



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.O. 20590

NOV 3 1998

Mr. Samuel S. Elkind
Air Dangerous Goods
United Parcel Service
1400 North Hurstbourne Parkway
Louisville, KY 40223

Ref. No. 98-0308

Dear Mr. Elkind:

This is in response to your letter of October 9, 1998, regarding the transportation of a generator under the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180). Specifically you state that the generator is described as "Engines, internal combustion, 9, UN3166" and request clarification on the provisions of 49 CFR 173.220.

As provided by § 173.220(a), an internal combustion engine or fuel tank which contains any amount (including residue) of a flammable liquid or gaseous fuel is subject to the HMR. For transportation by aircraft, up to 500 ml (17 ounces) of fuel may remain in engines and fuel lines provided the lines are securely closed to prevent leakage of fuel. Air shipments are subject to shipping paper requirements but are excepted from marking, labeling, placarding and emergency response information requirements. For transportation by motor vehicle or rail car, fuel may remain in engines and tanks provided the fuel tanks are securely closed. Shipments by motor vehicle or rail car are not subject to any other requirements of the HMR if no other hazardous materials are packaged with the generator. (See § 173.220(b) and (g).)

I hope this satisfies your inquiry.

Sincerely,

Delmer F. Billings
Chief, Standards Development
Office of Hazardous Materials Standards



United Parcel Service 1400 North Hurstbourne Parkway, Louisville, KY 40223
(502) 329-3000

LaValle
§ 173.220

98-0308

October 9, 1998

Mr. Edward T. Mazzullo
Director, office of Hazardous Materials Standards
Research & Special Program Administration
400 Seventh Street, SW
Washington, DC 20590

Re: Engines, Internal Combustion - 49 CFR 173.220

Dear Mr. Mazzullo:

By letter dated October 8, 1998 to Bill Wilkening of FAA, we sought an emergency exemption to except from the Hazardous Materials Regulations generators powered by internal combustion engines that are being shipped to the island of Puerto Rico. The exemption has been sought to support the humanitarian relief effort in the aftermath of the hurricane.

The entire experience involving these generators has underscored the powerful need for a definitive statement in the HMR of when an internal combustion engine is or is not regulated. While there are some proposed amendments contained in Docket HM-215C, we would respectfully suggest that those proposed amendments do not provide the definitive guidance needed by carriers and the shipping public. Sorely needed is a simple, commonsense statement of the point at which engines, such as those used to power generators, chainsaws, and similar common devices, become subject to the HMR.

To indicate the extremity of the need for clear definition of the point at which internal combustion engines become regulated, please allow me to review the events, and the succession of conflicting statements, that we have been through:

- UPS shipments of "new" generators were being handled as unregulated packages through our air service with few questions, until a major manufacturer sought to ship an aircraft pallet containing such generators, each displaying a Class 9 label. This manufacturer indicated that due to their factory testing of each generator, they offered them to other carriers as "Engines, internal combustion, 9, UN3166." Their factory testing did not put fuel in their tanks, but did introduce fuel to the fuel system, and the manufacturer assigned this classification due to residue remaining in the devices.



- In view of that information, we determined that the status of any generator sought to be shipped at an air service level, by any customer, needed to be established. It became the UPS position that the only generators that could be shipped by air are those for which a letter could be provided, from the manufacturer, stating that the generators never contained fuel, and were free from residue (i.e., had never been tested).¹ Recall that your office has advised the public that “a carrier knowingly violates the HMR when the carrier accepts or transports a hazardous material with actual or constructive knowledge that a package contains a hazardous material that has not been packaged, marked, labeled, and described on a shipping paper as required by the HMR” (63 FR 30412). By seeking such a letter, UPS has sought to avoid the charge that it had either actual or constructive knowledge that a generator was a hazardous material.
- In conversations with Del Billings of your office, and Bill Wilkening and Beth Romo, of FAA’s Dangerous Goods and Cargo Security Office, this approach to generators was not challenged.
- Comments related to us by FAA representatives indicated that some RSPA staff were of the opinion that these devices are unregulated if their fuel tanks had been emptied, or if they contain less than 17 ounces of fuel.
- Today, an irate customer, offended by our approach to the problem, contacted Diane LaValle of your office, and in a conference call with a technician at the UPS Hazardous Materials Support Center (HMSC), held a conversation about these generators. In part, the customer was disturbed because a letter from the retail store that sold the specific generator, stating that it had never contained fuel and was free from residue, had been sent to a UPS hub. Unfortunately, her package was not at the hub on the date her letter was sent; it had already been placed in the ground system for return.

