Fourth Quarter, 2004

Kawasaki

FOCUS

Meeting the Challenges:

Survival of the Fittest

Southern States Statesville Fertilizer

LARCO Construction — A Division of COLAS

Statesville Brick

Diagnostic Tools Tell the Story

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SURVIVOR: Kawasaki-style

Survivor. It's a reality-based television show that has taken our culture by storm. Interestingly enough, its theme of "Outwit, Outplay, Outlast" could easily apply to machinery that operates in a hostile environment. The Southern States Co-op Statesville Fertilizer Plant in Statesville, North Carolina is one such place. The constant exposure to chemical agents designed to speed growth, combined with high humidity levels, has turned this farmers' cooperative factory into a corrosive-inducing, metal-eating monster and its mechanics into masters of prevention and repair. And which brand of wheel loader has outlasted the rest? Kawasaki.

Bagged fertilizer is palletized and shrink-wrapped for delivery. The plant processes about 35,000 tons of bagged fertilizer a year and serves 192 retail locations.

CHEMICAL

Kawasaki has developed the Chemical Application Package with special protection for the electrical systems, cooling systems, and hydraulic systems to increase durability and reliability in corrosive environments.

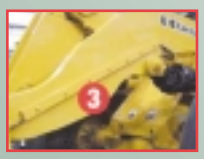
Basic Package Features:

- Silicone Sealed Wire Connectors ❷
- Stainless Steel Axle Brake Lines

Additional Options:

- Autolube System, Stainless Steel Plumbing ❸
- Cab Air Pressurizer/Filter
- Cooling System Cores, Anti-Corrosive Coating
- Epoxy Primer and Paint
- Hydraulic Cylinder Rods, Triple Chrome Plated
- Seal Saver™ Boots, Bucket Cylinder Seal Protectors ❶
- Seal Saver™ Boots, Lift Cylinder Seal Protectors
- Seal Saver™ Boots, Steering Cylinder Seal Protectors
- Stainless Steel Bolts

Photographs are representations only. Actual options will vary by model and application.



The plant receives many of its chemicals in bulk by rail.

THE SETTING

Southern States is one of the largest farmer-owned cooperatives in the United States. With about 1,200 retail locations in 23 states, the Cooperative purchases, manufactures, distributes, or processes feed, seed, fertilizer, farm supplies, and fuel. All these endeavors require mills, plants, terminals, and warehouses — and the equipment to run them. The Cooperative's Statesville Fertilizer Plant uses a number of 60 ZIV, ZIV-2, and ZV Kawasaki loaders.

"We use our loaders for everything here," says Bruce Gray, Plant Manager, Statesville Fertilizer Plant. "We make 90,000 tons of fertilizer a year. The loaders unload our raw materials, fill bins and hoppers for both the blended and ammoniated production lines, blend mixes, bag mixes, and more." "Whenever we have heavy lifting, or need to dig something out, or raise something, we use our loaders," adds James Williams, Equipment Manager.

THE RESEARCH

Statesville's fertilizers are used on vegetables, soybeans, wheat, corn, and tobacco fields as well as on golf courses and home lawns. The various formulas are based on research. "We're highly involved in ag schools in our area," says Gray. "Our co-op has research farms and we're in contact with other co-ops throughout the country. Down on this level, there is nobody who knows how to make ammoniated grades better than we do. When I create a new grade, I'll create them in conjunction with the North Carolina Department of Agriculture. We meet with them regularly to see what's going on out there and what the needs might be."

THE CHEMISTRY

"All the products used to make fertilizer are nutrients we use every day in our bodies," explains Gray. "The body processes nitrogen every day. Same with potassium and phosphates. Most of the time we don't wear masks, but we do have a level, set by the EPA, where we do."

Although the chemicals generally are not harmful to humans, they are highly corrosive to metal. "Our fertilizer plant is extremely hard on equipment," states Gray. "We work with a lot of salts and oxidizers. Equipment is constantly exposed to corrosion, chemical accelerants, and humidity. The fertilizer dust gets into everything. It absorbs moisture and becomes a conductor. The result is electrical problems. It's not 'if' our equipment is going to be eaten, it's 'when' and 'which part is next.'"

