

Infrastructure™

March 4-8, 2014

SIGNIFICANT SAVINGS

Ejector trucks cut fuel costs by more than \$700,000 annually



INSIDE:

Purpose-Built Solutions
from Caterpillar OEM Solutions Group

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MANAGEMENT MESSAGE

PURPOSE-BUILT SOLUTIONS for YOUR BUSINESS



CHRIS CHADWICK
General Manager
Caterpillar OEM Solutions Group

Caterpillar has an unparalleled range of products serving the most demanding industries: agriculture, construction, energy, forestry, mining, transportation, and waste and recycling.

You choose Cat® machines because they are problem solvers and profit generators for your unique business.

At many of your jobsites, machines are operating that complement the work being done by your Cat equipment. Mixed fleet scenarios are a fact of life in your business. But you and your Cat dealer can access solutions that carry Caterpillar DNA: the core of these products is a partial Cat machine or an integrated Cat system or an abundance of Cat content.

Many original equipment manufacturers rely on Caterpillar OEM Solutions Group for partial Cat machines, systems and major components to integrate proven Cat content, producing solutions that meet the needs of businesses like yours. Often, these machines are available directly through the Cat dealer net-

work and carry Caterpillar identity as well as the respective OEM brand and model identity.

These manufacturers understand and rely upon the benefits derived from innovative Caterpillar technology and quality built into every Cat machine system and major component—and the support services available through Caterpillar and its global network of Cat dealers.

The result: purpose-built solutions that range from water wagons serving a quarry or construction site to foundation drills helping build new infrastructure. That's the power of working with Caterpillar, combined with the ingenuity of the OEM Solutions Group—that works directly with manufacturers of specialty machines—helping engineer a solution built specifically for your business.

Take a look inside to see just a small sampling of purpose-built solutions that OEM Solutions helped make a reality.

CATERPILLAR OEM SOLUTIONS GROUP
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21st Century EARTHMOVING

Three tow tractor and scraper stories

BIG GAME CHANGER

With his family's excavating company still moving earth much as it did in the 1950s, Chris McCleary knew there had to be a way to increase productivity and the company's bottom line.

"We were still excavating pretty much the same way as my great-grandfather. Technology has come such a long way, so we started looking for different solutions. The MT-450T is the big game changer that we found," said McCleary, a fourth generation member of McCleary Excavating Company, Inc., Blue Grass, Iowa.

Since being purchased in 2013, a Mobile Track Solutions (MTS) MT-450T Tow Tractor and a MT-35 Scraper have doubled production.

"From the first project with the MT-450T, production has been two times better in a normal, 10-hour day. If we were moving 2,000 yards a day, we're now easily moving 4,000," said McCleary, a job superintendent and estimator.

Custom built on a Cat® 740 Articulated Truck platform, the steel track machine and its companion MT-35 Scraper can move earth short distances faster than any other excavating equipment on the market.

"The machine takes everything that we've been doing for the past 50 years, and improves on every aspect," said McCleary. "For the size of the machine, it is very maneuverable. It has an amazing turning radius. Cycle times are incredible."

The MT-450T can travel at a speed of 16 mph carrying a full load, according to the manufacturer.

Increased productivity has improved McCleary Excavating Company's profitability. "This machine's operating cost is very similar to what we have been experiencing, but it doubles production. That does amazing things for our bottom line," McCleary said.

The company specializes in site-work, primarily in the Quad Cities area. "We do mass excavation and grading, ranging from jobs where we move thousands of yards to millions of yards," McCleary said.

The recession caused a three-year lull in the new housing market in the Quad Cities, which finally abated in 2013. "Projects are rolling in at a



steadier pace. That played a big part in the purchase of this machine. We know we'll have work for it," McCleary said.

McCleary Excavating used the MT-450T recently to move approximately 150,000 cubic yards of material for the construction of a 40-acre subdivision in Bettendorf, Iowa. "This is a pretty typical job for us," McCleary said.

McCleary Excavating crews generally utilize the MT-450T on hauls between 200 and 700 feet. "We feel comfortable up to 1,100 or 1,200 feet, but based on our experience, 700 feet is the sweet spot," McCleary said.

"With the track machine's great traction, and flotation, wet material isn't a problem," he said. "Operators aren't worried about sinking into the ground. Our load times are faster,

and our dump times are faster. Our travel times are faster, too, because the machine gets up to speed a lot more quickly," he said.

McCleary Excavating enhances the MT-450T's productivity by utilizing a Trimble Site Positioning System. The GPS system enables the operator to see cuts and fills in real time. "The production, efficiency, and accuracy of a person using GPS to check grades is substantially better than a person who isn't using the system," McCleary said.

In the past, excavation work on a 40-acre site would have required a

full-time grade setter. "With the GPS, we don't need that," he said.

"When you buy a Cat machine, you know what you're purchasing. You know it's a quality product, and you know that service and parts will be available. You receive all of that with this machine."

