Lead Industries Association, Inc.

January 31, 1974

SUBJECT: GOLIATH PROGRAM

To: Official Members of the Lead Industries Association, Inc.

The first press coverage of our Goliath program announcement reception is beginning to appear, as per enclosed photo copy. We expect excellent pick-up from the trade press as publication dates are reached.

Enclosed for your file is a folio on the complete press kit.

We will keep you closely informed as to the progress of the Goliath campaign, and welcome your comments at any time.

Sincerely,

Connel A. Baker

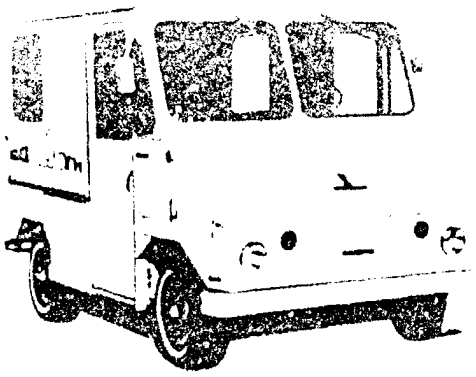
CAB ip
Attachment

Connel A. Baker, Jr.
Engineer, Technical Service

P.S. Please note Goliath stickers for use on correspondence, etc. We have a limited supply if you could use them.

GOLIATH

ELECTRIC WORK VEHICLES



AN ANSWER TO THE NATION'S COMMERCIAL TRANSPORT NEEDS

BATTERY-POWERED ELECTRIC WORK VEHICLES: REBIRTH OF A TRANSPORTATION CONCEPT

We are witnessing the rebirth of battery-powered short-haul delivery vehicles as a practical and economical solution to urban transportation problems. Such vehicles were widely used in the early years of this century, but they were displaced by the internal combustion engine before the 1920's. Changes in energy availability and environmental and economic factors have made electric vehicles attractive once again.

Get Up and Go, a 6,000 lb. gross vehicle weight (GVW) enclosed van that has been purchased by the Lead Industries Association (LIA) to demonstrate the many advantages of battery-powered short-haul delivery vehicles, is the first U.S. production electric since the late 1920's. There are current orders for more than 450 of this type vehicle and this is considered the beginning of new technology in design and performance.

Early attempts to mass produce vehicles in the U.S. were made by Fred M. Kimball in Boston in 1896 and by William D. Rogers of Des Moines, in 1894. By 1904, about one-third of the vehicles in existence in New York, Chicago, and Boston were electrics.

By October 30, 1909, the Post Office Department had purchased 202 electric delivery wagons at a cost of $1,000 each for the Parcel Post Service. By 1912, nearly one-half of the 1,000 Post Office vehicles were electrics on a special order basis.

Many public companies who continued to use their electric delivery vehicles were gradually forced to shift to internal combustion engine drivers, vans and trucks because they could not obtain spare parts. Nevertheless, some of the vehicles were still in operation in the late 1950's.

BATTRONIC TRUCK CORP.
THIRD AND WALNUT STS.
BOYERTOWN, PENNSYLVANIA 19512
TELEPHONE - AREA CODE 215 367-2091

MINIVAN
Battronic Battery-Powered Vehicle

BODY ---- Mounted on 94-1/2" wheelbase chassis. Loadspace dimensions: 71" long x 69-1/2" wide x 63-3/8" high. Overall dimensions: 145" long, 78" wide, 92" high. 160 cu. ft.

STANDARD EQUIPMENT -- High strength Multalloy floor, rear end, body sides, roof and windshield assembly. All parts are multi-stage chemically cleaned, treated and coated with zinc-chromate primer before assembly. Second primer coat applied after assembly.

Joints are sealed with non-hardening sealer to eliminate metal to metal contact.

Roof consisting of two piece panels with crown.

A heater and defroster, with fuel tank, is provided.

Unit is equipped to meet Federal Safety Standards in effect at time of manufacture to include lighting requirements, two speed electric windshield wipers, windshield washers, safety plate glass windshield, mirrors and horn.

REAR DOOR ---- Aluminum, with lock, 46-1/2" opening single door with continuous type hinge.

CAB DOORS --- Sliding type, left and right sides, with sliding sash windows.

DRIVERS SEAT - Pedestal type with fore and aft slide, and height adjustment.

MIRRORS ------ Two, exterior.

DOME LIGHT --- In driver's area.

WINDOWS ------ Rear door and one each side of body.

FINISH ------- Exterior and interior, Gray Zinc-Chromate Semi-Gloss.

MINIVAN
Battronic Battery-Powered Vehicle

CHASSIS SPECIFICATIONS

AXLE ---------- Front - 2,900 lbs. capacity. Tread width 60.88".
---------- Rear - 3,300 lbs. capacity, semi-floating, Hypoid Gears, ration 3.07 to 1. Tread width 63.5".

BRAKES ---------- Service--Dual braking type master cylinder.
Front - 11" x 2" - 90.24 sq. in. effective area
Rear - 11" x 2" - 90.24 sq. in. effective area
Parking--Cable actuated with Orscheln lever on rear wheels.

