VOLVO CONSTRUCTION EQUIPMENT MAGAZINE

ISSUE 51
JUNE/JULY/AUGUST 2014

# spirit


## LIMESTONE COWBOYS
**Mining in America's Midwest**

## COOL OPERATORS
Training for the future

## FIFA WORLD CUP
Volvo CE on the ball

# POWERED TO DIG


VIDEO

The EC380E and EC480E excavators from Volvo Construction Equipment are built to deliver exceptional digging and breakout forces for optimum productivity. Equipped with a Volvo Tier 4 Final/Stage IV-compliant engine and Volvo's unique ECO mode, these excavators combine up to 9% increase in fuel efficiency with a powerful performance. The Volvo EC380E and EC480E: the ultimate heavy-duty production machines.
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Volvo Construction Equipment





## WELCOME TO OUR WORLD

Every summer, our customers and dealers from all over the world are invited to Eskilstuna in Sweden, the home of Volvo Construction Equipment. Known as Volvo Days, the objective of this global event is not only to demonstrate our extensive range of products and solutions, but also the passion we at Volvo CE have for them.

While the main focus this year will be on new launches linked to Stage IV engine technology – the subject of an article on page 24 in this issue of the magazine – guests will have the opportunity to test drive a wide range of our machines, or sit back and watch an impressive demonstration of machines, one of the event's highlights.

Among the equipment on display will be the latest brainchild of our Volvo designers, the GaiaX concept excavator, the fully electric compact excavator of the future that made its public debut earlier this year. Acting Design Director Sidney Levy, interviewed for our Inside Track feature on page 6, says it is the machine he is the proudest of since joining Volvo CE.

Volvo Days not only gives our guests a glimpse of the future, but also an opportunity to delve into the past with a visit to the Munktell Museum which charts 180 years of Volvo CE's pioneering and innovative past. Among the working models acquired by the museum is the 1930s motor grader featured on page 36.

There are also opportunities to visit other Volvo facilities in Sweden, including the articulated hauler plant in Braås, highlighted in our article on page 38 about the Construction Climate Challenge, a Volvo initiative to drive forward the construction industry's environmental agenda.

Volvo Days is the ultimate customer experience, and the perfect environment to see Volvo machines in action, learn about Volvo services and meet Volvo experts. Our world at Volvo CE is reflected through the magazine, with extra content available in videos plus more photographs which can be seen on the free ***Spirit*** App and on the magazine website.

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Photograph of operator Brian Leslie and his Volvo A40D
© Charles Cherney

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*Photographs by Jennifer Barteluk*

# VALUE-ADDED DESIGN

Volvo Construction Equipment's Acting Design Director Sidney Levy is focused on user-friendly machines and creating value for customers

*by Patricia Kelly*

Sidney Levy's boyhood dream was to be a car designer when he grew up. He says that from the age of 12 it is all he can remember wanting to do. In spite of not being able to draw – "At the age of 20 I was drawing like a four-year-old," he says – Levy spent 10 years designing automobiles, before graduating to construction equipment two years ago upon joining Volvo as one of its chief designers. A recent promotion to acting design director now has him overseeing the entire design department.

Levy first ventured into the car industry with a six-month internship at Opel in Germany, working under Design Director Martin Smith (currently executive design director with Ford of Europe). His car design career took off in the now bankrupt car city of Detroit in the United States where Levy, as a consultant with a small design studio listing Ford, General Motors and Chrysler among its clients, worked on the design of GM's new Cadillacs.

An offer came to work on the prize-winning EcoJet concept car built by GM in collaboration with US comedian and talk-show host Jay Leno, an avid car collector. Powered by a helicopter engine, the EcoJet was designed to run on biodiesel fuel. Levy says he received the call to move to California for the project on a Monday. "I was there on the Thursday," he recalls. "It was a no-brainer."

Born in the French city of Strasbourg, giving him dual Swiss/French nationality, Levy left home and moved to the US after high school to further his education. Apart from a four-month stint in New York at 18, he moved to California, attending college in Santa Monica and then the Art Center College of Design, Pasadena. At the age of 30, Levy was awarded an MBA from the leading IMD business school in Lausanne, Switzerland.

Always on the lookout for a challenge – his own words – this was followed by a brief change in career direction and involvement in the creation of two successful French companies that have nothing to do with cars: one supplies disposables such as batteries, electrodes and ultrasound gel to French cardiologists, and the other ophthalmic services for people with restricted mobility.

## ON THE ROAD AGAIN

The car industry eventually lured Levy back into its fold, and had him living in Paris, Frankfurt, Munich and Berlin working for Opel then BMW, where he helped put the finishing touches to the i3 electric concept car. He then spent a year with Volkswagen before joining Volvo CE.

Based in Gothenburg, Sweden, which he thinks has "all the advantages of a small village with the opportunities of a big city", Levy, 37, says he was attracted by Volvo's huge range of machines, plus the fact that the company takes design seriously and respects the role of its designers.

"Volvo was designing machines that were more consistent and better looking than most of the other brands," he says. "I saw an opportunity to not only come up with beautiful shapes but also design solutions for the future.

Sidney Levy video interview for the *Spirit* App

"One of my major achievements at Volvo so far is the creation of a line-up of road machinery that is extremely consistent, and that's been done thanks to a really good collaboration established between the design team and our technology partners," acknowledges Levy.

Design effort on the new hauler, shown at ConExpo earlier this year, went into making operation of the machine "more intuitive and convenient" and making it "look more polished", he says. A slicker design, too, for Volvo's EC380E excavator, also unveiled at ConExpo, and the recent recipient of a prestigious Red Dot Design Award. The excavator, says Levy, has a →


## VOLVO UNDERSTANDS THE ADDED VALUE OF DESIGN AND HAS RESPECT FOR IT

Sidney Levy with the GaiaX concept excavator

new, more intuitive human-machine interface (HMI). "It has a really precise look and feel to it," he adds.

### IN THE GENES

"We really want to make sure that we are creating a group of machines that feel and look alike and have the Volvo DNA implanted in them," he says. "Not only do we want the machines to look and perform better, but we also want them to look and feel like a Volvo machine so that someone could jump from one machine to another and feel that it's a seamless experience."

Neither is the work of Volvo's designers limited to machines: a range of merchandise includes a reversible work jacket and a best-selling backpack, both of which also won Red Dot awards this year. As well as designing the computer software that comes with the machines, the design department is also involved in responding to customer needs and demands, and how best Volvo CE can incorporate them.

Levy's department receives back up from numerous sources. "The core team has a lot of support – we are never alone on any project," he says. "Our engineers advise us which technology we should have and how to use it; we also work with computer-aided design (CAD) experts," he explains.



This year's Red Dot award-winning designs by the Volvo CE designers

"Our product experts have an excellent understanding of what the customer is looking for; we try to understand what the product platform does and what product is relevant to the market. By integrating the technology we can bring the most appropriate product to our target audience. We want to focus on creating value for customers."

The machine Levy claims he is the proudest of so far is the GaiaX concept excavator, the fully electric compact excavator of the future that made its debut at ConExpo.

"It really is a design statement and also addresses all the issues of our business," he says. "It is a simple construction which allows for limited servicing and easy troubleshooting and it adds a lot of value for the operator in terms of efficiency and safety."

Although the structure of the GaiaX may be simple, the HMI is highly advanced. Most applications can be carried out remotely using an augmented reality tablet computer, the main benefit being that only one person is required to use the machine. The operator can dig while keeping an eye on the surrounding environment at the same time. Remote operation also allows the machine to be used in potentially dangerous situations, while the operator maintains a safe distance.

The machine may not yet be available, but tablet owners can get a glimpse of the future by downloading the GaiaX App to explore its features and operate its boom and arm.

"In the future, we expect to design a lot more machines that are looking ahead to maybe 20 or 30 years from now, integrating plenty of new technology and making operation a better experience for the user."

Volvo's core values – quality, safety and environmental care – will remain key components in the design process in the future, as they are today. "As far as the environment is concerned, we try to use material that is environmentally friendly, either biodegradable or made from recyclable material," explains Levy. "We are creating solid and precise machines incorporating a lot of active safety features, as well as passive ones to avoid people putting themselves in dangerous situations."

## WE TRY TO USE MATERIAL THAT IS ENVIRONMENTALLY FRIENDLY, EITHER BIODEGRADABLE OR MADE FROM RECYCLABLE MATERIAL

With GaiaX expected to be operational by 2030, Levy hints that more innovative HMI features are on the horizon and could be included in new Volvo machines much sooner.

"Volvo understands the added value of design and has respect for it," says Levy. "The company takes us designers seriously and my colleagues and I are looking forward to coming up with more innovative products in the future, allowing Volvo to be the partner of choice for construction entrepreneurs."

