tanks; (c) clarify the hydrostatic and pneumatic testing procedures for cargo tanks; (d) provide for the use of certain heaters in vehicles loaded with flammable commodities; (e) define "attendance" as it pertains to a tank motor vehicle being loaded or unloaded; (f) require that internal valves and manholes on cargo tanks be in a closed and secured position during transportation; (g) authorize certain repairs to a motor vehicle containing hazardous materials in a closed garage; and, (h) make several editorial changes to reflect recent amendments to the Federal motor carrier safety regulations (49 CFR 390-397) pertaining to warning devices for stopped vehicles.

On August 27, 1973, the Hazardous Materials Regulations Board published a notice of proposed rule making, Docket No. HM-110; Notice No. 73-5 (38 FR 22901), which proposed these amendments. Interested persons were invited to give their views.

Several commenters pointed out that because many MC 330 cargo tanks are not equipped with manholes, especially those of less than 3500-gallon water capacity, it would be difficult to retrofit these tanks with internal emergency valves at vapor discharge openings. The Board recognizes this problem and has decided to make this rule making applicable only to liquid discharge openings. The Board will consider further the problems raised concerning retrofitting vapor discharge openings in future rule making. Also, this decision is based on the fact that the Board inadvertently failed to include MC 331 cargo tanks constructed before March 31, 1974, in order to be consistent with amendments made in HM-86 (38 FR 27595).

A number of commenters objected to the cargo tank certificate retention proposal. One commenter stated "[it] is an unrealistic and unnecessary requirement," and "could significantly increase paperwork for many carriers * * *." The Board reiterates that this proposal is merely intended to clarify existing record keeping requirements. Presently, each cargo tank specification requires that the carrier procure and retain a manufacturer's certificate. Sections 173.33 and 177.824 require the retention of periodic retest and inspection records. Part 396 of the Federal motor carrier safety regulations (49 CFR 390-397) requires the retention of inspection and maintenance records for all vehicles. The only "new" aspect of the proposal is that the records be kept together in the same file to form a composite history of the cargo tank. The Board recognizes that some record keeping duplication may result, in that part of the inspection and maintenance records required by Part 396 may be duplicated by this amendment depending upon each carrier's record keeping system. However, only those records pertaining to inspection and maintenance of the tank vessel need be retained with the manufacturer's certificate. Recognizing the burden this would place on single trip leased cargo tanks, the Board has not made the requirement applicable to cargo tanks leased for less than 30 days when the required records are retained by the lessor.

In its proposal to clarify the procedures for pneumatic testing in § 177.824 (d)(2), the Board said the test pressure must be increased by a pressure equivalent to the static head in the tank when fully loaded. A commenter pointed out that in some cases, the total test pressure may exceed the maximum design pressure of the cargo tank. The Board agrees and has dropped this provision. Another commenter suggested that the provisions for hydrostatic and pneumatic testing be listed separately. The Board agrees and has made editorial changes accordingly.

In its proposal to prohibit the use of catalytic heaters in vehicles transporting flammable liquids and flammable gases, the Board stated the rule making action was merely clarifying the position of the Federal Highway Administration that catalytic heaters are combustion heaters. The Board Member for Federal Highway Administration has not changed that position. However, based on experience data submitted in response to the notice, the Board Member for Federal Highway Administration believes catalytic heaters may be a safe means to heat the cargo space of motor vehicles.

The original position of the Board Member for the Federal Highway Administration was based on fires reported to the Bureau of Motor Carrier Safety under the Federal Motor Carrier Safety Regulations' accident reporting system. Recent reports submitted to the Bureau have indicated that the majority of such fires were caused by cargo being too close to the heaters. Based on this data, the

Board believes catalytic heaters can safely be used with flammable liquids and flammable gases provided adequate guards are installed to prevent lading from being too close to the heating elements. Therefore, § 177.834 has been changed to require guards to keep lading at least 12 inches from any catalytic heater.

That part of the proposal pertaining to the use of catalytic heaters in vehicles containing explosives is being retained as proposed.

Section 177.834(l) has been modified to clearly distinguish who is responsible for ensuring the attendance of cargo tanks during loading and unloading. For example, the carrier's responsibility will depend upon whether its contractual obligation to transport the hazardous material includes loading or unloading.

