

# L&T Earthmover News

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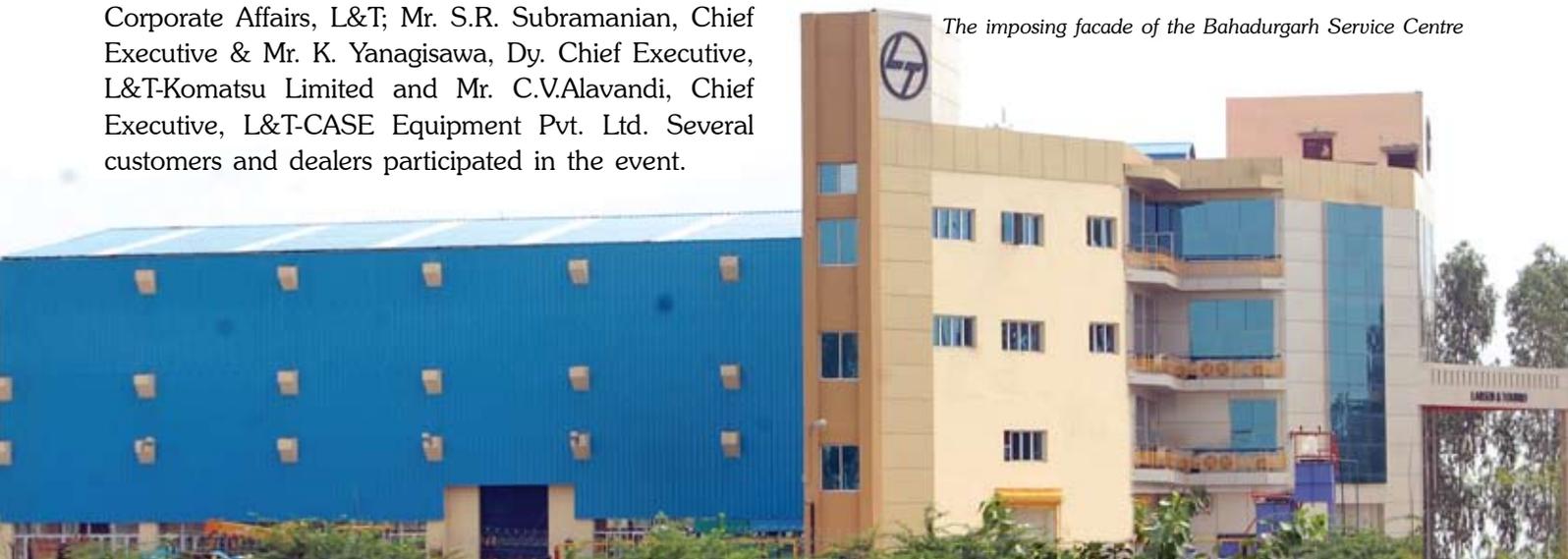
## L&T Unveils New Service Centre at Bahadurgarh

**O**n 3<sup>rd</sup> August 2010, a new imposing landmark came into being with the inauguration of L&T Construction & Mining Equipment Business' state-of-the-art Service Centre in Bahadurgarh. Located about 50 km from mid-Delhi and prominently on the way to Rohtak-Haryana, this new facility provides comprehensive One-Stop Service Solutions to the customers spread across North India.

The inaugural stone was unveiled by Mr. S.Raghavan, Sr. Vice-President, Industrial Products & Machinery, L&T in the distinguished presence of Mr. S.K.Mitra, Executive Vice-President, Construction Machinery Business Sector, L&T; Mr N. Kawanishi, Vice-President, Komatsu India Pvt. Ltd.; Mr. K.R.Palta, Vice-President-Corporate Affairs, L&T; Mr. S.R. Subramanian, Chief Executive & Mr. K. Yanagisawa, Dy. Chief Executive, L&T-Komatsu Limited and Mr. C.V.Alavandi, Chief Executive, L&T-CASE Equipment Pvt. Ltd. Several customers and dealers participated in the event.

Among the customers who attended the event included: Mr. Manmohan Singh, General Manager-Maintenance, M/s.Lakshmi Cement; Mr. Vineet Soni, Dy. General Manager, M/s. Samrudhi Cement; Mr. G.S.Saluja, Sr. Manager-Maintenance, M/s. Ambuja Cement; Mr. J.P.Jain & Mr. S.K.Jain of M/s. Arvind Construction; Mr. Harsh Agarwal & Mr. Bipin Rawal of M/s. Dhansar Engineering; Mr. Nitin Bansal of M/s. NTC, Mr. Sant Ram of M/s. Santram Contractors, Mr. Anand Sharma of M/s. Quarry Tech Engineers, Mr. Ajay Gupta of M/s. T.P.Gupta & Co., Mr. Anil Bhansali of M/s. Emerald Industries; Mr. Hariom Pandey of M/s NCC. Also present were Mr. J. Bhattacharjee & Mr. M.K.Bajaj of M/s. Gherzi Eastern Ltd.