**Download the free App to watch the *Spirit* interview with Sidney Levy**

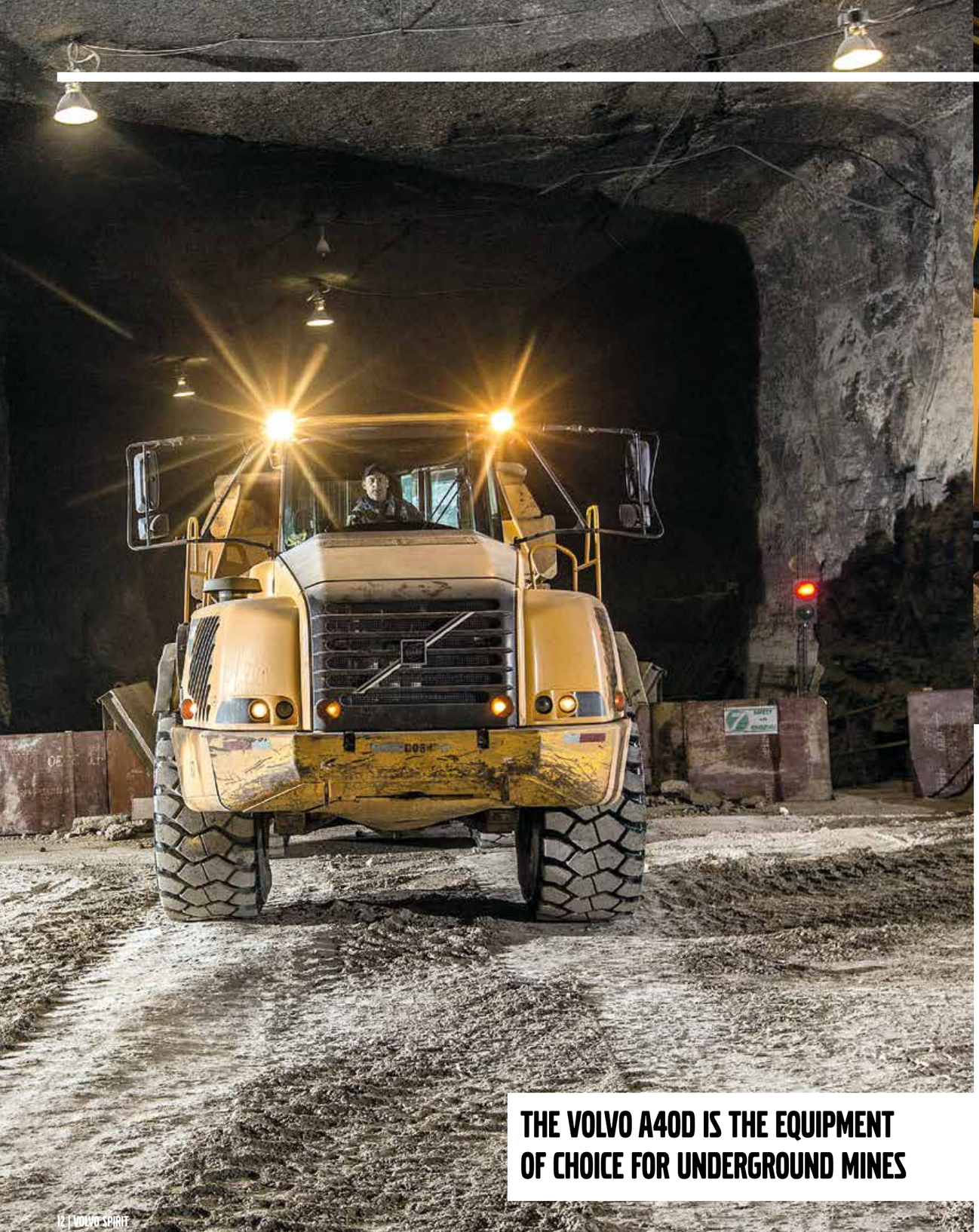
# LIMESTONE COWBOYS

Deep in the heart of America's Midwest, a team of Volvo articulated haulers are not only helping to round up the best limestone available, but are also helping drive Lafarge North America's sustainability efforts →

*by Chi-an Chang*

Underground at the Fox River Quarry

*Photographs by Charles Cherney*



The Volvo articulated haulers help make fuel savings

**THE VOLVO A40D IS THE EQUIPMENT OF CHOICE FOR UNDERGROUND MINES**

Lafarge North America is the largest diversified supplier of construction materials in North America and part of the Lafarge Group, known globally for operating its cement plants, concrete operations, aggregate quarries and mines in an environmentally friendly manner.

At one of its aggregate quarries in South Elgin, Illinois, the company uses four Volvo A40D articulated haulers to help make fuel savings and reduce the impact of the underground operations on the environment.

With a 37,000kg (40.7 tons) load capacity and an operating weight of 68,270kg (68.6 tons), the A40D has a 12-liter 313kW (426hp) engine and electronically controlled, fully automatic planetary transmission with six forward and two reverse gears. It can haul the roughest, toughest, heaviest limestone from the quarry to be processed and screened.

"In the past, our hauler trucks consumed nine to 10 gallons (34-37 liters) of fuel per hour of operations, whereas the Volvo articulated haulers consume about eight gallons (30 liters) per hour of operations," says Ahmed Hamadi, operations manager at Midwest Aggregates, Lafarge US.

Currently, Lafarge US is mining 469,000m² (116 acres) of the Fox River Quarry, which still has around 60 years of limestone reserves. During peak summer operating seasons, up to 11,000kg (10,000–12,000 tons) of limestone are hauled and delivered to their final destination every day.

## WEATHERPROOF WORKHORSES

The 91m (300ft) deep Fox River Quarry resembles an underground city where mined benches create roads wide enough for Volvo haulers to enter and exit the site. With a 15-17% slope to maneuver down into the quarry, Hamadi explains that it is important to have haulers that are stable on steep slopes and have the power to climb them fully laden, day after day, whatever the weather.

"The Volvo vehicles are flexible – they are designed so that if the haul body tips over, the cab generally keeps its 'feet' on the ground," Hamadi says. "I'd say the Volvo A40D is the equipment of choice for underground mines today because of its flexibility, reliability and fuel savings."

Hamadi, who manages the Fox River Quarry and other Lafarge US underground mines in the Midwest, says every single one of the sites uses Volvo.

"We run the machines hard and we like the Volvo haulers because they are workhorses that can handle the tough workload," he says. ➔

The mined limestone travels less than 40km (25 miles) to its final destination

Lafarge US also replaces the fleet at Fox River Quarry every other year to improve air quality and to keep emission and diesel particulate matter levels low.

"We generally try to have a newer fleet underground than we do on the surface so we can take advantage of new technology, which can help improve air quality," says Sean Hawley, vice president and general manager, Midwest Aggregates, Lafarge US.

## CLOSE TO HOME

Another way the Lafarge Group reduces greenhouse gas emissions is by going local. For example, the limestone mined at Fox River Quarry travels less than 40km (25 miles) to its final destination.

"Our product also helps contractors meet Illinois Department of Transportation and Tollway recycle material targets," explains Joëlle Lipski-Rockwood, communications director for Lafarge US. "Because the stone quality at Fox River is so high, contractors can incorporate more recycled materials into the asphalt mix – this allows for a reduction in the amount of oil used in asphalt mixes, which reduces costs to taxpayers and benefits the environment."

**WE LIKE THE VOLVO HAULERS BECAUSE THEY ARE WORKHORSES THAT CAN HANDLE THE TOUGH WORKLOAD**

The quarry's limestone has also been used to help reconstruct several major tollways in Illinois, including the Midwest portion of the Interstate 90 – the longest highway in the United States. At an incredible 4,990km (3,101 miles) long, it runs coast-to-coast, from Boston in the east to Seattle in the west.

## BEST IN CLASS

In 2013, the Lafarge Group and Volvo Group were both members of the World Wildlife Fund's (WWF) Climate Savers, having committed to becoming best in class in reducing greenhouse gas emissions. WWF data from May 2012 shows that Climate Savers member companies have cut their carbon dioxide ($CO_2$) emissions by more than 100 million tonnes since the program began in 1999. That is about twice Switzerland's current yearly $CO_2$ emissions.

The A40D consumes about eight gallons (30 liters) of fuel per hour of operations

# BEAUTY IS A BEAST

A Volvo CE wheel loader never tires of feeding a cutting-edge recycling system with an insatiable appetite →

*by Carol Cassidy*

Volvo's L150G wheel loader helping New Yorkers recycle

*Photographs by Dan Bigelow*

From first glance, New Yorkers can see that their sleek new recycling plant marks a radical shift from the landfills that used to swallow the city's throw-away plastic, metal and glass.

Award-winning architects, known for blue-printing art galleries and cultural sites, designed the plant as a partner project of New York City and Sims Municipal Recycling, which is owned by Sims Metal Management, the world's largest recycler of metals and electronics.

A closer look shows that the plant fulfills an overarching environmental consciousness, with recycled steel construction, solar-power production, and self-contained storm-water management. The riverfront location allows for barge access, lifting the burden of a quarter-million truck miles (more than 400,000km) off city streets, reducing fuel use, traffic jams, diesel fumes and noise while contributing to air quality, peace and quiet.

## QUANTUM LEAP

Thomas Outerbridge is General Manager of Sims Municipal Recycling. "You might find some equally impressive recycling facilities in European countries, where they've been at this for a couple of decades longer than we have," says Outerbridge. "For New York, it's a quantum leap forward in size, scale and quality."

This beauty is also a voracious beast. It can take in some 20,000 tonnes of metal, glass and plastic each month, making it the largest sorting operation of its kind in the United States.

