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PACCAR Inc

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April 23, 1981

Director, Standards and
Regulations Division
Attention: O.N.A.C.
Docket 81-02 [Medium and Heavy
Trucks] ANR-490
U.S. Environmental Protection Agency
Washington, D.C. 20460

Re: Noise Emission Standards: Medium and Heavy Trucks and Truck Mounted Solid Waste Compactors

Dear Sir:

PACCAR Inc and its two heavy duty truck manufacturing divisions, Kenworth Truck Company (hereinafter referred to as "Kenworth") and Peterbilt Motors Company (hereinafter referred to as "Peterbilt") present this statement in response to the request of the Administrator contained in the Federal Register of March 19, 1981, Volume 46, No. 53, page 17558, for comment on whether the EPA should rescind the 80 dB(A) Noise Standard Regulation for heavy and medium trucks. The effective date of the 80 dB(A) standard was recently extended by the EPA from January 1, 1982 to January 1, 1983.

Under Section 6 of the Noise Control Act of 1972, regulations are to set limits on noise from products distributed in commerce which are requisite to protect the public health and welfare. In setting these standards, the EPA is required to take into account the magnitude and conditions of use of such products, the degree of noise reduction achievable through the application of the best available technology, and the cost of compliance.

These regulatory activities are in response to the policy stated in Section 2 of the Act: "to promote an environment for all Americans free from noise that jeopardizes their health and welfare."

Section 2 of the Act further states that primary responsibility for control of noise rests with state and local government, with federal action contemplated only where national uniformity is required.

PACCAR maintains that the EPA is operating beyond the intended scope of the Noise Control Act because:

A. The 80 dB(A) standard is not requisite to protect public health and welfare.

B. The 80 dB(A) standard does not take into account the cost of compliance to the manufacturer and to the owner/operator.

C. National uniformity of treatment is not essential to accomplish the next step toward overall community noise reduction.

D. Continuing to aim regulatory activity at the manufacturers of the new heavy-duty vehicles draws national attention and funding away from other vehicle-related noise problems which could and should be addressed.

E. The 80 dB(A) standard would probably not result in the anticipated 3 dB(A) reduction in the entire fleet.

A. The 80 dB(A) standard is not requisite to protect public health and welfare.

1. At the present time, there is no agreement, among authorities, including U.S. regulatory agencies, as to what is a safe maximum noise level.

The EPA identifies an equivalent sound level of Leq = 70 dB(A) as the maximum permissible when measured on a 24 hour basis every day of the year. This is based on a level which protects 96 percent of the population against permanent noise-induced hearing loss.[1]

The Occupational Safety and Health Administration (OSHA), on the other hand, considers a noise dose of 90 dB(A) for eight hours (or an Leq of 85 dB(A) over 24 hours) to be a safe maximum.

Great Britain presently shares the OSHA standard of 90 dB(A) permissible for a daily eight-hour exposure period.[2]

Dr. Aram Glorig, Director of Collier Hearing and Speech Center, Dallas, Texas, explains that opinions about

noise damage-risk involve many value judgments and, therefore, must be made by the entire interested community on the basis of medical, legal, sociological, and economic factors. To achieve no risk of hearing loss whatsoever according to Dr. Glorig, the noise level must be 80 dB(A) or less for eight hours per day.[3]

It is difficult to justify costly regulatory action aimed at a particular portion of industry when there is not even agreement on an appropriate noise reduction goal. Certainly, Dr. Glorig's caution to weigh all factors must be heeded.

2. Even if it were possible to arrive at commonly-accepted noise level reduction guidelines, stricter standards for new heavy-duty trucks would not substantially reduce the traffic noise level in residential areas.

