

Keynote Address

John R. Horne, *Navistar International Transportation Corporation*

As John Horne read the objectives of this symposium, a couple of thoughts came to his mind. The objectives were basically: one, review the current operation and technology trends and explore potential development in these areas that could impact motor carrier transportation as we move into the 21st century; and two, debate and disseminate contemporary research findings and foster effective cross-disciplinary interaction in practical areas such as logistics and goods distribution, truck designs for efficiency, safety, driver and public acceptability, and environmental compatibility.

These are excellent objectives. Horne read a book in the early 1960s called *Excellence in Engineering*. It outlined how scientists develop knowledge for knowledge's sake and engineers use knowledge to solve business problems for the good of people. Horne is pleased to see that this symposium is focused on solving society's problems through the application of knowledge.

His second thought was that the only true measure of our success is what the customer believes—meaning, is it a success in the market? If not, we probably just developed more knowledge—we didn't solve anyone's problem.

The importance of commercial vehicles in our society creates a need for many public- and private-sector organizations to work together. And today we enjoy a relatively close, cooperative working relationship between various government and industry organizations.

A recent example of this partnership is the Highway/Commercial Vehicle Interface Project. About a dozen key public and private organizations, including truck manufacturers, highway engineers and several commercial vehicle user organizations, are working together to find ways to better design trucks and highways. This type of opportunity to let each side know where the other is coming from can only lead to better understanding and increased cooperation between the groups.

Specifically, Horne talked about four things: (a) operating performance, (b) environmental awareness, (c) improved safety, and (d) a North American free trade environment.

OPERATING PERFORMANCE

If we look at the progress made in operating performance, we find that 12 to 15 years ago, fleets were realizing fuel economy performance of 2.13 km/L (5 mpg) at gross weights of 32 688 kg

(72,000 lb) and at a speed of only 88.55 km/hr (55 mph). Today, the best fleets realize almost 2.98 km/L (7 mpg) at gross weights of 36 320 kg (80,000 lb), with speed control at 96.6 to 104.65 km/hr (60 to 65 mph). This represents a 40 percent improvement in fuel economy over the last 12 to 15 years, and an even more impressive 70 percent improvement in the ton-miles traveled per unit of fuel.

One of the reasons for this improved operating performance is a better truck design. Today's trucks are more aerodynamic. They have sloped hoods, full-roof fairings, cab extenders, fuel tank skirts, and aero bumpers. Tires have gone from bias to radial with continuous improvements in compounds and construction. Engines have gone from mechanical to fully electronic. And drivelines today have lower overall drive ratios and vehicle speed limit controls.

Today's trucks are also more durable—they're built to last longer. We see fleets that run their trucks for 805 000 to 1 368 500 km (500,000 to 850,000 mi) or more. That was unheard of only a few years ago.

However, our customers are always looking for new ways to increase their operating performance and productivity. One new way is intermodal transportation, which moves freight by a combination of road and rail. Right now, it's a \$6 billion/year industry and who knows how big it could grow.

Before touching on some other issues that involve similar cooperative efforts, let's take a look at where the industry has been. In the past, truck manufacturers decided what the customer wanted and then designed and manufactured it. Today, no manufacturer in the world can continue to operate this way and expect to stay in business.

We recognize that our customers require vehicle specifications that meet their particular vocational needs. That's why we must work with customers and suppliers to develop products that meet specific customer needs—not just the needs of our engineers and product planners.

What will this mean to the truck industry? We don't know the ultimate impact that intermodal transportation will have. We'll be prepared to work closely with customers to address the many issues it brings. At the same time, we'll continue to find new ways to increase operating efficiencies. Ideas like integrated engineering between truck tractors and trailers will come into play. Other new areas of technology, such as IVHS, or intelligent vehicle-highway systems, will also be developed.

ENVIRONMENTAL AWARENESS

In the area of environmental awareness, our industry has already made major strides. As fuel economy for heavy-duty trucks has improved there has also been a simultaneous improvement in emission levels for heavy-duty truck engines.

When regulators forced us to clean them up, we cried wolf and said it couldn't be done. But we did it. And we found that contrary to our concerns and objections, engine fuel economy and durability improved significantly as exhaust emissions were reduced. Since then, diesel manufacturers have taken a proactive role to work with regulators and others in the industry to develop new diesel engine technologies and strong alternative fuel programs.

The progress has been remarkable. Today's engines represent a 75 percent reduction in particulates, and a 67 percent reduction in nitrous oxide from pre-1988 levels. And the 1994 engines will be virtually *smokeless* under all operating conditions.

IMPROVED SAFETY

Safety has always been an issue of concern for our industry. And compliance with safety regulations are top priorities in vehicle design. For example, the number of truck driver fatalities has dropped 50 percent over the last decade. One reason for this improvement is truck drivers' increased use of restraint systems provided by heavy truck manufacturers.

In recent years, Navistar and other heavy truck manufacturers have voluntarily installed three-point shoulder belts as a standard feature in all vehicles. As a result, belt usage by drivers has increased to more than 50 percent in that time.

Also, overall truck safety has improved. According to a recent *New York Times* article, the number of fatal truck accidents dropped 17 percent between 1981 and 1991, while at the same time, the total miles traveled by trucks rose almost 39 percent.

We're also trying to make our trucks safer by offering antilock brakes. ABS minimizes jackknifing and increases the stability of the tractor-trailer.

Driver fatigue is a high-priority issue. Several studies have shown driver fatigue to be the primary cause of fatal accidents. Cooperative government and industry efforts suggest that there might be ways to combat driver fatigue. For example, a mechanism such as an on-board electronic system could monitor driver fatigue and warn drivers of drowsiness levels that could lead to falling asleep behind the wheel.

NAFTA

Finally, Horne mentioned one other important issue that he said will require the support of all constituencies: NAFTA, or the North American Free Trade Agreement. The question is no longer "Will it happen?" but "When" and maybe "How?"

North American free trade will be a great opportunity for those who get involved today. Approximately 80 percent of North American medium and heavy trucks are manufactured and sold in the United States. The remaining 20 percent are split fairly evenly between Canada and Mexico. But the populations and growth potential may cause this to shift as all North America develops together.

How do all of the issues mentioned affect this group? Horne believes that opportunities like this week's symposium allow the public and private sectors to develop stronger partnerships to make even more progress on all of these issues he mentioned. Horne challenges this group and the industry to be even more proactive than we have been in the past. We must work together to be part of the solutions.