He added, "MTS is a great company to work with. All the ideas they've had and the machines that they've developed are the result of their hands-on experience in excavating. They're taking us to the next level." **I**

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“ MT-450T production has been two times better in a normal, 10-hour day. ”

CHRIS McCLEARY
Job Superintendent/Estimator
McCleary Excavating Company, Inc.



MOVING MORE DIRT

David Huber, owner and president of Huber Grading, Inc., Ankeny, Iowa, focuses on commercial and residential work, including single-family and multi-family sitework, as well as digging basements, and footings. “Really, we do anything that has to do with moving dirt,” Huber said.



“ The MT-450T seems to float through the mud much better. That improves travel speed, and cycle time. ”

DAVID HUBER
Owner/President
Huber Grading, Inc.

Huber Grading uses the equipment primarily in residential developments. The average haul is 600 to 800 feet.

“We use it for hauls as short as 300 to 500 feet and up to 1,500 feet. It works well even on the shorter hauls because of the machine’s speed and capacity,” said Huber. “The machine’s tighter turning radius speeds up cycle times. It turns quicker and seems to turn just as well loaded as it does empty. That helps with cycle times too.”

Huber Grading crews using the MT-450T and MT-35 average 100 loads per day, which can be 2,000 to 3,000 cubic yards dependent on the haul distance.

The equipment’s low ground pressure—and high ground clearance—enable work on wet, sloppy jobsites. “The MT-450T seems to float through the mud much better. That improves travel speeds, and cycle times,” said Huber.

Soil can be soft and unstable in and around Des Moines, Iowa, where Huber Grading crews generally work. The machine’s track system prevents it from becoming stuck in mucky, water-logged sites, and makes it possible to load efficiently without the aid of a push dozer, said Huber.

“We have the support of MTS and Caterpillar, combined,” Huber said. “If an issue arises, we’re taken care of by one or the other. It’s seamless.” **I**





THE GREAT COVER-UP

There never seems to be enough hours in the workday to keep pace with the unrelenting stream of trash that flows into landfills daily.

At the Metro Park East Landfill, just outside of Des Moines, Iowa, crews are utilizing a Mobile Track Solutions (MTS) MT-450T Tow Tractor and MT-35 Scraper to not only load and place cover material more quickly, but also reduce haul road maintenance.

Utilizing the MT-450T and MT-35, haul roads require less maintenance. The fully loaded scraper exerts a scant 15 PSI of ground pressure, so no ruts are created. “That’s one of the biggest advantages of the equipment,” said Mike Fairchild, operations manager for the Metro Waste Authority in Des Moines.

The tow tractor and scraper duo’s primary responsibility is placing cover material on the landfill’s working face. The tandem loads material faster than traditional scrapers. “The machines will load 30-plus yards of material—without a push dozer—very quickly,” said Fairchild. “We’ve definitely experienced an efficiency improvement.”

The MT-450T and MT-35 haul approximately 20 loads of material for

landfill cover daily. Hauls are typically 1,000 to 1,500 feet one-way. “That’s a pretty optimal distance for those machines,” said Fairchild.

The pair’s efficient loading in the cut and larger payloads have decreased cycle times considerably. The gooseneck pan has a rated capacity of 35 cubic yards, and can complete approximately six trips per hour to place material at the working face of the facility that processes approximately 600,000 tons of waste annually.

Strong Platform

The MT-450T is built using a Cat 740 Articulated Truck platform. The 740’s box and hydraulics are removed; then an MTS hitch plate adapter, tracks, and scraper hydraulics and electronics are installed. Caterpillar OEM Solutions Group provides hydraulics and electronics engineering services.

Teamed with an MT-35 Scraper, the tandem provides a short turning radius. “You can spin it right around. In a lot of our fill sequences, we’re placing fill in areas with a narrow top—100 or 150 feet wide. It will turn real easily in that space,” said Jim Wallace, working foreman. “Turning around on the narrow tops has solved a lot of our problems.”

The MT-450T’s tracks and high clearance are well-suited for landfill

work. “It doesn’t get hung up on its own stockpile,” said Wallace. “You can run over about anything, and it doesn’t stick to the tracks.”

Tracks are also helpful when hauling material for the construction of terraces and internal roads. “Even on a muddy road, it gets around better than anything else we’ve run,” said Wallace.

With trash processed every day of the week but Sunday, machine reliability is key. Uptime is increased by the MT-450T’s track arrangement, which enables individual pads to be replaced rather than the entire track.

Add the time-tested value of Cat® machines and components that are the duo’s core, and the MT-450T and MT-35 provide industry-leading performance. In addition, OEM Solutions Group machines are considered Cat products and can be serviced by any Cat dealer in the United States.

Working Together

The MT-450T is constructed using the tractor portion and rear axle of a Cat 740 Articulated Truck. MTS fabricates the undercarriage and rear frame. Caterpillar OEM Solutions Group provides engineering service for customers to ensure hydraulics and electronics meet the unique needs of each application. **I**

Mulch Up to **THREE TIMES FASTER**

Specialty machine capable of clearing up to 10 acres daily

A Supertrak SK 140RTL Wheel Loader quickly felled a 12-foot tall palm tree with a 6-inch diameter trunk, and then mulched the trunk, palms, and stump into nickel-sized chips at Hollinswood Ranch in Citrus County, Florida.

