LIFT TRUCKS

By Sara Pearson Specter, Editor at Large

Toyota Industries Corp. (TICO) launched an internal combustion hybrid lift truck in the Japanese market in 2009.

Regardless of the style, lift truck suppliers are developing technologies that drive productivity improvements for users. With emissions control regulations and an increasing desire among users to be more environmental and cost-conscious about energy use, a number of trends have surfaced in the industry.

"Suppliers are looking at technology to improve productivity," says Jeff Bowles, product marketing manager for Mitsubishi Caterpillar Forklift America (MCFA, 713-365-1000, www.mcfa.com), manufacturer, marketer and distributor of CAT, Mitsubishi and Jungheinrich lift truck brands. "Typical truck and warehouse designs, as well as regulations, can limit things like maximum truck speed, for example. So the trucks have to become smarter to become more productive."

Developments include increased use of AC and alternative power sources, green technologies, better monitoring of fleets and outsourced maintenance. Here are five of the hottest trends in lift trucks.

1. Electric overtakes internal combustion

More electric lift trucks are sold in the United States than internal combustion trucks, at a ratio of approximately 60:40, according to Martin Boyd, national product planning and marketing manager for Toyota Material Handling, U.S.A. (TMHU, 800-226-0009, www.toyotaforklift.com). This represents a reversal of the ratio from 30 years ago, Boyd says.

GET SMARTER

New technologies and usage practices can help you maximize your fleet's productivity and longevity while reducing your carbon footprint.

"Electric drive-train technology has gotten much better with the introduction of AC power in the U.S. market, and fast charging technologies have also improved," he explains. Other reasons for the shift include growing environmental awareness, volatile fuel price and legislative pressures from the Environmental Protection Agency (EPA) and California Air Resources Board (CARB) to control emissions, Boyd adds.

With 2009's economic downturn, electric truck purchases spiked to 67% of the market, an anomaly Boyd attributes to the continued sale of non-durable goods—such as food and beverage—that are typically handled by electric trucks.

"Durable goods like home improvement supplies and luxury items are primarily handled by internal combustion lift truck products, so as the economy improves and people start spending again, electric truck market share will likely return to the 60% level.

2. Alternative power sources

While more battery-powered lift trucks are in service than ever before, they still require dedicated space for change outs and recharging. They also are prone to performance degradation over time: As the battery's power is depleted, lift truck performance declines. For those reasons, lift truck suppliers and a few users are in the process of evaluating alternative power sources, including hydrogen fuel cells.

The fuel cells are identical in size to lead acid batteries, converting hydrogen to electricity, with water as the only emission. Unlike batteries, fuel cells produce constant voltage until the hydrogen is depleted. While they are available now, their initial cost and infrastructure requirements make them inaccessible to most users.

"We are working with a large number of customers and fuel cell suppliers to make sure the trucks work and customers are satisfied with the vehicle's overall functionality," says Dave Norton, corporate product engineering manager for The Raymond Corp. (607-656-2311, www.raymondcorp.com). "As to when we'll be seeing widespread use of fuel cells in lift trucks, my guess would be within a five- to 10-year timeframe."

Norton suspects that tax breaks and incentives from the government will encourage more users to exchange their batteries for fuel cells, but points out that—for now—the justification for their infrastructure depends on the user's size.

In addition to the emissions, space savings and continuous power benefits of fuel cells, they also offer enhanced safety, says Jonathan Dawley vice president of marketing for NACCO Materials Handling Group (252-931-5100, www.nacco.com), the manufacturer of Hyster and Yale lift truck brands.

"We deployed fuel cells in 250 trucks for a Chicago-area grocery distributor last year, and their return on investment came not only from the elimination of a dedicated battery changing room and personnel, but also enhanced safety and productivity. People no longer had to drive outside their designated work areas to get new batteries; instead they were able to refuel or top-off when they had downtime."

Another future option may be hybrid diesel/electric or propane/electric powertrain systems, adds Toyota's Boyd. "We're currently monitoring Toyota's recently introduced hybrid diesel/electric forklifts in Japan. Hybrids deliver 50% better fuel economy, and a 50% cut in emissions."

3. Sustainability

Both electric lift trucks and alternative power sources contribute to many companies' sustainability goals. With "being green" on everyone's mind, lift truck suppliers are unveiling a variety of features that conserve energy while at the same time maximizing productivity.