BUMPERS --------- Straight channel type, front and rear.

CONTROLLER ------ G. E. Reactance type, solid state, SCR, D.C. chopper type with by-pass contactors, fused protection for control circuits. Field weakening smooth acceleration switching and automatic current limiting.

MOTOR ---------- G. E. Series wound D.C. traction with thermal protection. External shunt, open self-ventilated, 112 volt, Class F insulation. Maximum RPM 6,000.

FRAME ---------- High strength truck type. Pressed steel, 2" flange width. Section Modulus 1.82".

INSTRUMENTS ----- Speedometer including odometer. Battery charge indicator.

SHOCK ABSORBERS - Front and rear, telescopic, double acting.

SPRINGS, FRONT -- 2-1/2" wide x 37-3/8", 6 leaf, 545 lb./in. rate.
REAR --- 2-1/2" wide x 37-3/8", 6 leaf, 545 lb./in. rate.

STEERING -------- 24 to 1 ratio.

TIRES ---------- Four 6.70x15, C load range.

TRANSMISSION ---- Two speed, Helical gears. 1 to 1 and 1.96 to 1 ratio. Constant engagement.

WHEELS ---------- Four, stamped disc, five stud.

BATTERIES-POWER - Set of two lead-acid type. Rating 112 volt. Variable capacity engineered to vehicle requirement. Quick change feature.
ACCESSORY - 12 volt DC--charged continuously from main batteries.

PATENT NO. 3708028 JANUARY 1973

In the interest of constant product improvement, Battronic Truck Corp. reserves the right to change specifications, add, alter or delete components without notice or incurring obligations.

AUGUST - 1973

BATTRONIC TRUCK CORP.
DIVISION OF
BOYERTOWN AUTO BODY WORKS

MAXIMUM GRADEABILITY	5% grade - low range 27 MPH 20% grade - low range 10 MPH 5% grade - high range 29 MPH 20% grade - high range 10 MPH 31.1% grade - low range 5 MPH
PARKING BRAKE	Capable of holding the vehicle in either direction on a 30% slope.
DYNAMIC BRAKING	Capable of holding the vehicle to 30 MPH on a 10% grade for a minimum of 1/2 mile.
DUAL MASTER CYLINDER FUNCTION	Front brakes only operable. Stopping distance from 20 MPH was less than 31 feet. Rear brakes only operable, stopping distance from 20 MPH was less than 38 feet.
PANIC STOPS	Vehicle was stopped within a 10 foot wide lane. From 20 MPH, in less than 17 feet. From 30 MPH, in less than 41 ft.
STEERING	Safe, positive steering operation. Steering wheel torque at the hub is 14 lb. - ft. maximum when the vehicle is stationary on a flat smooth concrete surface. No tendency to under or over steer in operation.
TURNING DIAMETER	Wall to Wall - Less than 39½ feet in either direction.
AUXILIARY 12 VOLT BATTERY	Capable of producing 25 amperes for a minimum of 2 hours at a 12 volt nominal voltage.
AUDIBLE NOISE	Noise level in cab - measured on "A" scale. Maximum at 44 MPH in high range - 76 dB. Maximum at 32 MPH in low range - 77 dB.
GROUND CLEARANCE	Minimum ground clearance 7¼" at spring U-bolts. No part of vehicle drags or contacts road when driven over a crest with a vertical radius of 13 feet or through a depression with a vertical radius of 22 feet or more.
BODY	Fully enclosed, ventilated, undercoated, adequate visibility. Side door openings 26" wide by 67¼" high.
INGRESS AND EGRESS	Adequate ingress and egress at both driver and passenger door. Rear door opening is 53¼" high by 46 3/4" wide. All doors operate freely without obstructing ingress or egress and are provided with positive latching mechanisms. All doors can be locked.
BELGIAN BLOCK TEST	Vehicle covered a 10 mile Belgian block type course at speeds of 15 to 20 MPH with no failures of any kind.

Numerous other tests have been conducted covering water tightness, bumper deflection, performance at 80% discharged batteries, energy economy test etc. and all results are available.

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Electrics get key Post Office tests

Results to date indicate that electric vehicles can handle the mail
One California town moves to fleet testing as Postal Service
funds testing programs in other sections of the country

The more than 100,000 US Postal Service mail-delivery trucks powered by internal-combustion engines may eventually be replaced by fleets of electrics, at a rate of 5,000 vehicles per year. That's what could happen if tests now being conducted in California, Pennsylvania, and Massachusetts prove that lead-acid-battery-powered vehicles can deliver the mails more quietly, efficiently, and with far less energy consumption than internal-combustion vehicles.

