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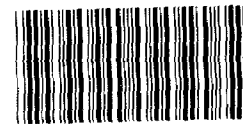
BY THE U.S. GENERAL ACCOUNTING OFFICE

**Report To The Honorable Gerry Sikorski And
The Honorable Robert Garcia
House Of Representatives**

RELEASED

**U.S. Postal Service Procurement Of
Long-Life Delivery Vehicles**

The Postal Service is planning to buy 99,150 long-life light delivery vehicles equipped with gasoline engines. The Service chose not to use diesel engines in any of these vehicles because there are no domestic manufacturers of small diesel engines with proven automotive applications and it felt diesels had certain operational limitations.



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GENERAL GOVERNMENT
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B-214801

The Honorable Gerry Sikorski
House of Representatives

The Honorable Robert Garcia
House of Representatives

By letter dated November 7, 1983, you asked us to jointly review with the Office of Technology Assessment (OTA) the Postal Service's decision to purchase 99,150 long-life¹ delivery vehicles (LLVs) equipped with small gasoline engines. You were concerned that diesel-powered engines for these vehicles were not sufficiently considered by the Service as an alternative to gasoline-powered engines.

As agreed with your office, this report will provide (1) information on the Service's rationale for selecting gasoline-engine vehicles (app. I); (2) a discussion of the Service's testing of small domestic diesel engines (app. I); and (3) answers to specific questions you asked in your letter (app. II).

We discussed details of the proposed procurement with Service officials in the Offices of Fleet Management and Procurement and Supply and examined engineering reports issued on diesel engine testing since fiscal year 1982 by the Service's Research and Development Laboratories. We also interviewed sources outside of the Service who are knowledgeable about diesel engines.

In June 1984, the Service solicited technical proposals for only gasoline-powered LLVs. After testing prototype vehicles and evaluating related price proposals, the Service expects to award a contract for 99,150 LLVs in July 1985. The total estimated cost of the procurement is about \$1.1 billion.

¹Life expectancy of 24 years (12-year life expectancy for power train).

We have no basis for questioning the Service's November 1983 decision to purchase LLVs powered by gasoline engines because, to date, no domestic manufacturer makes a small diesel engine that has been proven in automotive applications. Consequently, no conclusive data is available for making a comparative cost analysis of these two types of engines. Though foreign diesel engines are available that would satisfy the specifications, the Postmaster General has said that, as a policy matter, the engines must be purchased from domestic manufacturers.

While no small domestic-manufactured diesel engine has been proven in automotive applications to date, the Service is currently testing, in 100 light-delivery vehicles, small domestic diesel engines for potential automotive applications. These tests which began during late 1983 fulfilled a prior commitment by the Postmaster General to assist American manufacturers in the development of a small domestic diesel engine. (See p. 3 of app. I.) The Service's justification for the testing program stated that prior tests of small foreign diesel engines showed substantial fuel use improvements over gasoline engines and that an evaluation of small domestic diesel engines enhances the Service's efforts to expand the use of American-made fuel economy vehicles. The May 1984 report on alternate design engines for Postal Service light delivery vehicles prepared by the Service's research and development laboratories stated that, on the basis of available data, the diesel engine application had substantial potential cost savings from fuel consumption.

In a May 1984 draft of this report we suggested to the Service that it should, prior to the award of a procurement contract for only gasoline-powered LLVs, provide itself an opportunity to reconsider its gasoline-only procurement decision after having at least 1 year's test data on small domestic diesel engines. We believed that retaining this opportunity could be done without delaying the acquisition of the LLVs and was particularly warranted in view of the magnitude and long-term nature of the proposed procurement--99,150 long-life vehicles at an estimated cost of \$1.1 billion.

The Service did not agree with our suggestion and, in June 1984, solicited technical proposals for LLVs equipped with gasoline engines. In response to our suggestion, the Postmaster General stated (see app. III) that

--the Service's current tests of small diesel engines are not controlled tests and will not produce data sufficient for making a comparative cost analysis of diesel versus gasoline engines,

- it would be contrary to Service procurement regulations and unfair to potential bidders to request technical proposals for LLVs with gasoline engines based on an intended purchase of 99,150 such vehicles and then subsequently reduce this number if the Service's test results of diesel engines warranted it;
- acceptance of our suggestion would discourage some qualified vendors from competing, push up the unit cost, and possibly result in a failed, or at least a more costly procurement; and
- the Service has no basis for calculating that a mix of gasoline and diesel LLVs is desirable, much less what the mix should be. On the contrary, there are strong reasons for not having a mix.