*The imposing facade of the Bahadurgarh Service Centre*





Seen on the dais (from left) Mr. S.R.Subramanian, Mr. N.Kawanishi, Mr. S. Raghavan, Mr. S.K.Mitra, Mr. K.R.Palta and Mr. K. Yanagisawa.

L&T's Bahadurgarh Service Centre has comprehensive facilities, spacious bays and specialized machines to handle repair tasks of a diverse range of construction and mining machines. The activities include complete overhaul of equipment, structural repairs of equipment and repairs & overhaul of engines, transmissions, torque convertors, hydraulic pumps, motors, cylinders, swing machinery, final drives and differentials. The Service Centre has testing capabilities for hydraulic components, transmissions and engines as well.

As part of value-added services to the customers, L&T extends Maintenance & Repair Contracts, Full Maintenance Contracts, Annual Maintenance Contracts, Site Support Agreements, customized



Mr. Arvind K. Garg, GM-CEB greeting Mr. S. Raghavan

services and recon exchange programmes. The Service Centre houses a full-fledged training facility for imparting training to customer personnel on equipment diagnostics and trouble-shooting.

L&T had established the Service facility at 32, Shivaji Marg, New Delhi more than 30 years ago. The re-location of this facility strategically to this new spacious campus in Bahadurgarh shall enable the customers to transport high-value and heavy equipment for repairs and rehabilitation without having to drive through the busy roads of New Delhi. With the establishment of this Service Centre, L&T's 'customer first' policy gets a further impetus in the construction and mining equipment industry.



Mr. S.K.Mitra lighting the lamp at the inauguration



Mr. S.Raghavan unveiling the inaugural stone



Mr. N.Kawanishi cuts the ribbon to open the Service Centre

Mr. Arvind K. Garg, General Manager-Construction Equipment Business; Mr. Arun Pai, General Manager-Product Support Department; Mr. D. Banerjee, Head-Mining Equipment Business; Mr. B. Dinakar, Head-Construction & Mining Tipper Business, Mr. N.K. Pal, Head-Bahadurgarh Service Centre, L&T along with senior executives of KIPL and L&T participated in the event.



*A view of the Service Centre facilities*

## HCC Receives 9000<sup>th</sup> PC200-6 Hydraulic Excavator

**A**cross India and in various user segments, L&T-Komatsu PC200-6 Hydraulic Excavator continues to be the market leader in 20-ton class. The 9000<sup>th</sup> PC200-6 machine rolled out of Bangalore Works on 28<sup>th</sup> August 2010 is a true testimony to this leadership. At the event held on the occasion, the symbolic key and plaque of the machine were received by Mr. Arun Karambelkar, Group Executive Vice-President (Procurement & Outsourcing), Hindustan Construction Co. Ltd. who led a team of senior executives from the company to attend the event. Mr. S.K. Mitra, Executive Vice-President, Construction Machinery Business Sector, L&T; Mr. K. Yamada, Managing Director, Komatsu India Pvt. Ltd.; Mr. S.R. Subramanian, Chief Executive, L&T-Komatsu Limited; Mr. K. Yanagisawa, Dy. Chief Executive, LTK and Mr. Arvind K. Garg, General Manager, Construction Equipment Business along with others from L&T, LTK and KIPL participated in the event.

Senior executives from HCC who attended the event were Mr. Arun Banavali, Assistant Vice-President (Sourcing & Supply Chain), Mr. U.B. Dangi, Assistant Vice-President (Equipment Procurement), Mr. Anuran Ghatak, General Manager (Equipment) and Mr. Sudesh Joglekar, Manager (Procurement).

HCC is a Mumbai-based premier construction company which has created several prized landmarks across the country, including the much acclaimed Bandra-Worli Sealink recently. HCC is a major customer and owns a large fleet of L&T supplied machines including 30 nos PC200-6 machines. HCC is presently engaged in executing a number of high-priority projects in road, rail, tunneling and hydel power across the country.