It took ten years and a combined investment of $110 million (€80 million) to bring the facility to life. Volvo CE got involved early on.

**THE SUCCESS OF THE WHOLE RECYCLING VENTURE HINGES ON PUBLIC PARTICIPATION**

"We have a really good relationship with Sims that began almost seven years ago, when they were looking for uniformity of machines across their more than 130 operating yards in North America," says Pat Reilly, Director of National Accounts for Volvo CE. "They brought us in as they started to develop the New York facility. We actually helped them decide that they could use a machine one size smaller than what they had planned. That saves fuel and operating expenses."

## RECYCLING BEGINS AT HOME

Sims and the city are betting that the beautiful new plant will inspire New Yorkers to kick-start the recycling cycle, which begins in every family kitchen. "This will hopefully help to get the public excited about recycling," Outerbridge says. "The success of the whole recycling venture hinges on public participation."

Outerbridge estimates current compliance at 50%, but all New York City residents are required by law to separate household trash, and put empty metal, plastic and glass containers into one bag or bucket, curbside.

After trucks and barges deliver the mixed waste materials to what is called "the tipping floor", Volvo's L150G wheel loader rolls up and digs in.

"Recyclables come 24 hours a day, six or seven days a week," says Outerbridge. "The wheel loader piles material up, or 'highstacks' it, and maintains the piles so we have workable space for trucks and other equipment to move around."

The wheel loader shovels glass, metal and plastic into the sorting system, at the rate of up to 70 tonnes an hour. Outerbridge continues: "The wheel loader needs to constantly feed our processing system. That's what drives the whole through-put of the system."

The enormous, elaborate guts of the working system are so compelling that Sims invites schoolchildren to come and watch from specially built observation platforms.

**FOR VOLVO, ENVIRONMENTAL CONSCIOUSNESS IS ONE OF OUR THREE CORE VALUES, ALONG WITH QUALITY AND SAFETY**

## MONEY MACHINE

Machines detect and sort materials by size, shape, magnetic properties and other qualities, using vibration, gravity, magnets and light reflectors. According to Outerbridge, "All of that equipment is designed to take the material that the wheel loader is pushing into the system and convert it into a dozen different commodities that are now saleable."

Sorting is alchemy, spinning garbage into gold. Recycled aluminum cans, for instance, emerge tied up in tidy bales weighing 680kg (1500lbs). They can be sold for about $1000 (€730) a piece.

Volvo CE machinery contributes to Sims' recycling mission while furthering more wide-ranging environmental goals. "The city has laws that require us, as contractors, to comply with very stringent air quality standards," says Outerbridge. "The new Volvos make us compliant with these air quality requirements."

"For Volvo, environmental consciousness is one of our three core values, along with quality and safety," affirms Reilly. "Those three values are essential to every product we make and every value we keep, in terms of serving our customers."

Outerbridge expects Volvo CE machines to help Sims move into the future. He says, "Over the next few months, we'll get more and more of the city's curbside paper, and the wheel loader is a critical piece of equipment to handle all of the additional tonnage."

"We have told Sims we want to be their partner forever," says Reilly. "They're very proactive in doing things the right way, and in being a positive industrial contributor. We want to help support Sims with the right equipment, and the right support through our dealers, so that they can grow their business."

Outerbridge says Sims plans to build on its New York success. "We think what we've accomplished here qualifies us to compete for municipal contracts elsewhere. And we will."

**Visit www.volvospiritmagazine.com to see a video report of this article**

Thomas Outerbridge, General Manager, Sims Municipal Recycling

Volvo CE's Pat Reilly visits Sims Municipal Recycling in New York

The 2014 World Cup final will be held in Brazil's Maracanã Stadium, Rio de Janeiro

# VOLVO CE AHEAD OF THE GAME

With the 2014 FIFA World Cup kicking off, all eyes are on Brazil – particularly its tropical, former capital Rio de Janeiro, home to the iconic Maracanã Stadium, which has recently been renovated for the tournament →

*by Sam Cowie*

*Photographs by Lianne Milton*

The Maracanã Stadium is Rio's second most popular tourist attraction

Silvio Vilarim Ramos Junior, Equipment Manager at Odebrecht's Rio branch, oversaw the work on the Maracanã Stadium

This year, Brazilians will be hoping that footballing history does not repeat itself. Maracanã – or Estádio Jornalista Mário Filho to give it its full name – was built in 1950 when Brazil last hosted the World Cup. The home team went on to lose 2-1 to Uruguay in the final at Maracanã, marking one of the most dramatic and bitter upsets in the game's history.

The stadium will be in the limelight once again during Brazil 2014, hosting seven games in all, including the final on 13 July – more than any other venue.

In preparation for the competition, a serious amount of work has been done on modernizing the stadium and bringing it up to the standard required by FIFA regulations. Brazilian construction giant Odebrecht, whose notable achievements include Miami International Airport and California's Seven Oaks Dam, won the bidding rights to reform the Maracanã.

Odebrecht has worked with Volvo heavy machinery for the last seven years, since Volvo Construction Equipment opened its first factory in Brazil. Silvio Vilarim Ramos Junior, Equipment Manager at Odebrecht's Rio branch, oversaw the reconstruction of the stadium, employing seven Volvo vehicles in all – six Volvo EC210B excavators and one Volvo MC90 skid steer loader.

## WIN-WIN STRATEGY

When asked what differentiates Volvo from other heavy machinery brands, Ramos says: "Competitive price, reliability, high productive performance, good mechanical availability and low fuel consumption ensuring that you produce for less, therefore increasing competitiveness."

**OUR GREATEST CHALLENGE WAS TO MAINTAIN THE STADIUM'S ICONIC FACADE**

Once the largest stadium in the world, packing in crowds of up to 200,000, the Maracanã has a much-reduced capacity now but remains the country's largest football venue.

While respecting the original layout of the stadium, refurbishment included demolition of the lower ring of seats, construction of a new ring offering better visibility, more access ramps – allowing evacuation of the stadium in eight minutes – and replacement of all the seating.

"In particular, the Volvo machines were essential for the removal of debris and excavation of the seating. The EC210B excavators were great tools for this job," says Ramos.

The stadium was also fitted with a new roof complete with a rainwater collection system. The facade, which has been listed by the National Institute of Historical and Artistic Heritage, remains untouched.

"When working on the Maracanã, our greatest challenge was to maintain the stadium's iconic facade," explains Ramos. "As a result, we needed machines capable of performing demanding lifting duties on the equipment and supplies."

As Rio's second most popular tourist attraction after the statue of Christ the Redeemer, the Maracanã continued to welcome football fans from all over the world, even during renovation. Visitors to the stadium watched the work in progress from the Torre de Vidro (Glass Tower), built especially for the occasion, and could even take a piece of the old stadium home as a souvenir.

**THE VOLVO MACHINES WERE ESSENTIAL FOR THE REMOVAL OF DEBRIS AND EXCAVATION OF THE SEATING**

With a significant amount of public money being spent on the work (R$1 billion – US$430 million/€310 million) the sustainability of the project came under intense scrutiny. Ramos says that to ensure maximum sustainability, Odebrecht worked according to the LEED (Leadership in Energy and Environmental Design) guidelines.

## ON THE BALL

"We managed to reuse a lot of the waste from the renovation in the new construction – saving on natural resources and energy and therefore reducing costs," he continues.

The new Maracanã opened its doors when England played Brazil in a friendly match in a prelude to the Confederations Cup in June 2013. Ramos is convinced Volvo CE played a large part in the success of the renovations.

"On site we encounter problems. Machines break down – that's inevitable. But with Volvo, if repairs or replacements are needed they are made available to the consumer quickly and easily – which means we don't lose time. This reflects the company's commitment to its customers and makes the Volvo brand well regarded by users and operators alike in the heavy equipment market."

# THE FINAL COUNTDOWN

For the past few years the Tier 4 Final 11-16 liter engine project team has been conducting verification tests in extreme conditions

*by Tony Lawrence*

Chief project manager for Volvo CE's Tier 4 Final/Stage IV initiative, Jan Guthammar has spent four years heading up testing and verification of the company's latest engines and machines prior to their launch at ConExpo 2014. Backed by a team of specially selected experts, he has been working in secret with highly advanced technology.

Volvo CE's new articulated haulers, wheel loaders and excavators, equipped with Tier 4 Final emissions legislation compliant engines, have been tested to the maximum – at temperatures of -40°C in the far north of Sweden near the Arctic Circle, through 50°C of sweltering heat in Spain and at 3,500m above sea level in the French Alps.

## ADVENTURE

"It has been a huge logistics exercise," says Guthammar, who heads the Tier 4f 11-16 liter engine platform. "The team traveled around the world with our prototypes backed up by a group of specialist engineers, which has been an adventure in itself.

"Each expedition took about four months to plan and around one month to carry out, with every minute counting. We rotated our team so we could operate up to 16-hour days, seven days a week. We've tested everything possible, down to the last screw, in the most demanding conditions to verify engine and machine performance."

