

PAVING NEWS

A Caterpillar publication serving the global paving industry



**New Cat® AP1055E
Combines Technology,
Proven Performance**



**Cat® Advisor
Display**

Making technology
profitable and easy to use

CATERPILLAR®

Centers of Expertise



Lieven Van Broekhoven
Worldwide Sales
and Marketing Manager

From my office in the new Global Paving Visitor Center (see story, page 11), you can walk a few steps and see representative models of the entire family of Cat® Paving Products. You can travel a few more steps and tap into in-depth application and technical expertise by entering the Solutions & Learning Center. That's where many of our training instructors, project consultants, and commissioning engineers reside. I should say that's where they reside when they're not out doing crew training for a new machine start-up, or training dealer technicians on troubleshooting techniques, or creating solutions for one of our product users to help them make more money on a project.

You can read about some of our commissioning engineers in the article on pages 16-19. They're just part of the investment that Caterpillar Paving Products Inc. has made in paving industry expertise. We understand that contractors and public works officials involved in the asphalt paving industry face unique challenges and rely on dedicated industry experts. To meet the

demand for technical training, crew training and project consulting, we have stationed around the world the foremost team of paving professionals in the industry. They have local, in-country experience and knowledge. Most of them have a contractor or public works background, so they speak your language and know how to solve your problems.

They work side-by-side with local Cat dealer personnel who are your first line of support. They train dealer personnel in all aspects of repair and maintenance of equipment, plus proper set-up and operation of equipment. If dealers want paving products support, help from our strategically located staff is close at hand.

So, our new Visitor Center is but one of many centers of paving and road maintenance expertise. Add in our factories on four continents, our presence at other Caterpillar training facilities, our commissioning engineers in various Caterpillar District Offices and our dealers—and you have a global network. A network of expertise that's available to you to help you be more efficient and more profitable. ■

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^ The Cat® Advisor Display is a refined interface that is intuitive and easy to use.

Cat[®] Advisor Display



Making technology profitable and easy to use

Paver operators face more demands than ever: Production goals and safety guidelines. Smoothness targets and specification requirements.

Manufacturers developed technologies as tools to help overtaxed operators. It was a good theory, but too often the technologies didn't work quietly behind the scenes. Instead they demanded attention, at best adding to the operator's worries and at worst leading to potentially costly mistakes.

Now good news has arrived: the Advisor Display, a key feature on Cat[®] asphalt pavers. Manufacturers typically offer at least some computerisation on their pavers. What separates the Cat Advisor Display is a refined interface that is intuitive and easy to use. It enables the paver to "talk" to the operator, and that communication leads to a successful, and profitable, jobsite.

Standard equipment

The Advisor Display is standard equipment on Cat 8 and 10 foot pavers. It is located on the left side operator's station or, on some models, the single sliding operator's console. Its location puts it directly in front of the operator, within easy fingertip access.

All in one place

Operators occasionally lose focus on the most important tasks as they manage multiple inputs, outputs and processes. The Advisor Display:

- Provides the operator with fingertip access to machine processes and information.
- Allows operators to put their full attention on placing the mat, rather than managing the details.
- Increases efficiency, helps ensure consistency and optimises performance.
- Alerts the operator to machine performance issues



The Advisor Display provides a means for reducing fuel burn, which can substantially lower operating costs.



that require attention.

- Streamlines troubleshooting.
- Features an interface that can be customised for each operator who uses the machine.
- Enables customisation of machine settings, such as the friction steering tension.
- Relays a wide range of information, from gauge clusters to systems information.
- Operators can choose from multiple languages: English, Italian, German, Spanish, French and Portuguese.

Simplifying processes

The Advisor Display provides a single interface from which the operator can reference processes and conduct certain process tasks. For example, the operator can access a start-up checklist, which provides the steps to ensure that the machine is properly maintained.

The operator can also reference

‘Paving by the Numbers,’ techniques for properly executing a transverse joint. By accessing these processes, the operator can ensure consistent technique and performance, making the outcome more predictable and efficient.

Operators can also access the Paving Calculator, a job planning tool that helps coordinate the trucks, paver and compactors for maximum efficiency, which leads to higher mat quality. The Paving Calculator is most useful when used during the planning phase of the project, but can help increase efficiency during operation when properly applied.