New heavy-duty trucks make up a small percentage of the total vehicle mix. Only 6.9 percent of the 1979 vehicle sales were heavy duty (over 26,000 pounds GVWR) trucks.[4] Additionally, these trucks have a long useful life compared to other vehicles. Some 2.6 million trucks built in 1963 or earlier are still in operation on the highways.[5]

Heavy-duty trucks typically move from terminal to terminal, where smaller trucks, vans and cars receive goods for transport to urban areas. Most heavy-duty truck miles are logged on interstate or other main highways. For example, in 1979, truck tractors traveled 54,563 million miles on rural interstates, major rural, and local rural roads.[6]

During the same period, truck-tractors traveled 12,765 million miles on urban highways, but 6,270 million of those miles were on urban-area interstates.[7]

In other words, most heavy-duty truck traffic is not predominantly in the residential areas where it affects human "health and welfare." Instead, it is on rural, urban interstate, or main rural roads away from population centers.

3. Furthermore, vehicle travel on interstates and major highways is typically at the national speed limit of 55 mph or higher. (Recent figures from DOT show that only fifty percent of the driving population obeys the 55 mph limit.)

At speeds above 35 mph, tires become the dominant factor in truck noise (according to EPA spokesperson Martin Borklund, Project Manager for the tire program, in Transport Topics, June 23, 1980).

The EPA, in consideration of this phenomenon, has launched a thirty-six month program aimed at designing and producing "quiet truck tires."

Until "quiet tires" are widely available, (and the study program alone will not be completed until mid-1983), there is no justification for further regulation of engine and driveline noise. The new standard would be aimed only at reducing noise in the smallest percentage of the vehicle population operating in its least-common capacity.

4. The 80 dB(A) noise regulation is unnecessary in light of the actual noise levels of trucks currently being produced.

Under the current 83 dB(A) noise limit, production vehicles are actually averaging considerably less than the maximum allowable limit. For instance, the Peterbilt production vehicles for Model Year 1980 actually averaged a noise level of 80.3 dB(A), or 2.7 dB(A) below the maximum allowable. This is the result of two considerations. First, in order to assure compliance of the noisiest configurations, Peterbilt designed them for an 81.5 dB(A) noise level. This allows noisier individual units caused by production tolerances to still fall within the same legal limits. Second, since many of the same components are used on the noisiest engines as well as on the quietest engines, many of the quiet configurations average 3 or 4 dB(A) below the maximum limits.

B. The 80 dB(A) standard does not take into account the cost of compliance to the truck manufacturer and to the owner-operator.

The 80 dB(A) noise standard will increase the cost of manufacturing, purchasing, operating, and maintaining the truck. Since heavy duty trucks do not change with each model year, such modifications must be worked into existing designs.

1. Manufacturing costs will increase due to engineering hours required for redesign efforts and the addition of new sound-reducing componentry such as resonators, sound shields, new transmissions and larger mufflers.

International Harvester petitioned the EPA Administrator for reconsideration of the 1982 80 dB(A) noise standard on the basis that it cannot be justified under a cost - benefit analysis.[9]

Mack Truck's chairman, Alfred W. Pelletier, recently wrote to Secretary of Transportation, Neil A. Goldschmidt, to also request relief from the 1982 80 dB(A) noise standard on the basis of cost-to-benefit considerations:

> "We estimate the average cost per truck to the customer will be $400.00 to meet the 1982 regulation. We question the cost benefit to society, particularly in light of the fact that tire noise above 35 mph is not regulated.
>
> Regulations concerning the heavy-duty truck industry should be based on the need and cost related to that industry rather than included as an add-on to passenger car considerations, as has happened too often in the past.
>
> For example, regulatory cost increases not only affect the initial selling price of a truck, but more significantly the cost of transporting goods as well, and this inflationary multiplier effect is not taken into account."[10]

PACCAR, likewise, will face cost increases to comply with the new standard. Mufflers will cost approximately 25 percent more, and underhood noise blankets will replace the current heat shields on cab-over and low-cab-forward models at a net cost of about $50.00 per truck. Tee resonators are proposed for all dual exhaust systems, and in-line resonators are proposed for single systems with certain horsepower engines. Although the cost of the resonators themselves is not high, a major engineering effort is required to redesign exhaust systems to accommodate them. Initial estimates run as high as 10,000 work hours for the Kenworth Division alone.

