

L&T Earthmover News

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EMTA – Eastern Minerals & Trading Agency

The acronym **EMTA** is more familiar in the Corporate Circle, as it is one of the conglomerates engaged in mining activities especially, Coal. Initially it was a partnership firm started in the name of **Eastern Minerals & Trading Agency** (that gave birth subsequently to the word form EMTA) in 1981 with 3 members belonging to the Upadhaya family of Asansol – Sri Sidheswar Upadhaya and his two sons – Sri Ujjal Kumar Upadhaya and Sri Sujit Kumar Upadhaya. The partners have a position of highly respectable standing in the society and they are very well known personalities in the field of coal mining in the country. The firm has a business vintage of more than two decades in the field of mining and excavation of coal and other minerals, including beneficiation and transportation, construction and project work, mines development, deployment and rehabilitation of HEMM, loading and other allied jobs, consultancy in the geological exploration, planning and design, preparation of environmental management plans, project monitoring, techno-economic study, quality control, etc.



Mr. A.M. Naik, Chairman & Managing Director, L&T, handing over a silver plaque to Mr. U.K. Upadhaya, Managing Director, EMTA Group, while Mr. J.P. Nayak, President (Operations), L&T, applauds.

EMTA, with its multifaceted credentials, has emerged as a pioneer in the development and operation of captive coal mines in the power sector by forming different joint ventures with various Government owned power utilities viz., the West Bengal Power Development Corporation Ltd., Punjab State Electricity Board, Karnataka Power Corporation Ltd., Tenughat Vidyut Nigam Ltd., and Damodar Valley Corporation.

Today, they are the largest Coal Mining Company in the private sector in India, having offices at Kolkata, Asansol, New Delhi, Bangalore and Ranchi. They own the largest fleet of Mining Equipment among Private Mining Companies. Mr. U.K. Upadhaya is the Managing Director of the company. EMTA has a team of competent people, some of whom have earlier shouldered senior level responsibilities at large Public Sector Companies for managing the operation.

L&T's association with EMTA has been right from the beginning and dates back to the year 1981 when 3 x L&T 90 machines were supplied from its Bangalore Works. Since then, this relationship has blossomed into a unique one and L&T has been the first choice for supply of Mining Equipment, despite the fact that other

players have been relentlessly trying to get a share of the business.

To commemorate the long-standing association between EMTA and L&T, a function was organised at L&T House, Mumbai on 23rd May 2006. Mr. A. M. Naik, Chairman & Managing Director, Larsen & Toubro Limited, presented a silver plaque to Mr. U.K. Upadhaya, Managing Director, EMTA Group of Companies, in commemoration of completion of 25 years of valued Business Relationship. Mr. J.P. Nayak, President (Operations), Mr. S. Raghavan, Vice-President, