

LEAD INDUSTRIES ASSOCIATION, INC.

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SUBJECT: WHY YOU SHOULD BUY AN
ELECTRIC TRUCK

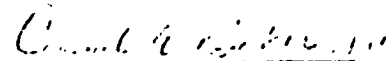
To Members of the Lead Industries Association, Inc.:

Fred G. Dorband, salesman for the Clark Equipment Company at Green Bay, Wisconsin, was the top winner in a contest sponsored by the Electric Truck Division, Material Handling Institute, on the subject, "Why You Should Buy An Electric Truck."

We thought that you would like to read the winning paper.

We have circulated this paper to 187 power company sales executives for use in their sales efforts for battery industrial trucks. Their response in less than three weeks has been to request 166 additional copies!

Sincerely,



Connel A. Baker, Jr.



Look Ahead with Lead

Why You Should Buy An Electric Truck
- by Fred G. Dorband

As an experienced buyer for a large and reputable company, you have only one thing in mind. That is to buy the truck that's best for your company. Regardless of make, you should consider the advantages of every type of power supply available: Gas, Electric, and LP Gas.

The advantages and disadvantages of each type of power supply should be carefully weighed against your company's needs. Then, this information--balanced against your own experience and the experience of other, similar companies--will clearly indicate your logical course of action: to buy the truck that's best for your company.

To complete these logical steps of analysis is a tremendous job. However, much of this information is already in the hands of the very people you may call on to assist you in making such an executive decision. These men, in most companies, would be your cost accountant, your maintenance engineer, your materials handling engineer, your production head, and perhaps even your personnel manager or safety engineer. Many people seem to be involved. But isn't it true that they all should be and usually are in agreement before a major decision is made? And isn't it further true that each man will consider the decision as it effects his getting his job done best for your company? These men are not impartial. They are partial to what's best for your company. They are your experts, tools to be used according to their ability in shaping your executive decisions. It is also a fortunate circumstance that our manufacturers have had vast experience in dealing with top people in many of these vital areas of business.

Our manufacturers further are in a good position to see both sides of the gas-versus-electric question. They are not only producers of electric trucks but also those with gas and LP types of power. Since we offer this wide selection, we can truly fit the type of power to your need, freely recommending that which is best for you.

Let's consider together what these experts in important areas of your company are looking for, what they require as a source of power in your industrial trucks.

First, consider your cost accountant. He and other cost accountants are taking the long view of any new asset, because your company has been in business for a number of years and plans to grow more successful through expert management.

Electric-truck economic life has proven to be longer than that of gas-powered trucks--in company after company and in application after application. This fact has come to be accepted by cost accountants as offsetting the slightly higher cost of the electric truck chassis.

Cost Accountant's Analysis

Now from the cost accountant's point of view, the purchases of charger and battery plus the cost of electric current are balanced against costs for fuel, oil

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and radiator coolant. When buying charger and batteries, you are pre-purchasing a five to ten year power or fuel supply. An investment of \$2,000 in battery and charger is required for one shift, and \$3,500 for a two or three shift operation. The savings in fuel (at 30¢ a gallon for gasoline) and oil (40¢ a quart) alone can mean a difference of \$2.75 to \$3.00 per shift, per day of operation. At this rate, and on the basis of only 200 working days per year, the fuel cost of gas trucks would be \$600 greater per year than the electric truck on a one-shift operation. Then, in about 3 1/3 years, the fuel cost on one shift of gas power will overtake and pass the fuel cost of power of the electric truck. With normal care and 1 one-shift operation, adequate batteries have been giving usable life of as many as 2,000 daily rechargings—or after 3 1/3 years have been expended less than half of the battery life.

Fuel cost savings, then, begin to accrue to the added profit of your company. On 2- or 3-shift operations, the savings on fuel or power cost multiply even faster. The cost accountant will use the best available maintenance cost figures from your maintenance engineer, who is knowledgeable and competent in this field. He will think of total cost, not just first cost. This thinking in terms of total costs has influenced more and more executives to agree with the findings of their cost accountants: From an over-all cost figure, electric trucks are their best recommended type of power.