*Mr. K. Yamada, MD, KIPL handing over the symbolic key of the 9000<sup>th</sup> machine to Mr. Arun Karambelkar, Group EVP, HCC as Mr. S.K. Mitra, Mr. S.R. Subramanian (1st & 2nd from right) and other guests applaud.*

## I adore the durability & reliability of L&T Machines: Mr. Ajeet Mulay



*Mr. Ajeet Mulay*

“Your machines are highly efficient in terms of speed and scale. L&T-Komatsu PC200 is so tough that it works 20 hours a day even in temperatures peaking upto 45 deg C”, says an immensely satisfied Mr. Ajeet Mulay, Managing Director, M/s. Nirman Gold Structures Pvt. Ltd.. He sits in his aesthetically designed office with a view of the legendary Bibi-ka-Maqbara in Aurangabad town even as he discusses about strategy and innovation – his favourite subjects.

A commerce graduate from Marathwada University, Mr. Ajeet Mulay joined his family business – M/s. Mulay Brothers Ltd. initially, an established firm started by his father and uncle. Originally from Beed district of Maharashtra, his father owned a popular bookshop and later migrated to Aurangabad.

In the course of time, Mr. Ajeet Mulay moved to realty development and the new company, M/s. Nirman Gold Structures Pvt. Ltd. came into being. He teamed up a huge reservoir of skills and executed many projects in land excavation, earth work and irrigation contracts in a big way.

He recalls the most challenging project done was the excavation of 7 lakh cubic metres of hard rock and 35 lakh cubic metres of earth-work at Bhawli dam in Igatpuri of Nashik district. He had to deploy a fleet of 10 nos.

L&T-Komatsu PC200-6 machines, both owned and hired ones, to complete the job which took 30 months, while working on two shifts. Hostile villagers were on a warpath for being displaced by the project and Mr. Mulay had to tactfully deal with them with little help forthcoming from the State. His winning strategy encompassed engaging the services of 300-400 people from the affected villages for executing the project.

Resolving problems through negotiation and restraint is what drives Mr. Mulay. He also likes delegating responsibility –he has appointed two General Managers to assist him in his expanding business, one each for technical and administrative functions. He has made elaborate arrangements for the site staff by providing a mess and housing facility. He is currently engaged at Pangardarwadi dam in Tulzapur area.

Mr. Mulay is well organized when it comes to machine management. With highly competent operators, workshop staff and ready parts as well as spare buckets at the site, he is well prepared to face eventualities. “I utilize the highly dependable Parts and Service support from L&T,” he says.

The joy of success of leading M/s. Nirman Gold Structures Pvt. Ltd. from the front made him to explore newer areas like agro-based industry, real-estate and education as well. It was biotechnology which caught his eye when he promoted a new company M/s. Green Gold Seeds Ltd., dealing with development and production of high-yield variety seeds. He is also coming into realty in a big way with the launch of industrial and residential projects.

For Mr. Ajeet Mulay, success didn't come early as he had to work hard, face tough situations, hostile crowds, labour unrest and environmental backlash. “But in unique situations like these, we learn a lot of lessons that make us strong and capable”, he says with pride. Mr. Mulay has been a cricketer at the University level and enjoys nature's splendour. His love for L&T-Komatsu machines seem unabated when he says “I simply adore the durability and reliability of your machines.”

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## I will recommend PC200 to others: Mr. L.B.Kunjir

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An overwhelming sense of pride consumes us when we associate with customers of his ilk. Mr. Laxman Bhanasaheb Kunjir is a veteran when it comes to agricultural practices and irrigation projects. His pioneering work in sugarcane cultivation in Maharashtra State, involved extensive training of farmers and providing technical inputs that had won him the prestigious President of India's award for high-tonnage yield in sugarcane industry, way back in 2001.

Mr. Kunjir, who is a leading contractor in Pune, swears by the matchless performance of L&T supplied machines. "PC-200 gives me tremendous output I would recommend it to others," says Mr. Kunjir who specializes in irrigation contracts. "Plus it's a maintenance-free machine as compared to other competitor models," he adds.

A diploma holder, his career flagged off as a Junior Engineer in 1977 in Irrigation Dept., Government of Maharashtra. This gave him valuable insight in executing road/canal works and bridge construction. Ten years later, he quit to start his own enterprise.

Today, with a legacy of many successful projects behind him, he is one of the much sought-after contractors in the State with priority projects on hand and a handsome fleet of L&T supplied machines comprising L&T-Komatsu PC71, PC200, PC300, L&T 90 and L&T 170. He has tried Rock-breaker attachment on PC200 and L&T 90 machines and met with enormous success. He also selectively phases out old equipment.