The Peterbilt Division estimates that the additional cost of redesigned engines, transmissions, mufflers, and addition of two noise panels will increase the cost to the purchaser of each heavy-duty truck by $500.00. In addition, Peterbilt estimates an additional cost of $40.00 per truck to assure compliance.

2. Maintenance costs for new trucks equipped with additional noise attenuation componentry will most certainly increase.

For example, a Mack truck prototype for UPS was rated at 76.9 decibels (three dB(A) below the 80 dB(A) standard - considered to be safe margin for compliance). According to H. A. Cook, senior project engineer for Mack Trucks, the prototype could mean "astronomical" maintenance costs for whoever had to service its regular operational use. Mr. Cook cited the inaccessibility of many engine components from maintenance care due to the added sound absorption panels above and below the engine.[11]

If it is more difficult and costly to service a truck, maintenance is apt to be postponed past safe intervals.

In some instances, the addition of more sound attenuation equipment may actually create new safety problems in and of itself, besides those occasioned by maintenance difficulties. In discussing General Motors quiet truck prototype for UPS, Mr. Rattering, director of product noise control at the GM Tech Center, raised safety objections as follows:

"By fitting a bellypan onto an engine, there is a good chance that liquid hydrocarbons will drop into the pan and create a safety hazard. If a spark gets into deposits that would normally fall on the road, the whole truck could go up in flames."[12]

Mr. Rattering was also concerned about engines overheating under the sound absorbing blankets.

3. Operating costs as well as maintenance and initial purchase costs will increase with the new standard.

The EPA has been "attempting to cover bare spots in the data" they have on truck noise levels by testing four trucks under severe service conditions. Dr. Eric Bender, a project engineer at BBN, EPA's truck quieting consulting firm, indicated that one test truck (rated at 72.6 decibels), was 406 pounds heavier than current production models of the same vehicle. Dr. Bender estimated that the extra weight might account for a 30 gallon fuel efficiency loss for every 100,000 miles.[13]

Although weight increases for the 80 dB(A) standard will not be as dramatic as for the EPA truck, vehicle weight will definitely increase due to added equipment. Kenworth envisions additional weight from engine noise shields and, on some configurations, from larger mufflers, noise blankets, resonators, and added support brackets. Peterbilt estimates that required noise panels will add approximately 100 pounds to each truck. Some of our customers who are limited in the weight they can carry estimate that each pound of excess weight costs $10.00 to $12.00 per year in lost revenue.

International Harvester stressed that fuel prices have increased by more than 100 percent over the 1975 fuel prices used in the EPA analysis, and, thus, the cost of fuel efficiency loss due to the added weight of noise abatement components will be much greater than originally forecast. Projected fuel price increases will only continue to compound the situation.[14]

C. <u>"National Uniformity of standards" is neither "essential" nor appropriate to meet the stated goal of an environment free from noise that jeopardizes health and welfare</u>.

As previously discussed, further regulations of new medium and heavy-duty trucks will not significantly reduce community noise levels. Instead, state and local governments should more appropriately treat specific noise problems in urban areas.

Besides quieting individual new vehicles, Malcolm J. Crocker of Purdue University cites four other strategies by which traffic noise annoyance can be reduced:

1. Ensure that owners maintain and use their vehicles to minimize disturbance to others;
2. Protect people from noise by house isolation schemes and by constructing roadside noise barriers;
3. Reroute traffic away from residential areas and in particular from sensitive places such as hospitals and schools;
4. Plan new roads and communities to reduce traffic noise effects on prople by making effective use of shielding effects of distance, hills, cuttings, valleys and industrial buildings in routing of new roads.[15]

D. Continuing to aim regulatory activity at the manufacturers of new heavy duty vehicles draws national attention and funding away from other vehicle-related noise problems which could and should be addressed.

1. Maintenance of in-use vehicles of all types and classes aimed at controlling noise emissions due to exhaust system leaks, poorly timed engines, etc., should be a regulatory priority. For example, studies have shown that a hole in the exhaust system the size of a pencil eraser can add several decibels to the overall noise of the truck.