In the case of recalibration, the Advisor Display can help operators avoid extremely costly miscues that can result from poor recalibration.

The recalibration process is provided in an easy to follow step-by-step format. The system then helps avoid the really big mistakes by defaulting to previous settings if



recalibration is not done properly. This prevents the paver from utilising bad data when going to work.

This bad data could lead to quality problems that require costly re-work.

Helps reduce fuel burn

There is money to be found in efficiencies as well. The Advisor Display provides a means for reducing fuel burn, which can substantially lower operating costs.

Operators can set parameters for automatic engine control. This function reduces engine speed, from high idle to low idle, at a predetermined interval when the machine is stopped.

The feature can be customised, enabling operators to set the length of the interval. For example, an operator could use the Advisor Display to set the automatic engine control to idle down after 30 seconds. The automatic engine control will wait the predetermined 30 seconds when the

operator de-strokes the propel lever to stop the machine. The engine then will switch from high idle to low idle. It will continue at that idle until the operator again strokes the propel lever. At that point it will switch back to high idle and resume operation.

Such a seemingly simple step (made possible by technology working quietly behind the scenes) can lead to dramatic fuel savings.

More fuel savings

The new AP1055E and AP1000E pavers have an additional fuel saving feature that is controlled via the Advisor Display: Eco-mode. This feature enables the operator to reduce the engine speed from the default 2,200rpm to 1,650rpm.

This is possible because the engine is designed to provide more power than needed for normal operation; a rate of 1,650rpm typically is more than adequate. The result is delivery of the required power while burning

considerably less fuel.

Service benefits

The Advisor Display also provides valuable service information. It communicates with the electronic control modules that monitor system functions.

- When the system senses abnormal operation, it alerts the operator.

- It also delivers diagnostics in the form of service codes, which help diagnose problems and streamline service.

- The Advisor Display often provides advanced warning before larger, more costly problems occur.

The most important word used in association with Advisor Display is likely “intuitive.” Caterpillar engineers understand that technology has to be accessible, not overwhelming. When it is, operators become more productive and efficient, and jobsites become more profitable. ■





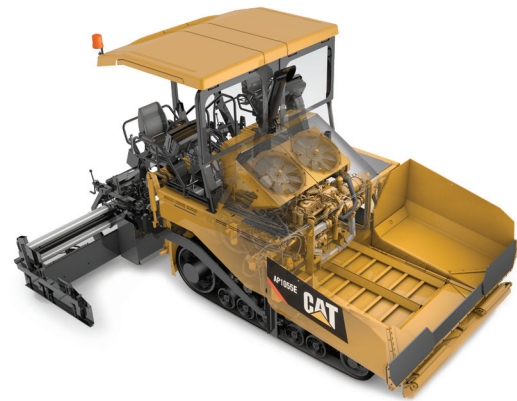
New Paver Increases Profitability

For many paving contractors the ability to increase profitability is closely tied to smoothness and productivity improvements. The new Cat® AP1055E Mobil-trac™ Asphalt Paver quickly pays for itself by delivering both.

Smoothness improvements are provided during every stage of operation, from filling the hopper to placing the mat. Several new technologies added to tried-and-true performance features combine to deliver outstanding productivity gains.

New smoothness levels

The Cat AP1055E takes smoothness to new levels. The paver delivers smoothness, whether working at standard widths or during production paving with extenders on highway and airport jobs.



The smoothness-enhancing features of the AP1055E are:

- Automated controls and well-designed components reduce segregation potential, maximise efficiency, and deliver a consistent head of material leading to better mat quality.
- A four-position, adjustable push-roller better conforms to haul trucks and transfer units for improved exchanges.
- Wide tunnel and narrowly spaced conveyor bars of 215mm (8.5") ensure smooth flow to the auger chamber.
- Four pumps enable individual control of each auger and each conveyor for precise control of material in front of the screed.
- Reversible augers and conveyors minimise spillage at the end of the paving pass.
- The friction steer holds steering direction in turns, helping maintain consistent smoothness.
- The Mobil-trac undercarriage minimises tow-point movement, leading to a smoother mat.
- The undercarriage's excellent traction provides exceptional grip to keep the paver steady while handling heavy loads.
- The smooth belt creates less base disturbance and minimises handwork.
- Factory integrated Cat Grade and Slope Control is easy to use, and delivers increased accuracy.

