

Cleaning behind the ears

Even a single kernel of corn renders a hopper unfit for loading and needing to be scrubbed clean



A Caterpillar skid steer does double duty, moving catchall bins under open hopper hatches and pulling along the air compressor (left). Inside the hopper, cleaning remains, in part, a hands-on job. A worker clears nooks and crannies with a hand scraper. Two photos: Carroll Group

Like miners, they excavate empty grain trains as if they were above-ground mine-shafts. Helmet lamps and hand tools aid the search as car cleaners crawl up discharge gates and reach down through top hatches, scouring recesses to remove leftover nuggets of grain, fertilizer, or lime. These are all commodities that are light enough to be carried in large quantities without violating most railroads' 286,000-pound weight limit, so they share use of jumbo hopper cars. This means that a hopper that carried fertilizer yesterday might be hauling grain today. Regardless of what was hauled the previous run, the cars must be cleaned to meet strict government Safe Food/Safe Feed certification and quality assurance standards. And, this labor-intensive process must be done quickly to keep rail transport of grain competitive.

For more than a decade, the Carroll Group Inc. (www.carroll.ms) has done just that, cleaning an average 40,000 cars per year. Establishing on-site partnerships with major shippers Cargill, Mosaic, and Farmland-Norsk/Hydro is one way it has streamlined the process: going to the cars rather than having them brought to Carroll. Receiving a list of the next day's incoming cars the night before helps, too. Since hoppers require different degrees of cleaning depending on factors such as the last commodity carried or exposure conditions

»» Why not water?

Some railcar-cleaning companies still use water, the previous standard. The Carroll Group has found several compelling reasons to change:

1. Interior drying time with water delays getting the car back in service
2. Water causes oxidation and corrosion over time
3. Working from the top, it is difficult to thoroughly clean the car
4. Water + seeds = germination. Eliminating water eliminates vegetation growth in and on cars
5. Wastewater permits are required to handle the water from the wash process
6. Water-based processes require more electricity than dry processes

(humidity, for example, will cause particles to stick hard and fast), the ability to make even a general allocation of resources in advance is an advantage not to be underestimated. Make no mistake: Car cleaning is painstaking work, with an average of three to four labor-hours per car. As many as five to six employees might work on a single car at once, depending what needs to be done.

The car cleaner's day begins soon after

sunrise. Top hatches are opened so natural light can aid the first physical step of the process: inspecting for mechanical defects. When possible, Carroll makes the repairs before releasing the car from the cleanout, but if extensive repairs are required, crews will designate it bad-ordered and send it to an appropriate repair shop.

A fall protection system of ropes and harnesses enables cleaners to walk almost a full mile along the car tops without dismounting. A 375CFM diesel compressor pushes 150 psi of air pressure up through a 100-foot hose for the cleaners to, as President and CEO Brian Carroll calls it, "sandblast without sand." Extension poles bring the air nozzle deep inside for blowing debris off walls and out from hard-to-reach corners and niches. Meanwhile, workers supplement the air process with hand scrapers when necessary to ensure complete removal of all foreign material. The debris is then caught in bins on skid steers positioned under the discharge gates, making disposal simple and efficient. The process cycles again and again: inspect, scrape, air blast, repeat, until each interior is immaculate and ready to be filled to the top with that sweet gold: grain.

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»» TECHNOLOGY BRIEFS

New York Air Brake hauls in Anchor

New York Air Brake Corp. has acquired Anchor Brake Shoe Co. Both are now members of the Knorr-Bremse Group, a leading supplier of air brake control systems and components, electronically controlled braking systems, foundation brakes, training simulators, and train-handling systems.

Safefreight has created the first GPS system designed to track intermodal containers moving over land from port terminals to Midwestern and East Coast destinations. Now in testing at the Port of Tacoma, Wash., the system provides data such as location, speed, direction, starts, and stops.

Railinc Corp., which created the Umler database, an electronic resource maintaining data for more than 2 million pieces of rail, steamship, and highway service equipment, now offers the Umler Equipment Index, a quarterly report analyzing the North American railcar fleet. The index provides a complete overview of the industry's equipment, with the total fleet size, and composition by segments and equipment type, including cars, locomotives, and end-of-train devices.

Norfolk Southern has completed the installation of a 50-kilowatt wind turbine in its North Kansas City yard. The turbine comprises three 24-foot rotor blades mounted on a 100-foot tower. Estimated to generate more than 100,000 kilowatt hours annually, the



Going green in the Midwest: Norfolk Southern's second turbine. Ryan Schoenfeldt

turbine will be used to offset the electricity consumed by the pumps and controls of the yard's wastewater treatment plant. This is Norfolk Southern's second wind turbine; the first was installed in 2007 at Bellevue Yard in Ohio.

Boston riders are the first in the nation to enjoy free system-wide WiFi service on their commuter trains. The Massachusetts Bay Transportation Authority began installing the AirBoxX2 routers in December, and hopes to have the entire fleet of 258 coaches Internet-ready by spring. The WAAV technology company provides routers and cellular broadband to other mass transit providers as well, such as Greyhound and LimoLiner.

Eastern Rail Corp. has contracted with LRM Industries to manufacture thermoplastic composite infrastructure components, starting with cover boards and side plates for the third rail on electric systems. The TPF ThermoPlastic Flowforming process gives greater strength to units than other thermoform processes, and the parts are 100 percent recyclable.

Bombardier Transportation has developed the first contactless operating tram. Instead of a catenary or third-rail system, Primove technology uses inductive power transfer through components installed under the vehicle and beneath the tracks. The roof-installed Mitrac Energy Saver component stores energy gained during both operation and braking using high-performance, double-layer capacitor technology.

Closed-circuit television upgrades in London's Clapham Junction Station may mark the start of affordable, effective "smart" surveillance. The system, developed by Agent Vi, is programmed to analyze video in real time for specific data and behavior. Meanwhile, researchers at Britain's University of Portsmouth are studying software that would enable cameras to recognize crime-associated sounds such as hostile language and breaking glass.

The U.S. Department of Transportation has mandated stricter safety design standards for tank cars transporting material classified as poisonous by inhalation. New standards include thicker outer jackets and/or inner shells, new safety features to protect the valves, fittings, and nozzles, and a maximum operating speed of 50 mph.