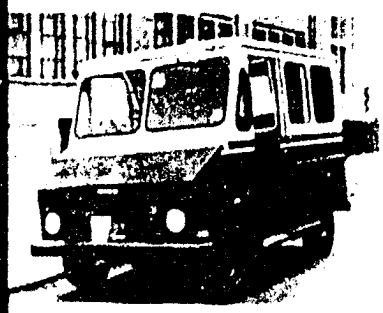
One Postal Service official estimates that the initial vehicle-replacement program would begin with about 3,300 electric vehicles per year, and then, as production facilities expand and providing the electric vehicles continue proving themselves—the replacement rate could increase to about 5,000 per year.

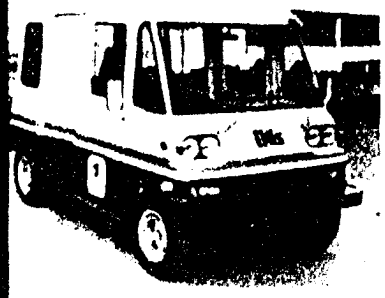
As an indication of the Postal Service's serious interest in evaluating the electric-postal-delivery-van concept, it is funding tests of such vehicles in Cupertino, near San Jose, in northern California (E/W, Dec. 15, 1972, p. 73); in Santa Ana, near Los Angeles, in southern California; in Allentown and Bethlehem, Pennsylvania, and in Lowell, Massachusetts.

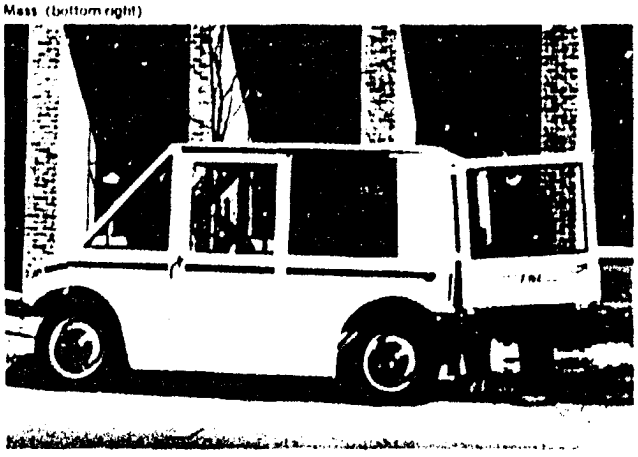
The tests are already under way at Cupertino, Santa Ana, and Allentown, and they are slated to begin shortly at Bethlehem and Lowell. The five-city project is designed to test various types of vehicles under various conditions, and to determine the ability of manufacturers to produce electric-powered vehicles that will meet the Postal Service's needs. It is expected that, in time, a standard Postal Service electric mail truck will be developed from data gained in these tests.

Allentown test

As part of the tests in Allentown, mail-carrier Frank Wetherhold is piloting a new, all-electric, lead-acid-bat-







Vehicles under test by Postal Service include Battronic Truck vehicle at Allentown and Bethlehem, Pa. (top left), the Otis Electric Delivery Vehicle (formerly Westcoaster) at Santa Ana, Calif. (bottom left), the Electric Vehicles Inc./Harbilt Electric Vehicle Co. model at Cupertino, Calif. (top right), and the Electromotion Inc. vehicle at Lowell, Mass. (bottom right).

Table I: Calculated vehicle averages, Cupertino, Calif.

	Harbilt Oct. 1, 1972, to April 14, 1972	Jeep Nov. 27, 1971, to March 29, 1972	
		Run #1	Run #2
[illegible]	[illegible]	[illegible]	[illegible]
Energy use	[illegible] (gasoline equivalent)	[illegible] (gasoline equivalent)	[illegible] (gasoline equivalent)
Miles/day	11.1	12.8	14.4 miles/day
Cost/day	[illegible]	[illegible]	[illegible]
Energy cost	[illegible]	[illegible]	[illegible]

[illegible] power [illegible] the Postal Service's Los Angeles [illegible] Air Quality Management District's [illegible] combustion engine [illegible] replaces the electric truck in [illegible] Weatherhold [illegible] very comfortable to handle and drive." He adds that the vehicle is smooth operating and the absence of a hot engine results in a much cooler cab.

Allentown's Postal Service supervisor, Richard Troell, says the significant factor in addition to its being pollution free is the fact that the battery powered carrier costs less to operate. About 17 kwhr are needed to power one electric vehicle for a 10- to 12-mile route. A gasoline carrier route in Allentown averages about 30 miles a day, which is three times the national average and well within the capabilities of the electric vehicle.

The electric vehicle fleet is being leased to Allentown's postal service by the Battery Power Group, Bethlehem, Pa. The group, formed by battery producer Exide, includes Battery Products Co., producing 100 on-the-road electric vehicles as part of a $6-million dollar nationwide testing program funded by 55 electric utilities under the sponsorship of the Electric Vehicle Council.

The Lead Industries Association reports that the vehicle Battronic is equipped for the Allentown test is powered by [illegible] lead-acid batteries and has a top speed of [illegible] mph. [illegible] Vincent Van Gorder, president of Battronic, said he decided to build the vehicle [illegible] at the end of the interest period.