The Service's decision to purchase gasoline-powered LLVs was made before the diesel engine tests were fully underway. (See p. 4 of app. I.) We agree that the tests are not controlled tests in that they do not match diesel-powered vehicles against similar vehicles with gasoline engines driven over the same routes under similar environmental conditions and by the same drivers. The tests will also not resolve all of the questions about the limitations of diesel engines (see p. 3 of app. I) or determine the additional procurement, training, servicing, repair, and parts stocking costs that would arise from maintaining both gasoline and diesel LLVs. (See p. 2 of app. I.)

The diesel tests will provide data on fuel consumption and maintenance--two very significant cost items--for 100 vehicles at six locations. (See p. 4 of app I.) We believe that this data covering at least 1 year would be sufficient for determining if the decision to equip all of the LLVs with gasoline engines should be reconsidered. The Service could have provided this opportunity by amending the solicitation to disclose that the Service was testing a small domestic diesel engine and that, during the term of the contract, the Service may find it preferable to have some LLVs powered by diesel engines. This action would have added some uncertainty to the acquisition plan, but would not, if taken shortly after issuance of the solicitation, have violated the Service's procurement regulations or been unfair to potential bidders. The flexibility provided by such an amendment would have enabled the Service to review the diesel engine test data--fuel consumption and maintenance--and, if warranted, fully study the use of diesel engines in light delivery vehicles.

Without a full and complete test of diesel-powered light delivery vehicles, it is not possible to know whether they would be less costly than gasoline engines or would outweigh any added costs from a mixed fleet. The Service has the necessary elements to make such a study--100 diesel-powered light delivery vehicles operating in a postal environment in six cities. However, as indicated by the Postmaster General's comments on our draft report, the Service believes that its decision to equip all of the LLVs with gasoline-powered engines is sound. The Service has, in our opinion, foreclosed any possibility for including diesel engines in its current procurement of 99,150 LLVs.

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As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

W.J. Anderson

William J. Anderson
Director

POSTAL SERVICE'S PLANNED PROCUREMENT OF
LONG-LIFE DELIVERY VEHICLES

BACKGROUND

The Postal Service maintains a fleet of about 169,000 owned or leased vehicles. As of September 1983, there were 92,267 vehicles classified as light-delivery vehicles--jeeps and passenger cars used to carry letter mail and small parcels. The Service also has a number of larger vehicles used to haul parcels and mail over long distances. Jeeps, which make up about 90 percent of the light-delivery vehicle fleet are equipped with a variety of engines such as American Motors, Pontiac, or Audi. The fleet also includes some Ford Pintos and Chrysler Volare and "K" cars. By September 1985, about half of the light-delivery fleet will have met the Service's 8-year life replacement criteria.

The Service plans to replace its light-delivery fleet with specially designed long-life (24-year) delivery vehicles (LLV). On the basis of discussions with automotive industry officials and Service study efforts, the following features were included in the proposed LLV specifications:

- right hand drive,
- aluminum body construction,
- flat load floor,
- 4-cylinder gasoline engine,
- automatic transmission,
- 100 cubic foot load capacity,
- 1000-pound pay load,
- minimum 24-26 miles per gallon fuel economy,
- easy overall maintenance and economical operation,
- 24-year life expectancy (12-year life expectancy for power train),
- easy multifuel conversion capacity (alcohol or compressed natural gas), and
- improved operator comfort and accessibility.

The Service issued the solicitation for a Technical Proposal Vehicle (i.e., a prototype vehicle) in June 1984. After testing the prototype and evaluating price proposals, the Service expects to award a contract for 99,150 LLVs in July 1985. The total estimated cost of the procurement is about \$1.1 billion with funds to be obligated and vehicles to be delivered over an 8-year period.