THE CHALLENGES

In the never-ending battle to maintain a working loader fleet, Williams has re-routed wiring and devised airtight custom boxes to seal electronics away from the dust. Electronics are lacquer-coated. Other vulnerable spots are silicon-coated or greased. Machines have custom-placed kill switches. Alternators routinely fail in six months.

Typically, the plant has 29 employees and runs six to eight months a year with eight-hour shifts. In the winter, as they begin to build inventory, more people are hired and the pace increases to two shifts, 16 hours a day. Then in late winter and early spring, the plant revs to high gear with operations going around the clock and the loaders running 24 hours a day. All service intervals are followed to the letter. Any heavy-duty

"winter" maintenance is done in the summer, when the plant is at its lowest ebb of activity. This past summer, Williams totally tore apart their oldest Kawasaki, completely repainting and refurbishing it.

OTHER PLAYING FIELDS

"We have nine fertilizer plants in our cooperative," says Gray. "One is a sister plant that makes both blended and ammoniated fertilizers like we do. The rest make blended fertilizers only."

Blended fertilizers consist of a variety of materials that are simply well mixed. Ammoniated fertilizers, on the other hand, have all the nutrients captured and blended within each granule. Although ammoniated fertilizer gives a better application, the process itself is subject to more EPA regulatory oversight. "There used to be about 125 ammoniation plants in the country," relates Gray. "Most of the plants have been closed. Southern States has two of the few plants that remain. We even have our own totally qualified hazmat teams to respond to leaks. Police and fire chiefs come in here from a three-county area for anhydrous ammonia safety training."

Workers prepare to bag the fertilizer. Less than half of the plant's output is bagged. The rest is sold in bulk.

THE WINNER

"We have some other Kawasakis at two of our other plants," says Williams. "As an entire division, we would like to find a loader that will work in all nine locations. I tried a Volvo machine with a corrosion-resistant package that was supposedly fertilizer-proof. It was less than a year before the electronics side started to fail. From our standpoint, the fewer the electronics, the better. But all the manufacturers have more electronics now and we've had problems with all of them. Currently, our longest-lasting machines have been Kawasaki. On our new 60ZV, we like the Isuzu engine. It gives us a little more power. We also like the bucket handling capability — especially since most of our material is 65-80 pounds per cubic foot."

NEW APPLICATION PACKAGES

Although severe-duty fertilizer applications are relatively rare, agricultural and corrosion-resistant applications are not. Kawasaki, as a company whose sole mission is to produce wheel loaders that meet customers' needs, is developing a number of special application packages. Be sure to watch future issues for more information on this exciting new development. In the meantime, check out the new Chemical Application Package profiled on page 4.

Southern States Cooperative is serviced by Interstate Equipment, Statesville, North Carolina.

First Kawasaki on the BLOCK

COLAS is the world's leading road construction and maintenance group, with about 56,000 employees, and about 1,200 profit centers worldwide. Each year, the group produces nearly 90 million tons of aggregates, 54 million tons of asphalt mix, and 1.5 million tons of emulsions and binders. In the United States, COLAS owns a number of companies — including Nello L. Teer, which has as one of its divisions LARCO Construction, headquartered in Winston-Salem, North Carolina. LARCO has the distinction of being the first company in the North Carolina asphalt side of COLAS to own a Kawasaki loader.

"Actually we have two Kawasaki loaders," says Fred Fenske, Plant Administrator, LARCO Construction. "The first 90ZV we acquired in early 2003. It is at our Haw River asphalt plant. The second 90ZV came in early 2004 and it's at our High Point facility. The operators love the loaders."

The initial sale wasn't easy. Interstate Equipment, the area Kawasaki dealer, faced a company that ran Cats and a parent company that ran a mix of Cats, Komatsus, and Volvos.

"Nelson Holland is a knowledgeable salesman," says Mike Carroll, Equipment Manager, Nello L. Teer. "He really worked with us. We leased it long enough to know that it was the right machine for us. And they've taken good care of us since then. Nelson and Interstate really care about their customers."