Personnel and Safety Considerations

But what of the others? What do they want? Your personnel director or safety engineer will have some ideas as to how your selection of type of power can affect the health and efficiency or morale of your individual employee, be he a fork-truck driver or one who works near areas where fork trucks operate. He can produce, from his own files, studies on the effect noise and vibration have on the nervous systems of men working in these areas. Subjecting these employees to more noise and vibrations than necessary decreases their working ability and makes them more accident-prone because of increased irritability and impatience. Studies by leading universities have confirmed these facts.

Personnel men and safety engineers are considering these facts on profit-costing factors. In other words, as we decrease the noise and vibrations we increase the profit potential of the employees of your company. Good public health dictates the elimination of obnoxious as well as poisonous fumes wherever and whenever possible—another plus, putting both the personnel director and safety engineer in favor of electric trucks.

Production Men Won't Tolerate Down-Time

Your production manager is primarily interested in smooth, fast, uninterrupted production. He gets paid to get things done now.

For many years those production men who have taken the quickest, shortest route to the solution of the problem at hand have favored gasoline powered fork trucks. In the past, gas fork trucks were the only trucks that could operate at high speeds

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almost indefinitely. Automotive-type automatic torque converter transmissions made them smooth and responsive, and spare trucks could insure uninterrupted service. Furthermore, these production men were too busy and often not well equipped to justify the higher initial cost of electric trucks. They took the equipment they could get the quickest and figured it was an improvement over the bull-work methods these trucks eliminated.

However, in recent years the electric truck industry has taken measure of the needs of these production people and built trucks that more than satisfy production requirements. New truck designs and high voltages are used to make electric trucks operate at speeds as fast as safety will permit. Smooth application of power has also been a major break-through by the introduction of new control units that, in effect, give each driver the ability to select from a great number of speeds and points of power that which best fits each operation.

Then the battery manufacturers have been increasing the capacities of their batteries. Today's battery will work more than 50% longer on the same job, without recharging, than the same manufacturer's battery of 10 years ago. The good news is that this increased work cycle was accomplished in batteries of no greater width or length. These same batteries are in stronger cases and shock-proof cell jars.

It was a common experience that the spare truck of last week was absorbed into this week's regular production work. Interruptions in availability of gas equipment due to normal inspection and service, repairs, replacement of gasoline engines, cooling systems, and transmissions began to plague the production people.

Production men, in checking the main cause of these interruptions, learned that they were not frequently caused by things that were common both to gas and electric trucks, such as braking, steering, drive-axle and hydraulic systems. The primary causes of the down-times were oil changes, ignition part adjustment and replacement, and cooling system adjustment. Most of these are normal wear-and-tear problems of the maintenance of gas power equipment. A good many of them are caused by dirt and abrasive materials in the many moving parts.

This dirt caused premature wear, and the fight was on to improve filters all the way around. The best way to solve a problem, of course, is to eliminate it. So more and more production men decided to eliminate the internal combustion engine and to depend on electrics with far fewer moving parts, requiring fewer fine adjustments.

Maintenance Department Favors Preventatives

The maintenance engineer's first responsibility is to keep the company's trucks running and available for work at all times. He tries to do this best by performing preventative or planned maintenance on a regular schedule. A well administered program not only can prevent unscheduled down-time but also spot potential trouble areas in time to avoid costly repairs. It is also the maintenance engineer's responsibility to keep maintenance cost records and to control these costs. He is looking for the simplest, easiest-to-take-care-of equipment, having the fewest parts. His preventive maintenance schedule usually includes 8-hour, 100-hour, 500-hour, and

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1000-hour inspection. A glance at the schedule for these inspections on any electric truck shows fewer separate things to check, and experience will tell the maintenance engineer that these checks will be quicker on an electric truck than on a gas or LP-gas truck.