OBJECTIVES, SCOPE, AND METHODOLOGY

The primary objective of this review was to provide information at the request of Congressmen Garcia and Sikorski on the background and reasons for the Service's decision to procure only LLVs equipped with gasoline engines. The vehicle specifications did not allow diesel engines in the solicitation for proposals. As part of our work, we also developed answers to specific questions asked by these Congressmen about the Service's interest and experiences with diesel engines in their vehicle fleet. We performed our work at the Service's headquarters in Washington, D.C., and at its Research and Development Laboratories in Rockville, Maryland. Our work was performed in accordance with generally accepted government auditing standards.

We discussed the details of the proposed procurement with officials responsible for fleet management, with the contracting officer, and with the Service's Law Department. We reviewed correspondence between the Onan Corporation--an American diesel engine manufacturer--and the Service and talked to the sales manager of that corporation. At the Research and Development Laboratories we discussed the diesel engine research program with the project officer and examined the Engineering Accomplishment reports issued on the project since fiscal year 1982. We also talked about diesel engines with a public information specialist at the American Automobile Association and with weapons management officials at the Army's Tank Automotive Command in Warren, Michigan, who are responsible for designing and procuring military vehicles with diesel engines.

THE SERVICE'S RATIONALE FOR ITS PROPOSED PROCUREMENT

The Service believes that the proposed LLVs will have the mechanical and structural characteristics to provide maximum operational utility, efficiency, and reliability under all operational conditions nationwide. According to Service officials, standardizing the light-delivery fleet with these vehicles should result in significant savings and simplify the procurement of parts, supplies, and maintenance support operations. Standardization should also reduce the cost of training employees to service the vehicles, facilitate the diagnosis and

replacement of component parts, and permit rebuilding of components at centralized contract facilities.

The Service did not include a description of a diesel-powered LLV in its specifications because of the lack of domestic sources of small diesel engines with proven automotive performance and because of the following operational limitations of diesel engines:

- A large portion of the light-delivery fleet being replaced by the new vehicles are assigned to many small towns with post offices having one, two, or three routes. Diesel fuel as well as quality diesel engine maintenance is not readily available outside of metropolitan areas.
- LLVs with diesel engines will likely have the same cold weather starting problems experienced by the Service's fleet of large diesel-powered vehicles.
- Diesel engines are not as economically convertible to alternative fuels (natural gas or alcohol) as spark-ignited gasoline engines.
- Questions about the effects of diesel emissions on the environment and the cost of reducing such emissions to acceptable levels have not been resolved.

DIESEL ENGINES ARE BEING TESTED BY THE SERVICE

The Service is currently testing small domestic diesel engines for potential automotive application in light-delivery vehicles. In 1981, the Service attempted to buy 4,000 diesel-powered vehicles as part of an overall procurement of 21,227 light-delivery vehicles. However, the manufacturer was unable to meet the miles-per-gallon difference in the contract specifications. The Postmaster General then expressed his interest in seeing the Service take the lead in developing small domestic diesel engines for use in light-delivery vehicles. He further expressed his intent to have the Service's Research and Development Laboratory jointly explore the development of such an engine with American engine manufacturers.

Two American manufacturers of small diesel engines are now working with the Service's Research and Development Laboratory to install, test, and operate their engines in light-delivery vehicles. Onan Corporation, working with the Service in 1980, first installed one of their 140 CID diesel engines in a 1/4-ton DJ-5G jeep chassis. This was their first attempt to use a small

diesel engine in an automobile even though the drive train, including the transmission, was not a good match to the engine. In August 1983, 50 Onan diesel engines were installed in model DJ-5L light-delivery vehicles. The chassis for these test vehicles were purchased through an existing contract with American Motors. The conversion kit to install the Onan engines in the test chassis cost about \$3,000 per vehicle including prorated engineering costs. By the end of October 1983, all Onan test engines were installed in vehicles and 10 vehicles were operational at the following locations:

- Buffalo, New York;
- Miami, Florida;
- Minneapolis, Minnesota;
- Salt Lake City, Utah; and
- San Diego, California.

In November 1983, Teledyne-Continental began installation of 50 of its diesel engines in DJ-5L light-delivery vehicles. Installation has been completed and 10 vehicles have been placed in an operational environment at the following locations:

- Buffalo, New York;
- Miami, Florida;
- Muskegan, Michigan;
- Salt Lake City, Utah; and
- San Diego, California.