A fleet of the first production electric postal delivery vehicles are [illegible] at the Postal Service's Allentown, Pa., [illegible] vehicle will be tested in [illegible] Philadelphia, Pa.

Cupertino test

In Cupertino, [illegible] being made [illegible] electric vehicle in one of the town's mail delivery routes as the result of a two-year test of electric vehicles for municipal mail delivery. Harbilt electric vehicles powered by lead-acid batteries are slated to replace the standard IC powered [illegible] purchase by Cupertino's postmaster [illegible]

A combination U.S. Borax vehicle will be used for Cupertino's Electro-Mail project. Harbilt Electric Vehicles Co. Manchester, England, built the vehicle's electric propulsion system, and the vehicle was completed and assembled by San Francisco-based Electric Vehicles Inc.

Cupertino Postmaster Alvin P. Cutter says the trucks are smog free, and cost only about one-tenth as much as the conventional type to operate. The electrics can operate for at least two days without recharging the batteries, he says. When a recharge is necessary, the batteries are simply connected into an industrial type of power. The trucks are powered by [illegible] lead-acid batteries and have a top speed of 40 mph on a flat upgrade. However, they will travel a maximum of 35 mph over [illegible] local speed laws.

The almost silent vehicles produce [illegible] as they accelerate to [illegible] cruising speed, making deliveries. And since they draw power only when in motion, pollution from an idling engine is eliminated, and only the power needed to operate the vehicle is used, thus saving critical petroleum products.

The test vehicle has now been in operation in Cupertino for a little over two years. [illegible] has been utilized on the [illegible] route by the Post Office vehicle. The battery of the vehicle [illegible] 6 to 12 volts with [illegible] ampere-hours. [illegible]

During the test, daily mileage, power consumption, the number of stops, and several miscellaneous readings have been recorded. Table I, [illegible] gives the data on the two postal vehicles selected at random. The [illegible] powered by a four-cylinder engine, and comparative data were recorded. The overall results of the test [illegible] IC comparison proved that four mail delivery vans powered by [illegible] could be operated at the cost of operating one IC vehicle.

Reaction to the vehicles by Cupertino postal carriers who operate them for [illegible]

Other tests

[illegible] Postal Service's Los Angeles [illegible] manufactured by the Sebring Coach Special Vehicle Products Div. Elevator Co. The vehicle has been tested by Dynamic Science Laboratories, an independent testing facility in Phoenix, Ariz., which says it meets all performance set forth by the Postal Service under its electric vehicle test program.

This van, called the Otis Electric Delivery Vehicle, can travel about 40 miles on a single charge and has a maximum speed of 45 mph. Sixteen 6-v lead-acid batteries power it.

Since the middle of June, the Otis vehicle has been driven on a mixed mail route in the Santa Ana area. Hector Cardenas, postmaster of Santa Ana, and technical center manager of the Orange County Postal Depot, says the vehicle is the forerunner of the type of vehicle that will eventually be used on all routes in Orange County. At the 1,500 posts in the country, 1,500 separate vehicles will be needed.

Driving tests at Lowell Boy and Lake Superior are [illegible] An electric delivery van produced by the Transportation Systems Laboratories, a division of Electronics for Medical Measurements, [illegible]

The vehicle, [illegible] Electric Truck, is [illegible] for [illegible] cubic feet of cargo space, [illegible] a step-in package [illegible] somewhat bigger than the present Postal Service jeep. The Electrovan vehicle has a top speed of 45 mph and a range of 40 miles before its pack of 16 6-v batteries have to be recharged.

Maintenance is expected to consist solely of replacing the 96-lb battery pack every [illegible] months. [illegible] [illegible] the vehicle [illegible] [illegible] and [illegible] to replace [illegible] [illegible] master brake.

Cost estimates for the electric vans are about twice as expensive as the conventional jeeps, but are expected to last [illegible] years, about the six-year life expectancy of the jeep.

At present average electric rates, the electric van is estimated to operate at a cost of 3¢ a mile, or about 21¢ for an IC powered vehicle. ■

ELECTRIC WORK VEHICLES (U.S.)

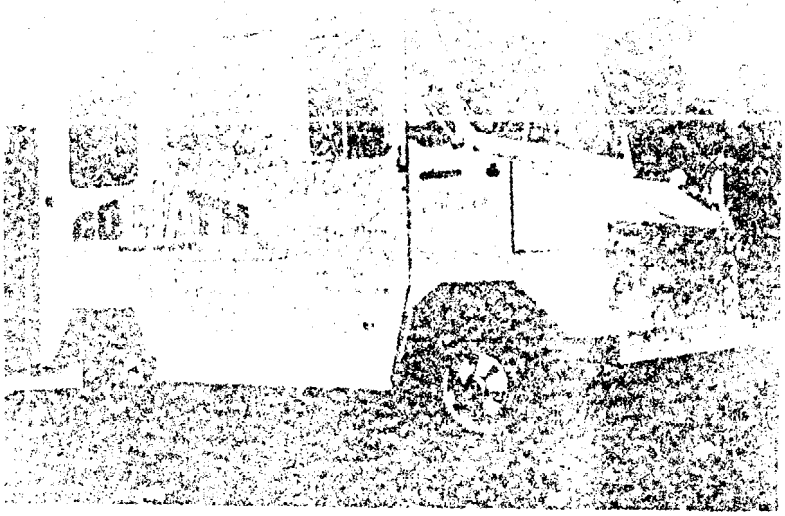
AVAILABLE AS OF JANUARY 1, 1974

TRANSPORTATION SYSTEMS LABORATORY
(ELECTROMOTION)
P.O. BOX 323
BEDFORD, MA 01730
(MR. CHARLES MYERS)