From his early days to now... Mr. Kunjir finds that there has been a sea-change in technology, mechanization and labour practices. There is accent on machines with higher output and lesser fuel consumption. Labour too has become highly skill oriented. One of his earliest contracts he completed well within the timelines was



*Mr Laxman Kunjir*

Uttaramand Project in Satara district. Sangamneer Project in Ahmednagar district and Jamneer Project in Jalgaon district were some of his other challenging contracts.

Nothing gives Mr. Kunjir greater confidence and joy than working as a team. He has made sure that all his sites are manned by efficient and competent teams with diagnostic skills and warehouse expertise. He has already made room for his son, Mr. Amith Kunjir, a civil engineering graduate with his induction into the business to handle accounts and administration.

Services to the less privileged and the unfortunate masses in the rural areas form part of his regular agenda. He also wears the mantle of Sarpanch of Walti Village up his sleeve effortlessly. His aggressive three-pronged campaign for popularizing use of public toilets, planting fruit-bearing trees on a mass scale and banning alcohol consumption through Nirmal Gram Yojana Scheme had won him numerous accolades including the Government of Maharashtra's award for social upliftment.

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## L&T Machines are highly dependable: Mr. V.R. Ghuge

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Aurangabad-based Mr. V.R. Ghuge enjoys unassailable reputation as a contractor and prefers operating independently. He specializes in Government contracts related to dam construction and canal works. Though he started in 1982 in partnership with his brother, he parted ways three years on. He tasted success early with a sub-contract for canal

work that came his way and which he executed with deployment of L&T 90, with all gusto.

Says Mr. Ghuge, "L&T machines are highly dependable for good output and require low maintenance. We have put together a continuous programme to educate the operators on various aspects of the machine and site parameters. We make every effort to cut down on



Mr V R Ghuge

non-productive time and utilize the machine effectively. Our team is also ready with Parts kit to carry out scheduled maintenance.”

L&T-Komatsu PC200-6 & PC130-7 Hydraulic Excavators alongwith tippers, dozers, and vibratory contractors form his productive fleet. Over the years, Mr. Ghuge has executed multi-crore dam projects at Khandara, Dholewada, Kurudsavangi and Dastapur, all in Maharashtra. He collaborated with his brother to complete the construction of Khadakpurna Dam which required enormous time and effort and close coordination. He is presently executing Malwa drain pipeline project for Aurangabad Municipal Corporation.

Mr. Ghuge has developed his own expert team on engineering and technical detailing. More recently, his son Mr. Mahesh Ghuge, a civil engineering graduate with MBA from UK, has joined the ranks. Participation in local social activities and being a functionary of Gajanan Mandir Trust gives Mr. Ghuge ample peace of mind.

## PC71 is excellent in manoeuvrability: Dr. B. Ingwale

From manning pupil to managing machines, life has turned full circle for Dr. Balasaheb Ingwale, Managing Director, M/s. Ingwale Patil Construction Company, Pune. He could easily be mistaken for a school teacher given his austere office and down-to-earth approach even today. But his academic credentials hold sway as we learn that Dr. Ingwale is a Doctorate in Political Science.

Starting his career as a primary school teacher, he pursued his quest for higher education with BA and then MA. He continued with M.Phil and Ph.D even as he shifted to teaching the university students. He also found time to enroll and complete the LLB degree! He spent 20 years in academics before shifting gears. It was in 1994 that Dr. Ingwale changed his career to a contractor at the instance of his mentor Mr. M.N.Nawale, who guided him through the pitfalls of the industry. To make the transition from the university campus to project sites, was indeed tough.

“L&T-Komatsu machines are the best in the market. I can vouch for their impeccable performance”, says Dr. Ingwale confidently, who owns both PC71 & PC200-6 Hydraulic Excavators. He finds PC71 excellent in terms of manoeuvrability and flexibility, whether it has to work in sand or slush. “I have successfully used



Dr. Balasaheb Ingwale

PC71 for trench digging and telecom cabling work as well. It is very tough.”, he adds.

*Sarkari kaam* gives him immense satisfaction. Dr. Ingwale has since executed works under Prime Minister Gram Sadak Yojana in Maharashtra State. As a Class I contractor, his works include Pimpri-Chinchwad Vallabh Nagar Road, Phulton Canal Project and Darshan Hall Canal. He has deployed his fleet for irrigation and

canal works in Sangola area, for more than five years. He uses his machines for his own projects, preferably.

Fortunately for him, his order book is full and the machines are engaged through the year. He avoids hiring equipment from others. When it comes to monitoring the health of machines, Dr. Ingwale takes zero risk. He has engaged operators from Orissa and Jharkand, who are well trained to keep the machines in top condition with timely maintenance. "This is because their compensation and incentive schemes are directly

dependent on the machines' output and productivity", reveals Dr. Ingwale.