"When we set up our Haw River plant two and a half years ago, there wasn't a loader there," says Fenske. "We compared a number of machines and had our operators run them. They didn't like the speed or set-up of the controls on the others — they liked Kawasaki the best.

"At Haw River, the operator can run 350 tons an hour before we need to start up a second loader. It's faster than our previous loader and it's doing great."

With the solid performance of the first Kawasaki well established, when it came time to acquire a second loader, the company still did competitive pricing, but Kawasaki had the lead. A trip to Kawasaki's Florida Days was arranged so Teer and LARCO personnel could meet key people from Kawasaki corporate.

When the decision was made to get the second 90ZV, Interstate structured the financial arrangements around the company's paving season to maximize cash flow.

Both 90ZVs have ride control. The second ZV also has auto lube. This option has worked so well the first ZV will also be retrofitted with it. Loader operators are responsible for day-to-day maintenance, while LARCO's shop handles preventive maintenance as well as tracks costs. Interstate services the loaders whenever LARCO requests.

Tracking maintenance costs will yield at least one significant advantage of Kawasaki loaders over others. "All our loaders have inboard braking systems," says Carroll, "but with the Kawasakis, our brake repair costs will be substantially less because the brakes are easier to reach and change (The 90ZV has outboard mounted, dual circuit, wet disc brakes). That is a big plus for us."

The three LARCO asphalt plants each run about 250,000 tons a year. They go down for one month in the winter for maintenance then fire back up in January. At peak season, all three plants put out 80,000 tons a month.

LARCO's first 90ZV is used at their Haw River asphalt plant. Output from the plant is about 250,000 tons a year. Typically, the plant runs one 10-hour shift 6 days a week.

LARCO's customer base is a mix of about 70% state projects and 30% commercial.

"I know I need one more loader here at Winston-Salem," says Fenske. "I'm hoping I can get a Kawasaki in here as well. Another Kawasaki is being considered for a Nello L. Teer site."

LARCO Construction, a division of Nello L. Teer, is serviced by Interstate Equipment, Cary, North Carolina.

Statesville Brick

and Kawasaki Stand the Test of Time

What do the Great Wall of China, Mayan temples, Babylonian palaces, and your house have in common? They were all built with brick.

Sun-dried or kiln-fired; glazed, textured or plain; molded one at a time or mass-produced, brick has been an extremely versatile building material for over 9,000 years. So what's in a brick? The ingredients change based on the brick's purpose and where it is made, but at the Statesville Brick Company, located in Statesville, North Carolina, their bricks are made from clay and shale.

"We get the clay from our own pit located nearby at the Catawba River," explains Johnny O. Meredith, Production Manager at Statesville Brick. "And we get the volcanic shale from Gold Hill, near Salisbury. We'll never run out of raw materials in my lifetime."

Statesville Brick Company was established in 1907. Still a family-owned plant, they manufacture nearly 50 million fine quality face bricks every year. Their brick can be found along the eastern United States as well as in Canada.

The company uses a Kawasaki loader at each of its pits, as well as several at the brick plant itself. The loaders at the two pits are not run by seasoned operators. In fact, the tough clay is dug out by a contractor and then loaded onto trucks by the Statesville Brick truck drivers themselves. "It's possible to have 15 different operators on our loaders in a single day," says Meredith. "Most of the time it is my drivers using the loaders. But sometimes we have outside contractors who come in and their operators use the loader, too. We have to keep the loaders simple."

Johnny O. Meredith (left), Production Manager, Statesville Brick, with Walter Reese, Interstate Equipment.

At the manufacturing facility, loaders unload and begin blending the two raw materials to the correct proportions. Then the same loader handles it again, sending the material into the grinding system to be ground and screened to 1/8" or less in particle size, and then sent to a large storage area. If the blend is not right, the brick quality suffers.