ELECTRIC VEHICLES, INC.
(HARBILT)
150 HARBOR WAY
SOUTH SAN FRANCISCO, CA 94080
(MR. CLIVE ALLEN)

OTIS
1801 EAST CHARTER WAY
STOCKTON, CA 95204
(MR. JAMES MUNN)

BATTRONIC--BOYERTOWN AUTO BODY
BOYERTOWN, PA 19512
(MR. HARRY YODER)



Leadmen Introduce GoLIAth Electric Van

NEWS RELEASE

LIA/47

FOR: Lead Industries Association, Inc.
Contact Lewis E. Gage
Phone: (212) 679-6020

FROM: Lieberman-Harrison, Inc.
880 Third Avenue
New York, N. Y. 10022
Contact: Fred W. Doby
Phone: (212) 751-2820

HOLD FOR RELEASE
10:00 A. M.
Wednesday, January 16, 1974

LEAD INDUSTRIES ASSOCIATION TO DEMONSTRATE ADVANTAGES OF ELECTRIC DELIVERY VEHICLES

NEW YORK, N. Y. - Jan. 16, 1974 -- A battery-powered vehicle that is the first production model of a modern, multi-stop electrically propelled delivery van to be made in America, was introduced by the Lead Industries Association (LIA) here this morning during ceremonies at the Plaza Hotel.

The van, which has been named GoLIAth by LIA to commemorate the fact that its electrical power is supplied by lead acid batteries, will be used for an extensive, multi-city program to demonstrate the effectiveness of battery-powered delivery vans for a wide variety of multiple stop, short-range services.

GoLIAth was produced by Battronic Truck Corporation, Boyertown, Pa., one of four electric vehicle manufacturers producing lead acid battery-powered vans being tested for mail pick-up and delivery by the U. S. Postal Service in five cities. The first of these tests, which began more than two years ago, have proven so successful that the U. S. Postal Service has announced an order for 350 of the battery-powered vehicles. Mr. Donn Crane, Director of Fleet Management, U. S. Postal Service, and principal speaker for the GoLIAth introduction, says that, providing the 350 vehicles now on order and those currently undergoing additional tests continue to prove themselves, "Our next purchase could be sizable indeed ... perhaps 1,000 this year and as many as 5,000 in 1975." He also added that the U. S. Postal Service alone represents a potential market for 93,000 additional electric vehicles.

In speaking of LIA's involvement in the GoLIAth project, Philip E. Robinson, Executive Vice President of the Association, said, "Our goal is to further demonstrate the economic, environmental and energy conservation advantages of lead acid battery-powered vans for a wide variety of uses. Lead acid battery-powered vehicles are more economical to operate than vehicles powered by other sources; they use no energy while standing or waiting at traffic signals, and they significantly reduce noise levels in city streets." Mr. Robinson added that such vehicles also have the advantage of being recharged during off-peak or nighttime hours when electric energy demand is at its lowest.

The GoLIAth program is being supervised by Mr. Connel A. Baker, a nationally recognized authority on the operation of electric industrial vehicles, who has been with LIA since 1963. He reports that the lead acid battery-powered vehicle will first be used for pay telephone coin pick-up service by New York Bell Telephone beginning in late January. The vehicle will then be used for a variety of pick-up and delivery services in the New York metropolitan area by the Singer Company.

After demonstration programs are completed in the New York metropolitan area, plans are to engage the GoLIAth vehicle in extensive programs in the Chicago area. The electric van will then be demonstrated at trade shows and used for various short-haul transportation projects in Canada as well as major cities in the South and Eastern U. S.

GoLIAth is the first of a series of production-line electric work vehicles Battronic Truck Corporation is producing for use in a nationwide battery vehicle demonstration program. Sponsored by the Electric Vehicle Council and 59 electric utility companies, the project will involve more than 100 battery-

powered delivery vans. Until the U. S. Postal Service announced the order for 350 of the electric vans late last year, the electric vehicle purchase by the utility companies was the biggest such order in modern times. The utilities will use the electric delivery vans for the same purposes as their conventionally powered vehicles --- for meter reading, to transport maintenance and repair crews, and to carry personnel and cargo --- while learning what effect their extensive use can be expected to have on off-peak power requirements.