Technology boosts productivity

Advanced technology features enable the AP1055E to meet stricter emissions requirements while also providing performance and productivity. Among the technological features:

- The advisor display provides visual reference and planning tools

that keep the operator informed for better overall jobsite performance. Multiple language selections are available.

- The Mobil-trac undercarriage's oscillating bogey design overcomes obstacles with minimal tow point movement and minimal stress on belts.
- The automatic engine speed control conserves fuel, as does the economy mode.
- Cruise control helps operators consistently match the pace of the paving train, creating smoother mats, conserving fuel and maximizing productivity.
- The Power Management feature maintains consistent engine speed under varying loads.
- The factory-installed Cat Grade and Slope Control also provide continuous true averaging to improve smoothness, reduce material usage and keep crews moving.

Reduced emissions

The AP1055E features the Cat C7.1 engine, which meets US EPA (Environmental Protection Agency). Tier 4/Europe Stage IIIB interim emissions requirements. The machine also reduces emissions by 50% compared to Tier 3/Stage IIIA levels. Particulate matter, meanwhile, declined 90% from the Tier 3/Stage IIIA levels. Sulphur is now at a level of 15ppm (mg/kg).

A regeneration system that activates when conditions are optimal, during either operation or idling, helps reduce emissions. The operator can automatically interrupt regeneration by returning to work.

Visibility and other key features

Good visibility is essential when

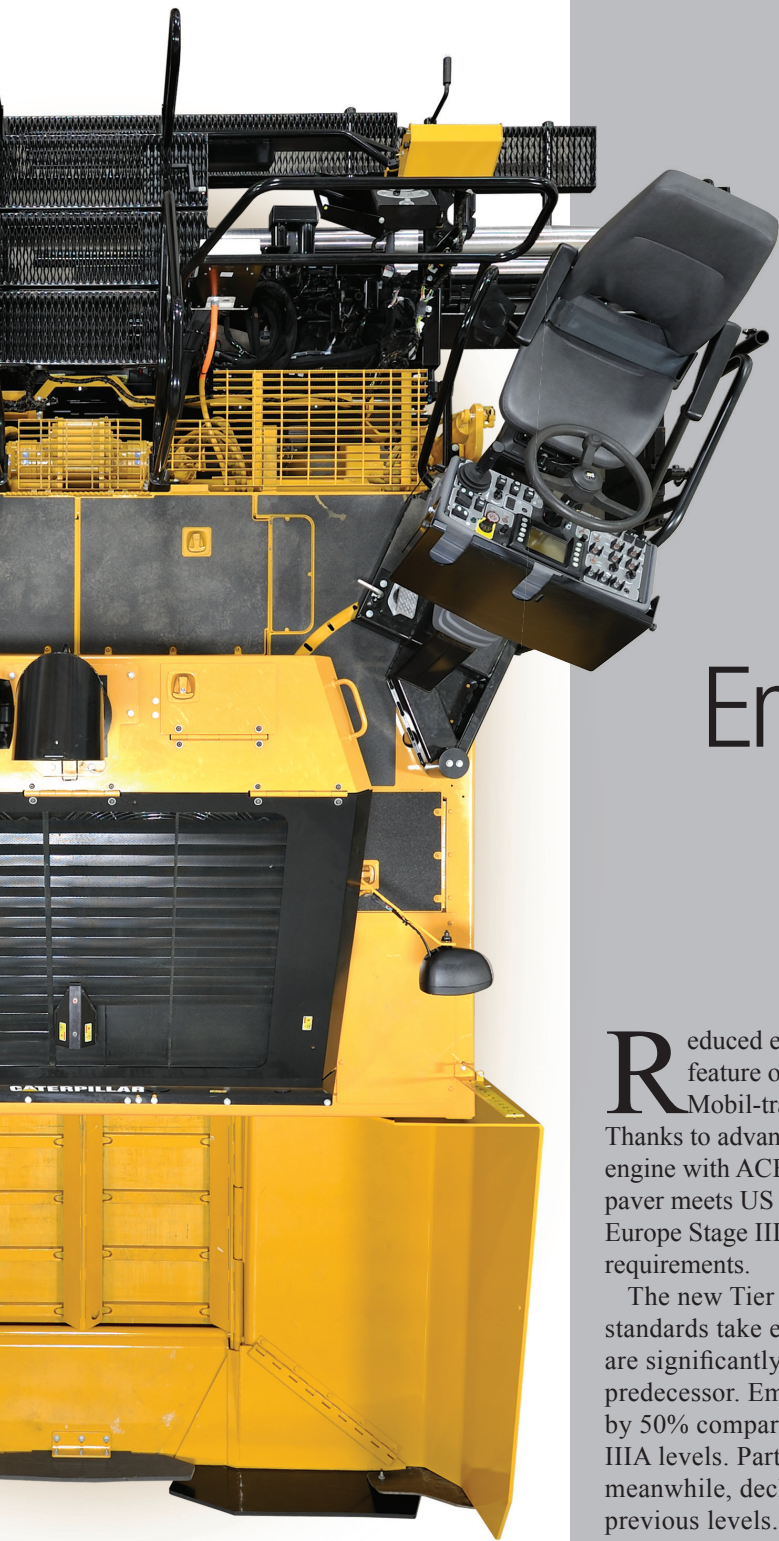
communicating with haul trucks, adjusting mix height in the auger chamber and optimising run time without emptying the hopper.