Operational and maintenance data will be accumulated on each vehicle in the program. By December 1984, both the Onan and Teledyne-Continental diesel engines will have been tested in Service vehicles for 1 year.

ANSWERS TO SPECIFIC QUESTIONS ASKED
GAO IN THE NOVEMBER 7, 1983, LETTER

Question

Why diesel engines could be rejected [sic] for light duty vehicles when the Postal Service already has diesel engines in use?

Answer

The Service rejected diesel engines for its light-delivery vehicles because of the potential operational limitations of small diesel engines (see p. 3 of app. I) and because of the lack of domestic sources of small diesel engines with proven automotive performance. The Service does use diesel engines in its larger vehicles. There is an adequate domestic supply of diesel engines to support these vehicles. The Service said diesel fuel and engine maintenance are readily available in and around metropolitan areas; however, diesel fuel and maintenance are not readily available in rural areas where a number of the Service's light-delivery vehicles are permanently located. The Service informed us that, in the future, it plans to use diesels in all of its vehicles other than light-delivery vehicles.

Question

Why can't the Postal Service purchase a mixed-use fleet of vehicles? If diesel power is considered impractical for certain regions, is it not also possible that gasoline power is impractical for other regions?

Answer

In addition to having a longer life replacement period, the Service wants to standardize the use of LLVs throughout its light-delivery fleet for several other reasons. The light delivery fleet is now made up of jeeps with a variety of engines, Pintos, Volares, and "K" cars. The Service maintains that the variety of makes and models creates major problems in procuring supply parts and maintenance and in providing maintenance support. Service officials informed us that the standardization of all light-delivery vehicles may result in an estimated one-time savings of \$51 million in support parts alone. Using a combination of vehicles with diesel and gasoline engines would require the Service to maintain two fuel and repair parts support systems, one each for diesel and gasoline.

We are not aware of any Service location where it is impractical to operate gasoline engines. As far as we can ascertain, gasoline engines are now operating or have operated in the past in all Service locations.

Question

What are the internal management procedures of the Postal Service that preclude serious consideration of congressional concerns on such important matters as major vehicle procurement?

Answer

Service officials furnished us with information showing how it responded to congressional concerns about the planned procurement. In August 1983, at the request of Congressman Sikorski's staff, the Postmaster General visited the Onan Corporation to get an overview of their manufacturing capabilities while in Minneapolis for a Board of Governors meeting.

By letter dated September 22, 1983, the Service's Government Relations Department informed Congressman Sikorski about the Postmaster General's meeting with Onan's Chief Executive Officer. The letter also stated that no decision had been reached on the issue of whether gasoline or diesel engines would be used in the LLV. At oversight hearings conducted by Subcommittees of the House Post Office and Civil Service Committee on September 27, 1983, the Postmaster General was asked about the status of the procurement and requested by Congressman Sikorski to furnish answers to three questions concerning (1) the exclusion of diesel engines from the LLV specifications, (2) Onan's rebuttal of Service objections to diesel engines, and (3) the status of the decision on engine selection. The Postmaster General again said that no final decision had been made on the engine to be used in the light-delivery vehicle. Answers to the three questions were provided to the Committee by memorandum dated November 15, 1983.

On October 5, 1983, during oversight hearings by Subcommittees of the House Post Office and Civil Service Committee, the Chairman of the Service's Board of Governors was asked to respond to the same three questions. The Chairman's answers were provided on November 4, 1983, with an edited transcript of the hearings.

On October 31, 1983, Service management presented a briefing on the procurement strategy to the Board of Governors in a closed meeting. The Board agreed with a strategy to request proposals to provide long-life, gasoline-powered vehicles. Congressman Sikorski as well as other members of the Congress was notified of this decision in a hand-delivered memorandum

dated November 3, 1983, from the senior representative of the Postal Service Government Relations Department.

Question

What is the wisdom of planning a purchase that will commit the Service into the next century when new means of communication between individuals and businesses are now being developed?

Answer

OTA's November 22, 1983, reply to you pointed out that its assessment of the use of electronic mail indicates that the volume of letter mail is likely to peak in the next 10 years or well before an LLV has reached half of its service life. However, it goes on to say that a reduction in mail volume will not necessarily lead to a proportionate reduction in the number of LLVs needed.