Volvo CE's Tier 4 Final/Stage IV-compliant D4, D6, D8, D11, D13 and D16 diesel engines improve fuel efficiency by up to 5% over previous models and reduce running costs overall. The engines incorporate selective catalytic reduction (SCR) technology to meet the 80% lower nitrogen oxide (NOx) limit. SCR uses an injection of diesel exhaust fluid (DEF in the US) or AdBlue® (Europe) into the exhaust gas flow to convert NOx to harmless nitrogen and water. SCR has been used by Volvo Trucks since 2005. Volvo CE capitalized on the vast experience within the Volvo Group and the millions of hours of real world testing the technology has already been through. The redesigned, fully automatic diesel particulate filter (DPF) system reduces particulate matter without interrupting machine operation or lowering productivity or performance. Passive regeneration takes place regularly at low exhaust temperatures to oxidize particulate matter. Infrequently, particulate matter is also incinerated at high temperatures via reset regeneration. Neither process requires intervention from the operator, and feedback from customers who have tested the new machines is excellent.→

Jan Guthammar

*Photographs by Steve Skinner*

Testing was carried out in extreme weather conditions

"Producing a greener engine and fitting it into our machines was a huge challenge in itself, but for us the key was to go further than those requirements and focus on improving fuel efficiency, engine power, ease of service and machine performance," explains Guthammar.

## EXTREME CONDITIONS

In investment terms, Tier 4 Final represents the largest development project ever carried out by the company.

So, which was the toughest leg? "The Alps," says Guthammar – a highly experienced engineer who has worked with IBM, General Electric and Bombardier – without hesitation. The team went up to 2,200m, stayed in secluded houses normally used by ski industry workers, then drove up beyond 3,000m, along a one-lane road. With an A40 hauler, that leaves a 30cm gap on each side. When it snowed, the visibility was down to a few meters.

"But it created a great bond between our team members, who were all specialists and drawn from all over, from Sweden and Germany, Korea, the US and South America. They became a very close community."

And all this was done unobtrusively trying to stay away from prying eyes as well as camera lenses, Guthammar explains.

The verification process, he adds, was "invaluable" and a huge success, highlighting certain issues and also producing some welcome surprises: "Most of the time, in fact, things turned out even better than predicted."

"The engines and machines were tested on work benches, in climate chambers and test sites for more than 100,000 hours but you still find out new things under extreme conditions when you drive them up a very steep slope, fully loaded, in the toughest weather conditions. And when you find the engines cope even better than expected, or are more fuel-efficient than forecast, that puts a huge smile on your face. These expeditions are invaluable in this regard."

The Volvo D-16 in detail

## WE'VE TESTED EVERYTHING POSSIBLE, DOWN TO THE LAST SCREW, IN THE MOST DEMANDING CONDITIONS

Guthammar might be expected to relax now, and take a little time to ski or play some golf – but no. "This is the most important bit – the launch of these machines. That is what counts. This is the bit that makes sense of what we did before. You don't let go now."




With Customer Support Agreements, you can not only mine quarries and build roads with maximum uptime, expert knowledge and enhanced productivity, but you can also have an impact on infrastructure in towns, cities and countries anywhere in the world with full support from your Volvo dealer. Learn more at **www.volvoce.com**

Volvo Construction Equipment


Trainers Phil Sporne and Joshua Bennett inside the world's first virtual construction site developed by the Civil Contractors Federation, Adelaide, Australia

Simulator training with Odebrecht in Brazil

# COOL OPERATORS

A new generation of simulators is having a huge impact on the development of a 21st century workforce for construction equipment. While optimizing operator training across a range of heavy equipment, the simulators minimize not only health and safety issues but also adverse effects on the environment

*by John Bayliss*

Developed in partnership with the Swedish-based Oryx Simulations, the Volvo advanced training simulators combine advanced 3D graphics with an electrically controlled full-motion platform. With the focus on giving trainee operators a realistic experience, Volvo simulators use actual input from working excavators, wheel loaders, articulated haulers or demolition equipment, depending on the training required.

Application of these simulator-based training methods is providing benefits long associated with the aviation industry: lower risks for inexperienced personnel; cost savings; more efficient training periods; and machinery readily available for billable production rather than training sessions.

These benefits are clear to Abraham Acosta, an eco-operator instructor with the Central American plant and equipment company Comercial de Motores in Panama. "It doesn't matter how many sensors, systems and technology a machine has, our customers can't get the most out of them unless they know how to use them. This is why we train them on simulators."

## GAME PLAN

With video games playing a big part in everyday life, in many ways the simulators can be seen as an extension of a familiar and fun environment. This makes it easier for trainee operators to become accustomed to operating construction equipment before using the real thing in potentially dangerous conditions.

Trainees are immersed in a simulated environment where they learn from their mistakes without any negative impact on themselves, the heavy equipment or the environment. A built-in evaluation tool monitors the operator's developing skills.

The simulators range in size and scale. Single, stand-alone units, comprising a high-definition screen and a motion platform, give a sensory perception of operator actions. They can be transported to different training centers where trainees from other companies and districts can meet to work on the simulators. In this way, training can take place without any disruption to production on working construction sites and the stand-alone units can be moved to meet local needs.

## PORTABLE

In Europe, where the road, rail and air network is extensive, ease of transport makes the simulators a flexible training tool. However, in Brazil, South America's largest country, the logistical challenges and greater distances between centers have led to companies taking the portability concept to another level. Tracbel SA has 45 years of experience in Brazil, supplying equipment to the construction, agricultural and forestry industries. Using Volvo CE simulators, the company has fitted out trailers with training units that can be towed around the country.

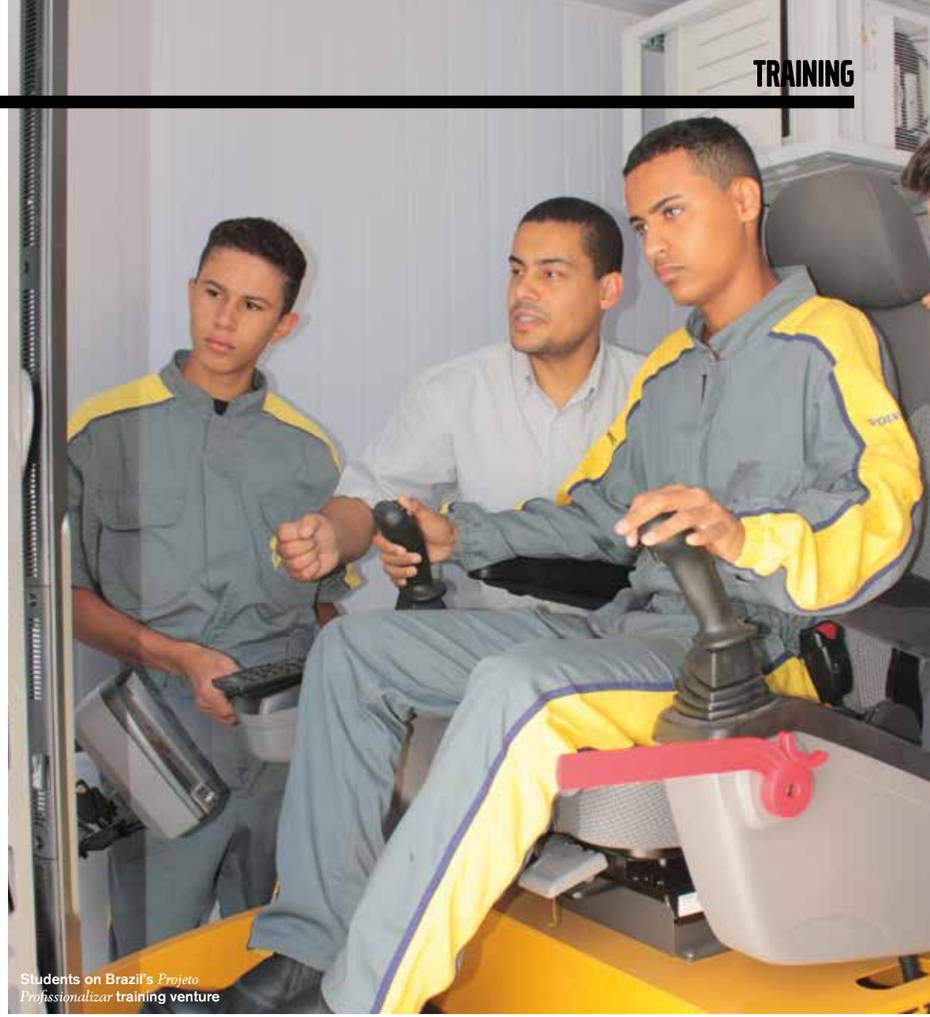
In the converted trailer, the operator sits in a cab similar to that in a real machine, and monitors the work in progress on a 140cm LED screen. The company claims that a class of 12 with no previous experience of the equipment can be ➔

Student operators train on Volvo simulators, Civil Contractors Federation, South Australia


Odebrecht training manager Edivaldo Freitas


Tracbel Group CEO, Luiz Gustavo R. de Magalhães Pereira

Phil Sutherland, CEO, Civil Contractors Federation, South Australia


Students on Brazil's *Projeto Profissionalizar* training venture

trained to certification level in 100 hours. Tracbel CEO, Luiz Gustavo R. de Magalhães Pereira, says: "Our advanced Volvo simulators offer training so realistic, it is comparable to training in the real machines."