The AP1055E provides clear sight lines for optimal performance. Operators appreciate the independent stations that extend beyond the frame on both sides, as well as the matching movable controls.

There are many other highlights of the paver. Among them:

- The cooling system redirects hot air away from the crew.
- Durability is evident in the thick floor plates, heavy-duty chains, and stout conveyor bars. The result is lasting performance and lower lifetime operating costs.
- Greasable bearings with remote fittings flush contaminants away from seals for longer life.
- The undercarriage has an average belt life of 4,000 hours. Self-tensioning accumulators, center guide blocks and rugged internal belt cables ensure durability. Rubber-coated components shed asphalt, preventing accumulation.
- Easy access to service points and extended intervals between preventive maintenance reduce costs.

High-production applications require pavers that are powerful, reliable and fuel efficient with easy-to-use features that promote smoothness and high tonnage throughput. Ask how the new AP1055E meets these objectives, and more, in your applications. ■



Paver Meets New Emissions Standards

Reduced emissions are a key feature of the Cat® AP1055E Mobil-trac™ Asphalt Paver. Thanks to advances in the Cat C7.1 engine with ACERT™ Technology, the paver meets US EPA Tier 4 interim/ Europe Stage IIIB interim emissions requirements.

The new Tier 4/Stage IIIB standards take effect this year and are significantly higher than their predecessor. Emissions are reduced by 50% compared to Tier 3/Stage IIIA levels. Particulate matter, meanwhile, declined 90% from the previous levels. Sulphur is now at a level of 15ppm (mg/kg).

In addition to the environmental improvements, the new emissions standards have led to cost-savings and other jobsite benefits including:

- An integrated design that boosts power and performance across applications.
- That design also improves reliability; extends the life of machines and components; and minimises maintenance and service requirements, as well as operating costs.

To help meet the new standards, the Cat C7.1 engine includes a

regeneration system that activates when conditions are optimal, during either operation or idling. Passive regeneration will occur under most operating conditions when normal load conditions and exhaust temperatures exist. Active regeneration occurs when the diesel particulate filter (DPF) has an elevated soot level. The system is transparent and operator intervention isn't required.

In the case of the AP1055E, the operator can automatically interrupt regeneration by returning to work.

Caterpillar and Cat Dealers have taken many steps to ensure a smooth transition. Cat field technicians worldwide have been expertly trained to support the technologies of Tier 4/ Stage IIIB engines.

In addition, the engines and pavers have been field-tested with Caterpillar customers. Those efforts were made to ensure the machines didn't simply meet new emissions requirements, but also met customer expectations for performance and productivity. The result is reduced emissions combined with working advantages that are real, measurable and sustainable over time. ■

▲ In addition to environmental improvements, the new emissions standards have led to benefits such as extended machine and component life.



Comfort, Convenience and 'Wow!'

Guests to the new Visitor Center at Caterpillar Paving Products headquarters will find comfort, convenience—and some, “Wow!” too.

“We continue to invest and show that we are serious players with a long-term commitment to the paving business,” said Lieven Van Broekhoven, Worldwide Sales and Marketing Manager for Caterpillar Paving Products.