One-fourth of the cars on the road are at least ten years old. The average age of a truck in-use is seven years. More than 2.6 million trucks are 16 years old or older. Furthermore, the average age of cars in-use (6.4 years) was the highest last year that it has been since the early fifties and the number of cars on the road six years old or more increased by nearly 3 million in 1979.[16]

Standards of regular maintenance for in-use vehicles could make a contribution to community noise reduction.

2. Improved enforcement of existing Bureau of Motor Carrier Safety noise standards could reduce traffic noise without additional regulation.

3. Improved enforcement of existing state and municipal regulations prohibiting vehicle noise would also reduce community noise levels without additional regulation.

4. Better maintenance of road surfaces and repaving with materials demonstrated to reduce tire noise would quiet community noise levels without additional regulation.

5. Increased use of roadside foliage could quiet community noise levels without additional regulation.

If the EPA goals are to be aggressively worked for, federal money now given to developing new-vehicle standards could be more usefully spent enforcing existing standards

and encouraging better vehicle maintenance and better highway maintenance.

E. The 80 dB(A) standard would probably not result in the anticipated 3 dB(A) reduction of the entire fleet.

As mentioned above, Peterbilt's fleet is averaging 2.7 dB(A) below the limit even though a margin of 1.5 dB(A) is sufficient to assure compliance. Because of the added cost and weight penalties associated with new sound absorbing materials, Peterbilt would not quiet all vehicles by 3 dB(A). Instead, they would concentrate on bringing the noisiest configurations down to the 78.5 limit necessary to assure compliance. Thus, predictions based on a lowering of all new truck emissions by 3 dB(A) would be overally optimistic and would not predict real world performance.

EPA has stated that its intention is not to reduce momentary noise levels but to reduce the average community noise exposure over long periods of time. Thus, a regulation imposing a maximum noise limit on heavy trucks is inconsistent with the stated intent of the EPA. It would make better sense to restructure the current 83 dB(A) limit to provide a sales weighted fleet average noise emission limit. Such a limit would have no negative impact upon community noise level but would ease the burden on economically-troubled truck manufacturers and operators.

In conclusion, PACCAR has worked continuously to improve its vehicles to meet the demands of the marketplace and acknowledges the gains made by the efforts of the EPA to quiet trucks. However, in view of the facts presented in this paper, we urge the EPA to rescind the 80 dB(A) noise emission regulation for medium and heavy trucks.

Very truly yours,

Dennis G. Opacki
Counsel

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FOOTNOTES

1. A. M. Martin and J. G. Walker, "Occupational Deafness and Hearing Conservation," in Handbook of Noise Assessment, ed. Daryl N. May (New York: Van Nostrand Reinhold Company, 1978), p. 262.

2. Ibid.

3. Aram Glorig, "Damage'Risk Criteria for Hearing," in Noise and Vibration Control, ed. Leo Beranek (New York: McGraw-Hill, 1971), p. 541.

4. Motor Vehicle Manufacturers' Association, MVMA Motor Vehicle Facts and Figures '80, (Detroit: MVMA of the United States, Inc., 1980), p. 21.

5. Ibid., p. 41.

6. Ibid., p. 58.

7. Ibid., p. 58.

8. Ibid., p. 6.

9. International Harvester. Petition for Reconsideration - 1982 Medium and Heavy Truck Noise Emission Regulation, submitted to Douglas M. Costle, U. S. Environmental Protection Agency, September 2, 1980.

10. "Pelletier to Goldschmidt: Time to Evaluate the Rules," Transport Topics, September 15, 1980.

11. David Cutler, "Ever-Quieter Heavy Trucks May Prove Too Costly to Operate," Transport Topics, March 17, 1980.

12. Ibid.

13. Ibid.

14. International Harvester Petition.

15. Malcomb J. Crocker, "Noise of Surface Transportation to Nontravelers," in Handbook of Noise Assessment, ed. Daryl N. May (New York: Van Nostrand Reinhold Company, 1978), p. 53.

16. MVMA Motor Vehicles Facts and Figures '80, pp. 38-40.

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