Many commenters pointed out that shipper or consignee personnel often perform the actual loading or unloading of the cargo tank even though the carrier's driver is present. The proposed definition of "qualified representative" would not allow attendance by such persons. The section has been changed to permit attendance by a "qualified person" without the requirement that he be a representative of a motor carrier.

Editorial changes have been made to the proposal that all openings on a tank vehicle be closed to clarify application of the rule.

The Board proposed to change § 177.845(g) to allow repairs to vehicles containing hazardous materials in closed garages with certain restrictions. Several commenters objected to the restriction pertaining to presence of welding or flame producing devices in the same enclosed area and suggested a distance factor instead of the blanket prohibition. While the prohibition may cause some inconveniences, accident experience has shown that distance is not always an adequate safeguard, especially considering the nature of some gases and flammable vapors. The Board does not believe the restrictions are overbearing when considering the alternative of the complete prohibition against any repairs in a closed garage. Editorial changes have been made in § 177.854(g)(1) to include a cross-reference to paragraph (h) and to limit application to those materials having a definite fire or explosion hazard.

The Board is cancelling § 177.815(g) which was inadvertently overlooked during rule making in Docket No. HM-8 (38 FR 5292).

In consideration of the foregoing, Parts 173 and 177 of Title 49 are amended as follows:

1. In § 173.33, paragraph (l) is added as follows:

§ 173.33 Cargo tank use authorization.

* * * * *

(l) Each MC 330 cargo tank used for flammable compressed gas or anhydrous ammonia must be equipped with liquid discharge controls that conform to the requirements of § 178.337-11(c) of this subchapter at each liquid discharge opening. The controls required by this paragraph must be installed not later than the date the tests prescribed by paragraph (e) of this section are required.

2. In Part 177 table of contents, § 177.814 is added to read as follows:

§ 177.814 Retention of manufacturer's certificate and retest reports.

3. Section 177.814 is added to read as follows:

§ 177.814 Retention of manufacturer's certificate and retest reports.

(a) Each motor carrier who uses a cargo tank vehicle shall have in his files a certificate signed by a responsible official of the manufacturer or fabricator of the cargo tank, or a competent testing agency, certifying that the cargo tank identified in the certificate was manufactured and tested in accordance with the requirements contained in the specification under which the cargo tank was constructed. The certificate and any other data furnished as required by the specification must be retained at the principal office of the carrier during the time that the cargo tank is used by the carrier and for 1 year thereafter. However, the motor carrier may himself perform the tests and inspections to determine whether the tank meets the requirements of the specification. If the motor carrier does so and determines that the tank conforms to the specification, he may use the tank if he retains the test data, in place of a certificate in his files at his principal office for as long as he uses the tank and 1 year thereafter. Each motor carrier who uses a specification cargo tank which he does not own and has not tested or inspected shall obtain a copy of the certificate and retain it in his files at his principal office during the time he uses the tank and for 1 year thereafter.

(b) Upon a written request to, and with the approval of, the Director, Regional Motor Carrier Safety Office, for the region in which a motor carrier has his principal place of business, a motor carrier may retain the certificate and other data specified in paragraph (a) of this section at a regional or terminal office. The address and jurisdictions of the Directors of Regional Motor Carrier Safety Offices are shown in § 390.40 of Chapter III of this title.

(c) *Withdrawal of certification.* See § 177.824(l) of this subchapter.

(d) A copy of retest and inspection reports required by § 173.33 and § 177.824 of this subchapter and all records of repairs to each cargo tank vessel must be retained in the same file with the manufacturer's certificate for that tank as specified in paragraph (a) of this section. This provision does not apply to a motor carrier leasing a cargo tank for less than 30 days if the lessor has the records required by this section in his files.

§ 177.815 [Amended]

4. In § 177.815, paragraph (g) is deleted.

5. In § 177.824, paragraph (d) is revised to read as follows:

§ 177.824 Retesting and inspection of cargo tanks.

* * * * *

(d) *Hydrostatic or pneumatic testing procedure.* The requalification as an authorized container of cargo tanks (or compartments) required to be hydrostatically or pneumatically tested in accordance with paragraph (a) of this section shall be based on successfully meeting the requirements of this paragraph.

(1) *General.* (i) If a cargo tank is compartmented each compartment shall be similarly tested with the adjacent compartment empty and at atmospheric pressure.