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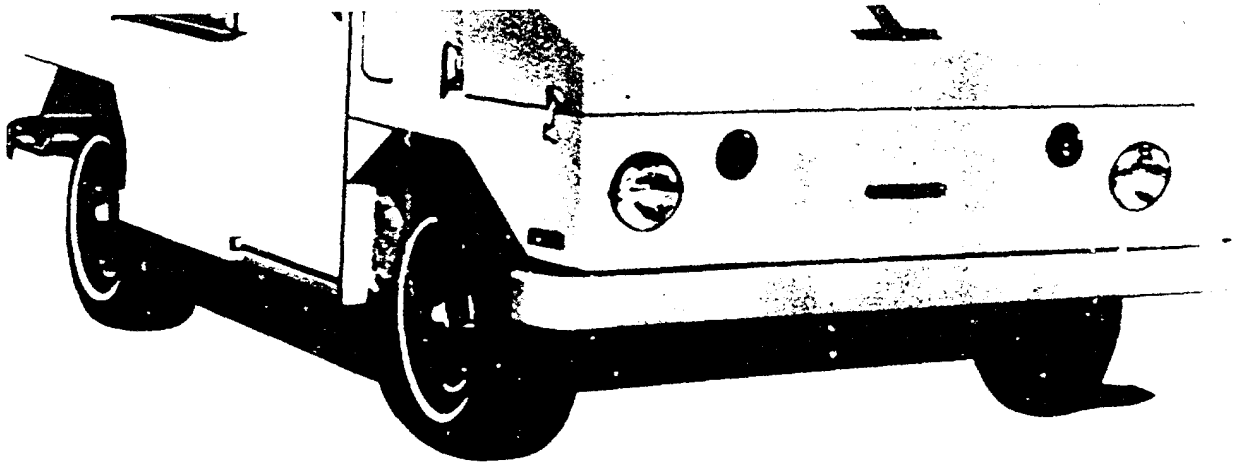

FOR:
Lead Industries Association
292 Madison Avenue
New York, New York 10017
Contact: Lewis E. Gage
Phone: (212) 679-6020

FROM:
Lieberman-Harrison, Inc.
880 Third Avenue
New York, New York 10022
Contact: Fred W. Doby
Phone: (212) 751-2820

PHOTO CAPTION
For LIA Release #7
Photo 1 of 1

The first production model of a modern, multi-stop electric delivery van to be manufactured in America was introduced to the public by the Lead Industries Association (LIA) in New York City on January 16, 1974. Named GoLIAth, the van will be part of a nationwide program to demonstrate the advantages of lead acid batteries to power vehicles for a wide variety of short-range, multiple stop commercial and industrial pick up and delivery chores.

NEWS RELEASE

FOR: Lead Industries Association, Inc.
Contact: Lewis E. Cage
Phone: (212) 679-6020

FROM: Lieberman-Harrison, Inc.
880 Third Avenue
New York, N. Y. 10022
Contact: Fred W. Doby
Phone: (212) 751-2620

REMARKS BY PHILIP E. ROBINSON AT
GoLIAth CEREMONY JAN. 16, 1974, PLAZA HOTEL, N.Y.C.

GoLIAth, the battery-powered electric delivery truck we are unveiling today, may become as famous as the Model "T" that first rolled out of Henry Ford's plant in Dearborn, Mich., on July 23, 1903. That event marked the beginning of the assembly line produced automobile which had such a remarkable effect on the American life style and economy for nearly 75 years. So, too, could GoLIAth mark the beginning of a new era in the world's economy and life style.

Developed for multi-stop, short-range pick up and delivery service, GoLIAth represents the rebirth of the mass-production electric vehicle industry in this country. We believe that energy conservation offered by these vehicles will help the U. S. achieve its goal of becoming self-sufficient in energy.

To give you an idea of just how significant a role the electric vehicle industry will play in the future American economy, the results of a National Power Survey conducted by the Federal Power Commission last year estimated that 38 million electric road vehicles will be in service by 1990.

It would, of course, be absurd to suggest that thousands of electric vehicles powered by lead acid batteries will appear on the roads immediately. We expect the electric vehicle will find initial acceptance and application as a light van for a wide variety of tasks in fleet-type operations, such as the pick up and delivery of mail. Other fleet-type use of electrics will likely develop in the utility industry, where thousands of van-type vehicles are used to install, maintain and service equipment. In addition, vans such as GoLIAth are used for floral, dry cleaning, laundry, bakery and dairy deliveries. These are some of the services GoLIAth will be demonstrating in major U. S. and Canadian

cities this year as part of our program to illustrate the specific services electrics can perform.

Proof that electrics can perform some of the same short-haul, multiple stop, pick up and delivery tasks now performed by conventional vehicles is demonstrated by the U. S. Postal Service, now in the process of building its own fleet of electrics for mail and parcel delivery service. Its fleet of electrics was ordered upon completion of the first of a series of multi-city demonstration programs, and providing the remaining programs also prove successful, it is expected that a large part of the postal delivery fleet of the future will be electrics. Mr. Donn Crane, Director Fleet Management Services, U. S. Postal Services, will discuss this subject in detail later this morning.