Education is a prerogative in Dr. Ingwale's household. His wife holds Ph.D in Marathi literature and teaches in Pune University. Daughter is a financial expert and son, an engineer. His simple life is interspersed with daily yoga and pranayam which enables him function to the 'fullest potential' while keeping the lifestyle woes at bay. He sums up his philosophy in the dictum 'live and let live'.

## 20,000 hrs. and the PC200 is still fine: Mr. Sheetal Shah



*Mr. Sheetal Kumar Shah*

**I**t's sheer alacrity and hard work that have earned success for Mr. Sheetal Kumar Shah, Managing Director, M/s. Sarika Earthmovers. In 1995, when Mr. Sheetal Shah passed out of Pune University with BE-Mech degree, it was his grandfather Mr. Rasiklal Shah, who gave him the first break in his firm – M/s. Amrit Stone Company. Under the tutelage of 'Shahkaka' (as his grandpa was popularly known) and his uncle Mr. Subhash Shah, the young Sheetal learnt the ropes of business and the fine art of dealing with customers.

From supplying aggregates for construction projects, Mr. Sheetal Shah established his own enterprise – M/s. Sarika Earthmovers in the course of time. Initially, he started with hired equipment and got into land development and foundation excavation. In 2004, he purchased the first L&T-Komatsu PC200-6 Hydraulic Excavator which gave him impeccable service. As he found the machine fit for the local conditions, he went on to purchase more such machines.

Says Mr. Sheetal Shah, "L&T-Komatsu machines are excellent when engaged in production. There is very little maintenance required. My first machine, L&T-Komatsu PC200-6, has crossed 20,000 hours and is working perfectly well with no major overhaul. I have an experienced team of operators who take good care of the machines spread in various sites. Also my fleet is covered with Annual Maintenance Contract from the dealer which ensure that the machines are in good condition". His cousin Mr. Siddharth Shah, who is an MBA from UK, is closely associated with his business since the very beginning.

One of the biggest projects undertaken by Mr. Sheetal Shah refers to Vimanagar in Pune where he had to excavate 3.5 lakh cubic metres of hard rock under controlled blasting. The whole project took him 16 weeks and required close monitoring. He had to use rock-breaker attachments on most of the L&T supplied excavators and found them highly efficient.

Working on the priority sector of housing, Mr. Sheetal Shah took up Paranjape scheme at Hinjewadi IT Park. Besides, he has executed works relating to lift irrigation scheme at Sangli and Satara and Special Economic Zone in Blue Ridge. His other jobs include cutting 40 ft. deep rocks for Jatiya Resorts in Wadgaon, and digging 50 ft deep tunnel for Sonna lift irrigation scheme with removal of 25,000 cubic metres rock in Bagalkot, Karnataka.

Mr. Shah plans to go for higher class machines as he gets ready to take up bigger-size contracts in irrigation and canal works. At any given time, he is busy coordinating activities in 20 sites. With his company upgrading to M/s. Sarika Infratech, Mr. Sheetal Shah will virtually take off in building space as well. Mr. Shah is keenly looking forward to the future when induction of GPS technology for tracking the machines becomes popular and would be of great help to entrepreneurs like him.

## PC200 is the best machine in 20-ton class: Mr. Sunil Bhide

Life has been a long learning exercise while meeting challenges head-on for Mr. Sunil Bhide, Managing Partner, M/s. Omkar Transport, who has been instrumental in setting up the first sand manufacturing plant in Pune district and taking up onerous tasks in excavation and land development. Even as a 15-year-old and eldest in the household, responsibility was thrust on his frail shoulders, when his father met with a serious accident in 1980.

His father, Mr. Neelkant Bhide had a flourishing timber business with saw mills in Dandeli-Karnataka and Kottayam-Kerala. He used to regularly bid in forest auctions and despatch timber to the factories in his own trucks. The young Sunil learnt fast to cope with the compulsions of business and the ramifications. He simultaneously completed Diploma in Engineering and enrolled for B.Com course.

With forest timber dwindling, Mr. Sunil Bhide diversified the business into sand mining from the river front. With a good understanding, he was able to effectively use the tippers and get more per trip. He also ventured into acquiring a stone quarry in 1986 and deploying L&T 90 machine. A crushing plant was added soon alongwith L&T-Komatsu PC200-6 Hydraulic Excavators as well.