(ii) All closures shall be in place while the test is being made. During the test all relief devices shall be clamped, plugged or otherwise rendered inoperative. Relief devices shall be returned to their operative condition immediately after the tests are completed.

(iii) The tank or compartment must hold the prescribed pressure for at least 10 minutes. All tank valves, piping, and other accessories in communication with the lading must be pressure tested and proven tight at the tank design pressure.

(iv) All pressure bearing portions of the heating system of a cargo tank (or compartment) employing such media as steam or hot water for heating the lading shall be tested under hydrostatic pressure and proven to be tight at 14.0 kg./sq. cm (200 psig). Systems employing flues for heating the lading shall be suitably tested to insure against product leakage into the flues or into the atmosphere.

(2) *Hydrostatic test.* For Hydrostatic testing, the tank (including its domes, if any) must be completely filled with water or a liquid having a viscosity similar to water. Pressure must be gauged at the top of the tank applied in accordance with Table I following paragraph (d)(3) of this section.

(3) *Pneumatic test.* Pneumatic pressure must be applied in accordance with Table I of this paragraph. During the pneumatic test the entire surface of all joints under pressure must be coated with a solution of soap and water, heavy oil, or other materials suitable for the purpose of foaming or bubbling to indicate the presence of leaks. Other methods equally sensitive for determining leaks may be used.

TABLE I

Container type:	*Test pressure KG/SQ. CM.*
MC 300, 301, 302, 303, 305, 306	0.2109 (3 psig)
MC 304, 307	1.76[1] (25[1] psig)
MC 310, 311, 312	0.2109[1] (3[1] psig)

[1] Or 1½ times design pressure whichever is greater.

(4) *Required results.* A cargo tank (or compartment) required to be hydrostatically or pneumatically tested in accordance with paragraph (a) of this section may not be returned to service f

a specification cargo tank unless it has successfully retained the applicable test pressure (see Table I in pargaraph (d) (3) of this section) without leakage, undue distortion, excessive permanent expansion, or evidence of impending failure. The suitability of any repairs shall be determined by the same method of test.

(i) Cargo tanks (or compartments) with heating systems shall successfully withstand the hydrostatic pressure and examination specified in paragraph (d) (1) (iv) of this section.

6. In § 177.834, paragraphs (l) and (l) are revised to read as follows:

§ 177.834 General requirements.

* * * * *

(l) *Attendance requirements.* (1) *Loading.* A cargo tank must be attended by a qualified person at all times when it is being loaded. The person who is responsible for loading the cargo tank is also responsible for ensuring that it is so attended.

(2) *Unloading.* A motor carrier who transports hazardous materials by a cargo tank must ensure that the cargo tank is attended by a qualified person at all times during unloading. However, the carrier's obligation to ensure attendance during unloading ceases when—

(i) The carrier's obligation for transporting the materials is fulfilled;

(ii) The cargo tank has been placed upon the consignee's premises; and

(iii) The motive power has been removed from the cargo tank and removed from the premises.

(3) A person "attends" the loading or unloading of a cargo tank if, throughout the process, he is awake, has an unobstructed view of the cargo tank, and is within 7.62 meters (25 feet) of the cargo tank.

(4) A person is "qualified" if he has been made aware of the nature of the hazardous material which is to be loaded or unloaded, he has been instructed on the procedures to be followed in emergencies, he is authorized to move the cargo tank, and he has the means to do so.

(5) A delivery hose, when attached to the cargo tank, is considered a part of the vehicle.

* * * * *

(l) *Use of cargo heaters with explosives and flammable commodities.* (1) *Flammable liquids and flammable gases.* Except as provided in paragraph (l) (2) of this section, a flammable liquid or a flammable gas must not be loaded into a truck body or a trailer containing a combustion heater, or equipped with operable automatic temperature control equipment. Fuel tanks for automatic temperature control equipment must be emptied or removed from the vehicle, except that liquefied petroleum gas fuel tanks exterior to the vehicle body may have their valves closed and disconnected from the fuel feed lines instead of being emptied or removed. Catalytic heaters may be used provided adequate guards are installed to prevent any cargo from being closer than 30.05 cm (12 inches) to the heater.