## COST BENEFITS

Odebrecht, another firm operating in Brazil (see page 20), has wide experience in a range of major infrastructure projects in the country, including road, rail and airport projects, and huge construction sites. It has carried out a cost benefit analysis comparing simulators and traditional training on real equipment. Odebrecht's training manager, Edivaldo Freitas, estimates that over a 100-hour period, fuel consumption is reduced by 10%, productivity is increased by 5%, and overall training costs are cut by an amazing 62% – not to mention the health and safety and environmental benefits.

**TRAINING CAN TAKE PLACE WITHOUT ANY DISRUPTION TO PRODUCTION ON WORKING CONSTRUCTION SITES**

Volvo Construction Equipment has a long history of supporting not only the interests of its customers and stakeholders but also people in the communities where the company operates. Nowhere is this more true than in Brazil where Volvo CE gives financial support to the *Projeto Profissionalizar* training venture.

Set up 13 years ago, *Projeto Profissionalizar* provides free courses across a wide range of professions to young people living in socially vulnerable environments. It started in the Brazilian state of Minas Gerais and, since its inception, has helped train more than 450 students. As from 2014, students are being trained on Volvo wheel loader and excavator simulators.

In South Australia, where construction companies face similar logistical challenges to those in Brazil, a dual approach to training combines portability and a permanent training center. The Civil Contractors Federation (CCF) has developed a center of excellence in a 4,000m² site located just 5km from Adelaide's central business district, and a 10-minute drive from the city's airport.

## VIRTUAL REALITY

The center houses the world's first virtual construction site and a fleet of mobile training units. At its heart, a comprehensive assortment of Volvo heavy-machine plant simulators includes several four-degrees-of-movement units and two six-degrees-of-movement simulators. The CCF offers more than 20 short courses and nationally recognized traineeships, with up to 20,000 trainees passing through every year.

Phil Sutherland, Chief Executive Officer of the CCF, says the Adelaide center has focused on providing state-of-the-art education and training systems to thousands of new operators or those enhancing their skills base. "The simulators have given our business the edge over all other training providers. Volvo is a globally recognized quality brand and our Volvo simulators live up to that expectation."

**THEY LEARN FROM THEIR MISTAKES WITHOUT ANY NEGATIVE IMPACT ON THEMSELVES, THE HEAVY EQUIPMENT OR THE ENVIRONMENT**

The extensive advantages of simulator training are being acknowledged worldwide, with the partnership between Volvo CE and Oryx providing an opportunity for a stronger presence in this market segment. As Phil Sutherland affirms: "Simulator-based training offers many advantages. It minimizes the risks and costs associated with training in live plant. When our students are proficient on the simulators, they transition to live plant and equipment to complete their training. We are very pleased with our association with Volvo."

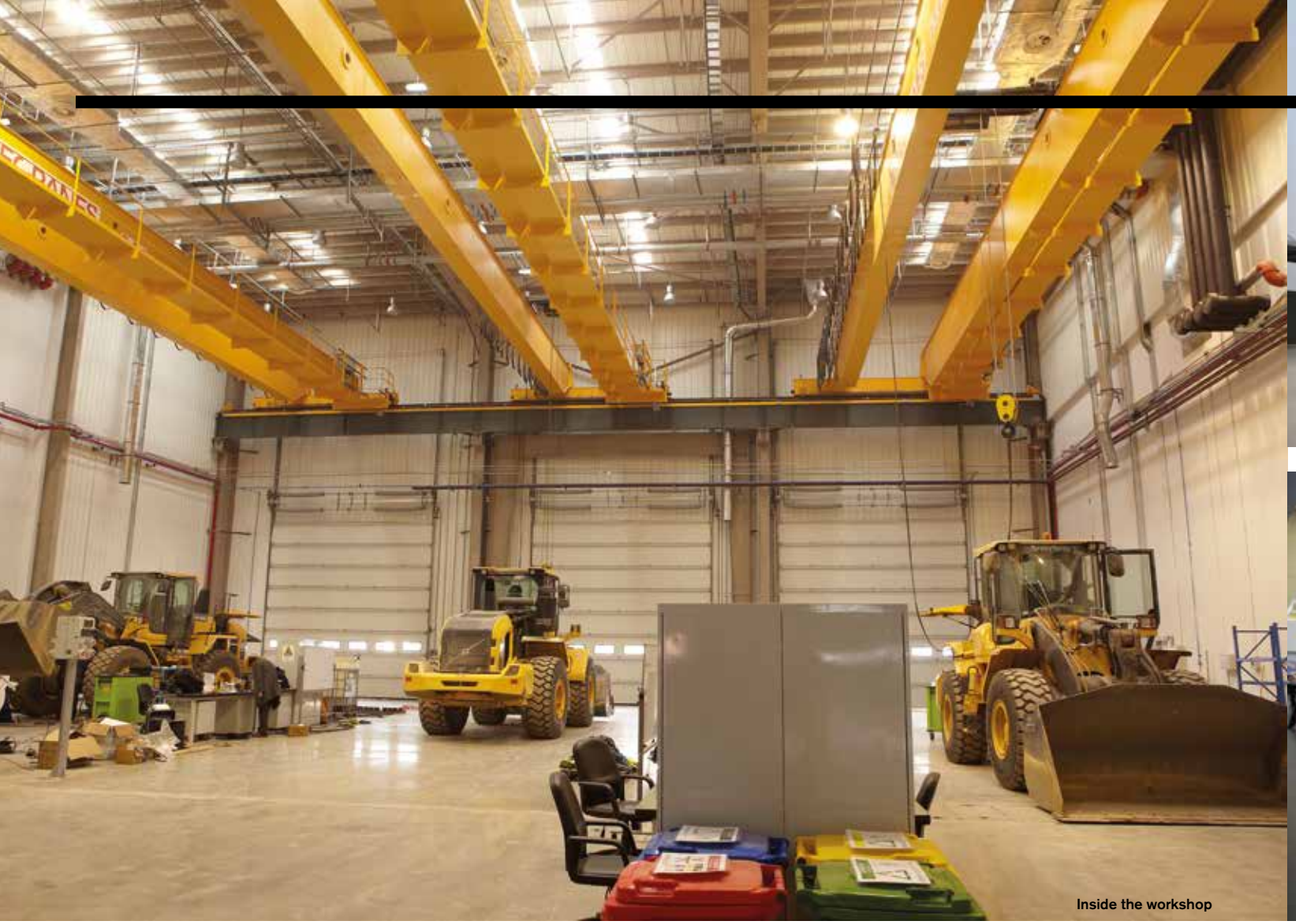
Visit www.volvospiritmagazine.com for links to video of the Volvo simulators

Aerial view of the Jinan Technology Center

# DRIVING GROWTH

## Volvo investment shows commitment to emerging markets

Volvo CE's new purpose-built research and development facility at Jinan, in China's eastern province of Shangdong, underlines the company's long-term commitment to the Chinese construction industry. The firm's SEK270 million (US$41.8m/€30.3m) investment in ➔


Inside the workshop

The entrance

The reception area

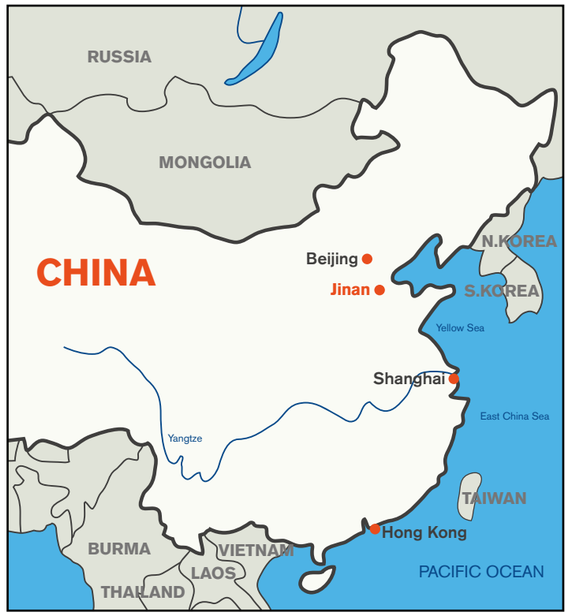
Staff limbering up for work


Volvo CE's Anders P. Larsson

the 50,000m² Jinan Technology Center is the focal point of Volvo's push to develop products and components for customers in the emerging markets that make up more than half of Volvo CE's global business. Of these markets, China is the biggest and is considered the most important.

The Jinan Center will enable Volvo CE to provide machines tailored specifically to the needs of this new market and deliver them to customers faster than before – a big advantage in today's highly competitive global marketplace.

"At Volvo, we know that it is vital to have a design and manufacturing presence in the countries where our machines are used. It gives us a greater understanding of our customers and their needs while also allowing us to benefit from local engineering talent," explains Mats Sköldberg, President of Volvo CE Technology, China. "Jinan Technology Center is not only crucial to the success of Volvo CE in China but also to the rest of our global marketplace."




## MARKET-ORIENTED

Located 350km from Beijing, Jinan is an area of engineering and design expertise. The several large universities and technical colleges located in the city represent a valuable source of engineering talent for Volvo CE. The Jinan Technology Center itself boasts a test track, design offices and two testing buildings with component and prototype assembly workshops as well as areas for testing equipment structure and performance.