The visitor center, in the U.S. city of Maple Grove, Minn., makes an instant impact. Enormous photographs of paving jobsites greet visitors as they enter. A showroom, thousands of square feet in size, houses products from across the Cat® Paving line. Floor-to-ceiling windows, meanwhile, rush in natural light.

As the guests continue their stay and conduct business—whether examining equipment, meeting with management, touring the factory or undergoing training—they increasingly will appreciate the center’s comforts and conveniences, too. They include:

- A lounge area, including big-screen television, exclusively for visitors
- Wireless internet access

- A stocked kitchen
- Designated, private areas to make phone calls or handle work projects
- An on-site demonstration area
- A machine training lab

Also housed at the headquarters is the Solutions & Learning Center, which gives visitors quick access to Caterpillar knowledge. “Training personnel are on-site, as are engineers, and questions can be quickly answered,” Van Broekhoven said.

Proximity to the factory is another convenience. “Customers can see how the equipment is built, and then examine machines more closely in the safety of the showroom,” he said.

Other Global Investments

Significant investments also are being made at other Caterpillar Paving Products facilities. The plant in Minerbio, Italy, has been modernized, and its production capacity increased. Similar improvements have been made at the Xuzhou, China, plant.

Creating a visitor center in Europe is a likely future step. Look for the facility to provide comfort, convenience—and a little more.

“We went for a, ‘Wow!’ factor when we built this facility,” Van Broekhoven said while at the new Visitor Center. “Those who have been here have confirmed we achieved it.” ■



Passing the Tests

Paver overcomes tight spaces and frequent stops



Merano, in northern Italy, is a city filled with tradition and history. Its residents have included artists, intellectuals and scientists of acclaim.

The favourable climate of the mountain town attracts both residents and visitors, as does the culture. The rich history, while appreciated by the public, also means areas of the town were created centuries ago. The

streets in this city are often narrow and winding.

While picturesque, they are a challenge when it's time to pave. That was the case when Italian paving contractor Varesco Ltd. put a Cat® AP500E Asphalt Paver to work on a project on via E. Toti.

Varesco chose the AP500E because the wheeled paver is a perfect fit for a confined site with an abundance of

manholes. The company also wanted to test the paver's performance, and evaluate whether it could be of use in other challenging jobs.

Confined Space

The job was paving an access road leading to a residential area in Merano, with a population of 38,000. The road was bound by a pathway on one side and a wall on the other.

CUSTOMER STORY

Varesco first was responsible for rebuilding the sub-base (20cm handled by the AP500E), then placing an 8cm binder course. A 3cm surface course was added in the spring.

This road was 100m long and only 4m wide. The paver's ability to accommodate paving widths as narrow as 2.55m made it ideal for the narrow road. The ample ground clearance was beneficial as well, allowing the paver to pass over manhole covers without interference.

The asphalt plant was located in Bolzano, about 25km away. Three-axle trucks transported the mix, which arrived at a temperature of about 180° C. The trailers were covered to keep the mix warm as it traveled through the thin mountain air. Supervisors calculated the distance, type of job, speed of paver and other factors when determining the number of trucks needed for each day of work.

The asphalt was placed at a

temperature of about 170° C. The crew had no problems with the temperature of the mix, which was important because the job had other challenges in addition to the tight working area.

Adjustable operator stations helped the crew work close to the curb and wall. Each station could be positioned in different locations to maximise

“The paver has a great screed, with optimum steering”

visibility. The stations also can extend out beyond the machine frame when even greater side visibility is required.

The frequent starts and stops caused by manholes presented additional challenges. Creating an even, smooth mat despite the lack of continuous movement required precise delivery of mix from the hopper through

the screed. Adding to this precision were the paver's tight ratio control and independent auger drive. These components enabled the proper distribution and allocation of mix when paving resumed.

Also key to a smooth restart was the wheeled paver's ability to grab the surface and effortlessly pull the paver and its full load of asphalt. This capability, combined with a screed counterbalance system that manages and neutralises screed weight and movement during the start and stop transitions, helps to prevent defects on the surface of the mat.

The paver proved quite productive. It was able to average about 5 m per minute despite the challenges created by the manholes and other obstructions.