“PC200 is good when it comes to replacement of imported excavators. There’s no better machine in this class today which can give economical results and has fewer breakdowns,” opines Mr. Sunil Bhide. “Reliability is very important in this business. Both the machine and the Dealer are dependable. The Service Support and Parts supply are good”, he adds.

When Mr. Sunil Bhide put up the first sand manufacturing plant, everybody frowned. He had to take up a booth at Constro Exposition in Pune to popularize the concept



Mr. Sunil Bhide

and develop confidence in the market. Today he owns alongside 45 tippers to complete the delivery. Mr. Bhide has set up a bricks factory with 10,000 bricks production per day.

He has also been active in large excavation activity such as Special Economic Zone-Hinjewadi and the Paranjape Scheme in Blue Ridge. He solely concentrates in the private sector. He has now moved into the urban space with the construction of buildings and flats as well. More recently, Mr. Bhide’s daughter, who is an MBA, has joined his business and helps him in accounts.

One thing remarkable about his family is that all women in the household have come together to develop and manage a recreation centre on the backwaters of Warasgaon Dam. The centre has a camping site on the river front with rock climbing facility, windmills, vermipost and eating joints. Every year the place opens up for Surya Shibir, which is popular among Pune-kars and their families.

***The beauty of living spirit shining through human faces is far more pleasurable than any amount of material beauty***

**– Shri Aurobindo**

# Computers in the Service of Scania P380 Tipper Truck



**H**ow would you react if you are told that your Scania P380 Tipper Truck is controlled by seven computers? The most likely response would be an expression of surprise. You would start wondering whether you have purchased a truck or an aircraft!

Gone are the days when a tipper truck consisted of just an engine, gear box, differential and wheels plus the mechanism which would lift the dump body to unload the material it carried. The driver of this next-generation truck is assisted by several controllers that not only help him in taking command of the truck with a massive load on its back, but monitors all vital machine parameters and silently takes corrective action as well.

This article shall take you through some of the key features of Scania P380 and a bit of the high-technology involved that separates it from other trucks of its time.

The driver is the Boss and he deserves the best of comfort. His seat is no longer cushion wrapped on a steel chair. Known as an air suspension seat, at a press of a button the seat cushion and height can be adjusted according to the driver's physique and weight. The headrest supports the head and in the event of collision prevents the head from rocking due to the impact that can cause fatal injury to the neck and spinal cord. Seat height adjustment, back rest reclining forward and reverse movement are the routine features also available with this seat. The comfort provided to the driver is similar to what is available to a guest in the premier class of an airplane. All this reduces driver fatigue when he is on haul road, near the loading point or near the dump where bumpy road is inevitable.

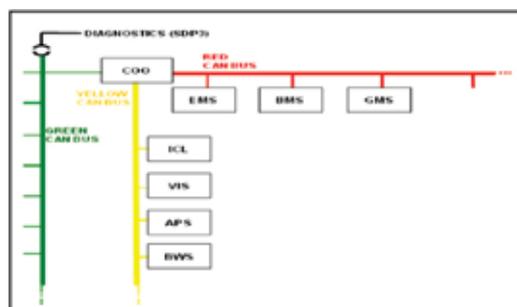
This truck has hydraulic power steering requiring an operating effort as little as a car. The steering column is fully adjustable and the driver can position its height and tilt to his convenience and comfort. The clutch pedal is hydraulically assisted with features that reduces shift shocks and reduces wear while being engaged.



*Steering wheel with height & tilt adjustment*

The power, control and protection system components are all monitored by a network of controllers. There are controllers for Engine Management System, Brake Management System, and trucks fitted with the optional Opticruise, also have for Gear box Management System. On the control and monitoring side there are controllers for Instrument cluster, Air processing system, Visual illumination system and Body works system. Trucks can also be equipped with tachograph that can monitor driver's performance and working habits. Last in the list of controllers, and the most important to a Service Engineer is the diagnostic system port. All these controllers work like different departments in an organization working for a common cause and report to the coordinator.

The figure below gives the skeleton of the controller area network used.



*Scania CAN Bus system*

Scania P380 uses the universally-accepted method of controller networking known as CAN system ( Controller Area Network) BOSCH – Germany pioneered this system in early 1980s. It defines a standard for efficient and reliable communication between sensor, actuator, controller, and other nodes in real-time applications. CAN is found in a variety of passenger cars, trucks, boats, spacecraft, and other types of vehicles. The protocol is also widely used today in industrial automation and other areas of networked embedded control, with applications in diverse products such as production machinery, medical equipment, building automation, weaving machines, and wheelchairs.