Even before work on the Jinan Center was finished, engineers at a temporary location had already achieved positive results with the successful development of the L105 wheel loader – the first Volvo branded machine to be produced specifically for emerging markets. The machine was developed in 25 months and launched at the end of 2012.

There is broad scope at the Center in terms of product development and future projects, including excavators, wheel loaders and road and utility products – all specifically designed for emerging markets. The Jinan engineers also design and develop the latest versions of existing Volvo machines for these markets.

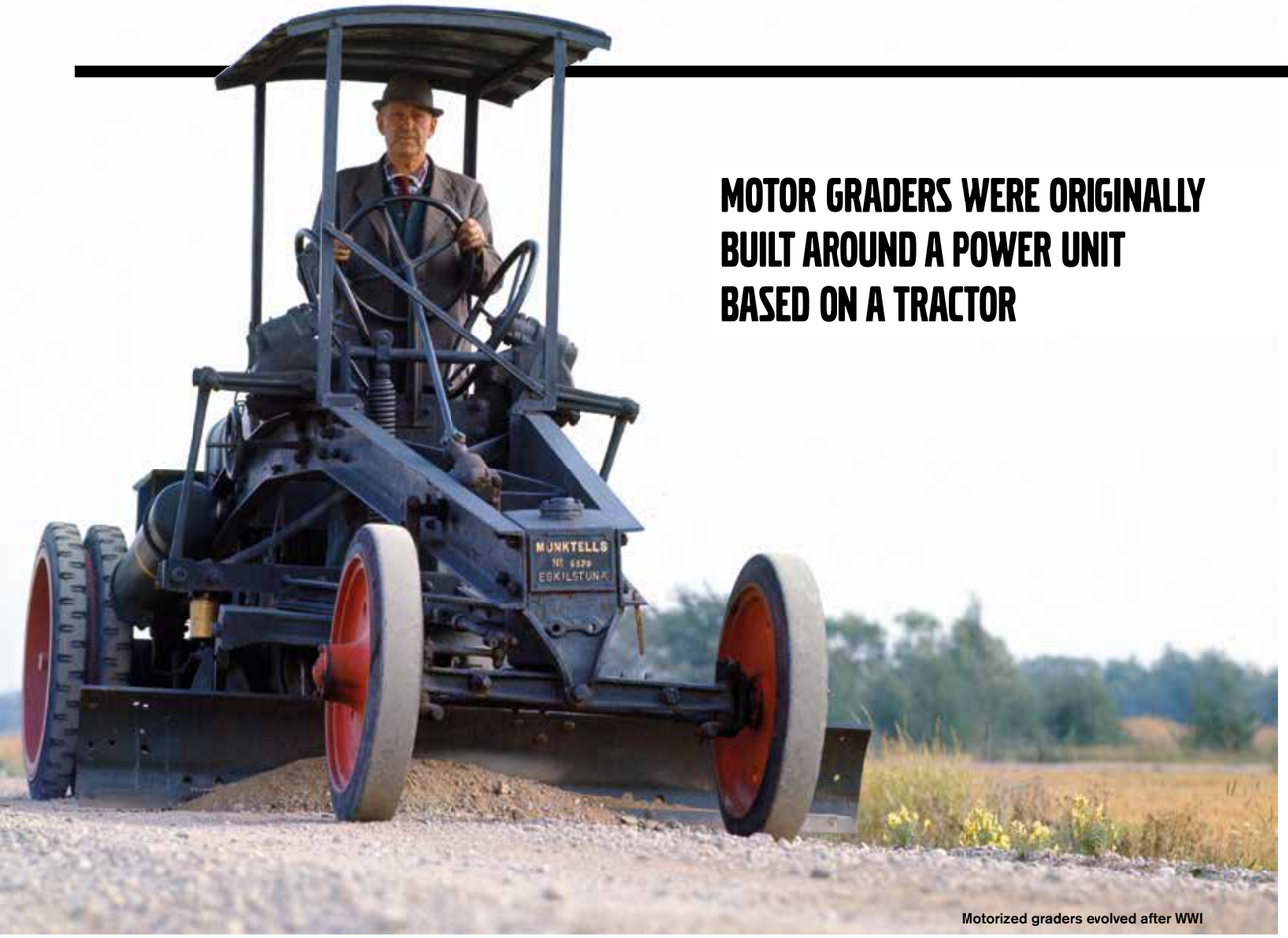
"Opening a technical center in China plays an important role in Volvo CE achieving its growth ambitions," explains Anders P. Larsson, Executive Vice President of Volvo CE's technology function. "The Jinan Technology Center will help us to expand and develop the product portfolio of Volvo CE globally.

**IT IS VITAL TO HAVE A DESIGN AND MANUFACTURING PRESENCE IN THE COUNTRIES WHERE OUR MACHINES ARE USED**

## GLOBAL NETWORK

Volvo CE currently has more than 160 employees working at the Center. They are part of a much wider team, having joined a network of hundreds of engineers – working on Volvo's 11 sites in different parts of the world – who are busy developing new machines and future technology to make Volvo's construction equipment as fuel efficient, productive and safe as possible.

The Jinan Technology Center is now one of Volvo's largest research and development facilities and employee numbers are set to grow – the site can accommodate up to 450 staff. The Center is also a vital part of the company's plan to have a global footprint of engineering and design sites.



Motorized graders evolved after WWI

**MOTOR GRADERS WERE ORIGINALLY BUILT AROUND A POWER UNIT BASED ON A TRACTOR**

# MOTOR GRADERS HAVE COME A LONG WAY

As infrastructure on both sides of the Atlantic evolved, so did the need for machinery to help build roads

The American Road Champion, the first horse-drawn grader in the United States, was built by the Pennock family enterprise to its own patent in 1875. The firm later became The American Road Machinery Company, establishing a subsidiary in Goderich, Canada, in 1892. It changed its name to Champion Road Machinery in 1977 and was eventually acquired by Volvo in 1997. Champion's first motorized grader appeared in 1928, and was equipped with a covered area for the operator.

On the other side of the Atlantic, engineers in Sweden introduced the first motorized grader in 1923, due to the urgent need to improve transport infrastructure after the First World War to cope with a growing number of cars. Volvo's forerunner Munktell concluded that a grader powered by an internal combustion engine would be a more efficient machine.

As with all its early construction equipment, Munktell's motor graders were originally built around a power unit based on a tractor. The first motor grader, known as Model 24, was launched in 1923 with a driveline identical to Munktell's third tractor model, the Type 22, launched a few years previously in 1921. The 5,000kg machine – compared to today's 17,470kg monster – was powered by a two-cylinder, two-stroke hot bulb engine with an output of 22hp.

## TOP OF THE CLASS

Model 24 was the first road grader made in Sweden. Deliveries began in 1924, although the grader made its first appearance at the Swedish Agricultural Meeting in Gothenburg in 1923, where it was awarded the King's Prize of Honour. Model 24 graders could still be seen working on Swedish roads well into the 1950s.

The Model 24 on display at Volvo's Munktell Museum in Eskilstuna, serial number 5579, was finished on 31 March 1930. Sold to a road maintenance depot at Kälarne in Jämtland, Sweden, it was dispatched to its new owner on 7 May 1931. The museum acquired the grader in 1986, courtesy of former museum director Sven Arnegård, accompanied by a colleague, who drove it more than 100km to its new home.

During 1932-1944, Models 30 and C1 – in which hydraulically/mechanically operated grader blades were introduced – followed Model 24.

In the early 1950s, Sweden's Royal Board for Public Road and Water Structures requested tenders for machines from several motor grader manufacturers. By then, Munktell had merged with Bolinder, and it was stipulated that all machines would be based on a unit designed and manufactured by Bolinder-Munktell.

## MAKING THE GRADE

In 1950, AB Volvo acquired the company and the products were branded BM-Volvo. In 1973, the company changed its name to Volvo BM AB and the products became Volvo BM. Launched in 1954 and fitted with mechanical transmission, the VHK 55 was the first motor grader in this series. Subsequently, several mechanical motor grader models followed, leading to the famous VHK 115, which was manufactured until 1965. Next came the VHK 310, which was the first grader with hydraulic transmission and a Powershift gearbox, followed by the VHK 312 in 1970.

The last generation of Volvo BM graders, the Volvo BM 3200-3700 series, was manufactured between 1977-82.

Volvo's G946C on show at ConExpo 2014

Volvo acquired Champion Road Machinery in 1997

During this time the Champion Road Machinery company had also grown its product lines and market coverage. By leveraging several industry firsts and patents along the way, it climbed to second place globally and was represented in over 100 countries by the late 1990s.

In 1958, the hydraulically powered circle was adopted, then in 1989 the patented Duramide was introduced to extend the wear life of key machine components. In 1999, the company provided a low-speed creep mode on AWD models along with crossover brake circuits to enhance safety.

Volvo introduced the 11-speed transmission in 2006 with the launch of the 900 series graders. The latest model, the heavy-duty G946C motor grader, features a powerful Tier 4 Final/Stage IV-compliant engine and delivers the ultimate in performance and precision – features the construction machinery pioneers of the last century could only have dreamt of.