Without pausing, Dixie Hollins, owner of the 1,600-acre ranch and operator of the SK 140RTL, continued clearing trees and underbrush. “We’re in an area where we can’t do a lot of controlled burning,” said Hollins. “This machine enables us to remove the underbrush for fire control and dispose of it quickly.”



A 140 horsepower engine powers the machine that uses the chassis and many of the components of a Cat® 908H2 Compact Wheel Loader.

“We’re providing 40 to 45 gallons per minute of hydraulics with 5500 psi. That equates to 122 horsepower hydraulics to the implement at the front of the machine,” said Tom King, president and general manager of Supertrak, Punta Gorda, Fla.

With 122 horsepower for hydraulics, the unit clears underbrush two or three times faster than a skid steer loader. The machine can process tree limbs and trunks up to 12 inches in diameter.

Depending on the type of materials being processed, the machine is capable of clearing up to 10 acres daily.

A True Original

Supertrak is an original equipment manufacturer (OEM), that utilizes Cat bodies and components to manufacture specialty machinery.

Supertrak staff installs a Cat C4.4 Engine with ACERT™ Technology, as well as the standard Cat propel and implement pumps and hydraulics. A custom pump for mulching and auxiliary hydraulic applications is also added.

“The base unit is basically Caterpillar designed. The back of the cab is Supertrak designed. In order to contain the 140 horsepower and hydraulic cooling, the engine compartment has been designed by Supertrak,” said King.

The SK 140RTL fits into a niche market between the skid steer loader and the full-size, hydrostatic feller buncher/tool carrier for use in mulching applications.

Hollins had used a skid steer loader to clear brush previously, but prefers the power, mobility and exceptional visibility of the SK 140RTL. The power and advanced technology in the SK 140RTL provides optimum performance for its weight class (18,000 pounds).

One Machine, Many Jobs

In addition to the high revolution cutting head, Hollins utilizes a bucket that loads material for roadwork and

a variety of other jobs, as well as a grapple for debris piling and removal.

“This machine is vital to my business. It’s very versatile,” said Hollins. “It will trim tree branches, cut down trees—just about anything that you want to do with it.”

The SK 140RTL features quick attach, so that attachments can be easily switched to match the task at hand. “The unit is capable of working as a tool carrier for many applications, including road profilers, rock saws, trenchers, and other applications,” said King.

Outstanding mobility is another asset. “I can go down the road at 20 miles per hour to another location, and then quickly come back,” Hollins said. “It’s one of the best machines that I’ve ever owned. It’s very mobile. I can see well from the cab, and I can do so many things with it.”

Part of the Family

Supertrak machines are sold through Cat dealers across the country, and directly from the manufacturer in some regions of the country, King said.

One of the benefits of selling through the Cat dealer network is that Supertrak machines can be serviced at Cat dealerships. “The machines are 80 percent or more Caterpillar product. They carry a warranty through the Caterpillar OEM Solutions Group that includes parts and labor,” said King.

Supertrak produces numerous machines—ranging from 140 hp to 450 hp—all developed and marketed in cooperation with the Caterpillar OEM Solutions Group. Supertrak also produces custom machines. And just like the SK 140RTL, all perform at a high level. ■

The SK 140RTL fills a niche between the skid steer loader and the full-size, hydrostatic feller buncher/tool carrier.



“ The machines are 80 percent or more Caterpillar product. They carry a warranty that includes parts and labor. ”



TOM KING
President/General Manager
Supertrak

SUPERTRAK SK 140RTL UNIQUE FEATURES:



- Plus-one electrical system provides additional monitoring of hydraulics, cooling, and engine performance
- Standard reversing fans purge engine and hydraulic system dust and debris
- Window guards are designed and manufactured specifically for the machine by Supertrak
- Guarding at front of cab
- ½-inch thick safety glass
- Propel travel circuit and throttle governor are specially designed for mulching and brush-cutting applications. “It adds to the simplicity of operation—it’s cruise control,” said Tom King, Supertrak president.
- Tire options range from 16-inch to 24-inch for flotation and forestry applications
- Two forestry steel shield tire options (19-inch and low-ground-pressure 24-inch tire)

RUNNING the GAP

Long wheelbase truck, high-capacity tipper body meet challenges at Blue Ridge Mountain landfill

A Cat® 740 Articulated Truck fitted with a custom 80-cubic-yard waste body rumbled a half-mile uphill, then another quarter mile downslope to the working face of the Smith Gap Landfill in Roanoke County, Virginia.

At the working face, the operator pulled a lever inside the cab, sending hydraulic pressure to the Holmes-Moduhaul LM80 Body and Tailgate. The body rose, the tailgate opened, and tons of trash were dumped in a matter of seconds.