The main coordinator is the apex data centre receiving information from different system controllers. From the coordinator, three main CAN Bus emerges. The Red CAN Bus links the Engine, Brake and Gearbox management system controllers. The Yellow CAN Bus links the instrument cluster, air processing, visual illumination, body works and tachograph coordinator systems. The Green CAN Bus

end is an adapter to which an external laptop can be connected for retrieving information from the coordinator in the event of a failure for troubleshooting or even for routine data monitoring. Each controller is in charge of its system and controls the working. However, the main coordinator can instruct a system controller to modify its performance should it receive an abnormality signal. For example, if there is an abnormality detected in the ABS system the coordinators disable the exhaust brake on the engine. To illustrate this, let us examine the functions of various controllers on board.

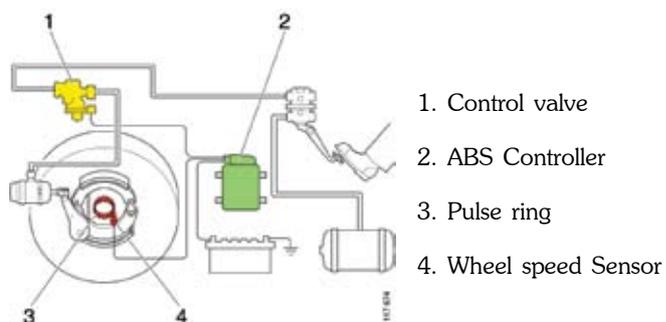
**Engine Management System (EMS):** The Scania DC12 engine uses an electronically-controlled unit injector system. It provides variable injection timing to meet Euro-3 emission norms. The engine mounted controller sends data to the instrument cluster controller to display coolant temperature, oil pressure, fuel consumption to name a few. EMS also manages the engine brake system and coolant fan speed control.



Scania Engine DC12 with EMS

**Brake Management System:** This system is used to control Anti-lock braking system (ABS). ABS is a safety system that prevents the wheels on a motor vehicle from locking up (or ceasing to rotate) while braking. A rotating road wheel allows the driver to maintain steering control under heavy braking by preventing a skid and allowing the wheel to continue interacting traction with the road surface as directed by driver steering inputs. ABS offers improved vehicle control and decreases stopping distances on dry and especially slippery surfaces for many drivers, but on loose surfaces like gravel and snow-on-pavement it can slightly increase the braking distance, while still improving the vehicle control.

The pulse ring sits on the wheel hub. When the wheel rotates, the wheel speed sensor detects the wheel's rotation. The signals are sent on the ABS control unit, which continually receives information on wheel rotational speed. If any wheel begins to rotate more slowly (lock up), a signal is sent from the control unit to the ABS control valve on the wheel. The ABS control valve relieves the brake pressure on that wheel to prevent it from locking



Anti Lock braking system

**Gearbox management system (GMS):** This system is used to control Scania Opticruise in P380. Scania Opticruise is an automatic gear changing system for manual gearboxes. This automatic gear shifting mechanism eliminates the driver error that happens while shifting gears depending on individual judgement while driving. Improper gear selecting and incorrect timing for gear shift can attribute to gear box problems. Scania Opticruise provides two operating modes - Automatic and Manual mode. In automatic mode, Opticruise works more or less like an automatic gearbox, but the driver has to use the clutch pedal when starting, stopping and maneuvering at very slow speeds. Here the system calculates the appropriate gear and performs a gear change. The Opticruise control unit collects and processes data from controls, sensors and adjacent systems such as EMS, ABS and the auxiliary brake.

In manual mode, the driver selects the gear and gear change point in terms of vehicle speed or engine speed with the help of the lever as shown in the picture. However the gear does not shift immediately upon request. The control unit assesses whether the gearchange is feasible and whether gear changing is possible without the driver using the clutch. If the requested gear satisfies the required conditions of speed and shift pattern, gear shifts without the need to operate clutch pedal. Hence even in manual mode the opticruise supervises the driver and prevents mistakes that one can unknowingly commit.

The opticruise controllers are programmed for two operating terrains. One for normal driving (D mode) environment and the other for hilly terrain (H mode) where there can be steep climbing sections with gradient in excess of 5%. Once the driver chooses the terrain type using the mode selection knob on the shift lever the controller does the rest.



P380 Opticruise Gearbox



*P380 Opticruise Lever*



*Scania P380 Instrument Cluster*

**Instrument Cluster (ICL):** The instrument cluster shows information from other control units. The information is displayed by means of gauges, indicator lamps and/or sounds, or as text in the display. ICL has two gauges, indicating engine speed and vehicle speed. ICL2 Basic and ICL2 Colour have four gauges, showing engine speed, vehicle speed, coolant temperature and fuel level. Other information is shown via indicator lamps or text in the display. There are also indicator lamps that display information and warnings regarding any bodywork.