The articulated hauler facility at Braås in southern Sweden relies entirely on renewable energy sources

Volvo CE's 45,000m² carbon neutral facility at Braås, Sweden

Volvo CE President Martin Weissburg

# CHALLENGING THE CONSTRUCTION INDUSTRY

A new environmental initiative is set to kick-start the sustainability agenda

*by Tony Lawrence*

Having recently completed its most ambitious, exhaustive and far-reaching environmental challenge to date, successfully overhauling its entire portfolio of engines and machines to meet new Tier 4 emissions legislation in Europe and the US, Volvo CE is piling pressure on the construction industry's environmental agenda.

A leading advocate for sustainability, the company is set to go public with a new initiative – the Construction Climate Challenge – in an attempt to drive that agenda forward.

"We've been working on reducing emissions through our own internal initiatives for many years – and to considerable success. However, we cannot face climate issues by ourselves," says Volvo CE President, Martin Weissburg.

"The idea is for us to help take things to the next level," says Niklas Nillroth, Vice President of Core Value Management and Corporate Social Responsibility. "Yes, we want to broaden the debate, but the real goal is to co-operate with other stakeholders, our customers, our customers' customers and our suppliers among them, to convert talk into action. It stands to reason – we can achieve more if we act together."

The plan is to stage a 2015 summit, provisionally planned for Gothenburg, Sweden, which will bring interested organizations and bodies together, including governments and academics, to focus on future shared projects and initiatives. Commissioned studies and research, already discussed at specific events devoted to research and hosted by Volvo CE and a selection of invited partners, will also be presented at the proposed summit.

"Environmental care is one of our company's three core values, along with quality and safety," says Nillroth. "It underpins our identity and what we're about. Our designers and engineers, for instance, are always looking for market-leading performance and fuel efficiency to reduce the impact of our machines on their surroundings. That is also why our equipment is at least 95% recyclable.

"But we want to reach out, outside our own capabilities and expertise, to work with others right across the industry's whole supply chain, starting from the extraction of materials from quarries and extending right up to the construction of buildings or the laying of roads.

"We believe we can make a real difference, particularly at the interfaces of our organizations, where different companies can reorganize the way they work together."

The Construction Climate Challenge would not be limited to product technology or processes, but to instigating new behaviors and ways of doing things, Nillroth adds. "That would mean looking at different, sustainable business models, on the one hand, and individual ways of operating – and co-operating – on the other."

## MAKING SENSE

Such ideas could involve projects like Volvo CE's own eco-operator scheme, where construction equipment drivers have achieved up to 20% fuel savings after attending specialist courses.

Today, many important companies, such as multinational construction group Skanska and building materials giant Lafarge, share similar approaches to Volvo. Sustainability can make both environmental and commercial sense, particularly with local authorities increasingly setting out environmental parameters when granting infrastructure or service contracts.

The idea of the Challenge, generated within Volvo CE, has →

The Braås facility is powered by wind, biomass and hydropower

## THE IDEA IS FOR US TO HELP TAKE THINGS TO THE NEXT LEVEL

Volvo CE's Niklas Nillroth

created great interest in the Volvo Group as a whole. Specific plans are still being formulated as to how the idea could be publicized ahead of a 2015 summit, such as instigating small pre-launches at industrial association meetings and research universities, and even at stopovers during the Volvo Ocean Race which weighs anchor in October.

The Volvo Group has a long history of such proactive initiatives – its first environmental policy was framed in 1972, when President and CEO Pehr G. Gyllenhammar signposted the company's commitment by saying: "We are part of the problem – but we are also part of the solution."

## AMBITIOUS AGENDA

Within a few years, Volvo had developed the oxygen-sensor-controlled three-way catalytic converter and the trend was set. More recently, the prestigious Volvo Environmental Prize has added three Nobel prizewinners to its award-winning ranks since 1990, while in 2011 Volvo was named one of the world's most sustainable companies by the Dow Jones Sustainability World Index.

In 2012, Volvo CE became the first construction equipment company to join the World Wildlife Fund (WWF) Climate Savers program, signing up to the most ambitious carbon-reduction agenda ever undertaken within the industry.

As part of this, Volvo CE and the Volvo Group committed to reducing carbon dioxide ($CO_2$) emissions from production plants by 12% from 2008 levels. At the end of 2013, it was announced that Volvo CE's 45,000m² articulated hauler facility at Braås in southern Sweden had become carbon neutral, relying entirely on renewable energy sources, including wind, biomass and hydropower.

"This has been a highlight for us, in terms of sustainability and environment initiatives – it's the first facility of its type in the industry," says Nillroth.

"Considering the Construction Climate Challenge as a whole, there are a lot of good ideas to bring to life. It is especially difficult as a project because it's a broad area with lots of stakeholders involved, from customers and suppliers to academia across Europe and national and local governments.

"The key will be to keep the focus on action, not theory. We're looking to instigate change through research. This challenge is for us all. We are merely acting as hosts – but we are happy to provide a lead, and we want to see this initiative become an important and integral part of Volvo CE in the future."

Photograph of Martin Weissburg: © Juha Roininen





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Available on the App Store

# MOVING HEAVEN AND EARTH

Following the donation of a second-hand Volvo EC290BLC excavator to an agricultural training centre in Zambia, the students can now look forward to a much brighter future

*by John Bayliss*

The reassembled excavator


The nuns at Jacaranda Farm

**TRANSPORTING THE MACHINE FROM SOUTH-EAST ASIA TO AFRICA WAS THE FIRST OF SEVERAL CHALLENGES**

In 1996, a group of nuns from the Franciscan Missionary Sisters of Service went to Zambia to widen the available education services and help in the fight against HIV-AIDS and other diseases. In the ensuing decades, the nuns expanded their projects, eventually opening the Jacaranda Farm Agricultural Training Centre on 200 hectares of land, about an hour's drive from Zambia's second largest city, Kitwe.

Students come from those families most in need – generally from rural communities. Once selected, they spend two years learning a variety of small-scale farming skills. The successful graduates then have better employment prospects and, in turn, can play a key role in helping their families towards a self-sustaining lifestyle.

There is huge potential for more of the land surrounding Jacaranda to be developed for farming. Unfortunately, much of that is densely forested and dotted with anthills. Clearing such land with hand tools, as was previously the case, is both extremely hard work and very labor-intensive. But that is all about to change.

## BANKING ON DONATIONS

Raising funds to develop the farm and its resources is a constant challenge. Now, thanks to the support of a diocesan priest in South Korea, Jacaranda Farm is the proud owner of a second-hand Volvo EC290BLC excavator. Father Hwang Changyong raised donations to buy the plant, aware of just how useful it would be to the students and nuns in Zambia.

Transporting the machine from South-East Asia to Africa was the first of several challenges. The excavator has an operating weight of nearly 29,000kgs. Once dismantled, the component parts had to be shipped in two separate 20m-long containers that arrived in Zambia two weeks apart.

Then came the task of reassembling the EC290BLC and ensuring it was in good working order. Father Hwang raised additional donations to send a team of three engineers from South Korea to Jacaranda Farm. Using local help, it took them three days to get the excavator back into operational order.

After so many years of having to do all the work on the land by hand, the Volvo excavator is bringing about some radical changes at the farm. Sister Emmanuella Kim, Director of the Centre says that although her dreams and those of her fellow Franciscan sisters remain unchanged, their scope has become broader. "There will be a big improvement in the land with a school, a poultry pen, piggery and some crops." Sister Kim says that thanks to the donated excavator and its boost to the resources of Jacaranda Farm, "the youth at the school may now dream of a better future".

# ON AN EVEN KEEL

An all-female crew is competing in the 2014-15 around the world Volvo Ocean Race →

*by Julia Brandon*

Team SCA take a well-earned break from training in Lanzarote

# WE'RE A SPORTS TEAM FIRST, AND WOMEN SECOND

The Volvo Ocean Race is ocean racing's toughest test. Lasting an arduous nine months, seven teams will compete this year in a nine-leg race around the world. On average, each stage takes around 20 days, while the stopovers can be anything from 18 days to six.

Covering 38,739 miles (76,745km) in total, completing it is no mean feat, and strength and endurance are two of the main prerequisites. So it is little surprise that Team SCA has attracted so much media interest this year with its all-female crew.

Emotions among the international mix of yachtswomen – which includes American, British, Australian, Swiss, and Dutch sailors – are running high about the challenge that lies ahead. "Team SCA is not a 'second-hand' project, but a first-class professional project with great potential," says crew member Carolijn Brouwer, an accomplished multi-hull and Olympic sailor, while experienced Volvo Ocean Race competitor, Abby Ehler, adds: "There are no excuses: we have all the tools and support [necessary] to achieve."

**PHYSICAL PREPARATION INCLUDES RAPID RESPONSE TO THE SUDDEN NEED TO MANEUVER HUGE WEIGHTS**

## MADE FOR WOMEN

Team SCA is not the first all-female crew to take part in the Volvo Ocean Race – that honor was claimed by Team Maiden in 1988-89. However, it is the first team created for women to compete with the same opportunities as men. Far from being a novelty or gimmick, the corporate message behind the decision is the empowerment of women.