The hydraulic system lowered the body into place, and the truck began the uphill—and down—journey back to the Smith Gap Station to collect another load to haul to the working face.

Of course, with the 1,200-acre landfill located in the foothills of the Blue Ridge Mountains, it is a challenge to travel the serpentine roadway to the working face even on the best of days.

“The roads are uphill and downhill, just like every place else around



“ Bodies are fully hydraulic. It’s a pretty simple operation. ”

JIM CONNER
Operations Supervisor
Smith Gap Landfill

here,” said Jim Conner, operations supervisor at Smith Gap Landfill. “The trucks have the advantage of being six-wheel drive, so all three axles are pulling. The weather doesn’t stop us, not even the snow, sleet, and freezing rain that we have in winter.”

With as much as 800 tons of commercial and residential trash processed each day at the site, it’s essential that the trucks make their way to the working face every day.

“If the trash backs up here, it backs up at the transfer station in Roanoke. We can’t have that,” Conner said.

Trash is moved 33 miles by rail from the transfer station to the landfill. Shipping trash in railroad cars with a capacity of 60 tons each keeps trash collection trucks off roads, which weren’t designed to handle heavy loads.

The Roanoke Valley Resource Authority joined with Norfolk Southern Railroad in 1992 to create the Waste Line Express Train. The regional public-private partnership is the first



in the United States to use rail as the sole transportation between a solid waste transfer station and a landfill.

Shouldering the Load

The purpose-built waste truck at the Smith Gap Landfill is designed to transport heavy loads over uneven surfaces.

The truck’s chassis is five feet longer than standard, which keeps the center of gravity lower. This enables the machine to haul large loads while meeting 18-foot height restrictions at the landfill.

“The higher you get the body in the air, the more top-heavy the truck is,” said Conner. “This spreads the weight out, so the truck isn’t as top heavy. It improves safety. The truck is traveling over a landfill, so there is some rocking back and forth.”

The family of Cat Articulated Trucks support specialty machines that need high mobility. Long Wheel Base (LWB) machines feature a unique rear frame that increases the distance between the front and rear axles.

The longer chassis is a perfect fit for the Holmes LM80 body. The 80-cubic-yard light materials tipper body is designed specifically for light waste, coal, construction, and demolition material. The automatic hydraulic tailgate minimizes machine weight to max out payloads.

Landfill personnel make full use of the large capacity bodies. When rail cars arrive at Smith Gap, cars are tipped over onto their sides, and wheel loaders move contents down a chute and into haul trucks. “We use an excavator to spread the material and compress it, so we can get the volume that we want,” said Conner.

The body’s hydraulic system is simple and effective. “Bodies are fully hydraulic. It’s a pretty simple operation,” Conner said. “The only moving part is the hydraulic tailgate.”

Because safety is top priority at the landfill, materials are dumped on flat ground whenever possible. Operators come to a full stop, use the lever inside the cab to raise the body and open the tailgate to dump

THE HOLMES LM80 BODY

- The 80-cubic-yard Light Materials Tipper Body is designed specifically for light waste, coal, construction and demolition material
- State-of-the-art design with flush body sides avoids carry back
- Load capacity up to 43.5 tons
- Rugged design provides long life and low maintenance
- Manufactured with high-strength, wear-resistant steel
- Automatic tailgate minimizes machine weight to max out payloads



the load, and then lower the body and close the tailgate. “With the higher capacity bodies, it’s safer that way,” Conner said.

Heavy Demand

Trucks, with a listed load capacity of 43.5 tons, do double duty at the landfill. Trash is hauled in the morning, and cover material in the afternoon. “We use the trucks in pretty much everything that we do,” said Conner.

With the heavy demands placed on the equipment, Conner appreciates the dependability of the Cat truck and Holmes body, as well as the service that the landfill receives from Cat Dealer, Carter Machinery.

“We have to get the equipment going, no matter what it takes. The dealer understands that. If we need a part, they have it or it’s there by the next day. The trucks are ready to go every day,” Conner said. **I**

EASY ACCESS

High-rail machine provides versatility on- and off-tracks

Traveling on a right-of-way alongside rail lines, an NMC Railway Systems HREA outfitted with a tie tamper work tool attachment moved quickly toward a section of tracks that needed repair. When it was time to travel on the tracks, the hydraulically powered high-rail function enabled the machine to seamlessly make the transition.

The high-rail equipment's ability to work on- and off-track with multiple attachments provides industry-leading versatility, productivity, and safety for railroad maintenance-of-way projects and construction.

The machine is built using the chassis of a Cat® 312D L Hydraulic

Excavator, so it is able to work on virtually any terrain. The specially engineered machine also features an undercarriage that is heavily modified to work on rails.

The machine can run at speeds up to 30 mph on rails. "Mobility is really important in this job. At 30 miles per hour, we can quickly travel from one area to another," said Pat Dineen, an equipment operator for the Nebraska Division of the BNSF Railway.