After aging, the material is handled by another front-end loader and conveyed to the next step in the manufacturing process — water addition and tempering. The air is then removed by vacuum and the brick material is extruded, compressed, and shaped to proper dimensions. During the extrusion process, material is squeezed around

metal pins to form the holes in the brick. Statesville's wide variety of brick is based on two colors — red or brown. All their brick starts red, then can be colored brown with different pigments and oxides. All other variations are due to external treatments, such as sand, liquids, and slurries that are done at this stage.

Next, a traveling cutter bites into the extruded material, creating the actual brick. Machinery lines up and grabs 792 bricks — a double layers' worth — and sets them on a kiln car. This process continues until the kiln car is fully loaded with 6,336 bricks, ready to be dried.

Bricks are quite warm and damp when they are first made. Drying rids them of excess moisture prior to being fired in the kiln. The kiln uses several temperature zones, the hottest being around 2,000 degrees Fahrenheit. The resulting bricks are then ready for use in construction.

Business has been good for Statesville Brick — so good that they are adding a second plant to meet the growing demand. Kawasaki loaders will handle the blending of ingredients at that plant also.

"We have compared and used many different brands of loaders," says Meredith. "We do head-to-head comparisons every time we buy. We chose Kawasaki over all the other brands because of its bigger bucket, higher breakout force, and faster cycle times, as well as the history of quality service after the sale!

"I ran equipment before I ever came here. I may not know everything about a machine, but I know what works for us. Kawasaki made some changes with the ZVs that caught my attention and really helped get the sale — especially the improvement in the parking brake system."

" Kawasaki made some changes with the ZVs that caught my attention and really helped get the sale."
– Johnny O. Meredith,
Production Manager, Statesville Brick.

One of the problems Statesville faced with so many different operators was that they were taking off with the parking brake still set. It had created such a problem that safety inspectors were threatening action. Seeing the changes Kawasaki made to the parking brake reassured Meredith, and the company bought the 65ZV.

"We've owned a number of Kawasaki loaders over the years," says Meredith. "They are good machines. Our first was a ZB and we traded it in at about 12,000 hours. We hear it is still running in a nursery. This 65ZV is our eighth Kawasaki. The pricing is fair and we like the fact that our dealer is just down the road. Service has been very good. There is no reason for us not to continue to buy more Kawasaki loaders."

Statesville Brick is serviced by Interstate Equipment, Statesville, North Carolina.

A 65ZII working at the company's Catawba River pit. Typically, the truck drivers do their own loading.

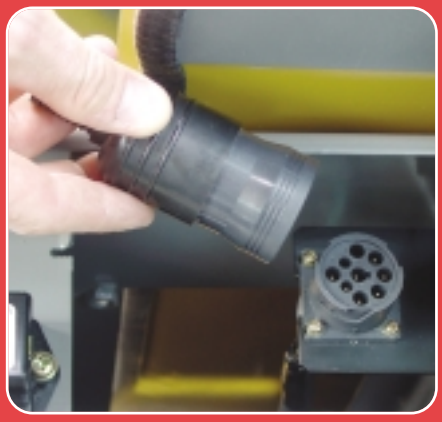
A 65ZIV-2 feeds a hopper at the Stateville Brick plant.

The brick material is compressed after it is extruded.

Bricks are mechanically sliced and stacked. The stacks are rotated every so many rows.

So, Talk to Me!

Diagnostic Tools Tell the Story



QuickCheck adapter plug for a 9-pin Deutsch connector, available on most models.

The window displays a number of factors about the engine in real time, including engine rpm, coolant temperature, and oil pressure.

You've heard the expression "If these walls could only talk." Well, your engine, transmission, even your loader itself also have stories to tell. And now they can, thanks to new technology tools available to field technicians at both dealer and end-user levels.

CUMMINS ENGINES DIAGNOSTICS

The electronically controlled Tier II Cummins engines used on most of the Kawasaki ZV loaders (excluding the 50ZV, 60ZV, 65ZV and 80ZV) capture a tremendous amount of data. Cummins now provides a new diagnostics tool to access that data. It's called QuickCheck III. Available through your local Cummins distributor, QuickCheck III software and connectors work with a compatible handheld PDA device (Palm M500™, M505™, M515™, 1705™, Zire™ 71, Tungsten™ T, Tungsten™ T2, Tungsten™ C, Tungsten™ W, and Garmin® IQue 3600 models) to give you a wide variety of electronic engine and vehicle subsystem data.