SCA is a leading global hygiene and forest products company that develops and produces sustainable personal care and forest products. Eighty percent of its consumers are women, and through its everyday products the company supports the empowerment of women and their freedom to participate fully in society. So, there is a definite synergy between the sponsor's goals and the needs of female sailing, according to Victoria Low, communications director for Team SCA.

"It's been 12 years since a women's team last took part in the race, and there is a huge gap in the depth of expertise among women compared to men. We need this Volvo Ocean Race to get up to speed with what is required from women's sailing, so this female team is very important from both a sailing perspective, and SCA's brand perspective.

"Our aim is to be the best performing all-female team in the history of the race," she adds. "But we're very keen to assert that we're a professional sailing team that happens to be made up of women. We're a sports team first, and women second."

Of course, no amount of empowerment can change the fact that men tend to have a physical advantage over women. Not only does a male team have superior accumulated strength, but their overall weight is greater, and it is weight that stabilizes the boat.

## LEVEL PEGGING

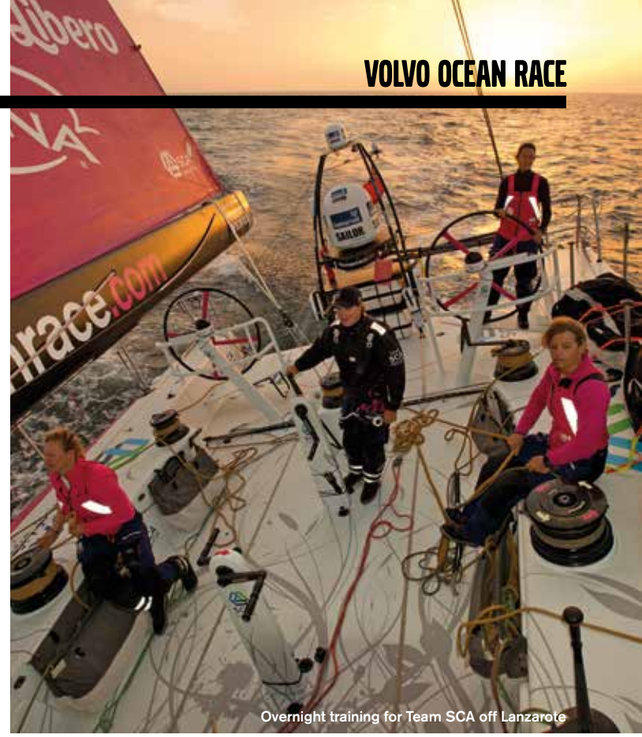
This year, to put all teams on a competitive equal footing a new rule has been passed which stipulates all-female teams are allowed 11 crew members while the male teams remain at eight.

"This is a great opportunity for women's sailing and it is the right time to do it with the change in the Volvo Ocean Race rules," says Sam Davies, an accomplished single-handed sailor from Great Britain. "The top-level coaching structure and technical team in place will help to fast-track our steep learning curve and I really believe we have the opportunity to achieve some amazing results in the next race."

The newly designed Volvo Ocean 65 boat also puts all teams on a more level pegging. Designed with safety and stability in mind, teams are now only as good as the sum of their crew, although this does not escape the fact that there is roughly three tonnes of material aboard that needs to be moved at a moment's notice. So, besides power training and the obvious skills required to sail the boat to its maximum potential, Team SCA's physical preparation includes rapid response to the sudden need to maneuver huge weights.

"It's mentally and physically grueling, and the male teams have the advantage of experienced crew," acknowledges Low. "Team SCA has a mix of experience – some who sailed the Volvo Ocean Race before in 2001-2002, and some who sailed in the Olympics – but the team as a whole requires a mixed skill set."

With only themselves to rely on, the multinational crew must encompass a wide variety of professions, including a doctor, engineer, meteorologist, strategist, navigator, tactician, etc. "When we recruit we're trying to develop an optimum team across all skill sets, so that when they're out on the course they know how to dismantle a winch while getting battered by waves, or how to get the main sail down, patch it and stitch it back together at night," adds Low.



Overnight training for Team SCA off Lanzarote

**THEY CAN LOOK FORWARD TO MONTHS OF PHYSICAL EXHAUSTION**

## PREPARING FOR HELL

By March this year, the team had already covered 10,000 miles (around 16,093km) in training over a five-week period. Their routine sees them up at 6.30 ready to hit the gym before seven hours of sailing, six days a week. They are undergoing 48-72 hour stints of offshore training to practice the on-board watch system of four people per watch – four hours on and four hours off. And they also undertake transatlantic training, which replicates racecourse conditions.

According to Low, it is not so much their ability to sail or fit into the team that they focus on during training, but more about "preparing them for the hell that could be out there".

In October, when the race begins in Alicante, Spain, they can look forward to months of physical exhaustion, intolerable weather conditions, and navigating one of the biggest shipping channels in the world, thanks to the recently announced new pit stop at The Hague. But despite all this, the team's enthusiasm for what lies ahead is palpable.

American crew member Sally Barkow competed for the US team in the Beijing Olympics in 2008, and was US Rolex Yachtswoman of the Year in 2005. She says: "It is a tremendous opportunity to have the chance to race around the world. It is in our nature to continue to push as hard as possible knowing there are no limits to how successful we can be."

And although she will not actually be sailing herself, Low shares her enthusiasm. "This will be my fifth Volvo Ocean Race, and the third time I've been in a female team. I'm very proud of what they want to achieve, and it's great to be part of a team that is taking a proper sportswomen's approach. The crew has really struggled to get here, and if at the end of it all we have empowered other women to go out and push themselves harder, then we will have achieved our goal."

**Visit www.volvospiritmagazine.com to see video and more photos related to this article**

Photographs: © Rick Tomlinson/Team SCA

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Operator Idol runner-up Feng Yi took second place

# CHINA CONTEST IS A WINNER

Thousands of excavator operators across China are expected to compete in Operator Idol 2014, Volvo CE's nationwide 'eco-operator' contest

*by Nigel Griffiths*

Launched in 2011, Operator Idol is the first contest of its kind in China and the largest fuel-efficiency training event in the world. Targeting more than 1 million excavator operators in China, it not only encourages fuel-efficient driving but is also a valuable vehicle for promoting the Volvo CE brand and its core values of quality, safety and care for the environment.➔

"The dream of our era is to foster a green future. We actually pioneered fuel efficiency in China by leveraging a lot of creative approaches," commented April Li, Vice President Marketing, Volvo CE Region China.

With its massive impact in terms of participation, public attention and brand recognition for Volvo CE, the company has now decided to extend the competition for a further three years with the 2014 final planned for November.

Organized jointly by Volvo CE and its dealers together with the China Construction Machinery Association (CCMA), the multi-location event is also supported by China's Department of Conservation and Resource Utilization and the Ministry of Industry and Information Technology. Staging the contest involves more than 1,000 people working behind the scenes.

## NATIONWIDE

Over a period of three years, the competition attracted 410,000 entrants – 40% of the country's excavator operators. The number of participants in this highly innovative contest has risen from year to year.

The 2013 event ran over six months and reached all corners of China, with preliminary rounds in 30 provinces and regions leading to the final in Shanghai. There, 24 operators competed for the top three national Operator Idol titles, each one winning the prize of one year's free use of a Volvo excavator.

This year, the organizers are planning to extend fuel-efficiency training and hope to offer a wider variety of prizes.

Publicity surrounding the 2013 contest was impressive with more than 3,500 media reports, and 100 million unique visits to the Operator Idol website. The project attracted 150,000 fans on Weibo, China's micro-blogging equivalent of Facebook and Twitter, and received wide recognition from operators, dealers, industry and society.

Outright winner Liu Fang Jie was participating in Operator Idol for the second time: "I'd like to thank Volvo for helping me to realize my dream of finally owning my own excavator after working in this industry for more than 10 years," he said.

Runner-up Feng Yi, in second place, commented: "As a result of the contest I have been able to focus more on environmental protection and am learning many new concepts and skills for fuel-efficient driving," adding: "Now that I have my own excavator, I will apply what I have learned here to my work and try to influence others in my surroundings."


L-R: Qi Jun, CCMA Chairman, runner-up Feng Yi (2nd), winner Liu Fang Jie, runner-up Gong Xue Feng (3rd), Lawrence Luo, President Volvo CE, Region China

## SMOOTH OPERATORS

Over the years the contest has generated thousands of young operators who are now skilled in fuel-efficient driving techniques. As part of the program, tailor-made online and offline training in fuel-efficient driving is given to all registered operators, and contestants receive certificates when they have completed the course.

**THE OPERATORS IN THIS CONTEST ARE VERY YOUNG BUT REPRESENT THE BACKBONE OF THE INDUSTRY'S FUTURE**

In the final, the operators face a series of challenges simulating actual working conditions to demonstrate their flexibility and fuel-efficient driving skills.

"The operators taking part in this contest are all very young, yet they represent the backbone of the industry's future," explained Jennifer He, Marketing and Communications Director, Volvo CE, Region China. "The contest has proved an excellent way to rapidly make contact with thousands of operators and provide them with eco-operator skills," she added.

"It is now a valuable bridge between Volvo CE and operators to help us communicate and get Volvo CE and its products better known. The contacts made during the project have helped us build up an enormous database of more than 200,000 operators. These contacts could be very beneficial in the future as operators in China often have influence over their employers about purchasing choices."




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