The high speed means that the machine can be transported by rail, rather than trucking it to the next jobsite. "We don't have to hire a lowboy trailer. That gets expensive and time-consuming," Dineen said.

The HREA's ability to work off-track enables easy access to hard-to-reach areas. "For brushcutting, it has turned out to be quite helpful. I can dismount from the tracks really easily, and cut in areas that I was never able to reach before," said Dineen.

All-Purpose Machine

The BNSF Railway utilizes the HREA primarily on maintenance-of-way areas. Dineen has found the machine to be much more versatile than the equipment he used previously.

Utilized attachments include tie tampers, tie inserters, under-cutter bars for switches and crossings, clam buckets, swivel buckets, and brush cutters.

"The tamping head is really important for getting to some of the low spots. A lot of labor is required for tamping ties by hand in low spots and mud areas. This tool reduces labor by a lot," said Dineen. "We've also been digging out and replacing ties with the clam bucket."

With the variety of attachments utilized, and the large number of jobs

that can be completed, crews are often able to use only the HREA high-rail instead of multiple machines.

The HREA's mobility, versatility and productivity were demonstrated recently when a washout disrupted train service. "We quickly got to the area, used buckets to fill the side wash area, and got the trains rolling again," Dineen said.

The machine's productivity is excellent. Dineen has used a tie inserter to place more than 100 ties in a single day. He's also used the brush cutter to clear 15 miles of weeds, brush and overgrowth in a month-long project.

The HREA has also been reliable. Uptime exceeds 98 percent in the year and one-half the machine has been working for BNSF Railway.

Another advantage, the machine's compact design enables work on a track without disrupting train traffic on adjacent tracks.

"The small, compact size of the machine enables that," said Mark Anderson, sales rep for NMC Railway Systems, producer of the HREA and a distributor of maintenance-of-way equipment and services to the rail industry.

Of course, a smaller machine is typically less expensive to own and operate than a larger one. "This machine enables operators to do a lot of jobs that a larger machine does, but at a significantly lower production cost," said Anderson. "The majority of work done by railroads requires a lifting capacity that this machine meets."

Built-In Quality

The use of a Cat machine and components separate the high-rail machine from other railroad maintenance and repair equipment on the market.

SPECIFICATIONS

- Engine: Cat C4.4 with ACERT™ Technology
- Tier 4 Interim
- Net Power: 91 hp
- Operating Weight: 35,500 lb
- High Rail Ground Clearance: 16 in
- Ground Level Reach: 28.3 ft
- Shipping Height: 9.1 ft
- Shipping Length: 25 ft
- Shipping Width: 9.8 ft





“ This machine enables operators to do a lot of jobs that a larger machine does, but at a significantly lower production cost. ”

PAT DINEEN
Equipment Operator
BNSF Railway

The boom, stick, and body of a Cat 312D L Hydraulic Excavator are all used in the construction of the machine. Cat C4.4 diesel engines with ACERT™ technology and Cat hydraulics are also utilized. The machine is mounted on an undercarriage that is heavily modified to work on rails.

NMC Railway Systems has been producing specialized railroad equipment for more than 20 years, and has been producing high-rail systems for approximately five years. The com-

pany also provides purchase, rent and lease financing options, field and shop services, and is part of the Cat Service Network.

“NMC tech and parts departments are really helpful,” said Dineen. “They take care of any problems that we have.”

Add it all together, and the NMC Railway Systems HREA provides versatile, high productivity for railroads across the country, keeping the transport of passengers and goods safe and on schedule. **I**

CAT PARTS AND SUPPORT ENHANCE MACHINE PERFORMANCE

Because the NMC Railway Systems high-rail machine contains high Cat content, it can be serviced by any Cat dealer. “That is an added core value of the machine—you’re dealing with Cat Parts and Cat Support Services,” said Mark Anderson, sales rep for NMC Railways Systems.

SIGNIFICANT SAVINGS

Ejector trucks cut fuel costs by more than \$700,000 annually

CONSOL Energy's McElroy Mine has provided much-needed jobs and affordable electricity for residents of West Virginia's Northern Panhandle for more than 40 years.

Mining 10 million tons per year from two longwalls, the McElroy Mine is an economic and electric power dynamo. The mine not only provides fuel for the adjacent Mitchell Power Plant, but also coal for transport on Ohio River barges bound for other power plants.

To keep this dynamo humming, mining waste must be continually moved to a nearby refuse disposal site.

To accomplish this monumental task, six Cat® 740 bare chassis Articulated Trucks fitted with Custom High Volume Ejector Bodies by Holmes-Moduhaul transport an average of 400,000 tons of refuse monthly.

"We decided to use the Cat 740 bare chassis Articulated Trucks because of their efficiency and fuel savings," said Gary Jamison, refuse foreman at McElroy Prep Plant.

Fuel savings have been significant in the two years since CONSOL Energy acquired the trucks and switched

from another method of hauling mining waste.

"It's saving us \$700,000 to \$800,000 a year on fuel costs, depending on the price of fuel," said Jamison. "That makes everybody happy."