In addition, manoeuvrability of the paver and quick adjustment of the Cat AS4252C Screed proved important on the narrow street. “The paver has a great screed, with optimum steering,”



^ Screed functions could be adjusted on the move as required.

said Mr. Heinz Serra, operator of the paver. The inside turning radius in the “maoeuvre” operating mode is very short, enabling the machine to move easily, even make a complete U-turn, in confined spaces without complex manoeuvring. Because of this, the paver easily and immediately repositioned where necessary.

The screed’s central display helped ensure an even flow of materials. It also enabled other improvements.

“The new central display on the screed makes all the key data easily accessible in one place,” said Mr. Serra. “It enables the operator to check the temperatures of the four sections of the screed, the number of strokes of the tamper bar, which number is modified according to the thickness of the mat, the frequency of the vibrating screed, and the barometric adjustment of the screed assist.”

Compaction

A 4-ton roller handled breakdown compaction immediately behind the paver. The compactor, in vibratory mode, made as many passes as necessary to achieve compaction.

The breakdown roller stayed between 5m and 20m behind the paver. The temperature of the mat was about 130° C during the breakdown process. A finish roller completed the process.

Assessing the performance

Mr. Serra reflected on the paver’s performance after the Merano project, as well as a test at another jobsite in the mountains surrounding Merano. On that project, Varesco tested the AP500E on a road with a slope so steep the transport truck trailers were covered to prevent material from spilling out the back. The results of both tests led Varesco to purchase the paver.

“The machine is quite easy to move according to your needs in any working environment, from small jobsites like residential street works to industrial yards, from local and regional streets to narrow mountain roads that represent the majority of our jobs,” he said. “I appreciate the electronically controlled traction, the recovering of fumes, the perfect operation of the electric screed and the easy access to all major service points for daily maintenance.” ■



The machine’s manoeuvrability was vital on the twisty streets. ^

COMPANY INFORMATION

Company name:

Varesco Ltd.

Founder:

Norbert Varesco

Managers:

Thomas, Armine and Karoline Varesco

Location:

South Tyrol, Italy

Founded:

1980

Employees:

30

Business description:

Specialises in the construction of infrastructures and road maintenance; capable of dealing with both small and large projects; continue to look for innovative solutions, such as use of cold asphalt

THE CAT® DEALER RELATIONSHIP

Caterpillar counts on knowledgeable customers such as Varesco Ltd. to test and evaluate new equipment and offer suggestions that make Cat Pavers top performers in all applications and conditions.

The fact that Varesco Ltd tested the new AP500E was a testament to their relationship with Cat Dealer CGT. Varesco’s subsequent purchase of the paver shows the strength of this contractor-dealer relationship.

“They are reliable and quality partners,” Norbert Varesco, founder of the company, said of CGT. “Cat products and CGT services are a safe choice for those who, like us, work in a field where you can’t afford unexpected and expensive downtimes. Caterpillar and CGT are a guarantee for us.”

Experience of commissioning engineers benefits customers worldwide

Tips From the Field

Caterpillar Paving Products commissioning engineers visit jobsites around the world to help customers maximize the built-in potential of their new machines.

Whatever the location or application, there are some common themes and challenges encountered. Here is a brief story of those commissioning engineers, as well as some of the challenges they encounter—and the solutions they help provide. ■

Name: Peter Wan

Paving experience: 17 years

Home base: Singapore

Peter works with all facets of the paving business—including mills, pavers and reclaimers. “Helping customers get started is a key part of what I do,” he said.

Peter also helps the decision makers choose the equipment that’s the best fit for their applications. In particular he helps customers involved in milling and reclaiming applications.

His answer to most questions is one word: demonstration. “We’ll demo a machine during the purchase process,” Peter said. “That helps customers understand exactly what they’re getting, and ensures the machine matches their needs.”

It also helps both the Cat® Dealer and the customer know what is required in terms of operator and crew training. They then can schedule accordingly.

“We believe in training on application usage,” Peter said. “The successful customers understand the importance of training and applying it back at the jobsite.”



▲ Peter Wan, Commissioning Engineer, is in orange.

Name: Debin Sun
Paving experience: 20-plus years
Home base: Beijing, China

Debin has extensive experience in product support, and knowledge gained in these prior responsibilities is an important part of the input he shares with customers today. “I’ve provided support to dealers of the Greater China area, including application and service training, commissioning, delivery and real-time troubleshooting,” he said.