Besides these efforts by the U. S. Postal Service, the electric utility industry has purchased more than 100 units to learn what impact electric vehicle fleet operations will have regarding electricity requirements for battery recharging. The utilities also will determine which of the various tasks now performed by conventional internal combustion vehicles can be accomplished more economically with electrics. In addition, prototype electrics similar to those produced for the U. S. Postal Service's test and demonstration program are also being used to develop operating performance data for a variety of other jobs. These include personnel transportation and pick up and delivery of bakery products. Impressive electric vehicle developments have also been taking place in England and in Europe. For example, in England, thousands of electrics are already in special operations, such as the delivery of food and dairy products.

By now, most of you are probably asking two questions concerning the electric vehicle market: (1) Where is the electric energy coming from to recharge the lead acid batteries? (2) Where is the additional lead coming from that will be necessary to produce the additional lead acid batteries required by the millions

when electrics are mass produced?

To answer the last question first, there already exists a huge lead acid battery market. For example, batteries for starting, lighting and ignition -- or SLI -- continued to show substantial growth last year, reaching a record total of 53 million units. The single most outstanding factor concerning the record production of batteries in 1972 is the fact that they were primarily produced from recycled lead, most of which was obtained from scrapped batteries. For example, more than 610,000 short tons of lead were recycled in 1972, a 2.2% increase over 1971. Scrap batteries accounted for 63% of that. It is therefore obvious that the continued recycling of lead, when added to the domestic mine production that currently stands at well over 600,000 tons, will assure a continued supply of lead for batteries as the need arises.

Answering the question concerning the availability of electricity to recharge batteries, the first point to be stressed is the fact that most battery recharging is done during nighttime, off-peak hours. Also of importance is the fact that even with only one-half of the projected 1990 market of 38 million electric vehicles, the annual consumption of electric energy for recharging batteries would be about 63 million megawatt hours. This figure represents only about 1% of the total electric energy production projected for 1990.

And now, a brief rundown on GoLIAth: The 145-in.-long, 78-in.-wide, 92-in.-high van can carry a half-ton payload and it is the first of more than 100 electric work vehicles being produced as part of a demonstration program sponsored by the Electric Vehicle Council. The van was produced by Battronic Truck Corp., Boyertown, Pa., and it is very similar to the type of vehicle being used by the U. S. Postal Service for mail delivery. The remaining electrics have been purchased by 55 electric utilities around the country for such tasks as meter reading, and transporting maintenance and repair specialists.

These electrics also will carry personnel and parcels while careful records will be kept of the amount of electric energy they require. In this manner, the utilities will be able to determine future energy requirements for electrics. The GoLIAth-type vehicles are powered with 112-volt lead acid batteries and they have a maximum range of 68 mi. at 20 mph and a minimum range of 20 mi. at 50 mph.

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NEWS RELEASE

Wednesday, January 16, 1974

REPORT ON U. S. POSTAL SERVICE
EXPERIENCE WITH ELECTRIC VEHICLES

By Donn P. Crane
Director, Office of Fleet Management
U. S. Postal Service
Washington, D.C.

Thank you, Mr. Chairman, honored guests, ladies and gentlemen. It is a real pleasure to speak with you this afternoon on the occasion of the unveiling of the rebirth of an old transportation idea in a new production line model. Our nation owes its greatness in large measure to our transportation system - our very great mobility. Now,as you all know, we are in the midst of a grave emergency - one that demands new ideas and new engineering if we are to retain that mobility and that greatness. You people of the Lead Industries Association will be, I am convinced, in the forefront in the development of those new ideas and engineering.

Let me tell you at the outset that I am not an electrical engineer. I have only a brushing acquaintance with electric vehicles. But I am a vehicle operations man with over twenty five years in the automotive business. First in the private sector- both in the dealerships and with the manufacturers; and then, with the Postal Service for nineteen years. First in its Washington region,and then,in the headquarters office where I am now in charge of Postal vehicles for our delivery department. The Office of Fleet Management, which I head, is responsible for the policies governing vehicle maintenance, vehicle operations and our Postal operated transport services.

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At introduction of GoLIAth, the first production model of a modern, multi-stop electric delivery van to be manufactured in the U.S. Plaza Hotel, New York City, January 16, 1974.

This embraces a Postally-owned fleet of over 103,000 vehicles of all sizes from 1/4 ton delivery trucks to tractor-trailer rigs. Additionally, we operate some 39,000 cars and trucks under lease, and about 12,000 carriers use their own cars in transportation to the route. Most of our vehicles are used for delivery or collection activities and more than 93,000, or about 70%, of our letter delivery routes are on wheels, or as we call it, motorized.