Five trucks transport refuse each shift, hauling a total of 7,000 to 8,000 tons. "They've been holding up really well," Jamison said. "They're low-cost on maintenance."

Working 24/7 to stay ahead of coal waste accumulation requires a sixth truck for scheduled maintenance and use as a standby, as there is no let up on the job.

Trucks travel approximately 1.3 miles round-trip from the spot where coal refuse is placed in the Holmes EJEX 43-5A Bodies to the area where material is dumped. "The trucks are working out great. They're easy to maintain, and the operators are happy with them," said Jamison.

On The Fly

Holmes-Moduhaul EJEX 43-5A High Volume Ejector Bodies have improved productivity and efficiency. Using the

ejector bodies, trucks are able to spread refuse on the fly. This also reduces the amount of time—and operating expense—that track-type tractors spend spreading material. Cycle times are improved, too.

"That cuts down the time that a dozer is tied up with the trucks, working the area. The trucks can run a full shift without the use of a dozer. We couldn't do that before," Jamison said. "We also get better compaction with the trucks."

Because the trucks and ejector bodies efficiently place 6- to 10-inch lifts at the refuse site, operators can help with other jobs and still keep up with the demand to transport refuse. "Roads are holding up better, too. That's a plus," said Jamison.

Trucks are dependable, which is essential for the work that the machines do. "We need to get rid of the refuse to keep the prep plant running. If we don't get rid of the refuse, we don't run. It's that simple," Jamison said.



THE FACTS:

- Longwall is a method of underground mining used for hard coal found in seams. As the face advances, coal can be extracted in blocks between 2 feet and 20 feet high, up to 1,600 feet wide and 26,000 feet long.
- McElroy installed its first longwall in 1979, and its second in 2004.
- The McElroy deep mine employs 1,000 people, while the prep plant and refuse site together employ approximately 60.
- CONSOL Energy is the leading diversified energy producer in the Appalachian basin, producing both natural gas and high-British thermal unit (BTU) coal.





“ We use the Cat 740 bare chassis trucks for their efficiency and fuel savings. ”

GARY JAMISON
Refuse Foreman
McElroy Prep Plant

HOLMES EJEX BODIES BOTTOM-LINE BENEFITS:

- Custom-built, high-volume for light materials
- Self cleaning, reduces carry-back
- Spreads on the fly, cuts dozing costs and cycle times
- Greater operating range, dumps on adverse slopes
- Hard to bog down; free themselves by ejecting loads
- Reduces risk near bridges and power lines
- Cuts cycle times, no need to raise/lower body
- Advanced design, rugged high-tensile-strength, wear-resistant steel
- Maintenance-free, sealed self-lubricating bearings
- Ejector Blade Vibrators (Optional) reduce material adhesion
- Parts and service support from Cat dealer backed by world-renown sources

No Stopping

CONSOL Energy acquired the ejector trucks through a three-year lease agreement with Cat Dealer, Cleveland Brothers. Leasing enables the company to keep relatively new, technologically up-to-date equipment working at the mine.

“It keeps fresh equipment on site. When the machines become more costly to operate, we replace them with a new set. It’s not cost-efficient for us to keep them eight or ten years anymore,” said Jamison.

The coarse refuse transported by trucks ranges from fines to 8-inch rock. “It’s very acidic, and very abrasive. It’s hard on equipment, especially hoses,” Jamison said.

With work so rough on the equipment, service provided by Cleveland Brothers is essential to keeping the trucks running well. “The service is great. When we call them, they’re here,” said Jamison.

And just like the conveyors moving coal from the McElroy Mine to the Mitchell Power Plant, ejector trucks hauling refuse at the site keep on rolling. **I**



STEEL WHEELS

Innovative machines improve efficiency, performance at steel mill

In the highly competitive steelmaking industry, ArcelorMittal Dofasco, Hamilton, Ontario, Canada, is a success story. Based on earnings per ton, ArcelorMittal Dofasco is one of the most profitable steel operations in North America.

Part of the company's success can be credited to implementing the latest technology to improve efficiency and safety. "Improving our equipment decreases downtime and improves production," said Dino Didiodato,

shift coach at the 102-year-old plant that employs 5,000.

The ArcelorMittal Dofasco fleet includes four new Kress Straddle Carriers that transport, stack, and sort steel slabs, which weigh as much as 30 tons apiece. When customers need specific grades of steel, machines sort slabs to select the required grade.

"The scheduling office will ask for a certain slab. If we have a pile of five, we need to take the one that they require. With the machine's fast

clamp, we're able to do that quickly and easily," Didiodato said. "Once it's clamped, we can lift."

The straddle carriers also carry slabs—a full load is 330,000 pounds—the two miles between the hot mill and slab storage. Again, the machine's technology improves efficiency and performance

"With the computers onboard, at the first sign of any issue—overheating, for example—the operator receives a warning," Didiodato said. "Everything from oil pressure to strut height and clamping pressure is monitored."