With QuickCheck III, you can read over 50 engine parameters in real time. You can identify over 1,000 fault codes and reset inactive fault codes. You can download and store equipment, trip, and fault data for later analysis, and access information from any electronic diesel engine (Cummins or other) that has an SAE J1939/J1587 data link. Free software updates are available online at Cummins' web site. Most users will find the operation of QuickCheck III easy to use and requires minimal or no training.

Cummins also offers INSITE™. It works from a laptop computer and requires advanced training to fully comprehend the capabilities of the engine control module. It is used to perform advanced functions such as diagnostics, troubleshooting, programming and re-programming on a Cummins diesel engine. Three versions of INSITE are available: Basic, Lite and Pro. The software is available in English, Portuguese, and Spanish. Chinese, French, and Japanese versions will be introduced shortly. Additional product and purchasing information can be found at www.quickcheck.cummins.com.

MACHINE DIAGNOSTICS

With the installation of a simple diagnostic kit consisting of a wiring harness and two switches, available through your local Kawasaki distributor, the Kawasaki ZV wheel loader's transmission and major systems can be monitored. When used in conjunction with the loader's shop manual, the transmission's electrical system fault codes can be read directly from the Transmission Controller LED display panel.

For example, the Transmission Controller LED display panel, located on the right hand console, indicates a fault code "71" on a 95ZV. This fault code indicates a fault in the engine speed sensor circuit. Using the switches, multiple fault codes stored in memory can be recalled instantly. Another example on a 95ZV would be an instance of the engine

Kawasaki connectors to increase/ decrease Cummins ECM-controlled engine idle settings.

exceeding normal temperature readings. This would be displayed on the Transmission Controller LED display panel when the diagnostic switch is depressed.

K-LINK

K-Link is a GPS-based alert system which works on all Kawasaki wheel loaders. Unlike some other competitive systems which rely on cell phone towers, K-Link works with 14 low-orbit satellites. So no matter how remote the location, or in what country the equipment is located, the signal will be heard.

Once a day, K-Link reports the longitude and latitude of the machine, within a 10-meter radius, along with the actual machine hours. However, if the T/M (transmission) and machine monitor controllers sense a problem, K-Link immediately sends out an alert. Problem alerts include engine coolant temperature, oil pressure, torque converter temperature, brake accumulator pressure, loss of electrical power, and transmission controller failure. Through a light or buzzer in the cab, the operator will know an alert has been sounded and for what problem. This gives him the opportunity to immediately prevent or minimize possible damage. In the meantime, the recipients of the alert can take action to diagnose further, or to prep for repairs. Thus, a potentially very expensive situation can rapidly be brought under control with K-Link.

Recipients of K-Link reports are designated at the time of registration. They can include the owner, the customer's service department, the dealer's product support manager, and anyone the customer designates. Warnings can be received via e-mail, text message, or beeper.

Switches for scrolling through inactive T/M and M/C fault codes.

Some interesting upgrades are in the works. These include differentiating between production time versus idle time and transmitting engine fault codes from Cummins electronic engines.

K-Link can be retrofitted to select older fleet machines. For more information, contact your Kawasaki dealer.

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- Increased Visibility
- Increased Power

Features for the owner include:

- Fuel Efficient Cummins Electronic Engines
- Increased Horsepower
- Larger Bucket Capacities Increase Production

Operators appreciate the increased visibility, comfort and power. Owners appreciate the efficiency and productivity.

Kawasaki, the oldest on-going manufacturer of articulated, rubber-tired wheel loaders in the world, has defined the standard for excellence in design, manufacturing, sales, and customer support. Manufactured and assembled in Newnan, Georgia, specifically for the North American market, Kawasaki wheel loaders incorporate over 40 years of engineering and technical expertise.

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