(2) *Exception for certain automatic temperature control equipment.* A flammable liquid or a flammable gas may be transported in a vehicle equipped with automatic temperature control equipment if, (i) the lading space is equipped with electrical apparatus of the nonsparking or explosion-proof type, (ii) no combustion apparatus is in the lading space; and (iii) there is no connection for return of air from the lading space to any combustion apparatus. The heating system must prevent heating of any part of the lading to a temperature of more than 54 C. (130° F.) and must conform to the requirements of § 393.77 of this title.

(3) *Explosives.* An explosive may not be loaded into a truck body or trailer which contains a combustion heater including a catalytic heater, or is equipped with operable automatic temperature control equipment. All fuel tanks for a heater or automatic temperature control equipment with which a truck body or trailer is equipped must be drained. All automatic heating or refrigeration machinery must be rendered inoperative by disconnection of the automatic controls and sources of power for its operation.

§ 177.835 [Amended]

7. In § 177.835, paragraph (e) (1) is deleted.

8. In § 177.837, paragraph (e) is added to read as follows:

§ 177.837 Flammable liquids.

* * * * *

(e) *Manholes and valves closed.* A person shall not drive a tank motor vehicle and a motor carrier shall not require or permit a person to drive a tank motor vehicle containing a flammable liquid (regardless of quantity) unless—

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

9. In § 177.839, paragraph (d) is added to read as follows:

§ 177.839 Corrosive liquids.

* * * * *

(d) *Corrosives in cargo tanks.* A person shall not drive a tank motor vehicle and a motor carrier shall not require or permit a person to drive a tank motor vehicle containing corrosives (regardless of quantity) unless—

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

10. In § 177.841, paragraph (d) is added to read as follows:

§ 177.841 Poisons.

* * * * *

(d) *Poisons in cargo tanks.* A person shall not drive a tank motor vehicle and a motor carrier shall not require or permit a person to drive a tank motor vehicle containing poisons (regardless of quantity) unless—

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

11. In § 177.854, the last sentence in paragraph (a), entire paragraphs (f) (1) and (f) (2), and paragraph (g) are amended to read as follows:

§ 177.854 Disabled vehicles and broken or leaking packages; repairs.

(a) * * * See §§ 392.22, 392.24, and 392.25 of this title for warning devices required to be displayed on the highway.

* * * * *

(f) * * *

(1) For motor vehicles other than cargo tank motor vehicles used for the transportation of flammable liquids or flammable compressed gases and not transporting explosives, Class A, or Class B, warning devices must be set out in the manner prescribed by § 392.22 of this title.

(2) For cargo tank motor vehicles used for the transportation of flammable liquids or flammable compressed gases, whether loaded or empty, and vehicles transporting explosives Class A or Class B, warning devices must be set out in the manner prescribed by § 392.25 of this title.

(g) *Repairs and maintenance to vehicles.* (1) Except as provided in paragraph (h), no maintenance or repair using open flame or any type of welding may be performed on vehicles containing flammable liquids, flammable gas, oxidizers, or explosives.

(2) A vehicle containing hazardous materials, except explosives or cargo tanks containing flammable liquids or flammable compressed gases (regardless of quantity), may be inside a building for repairs or other reasons provided—

(i) There is no flame-producing or welding devices in operation within the same enclosed area of the building; and

(ii) The vehicle has an operable means of motive power or is connected to an operable truck or truck tractor to facilitate its quick removal from the building.

12. In § 177.856, the second sentence in paragraph (d) is amended to read as follows:

§ 177.856 Accidents; flammable liquids.

(d) * * * In such cases warning devices must be set out in the manner prescribed by § 392.25 of this title. * * *

* * * * *

13. In § 177.859, the third sentence in paragraph (b) is amended to read as follows:

§ 177.859 Accidents; compressed gases.

* * * * *

(b) * * * Warning devices must be set out in the manner prescribed in § 392.25 of this title. * * *

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These amendments are effective April 1, 1975. However, compliance with the regulations as amended herein is authorized immediately.

(Transportation of Explosives Act (18 U.S.C. 831–835); Sec. 6 Department of Transportation Act (49 U.S.C. 1655))

Issued in Washington, D.C., on November 25, 1974.

KENNETH L. PIERSON,
Alternate Board Member for the Federal Highway Administration.

[FR Doc.74-28079 Filed 11-29-74;8:45 am]