We are all familiar with the gas-powered engine with its ignition system, carburation system, cooling system and exhaust system. The many moving parts that often require checking, frequent adjustment and replacement. Many replacements are of course difficult to forecast and often must be made on a break-down basis, with the truck out of service. Your maintenance engineer balances these things against an electric storage battery with a life of from 5 to 10 years, and absolutely no moving parts.

A fully charged battery of recommended capacity will supply constant power for a full shift before recharging is necessary. Between shifts, batteries can be changed with no loss of production time when continuous use of the electric fork truck requires it. Chargers now have fully-automatic controls. When a battery is fully charged, an automatic cut-off shuts off the charger. These chargers are as dependable as an electric clock. Chargers have outlived battery after battery, year after year. The same chargers are often in daily operation for 20 years or longer. Maintenance on chargers is from nothing to, at the most, very little.

The other important parts not common to both gas and electric trucks are the cool-running electric drive and lift motors. They have much higher torque over a wide speed range, are electrically reversible, and can be instantly disconnected from their source of current. As a result, the power is transmitted without the use of a clutch, selective gear-set, or torque convertor. They have only one moving part, the armature. The only maintenance they require is an occasional removal and inspection of brushes. The feature of few moving parts plus an almost universal knowledge of simply electrical functioning appeal to the time-and-cost-conscious maintenance engineer.

Over a period of many years, hundreds of companies have kept maintenance cost records on both gas and electric truck operations. However, few figures were reliable or came even close to agreeing. The cost varied not only by the competence of the people keeping them but also by the varied opinions in different companies on what cost should be included. For example, in some companies it has been found that careless accidents were included as maintenance cost. A fork poked through the radiator of one truck while pushing another truck is certainly a careless accident and not normal maintenance. In the past few years, reliable figures, as sound as an insurance company's actuarial tables, have been found.

Through records now readily available, and based on the over-all performance of thousands of trucks, we can compute the maintenance cost per hour of operation and on both gas and electric trucks. Most companies offer customers a maintenance agreement as part of a rental contract. It includes all maintenance, excluding only accidents and willful damage.

On clean, normal application, using 4,000 pounds at 24 inch load center trucks,

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we find a cost of 54¢ per hour on gas trucks and 34¢ per hour on similar electric trucks, including battery and charger maintenance. This is a difference of 20¢ for every hour the truck operates.

The speed and ease of scheduled maintenance coupled with a maintenance cost savings of from \$400 per year, per truck, per shift, look good to the maintenance engineer. Your maintenance engineer, like others who have looked at the total value, is in favor of electric trucks.

Materials Handling Engineer Suits Equipment to Need

Your materials handling engineer's principal concern is finding the best equipment for each application and fitting it into your over-all handling plan. Some applications require electric battery-powered lift trucks. They may be used in cold storage coolers, in poorly ventilated or other hazardous areas. On the other hand, only gas power should be considered for other applications. These would be out-door trucks requiring pneumatic tires or other applications demanding trucks that will need to negotiate steep grades on a continuous basis. If your business is not cold storage and you operate 4,000 pounds at 24 inch load center trucks indoors and only in a one-story modern plant, you are free to select either gas or electric power. With the physical size and maneuverability of gas and electric being about the same, you can select either truck.

Travel speeds and lift speeds are now almost equal in gas and electric trucks so that either can be selected on the basis of speed at which your work is accomplished. From the specification point of view, the materials handling engineer can report whether gas or electric will do your work.

In the past the immediate outlay of sizeable capital influenced the decision toward the lower initial cost in buying gas trucks. Now, lease plans available not only can save capital for use in your business but also require only small monthly lease payments. By these lease payments your truck is literally paying its own way in savings as it works for you. This means your materials handling engineer is not limited to the funds immediately available. On the basis of lift truck application, specification and methods of buying the utilization of equipment, the materials handling engineer can select either gas or electric. These things being equal, he then leans toward electric trucks on the basis of fume-free, quiet, clean operation and the simpler lower-cost maintenance.

The responsible people in your company should be and usually are in agreement on major decisions. The modern electric truck is likely to be preferred by all your people. Accept their recommendations. Put electric trucks to work in your plant.