This prevents problems from escalating, which can shut down the machine and slow production.

The machines include a system that increases the speed of outside tires when cornering. "That prevents vibration, and wear and tear on tires," said Didiodato.

“Improving our equipment decreases downtime and improves production.”



DINO DIDIODATO
Shift Coach
ArcelorMittal Dofasco

All For One

Kress Straddle Carriers are powered by two Cat® C13 ACERT™ Diesel Engines, and also utilize Caterpillar gearboxes, final drives, and hydrau-





lic drives. Parts are supplied by the Caterpillar OEM Solutions Group. The straddle carriers are considered Cat machines, and are covered by Caterpillar warranty and can be serviced at Cat dealerships.

Two new Kress Pallet Carriers are also part of the plant's fleet. The multi-purpose vehicles haul pallets of scrap buckets, furnace bottoms and hot metal buckets. Pallet Carriers are built using the chassis of a Cat 631 Scraper, with the rear carrier built by Kress.

The pallet carriers' primary responsibility is transporting pallets of 150 metric ton buckets of raw scrap to the EAF (electric arc furnaces).

Industry-leading technology improves machine reliability and performance, as well as operator comfort. "A lot of these features are automated systems," said Patrick Coward, trainer/operator. "The machine levels itself out, and it automatically maintains hydraulic pressures."

System pressure of the Kress machines is 2,500 psi, while the old, fixed frames ran at 5,000 psi. "At high system pressure, there's a lot more chance for punctures, leaks, hose failures," said David Rodgers, mechanical trade specialist for the heavy equipment repair shop. "These machines have greatly reduced that concern."

Sounds Simple

Cost savings with the pallet carrier's articulated frame factored in the purchasing decision. "There's fewer moving components, and far fewer wear items. That means less costly repairs," Rodgers said. "There's

much less maintenance compared to fixed frames."

The Kress machines are also more reliable. "We'll be saving maintenance costs, which will help the company's profitability," said Daniel Matzeg, technology coordinator, who also served as the project manager for the procurement of the pallet carriers.

Reliability saves money. The EAF requires that one of the machines always be running. "Our old units required high unplanned maintenance due to break downs. This significantly increased our risk of causing delays for the furnace, which had the potential of costing us big money," Rodgers said.

The Kress machines have a lifting capacity rating of 275 metric tons, a 15-ton improvement. This, too, helps the mill's bottom line. "During our EAF furnace bottom change outs, we can lift a heavier furnace bottom. That will shorten the EAF downtime by about one hour," Matzeg said.

The entire driveline is Caterpillar components. Caterpillar parts are easily available online or through the local Cat dealer.

A third Kress product, slag pot carriers, is also improving efficiency and productivity at the site. True to its name, four machines at the Hamilton plant carry slag pots from furnaces to dump into slag pits, knock skull out of the pot, and return the pot to the furnace. The machines are owned and operated by Harsco Metals, the service provider for slag handling at ArcelorMittal Dofasco.

Using positive hydraulic control, the pot is tipped to pour molten slag into pits for cooling and processing. The Kress deskulling system speeds

the removal of skulls without damage to the pot or carrier.

Kress Slag Pot Carriers are built on Cat 621 Scrapers, modified by Kress. The machine's back end is built by Kress.

At ArcelorMittal Dofasco, improved efficiencies make for a stronger bottom line. **I**


FORGING A RELATIONSHIP

Kress Corporation, Brimfield, Ill., manufactures large, specialized, rubber-tired vehicles used primarily in the steel, smelting and coal mining industries. Machines use Caterpillar power trains and many other Cat components. Caterpillar OEM Solutions Group is a supplier of many of the components used in Kress machines.

Kress uses Caterpillar power trains exclusively. Most carriers, including the pallet and slag pot carriers, are built using Cat Scrapers. "Generally, we use the 621 or 631 tractors. Occasionally, for the large applications, we'll use the 657," said Randy Taylor of Kress Corporation.

By working together, Caterpillar and the Kress Corporation provide great advantages for customers. "We can offer not only the support of Kress, but also the worldwide support of Caterpillar and Cat dealers," Taylor said.

Caterpillar components are backed by the standard Caterpillar warranty. The rest of the machine is backed by the Kress warranty, which is one-year, unlimited hours.



HOLE LOT BETTER

Drill rig helps construct foundations
for next-gen high rises

During a winter's day on Chicago's north side when the high temperature never reached 20°F, a C7M EK250 Drill Rig pulled reams of steaming blue clay from a 5-foot diameter hole.

The rig drilled three shafts, averaging 80 feet in depth, during an eight-hour shift. It was a typical workday at the site in Chicago's Old Town neighborhood, where two city

blocks have been cleared for construction of a mixed-use, 21-story high rise, an 8-story parking ramp, and a three-story shopping center.

To support the structures, Case Foundation Company is drilling 335 caissons ranging from 30 inches to 8 feet in diameter.

Founded in Chicago more than 75 years ago to help usher in the age of skyscrapers, Case Foundation Company specializes in deep foundations. “We work all over the country installing foundations for high rises,” said Jim Minyard, equipment superintendent.