More interesting was Ms. LaValle’s contention in this conversation that the generator was not a regulated hazardous material. When informed by the HMSC technician that the specific manufacturer of the generator had been contacted by UPS, and that this company reported that all generators are tested to verify the RPMs attained by their engines, Ms. LaValle then stated that the devices would be misclassified if assigned to Class 9; that they would properly be assigned to Class 3 because of their flammable liquid residue. Note the two obvious sets of conflicts (1) between the information in the letter procured by this customer (i.e., never run and free from residue), and the information provided over the telephone by the manufacturer of the generator (i.e.,

¹ In the UPS small package system, we accept dangerous goods prepared according to 49 CFR and eligible for carriage by passenger aircraft, to enable us to load dangerous goods shipments in inaccessible positions on our aircraft. Under 49 CFR, “Engines, internal combustion” are not permitted aboard passenger-carrying aircraft and are therefore forbidden in the UPS Air Dangerous Goods service.

factory tested, therefore containing residue); and also (2) between the classification guidance of 49 CFR 173.220, and Ms. LaValle's statements that such engines must be assigned to Class 3.

It is perhaps obvious to state that, on the subject of shipping internal combustion engines by air, confusion reigns. The content of §173.220 (in either current or proposed form) only contributes to this confusion.

Let me highlight some of the sources of confusion, using the proposed text as my reference. The applicability of this section is vague because it has no lower threshold below which an internal combustion engine *might* be unregulated.

(a) *Applicability.* An internal combustion engine, self-propelled vehicle, or mechanized equipment is subject to the requirements of this subchapter when transported as cargo on a transport vehicle, vessel or aircraft if --

(1) The engine or fuel tank contains a flammable liquid or gaseous fuel

* * *

(b) *Flammable liquid fuel.* Engines and flammable liquid fuel tanks are subject to the requirements of this subchapter as follows:

(1) If an engine or flammable liquid fuel tank is not completely drained or has more than 500 ml (17 ounces) of fuel in engine components and fuel lines, it is subject to all applicable requirements of this subchapter.

(2) If an engine or flammable liquid fuel tank is drained and has no more than 500 ml (17 ounces) of fuel in engine components and fuel lines, it is subject to certain exceptions listed in paragraph (g)(2) of this section. For transportation by aircraft, these exceptions are limited to marking, labeling, and an emergency response telephone number. The shipment is still subject to all other applicable requirements of this subchapter, such as shipping papers, emergency response information, notification of pilot-in-command, and general packaging requirements and the requirements specified in §173.27. [Proposed §173.220, 63 FR 44338 - emphasis added]

Note that the proposed §173.220 text perpetuates a lack of clarity in its speaking of draining an engine while at the same time permitting fuel to remain in "engine components and fuel lines." The fact that when such engines are manufactured they are factory tested means that a residue is present in the engine, if not in the fuel tank, and by the only available standard, §173.29, they would therefore appear to be regulated unless "sufficiently cleaned of residue and purged of vapors to remove any potential hazard" (§173.29(b)(2)(ii)). In a commonsense world of shippers who have widely varying degrees of knowledge and experience, this standard is impossible to apply in the acceptance of this kind of cargo.

For this reason, I strongly encourage your office, either through regulation or separate interpretation, to state clearly, in terms that can be understood by the general public, the point at which an internal combustion engine becomes unregulated. For example, is it unregulated --

1. Only if it has never contained fuel, not even for a factory test? This is the standard we have sought to enforce, clearly with difficulty.
2. If it has been factory tested, but the fuel tank never filled? If so, then a new unit in its box would not appear to be subject to the HMR.
3. If it has been used but drained as far as practicable? If so, then it could be used, drained in good faith effort by its user, and sent without concern for the regulations.
4. If it has been used but drained as far as practicable and run to starvation? This would be much like choice 2 above, but would reduce residue present in the device.
5. If it has been used, but drained as far as practicable and run to starvation, and then purged of vapors to remove any potential hazard (e.g., by air blown through the system or a similar means)? This would be a hard level to enforce for an accepting carrier but would at least be definitive.

In the case of choices 3 and 4, there is a higher probability of fumes and even small leaks causing the packages to be stopped and possibly returned to the customer or reported as a discrepancy under §175.31. The possible presence of fumes or small leaks from packages carried aboard aircraft may introduce safety concerns as well, and we would naturally defer to your agency in analyzing the risk posed by such leaks. In any case, there is a need to establish a clear, simple statement of the distinction between regulated and unregulated internal combustion engines.

If you wish to discuss these issues with me, please feel free to contact (502) 359-1891 or by internet e-mail at "air1sse@air.ups.com." As always, I very much appreciate your time and assistance in this matter.

Sincerely,



Samuel S. Elkind
Air Dangerous Goods

cc: Frank J. Black, ATA