"In all trucks—diesel or electric—there's a finite energy source: battery capacity or fuel tank size," says MCFA's Bowles. "The emphasis in the last generation of trucks has been how to best make use of that finite level of energy."

New technologies that offer better energy efficiency include regenerative lowering in high lift equipment, such as turret and reach trucks, that feeds energy back to the battery, and a toggle-on fuel saver mode for LPG trucks that lowers the vehicle's

performance to 92% of full power, but conserves 20% more fuel, says Bowles.

"Even component placement can improve energy usage, such as repositioning the motors, hydraulic pump and valve to the front of a three-wheeled truck to shorten some power cables and hoses and eliminate others to gain more energy efficiency by pushing oil and current through shorter distances," he says.

Fleet management software collates and crunches the data from vehicles for increased productivity, timelier maintenance and operator accountablility.

4. Analytics and fleet management

While the amount of data available from the vehicles themselves is practically boundless, it's taken users a while to figure out how to best gather and analyze the information. Enter improved data and fleet management software to help streamline the process.

"Wireless systems gather data, collate and crunch it, and then put it in a format that's easy for the user to use for better management of operators and fleets," says Matt Ranly, senior marketing product manager for Crown Equipment (419-629-2311, www.crown.com). "The data includes fuel or battery usage, impacts and their severity, truck operation, speeds, cycles, productivity and checklists."

As a paperless approach, many systems offer dashboard reporting to filter the information and convert it into useful metrics that can be shuffled to reflect a period of time—from comparisons of one day's shift to another, or several weeks or months of information for trend reporting.

5. Maintenance and leasing programs

More users are shying away from handling their own lift truck maintenance, says David Spears, manager of business development for NACCO.

"By moving away from buying and owning equipment to leasing with full periodic maintenance contracts, users can focus on their core business," says Spears.

Many users simply don't have the time or energy to be a lift truck expert, agrees Patrick Duhaime, director of brand management for Hyster (800-497-8371, www.hyster.com). "That's an evolution that started a long time ago, but it's certainly accelerated lately," he said.

With the growth of Web-based analytics and fleet management—and the use of more reliable components that last as long as 1,000 hours before maintenance is required—it's become easier for suppliers and distributors/service providers to remotely monitor a vehicle's condition and flag it for service on an as-needed basis.

Additionally, suppliers are developing new technologies to improve durability and reduce maintenance and downtime, adds Raymond's Norton.

For example, "many of the systems within the trucks now are monitored by temperature sensors, preventing the vehicle from overheating and reducing damage," he says. ☐

Cheese supplier reduces lift truck impacts

After increasing its fleet to 19 reach-fork and stand-up counterbalanced vehicles and upping the size of its main warehouse from 40,000 to 110,000 square feet, Masters Gallery Foods prioritized addressing lift truck impacts and reducing vehicle, product and facility damage. The cheese product supplier, with headquarters in Plymouth, Wisc., has 50 lift truck operators working during three shifts each day.

To manage both vehicles and operators, the company installed the iWarehouse fleet optimization system (The Raymond Corp., 607-656-2311, www.raymondcorp.com). As operators weren't always timely in reporting impacts, the initial goal was better management through better monitoring.

"Lift trucks required premature maintenance to hoses or wheels as a result of impacts," says Dan Murphy, warehouse manager. "We needed to find out when impacts were occurring so we could assess the cause and determine if additional training was required or if something in the facility was contributing to incidents."

The system draws real-time information from on-board vehicle computers. Data is accessible to warehouse managers through a Web portal. Managers are immediately alerted about impacts as well as their severity. Additionally, the system monitors the average uptime and productivity of the trucks—even at a second facility 20 miles away.

"Our goal is to have 80% of our fleet in operation," adds Murphy. "I can evaluate times of the day when usage is exceeding or not meeting that target, to determine if we need more trucks or if we should hire additional operators during a particular shift."

Within five months of installing the fleet optimization system, impacts were reduced by 88%, Murphy reports. Further, the tracking encourages accountability and efficiency, manages new employee vehicle speeds, streamlines maintenance and eliminates paperwork for the OSHA-required, pre-operation checklists—all of which have contributed to the company's pursuit of increased productivity, he adds.