The information which is shown in the vehicle display can be selected and changed to some extent using a button kit which is placed at an angle on the instrument panel, behind the steering wheel. This button kit has a Plus and a Minus button, Zero button and Clock button.

**Visibility System (VIS):** The visibility system consists of the vehicle lighting, wipers and the controls for these. Functions are activated using switches and controls to the various control unit inputs. Using the logic in the control unit, signals are sent out from

the control unit to switch on lighting, activate windscreen wipers, washer pumps etc.

Information has been input into the control unit which specifies what should happen when a request for a function is received. For example, if the driver activates the work lights whilst reversing, the lighting comes on. The work lights will, however, automatically be switched off when the forward speed exceeds 20 kmph.

**Intelligent Air processing System (APS):** The APS unit manages the air pressure in the compressed air system. The incoming air from the compressor is dried and cleaned. In the event of a pressure drop in one circuit, the other circuits are protected from a pressure drop. The APS unit has pressure sensors which read off and transmit information about the air pressure in the parking brake, front circuit and rear circuit to the instrument cluster via CAN communication.

The normal pressure range for the system is 9.0-12.3 bar. At an air pressure of 5.5 bar the brake pressure lamp in the instrument cluster flashes and the buzzer sounds.

Scania Diagnos & Programmer 3 (SDP3) communicates with Scania vehicles and Scania industrial and marine engines. The program (SDP3) communicates with all the controller units of the truck through Green CAN Bus. The program is used for troubleshooting, adjusting customer parameters, calibrations, conversions affecting the electrical system and during campaigns to update the control unit software.

Today's vehicles and especially the present electrical systems with their control units and distributed functions place greater demands on tools and technicians. It is both time-consuming and complicated to carry out troubleshooting on vehicles of such complexity. SDP3 has, therefore, been designed to support the mechanic during troubleshooting and thus reduce the downtime.



Scania P380 thus is a perfect example of how technological advancement and use of microprocessors have made driving through the mines and in tough terrain, safe, easy and a pleasurable experience. These features enhance the reliability and durability of Trucks and have contributed in significantly reducing the operating costs and increasing the profits.

# Suminfra 2010 Focuses on Asset Creation for Future

The 8th edition of the two-day annual event 'Suminfra 2010', co-sponsored by L&T and organized by Confederation of Indian Industry-Southern Region opened in Bangalore on 12th August 2010 with the theme 'Public Private Partnership:Future'.

In his theme address, Mr. J.P. Nayak, Chairman, Suminfra 2010 and President-MIPD, L&T, said that the role and contribution of the private sector in infrastructure development had become increasingly significant over the years. The Government was expecting the private participation in infrastructure projects to go up to US\$ 182 billion during the current Five Year Plan Period with an outlay of about US\$ 500 billion for infrastructure. Compared to the contribution of private sector in the Tenth Five Year Plan, which was about 25 percent, the expected contribution to the Eleventh Plan was more than one third.

Mr. Nayak said that thanks to the awareness of the link between infrastructure development and economic growth, the expenditure on infrastructure is expected to increase to 8-9 percent of the GDP during 2007-2012, up from about 4.5 percent in the previous five years. Talking about the theme of Suminfra 2010, he said the event was focused on the ways to mobilise resources for infrastructure development through financial institutions.



Mr. J.P. Nayak, Chairman, Suminfra 2010 (second from left) greeting guest speakers at the summit. Mr. S.V. Ranganath, Chief Secretary, Government of Karnataka, seen in the centre.

Senior officials from the State Governments of Tamil Nadu, Andhra Pradesh, Kerala and the host State of Karnataka addressed the event in the exclusive State Integrated Investment Promotion sessions and participated in the interaction with delegates. The highlight of the current edition was the launch of a unique platform called Invest Infra, a B2B platform on infrastructure investment. The summit was attended by 300 delegates from all over the country. Coinciding with the event, L&T and other sponsors put up stalls at the venue spotlighting their profile and offerings in various segments.



A view of L&T stall put up at the venue



Mr. S.K.Mitra, Executive Vice-President, Construction Machinery Business Sector along with Mr. C. Alavandi, Chief Executive, L&T-CASE, Mr. Arvind K. Garg, General Manager-CEB and Mr. Dipankar Banerjee, Head-MEB at the summit.