Service experience in past years shows that most of the letter-carrier routes added each year (about 2,000) require a vehicle because of new residential and commercial development in suburban and rural areas. According to the Service, requirements for residential delivery of mail by vehicle will continue in the foreseeable future and will not be substantially reduced by new means of communications.



THE POSTMASTER GENERAL
Washington, DC 20260-0010

June 15, 1984

Dear Mr. Anderson:

This refers to your proposed report entitled "U.S. Postal Service Procurement of Long-Life Vehicles", (GAO/GCD-84-75), which says:

We have no basis for questioning the Service's decision to purchase long-life delivery vehicles powered by gasoline engines because, to date, no domestic manufacturer makes a small diesel engine that has been proven in automotive applications. Consequently, no conclusive data is available for making a comparative cost analysis of these two types of engines.

... the Service is currently testing small diesel engines for potential automotive application in light-delivery vehicles ... the Service will have diesel engine data covering more than one year before it awards a procurement contract (now planned for April 1985) for the 99,150 vehicles equipped with gasoline engines.

The report then recommends to the Postmaster General that he:

Require the Service's Delivery Services Department to evaluate, prior to the award of a procurement contract, the diesel engine results to determine if the decision to purchase all of the 99,150 vehicles with gasoline engines is still appropriate.

The report is correct in stating that there is no conclusive data available for making a comparative cost analysis of diesel versus gasoline engines for the type of long-life delivery vehicle (LLV) we want to purchase. But it should be noted that the tests to which the report refers are limited in scope and will not produce such conclusive data either, and therefore the report's recommendation is inappropriate.

The 100 small diesel engines from two different companies, installed in light delivery vehicles, now being tested at several postal installations will provide data on fuel consumption and maintenance. However, the tests do not match diesel powered vehicles against similar vehicles with gasoline engines driven over the same routes under similar environmental conditions and by the same drivers. Thus, they are not controlled tests. Neither will these tests resolve all the

questions about the operational limitations of diesels that are discussed elsewhere in the report (Enclosure I, p. 4) or determine the additional procurement, training, servicing, repair and parts stocking costs that would arise from maintaining both gasoline and diesel LLV's (Enclosure I, p. 3).

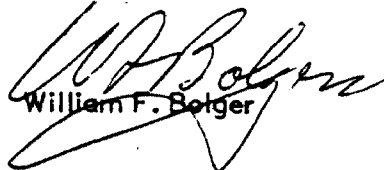
In addition, it would be inappropriate for the Postal Service to request technical proposals for LLV's with gasoline engines based on an intended purchase of 99,150 such vehicles, allow offerers of acceptable proposals to produce prototype vehicles at their own expense, and then solicit price proposals from those offerers whose vehicles pass the test, if from the very beginning the Service was considering switching its procurement before the actual award to a lesser number of gasoline powered LLV's than the 99,150 announced in our solicitation, depending upon the results of diesel tests we ourselves are conducting. Such conduct would cause protests from vendors and be contrary to our own procurement regulations which provide that except when a solicitation is issued for informational or planning purposes, and so identified, solicitations are to be issued "only where there is a definite intention to award a contract."

If the Service wanted to preserve an option to buy a lesser number of gasoline powered LLV's, plus some diesel powered ones, it should say so initially. But, for reasons stated above and in the report itself, the Service has no basis for calculating that a mix of gasoline and diesel LLV's is desirable, much less what the mix should be. On the contrary, there are strong reasons for not having a mix.

About half our light-delivery fleet will be eligible for replacement in 1985, the year when the procurement action we are now starting will finally result in a contract award. We must move forward on this procurement based on the best information we have.

As the report recognizes, there is no reason to question the Service's decision to purchase LLV's powered by gasoline engines. We are issuing our solicitation based on a definite, honest intention to award a contract for 99,150 such vehicles. We cannot accept a recommendation that would throw our intention and the whole procurement action into uncertainty, leaving vendors unsure what quantity we really do intend to purchase, thereby discouraging some qualified vendors from competing at all, pushing up the unit cost, and possibly resulting in a failed, or at least a more costly, less satisfactory and highly challengeable procurement.

Sincerely,



William F. Bolger

Mr. William J. Anderson
Director, General Government Division
U. S. General Accounting Office
Washington, D. C. 20548

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