At the Old Town site, the EK250 is primarily drilling 4- to 5-foot diameter shafts. Three to four shafts, approximately 80-feet deep, are drilled per day.

“Some are 75 feet deep and some are more than 80 feet. It depends on the load-bearing requirements and ground conditions,” said Minyard. “We’re drilling to the hardpan.”

Bell foundations at the bottoms of the shafts are as large as 16 feet

“We typically drill pilot shafts, then put the casings in and twist them down,” Minyard said. “The EK250 has a lot of forward torque that does a great job twisting them into place.”

The rig’s main winch provides a maximum pulling force of 69,049 lbf, which is very helpful on the jobsite. “It extracts the tools out of the hole without straining the rig,” Minyard said. “Bars weigh 18,000 pounds and buckets weigh 10,000 pounds. That’s a lot of weight.”

The biggest challenge facing the Case Foundation Company crews at the job is the size of the site, which covers two full city blocks. The EK250’s mobility helps meet this challenge. The machine is completely self-erected. The masthead and mast pin are hydraulically operated from the operator’s cabin for easy set-up.

“The operator pushes a button, and the hydraulic controls level the machine,” Minyard said. Some other drill rigs require the use of a loader

are ex-mechanics. They know a lot about machines,” Minyard said.

CZM also provides outstanding support. Field reps have provided Minyard not only with cell phone numbers, but also their home numbers. “The other day at about six in the evening, we had a problem with the Kelly bar. The CZM rep told us what to do, and we fixed it. That’s what we look for in a company—service.”

CZM provides a broad range of machines for a variety of foundation applications. The comprehensive product line ranges from portable machines to truck-mounted equipment, including mini-crawler-excavator- and crane-mounted machines. **I**

“The EK250 has a lot of forward torque that does a great job twisting them (casings) into place.”



JIM MINYARD
Equipment Superintendent
Case Foundation Company

in diameter. “The ground conditions here are perfect for bell foundations,” Minyard said. “Chicago has a lot of blue clay, then it goes to hardpan before hitting bedrock.”

The Rig

The CZM EK250 Drill Rig is mounted on a Cat® 336 HHP (High Horsepower) Hydraulic Excavator. A 350-hp Cat C9 ACERT™ Diesel Engine provides plenty of hydraulic muscle to handle deep-hole drilling.

The EK250’s rotary head features robust design and the industry’s largest inner passage (31½ inches) for high drilling torque. The forward torque is a great help installing protective casings.

to place material beneath the tracks for leveling the machine, a much more involved, time-consuming process.

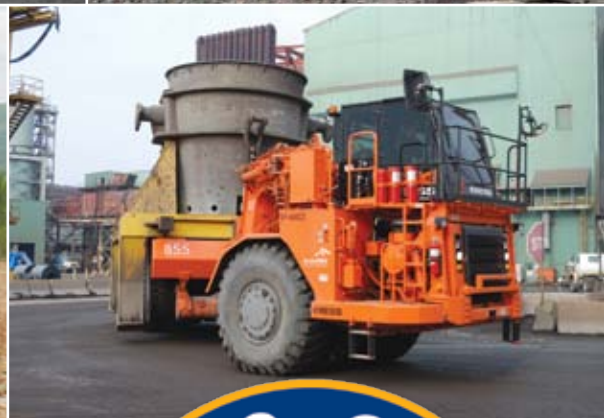
The Power of Two

Because the base drill rig is considered a Caterpillar machine, it is covered by Caterpillar warranty and can be serviced at Cat dealerships across the United States. “If there’s an issue, Patton Cat can quickly dispatch a field technician to the jobsite,” Minyard said. “We can’t afford downtime.”

Parts are also readily available through the Cat dealership or online. “The parts guys at the dealership are very knowledgeable. A lot of them

CZM EK250
Drilled Shaft Pile Version
Brief Specifications

- Net Power: 350 hp
- Overall Height: 83 ft-2 in
- Operating Weight: 176,350 lb
- Transport Weight: 159,174 lb
- Max Drilling Depth: 246 ft
- Max Drilling Diameter: 138 in
- Max Hydraulic Pressure: 5,976 psi
- Max Hydraulic Flow: 127 gal/min
- Maximum Torque: 234,500 lbf.ft



CONNECT WITH THESE CATERPILLAR OEM SOLUTIONS GROUP CUSTOMERS

PLATINUM LOT 8601
CZM Foundation Equipment
czm-us.com
912.200.7654

GOLD LOT 1425
Mobile Track Solutions
mobiletracksolutions.com
563.245.6871

SILVER LOT 3223
Supertrak
supertrak.com
941.505.7800

SILVER LOT 6562
Kress Engineering
Kresscarrier.com
309.446.3395

Holmes Welding & Fabrication
holmeswelding.com
319.988.3727

NMC Railway Systems
nmc-corp.com/nmcrailwaysystems
402.891.8600



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