Previous positions have taken Debin to many jobsites, where he has seen virtually every application and the associated challenges. His experience inside of Caterpillar helps him assess customers’ needs and the ability of Cat machines to solve problems.

“I understand Cat systems and the culture well; I understand the related market and customers and their habits, thoughts and culture,” Debin said. “I pride myself on being able to take all these factors into consideration to meet the needs of my customers.”



Name: George R. Cromwell
Paving experience: 36 years
Home base: Piracicaba, Brazil

George works in all countries south of the U.S. border. His many travels have taken him to diverse jobsites in terms of geography, equipment and application. The levels of training also can vary greatly from one jobsite to another.

“I’ve found that training is crucial to the improvement of crews,” George said. “I’ve been involved in training and have seen the benefits it provides firsthand. But if the supervisors don’t require the crews to use that training, they’ll miss out on the benefits.”

George makes sure machines—reclaimers, cold planers, pavers and compactors—are running properly when delivered. He stays until crews are able to leverage all the productivity and efficiencies that are built into the machines. He also arranges additional training to help the customers get the



most out of their equipment.

The word is spreading about Cat machines and product support. Four years ago, there were only 50 Cat machines, excluding compactors, working in George’s territory. “Today, we have a population of more than 300, again excluding compactors, and we have only begun to penetrate the market,” George said. “Clearly Cat machines are a good fit for this region.”



Name: Chuck Dault
Paving experience: 20-plus years
Home base: Minneapolis, USA

Chuck grew up working on engines. He eventually became a certified mechanic, a background that has served him well.

Chuck came to work at Caterpillar in 1999 as a cold planer demo applications specialist, having earlier demonstrated the machines. He continues that demo work today while conducting operator training schools. He also works on the launch of new milling products, but spends much of his time in the field, helping acclimate crews to their new purchases.

The first step is basic: Helping crews find the controls and switches and adjusting to any new configurations. Chuck also uses the commissioning as an opportunity to remind crews of the mill's role in producing a smooth mat.

"For the paver to lay down a smooth mat, it's extremely important

for cold planers to leave a finished product of a smooth, deviation-free milled surface foundation," he said.

The reminders during the commissioning are a start, but ongoing training makes the difference. "We emphasize the importance of attending application and service training classes for each customer's specific machines, so both owners and operators can become efficient in making their machines perform to their maximum ability," he said.

The best customers also focus on safety, he said. "First and foremost is safety. Teach safety, train in safety, perform safety, work safely."



Name: Chew Keng Kok
Paving experience: 14 years
Home base: Singapore

Chew has been involved in some in-depth and challenging paving projects during his career. Among them: laying volcanic ash base course in the Philippines and sealing the wall of a Thailand hydro dam.

The lessons he learned during those projects, as well as others, gave him a broad understanding of the industry and application requirements. This is important since he covers a diverse geographic area including Australia, India, the Middle East and Hong Kong, Korea and other parts of Asia.

Cat Pavers and Cold Planers are the machines he most frequently commissions. He finds the customers with the most success are those who are able to take advantage of all the

machine's benefits. "With pavers, I help operators learn how to use the leveling sensors," Chew said. "When they do, the surfaces are much smoother. I also advise them to keep trying, to practice. Training is essential. That's how they improve."



Name: Davide Dalla
Paving experience: 23 years
Home base: Bologna, Italy

Davide works with customers on all paving models. His experience as an operator helps him understand what is going through the minds of the crew when they take delivery of a new machine.

He typically finds operators eager to learn. "Usually there is no problem, or very small ones that can be fixed easily," he said. "You have to adjust the machine according to the characteristics of the job application and the material the machine is working with."

Davide makes sure operators and others on the crew understand their responsibilities to help keep the new equipment properly maintained. "We help them set the right parameters, and teach the operators the correct actions to ensure that the machines are in the best running conditions," Davide said.

He also makes certain that Cat Dealer operators are up to speed on changes in newly released models so they can share their knowledge with the customers.

The customers also need to always strive for improvement. "The most successful businesses have skilled operators that take advantage of what they learned during the machine commissioning, and were trained specifically to know all component parts, service requirements and maintenance schedules to keep the machines performing at peak efficiencies," he said. ■