To maintain our fleet of vehicles which we own, we operate 310 garages described as vehicle maintenance facilities and we employ approximately 5,200 maintenance and operations people. Additionally, we perform heavy trucking operations in the 120 largest cities of the United States, and for this we use some 6,200 truck and tractor-trailer operators. It is the responsibility of my office to develop our purchase requirements, but, more importantly, to determine what kind of trucks we will buy.

Over the years the Postal ervice has been an active innovator in the vehicle business due, in the main, to the interest and efforts of our automotive engineering group, which is a part of our research and engineering department. With the cooperation of this engineering group, we have led the field in the areas of vehicle vision factors, early use of automatic transmissions in delivery trucks (1954 and 1955); and, in the area of power plants, we have been testing stratified charge engines for over three years. We have tested diesel engines in half ton vehicles and compressed natural gas in a number of trucks of various sizes. We have, of course, often looked at electric vehicles over the years.

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Our first electrics were used in 1904 and since then we have continued to look toward the electric as a possible solution to many of our problems. In 1959, 1960 and 1961, we purchased a number of electric vehicles - both three and four wheel. Most of these were tested in Florida and, unfortunately, they were not successful for two reasons. They were too costly, both to buy and to operate; and they were too slow, with a top speed of only fifteen miles an hour. In 1962, we bought some larger vehicles (one ton capacity), which we tested in parcel delivery in midtown Manhattan. Again, high cost of operation, including early battery failure, caused the discontinuance of of the tests after almost two years service.

But since 1965 there has been a changed climate in the postal service. At about that time an internationally-known consultant proved to us the great service advantages and cost benefits to be received from motorizing our many foot routes The country's tremendous move to suburban living, at the same time that our public transportation systems were shrinking, made it essential that we put our carriers on wheels. It has been estimated that about 72 percent of our letter delivery routes should be on wheels for greatest efficiency. We're close to that figure now, but there is still a little way to go· and these new routes have common characteristics. Most are what we call "park and loop" routes with short mileages and only a few stops per day. The carrier parks his truck and delivers his letters and parcels on foot for a few blocks circling back to the truck to go on to the next stop. So we have a set of well-defined operating parameters with almost no variance from day to day.

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In 1963, pollution was a nasty word that happened in Los Angeles; but it was not long before the grave danger of air pollution became evident from coast to coast. By 1969 we, in the Postal Service, knew we must take steps beyond those contemplated by the industry. For many years we had been requiring exhaust emission controls before there were national standards, but that was not enough. In 1969 we began a project in our western region testing new electric vehicles in the little town of Cupertino, California, down below San Francisco. Two of the vehicles manufactured by the Harbilt Electric Trucks and Vehicles in England proved to be outstanding in terms of flexibility on the route and, more importantly, in durability. Over almost two years, our records indicate a downtime of only eight hours. The results at Cupertino were so promising that we are leasing 30 additional vehicles for Cupertino so that the entire office will be operating in electric vehicles. Delivery is scheduled for shortly after February 1st, and we are looking forward to their receipt.

Additionally, our research group has purchased three test vehicles: an Otis vehicle manufactured at Stockton, California; a Battronic vehicle of 1/2 ton capacity manufactured at Boyertown, Pennsylvania; and an Electromotion truck of 1/4 ton capacity built for us at Bedford, Massachusetts. All three of these vehicles have been used by the Postal Service on regular letter delivery routes and all of them show very great promise.

Research testing though can take years. I'm afraid we may not have this much time; and so, with the obvious capacity of the electric to do our job in our own well circumscribed routes, we decided that the time was ripe for purchase of 350 electric trucks. These will be built to a

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specification that recognizes that as yet the electric is not a universal vehicle, not yet substitutable for our large delivery fleet; but is well suited to a large number of our park and loop routes.

For many months we, in the Postal Service, have been working to reduce our use of fuel and have some very interesting projects under way on that score right now - you may have read of our emulsified fuel tests. However, with the Arab embargo on oil, our electric procurement takes on a new urgency and, as a consequence, we shall probably accelerate our planning.

What is the future for electrics in the Postal Service? Well, right now we estimate that we have about 30,000 routes meeting the parameters which fall within the present electric capability. Should these 350 electric trucks prove themselves, the next purchase could be sizable indeed - perhaps 1,000 next year and as many as 5,000 in 1975.

The future is yours to grasp. You, who are the producers and engineers of the electric vehicle industry. To meet our needs, full scale production capability is required. Right now our 1/4 ton trucks are coming off the line at the rate of 1,000 a month. That's what we have to have just to stay even with our fleet. Our replacements will probably exceed 15,000 units a year by 1975 and, of course, we are looking for improvements in the lead acid battery. If you people in the lead industries can develop better batteries - batteries that will give us longer life, more speed, more miles, more stops and great gradeability - there is the rest of those 93,000 routes to shoot for.

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Ladies and gentlemen, I can't really convey to you how excited I am over this potential, because I firmly believe that now we are on the verge of a real breakthrough in the urban car. With a versatile non-polluting, non-gasoline drinking urban car, our nation's mobility will be assured. We, in the Postal Service, will be doing our best to reach that point. The main task is up to you.

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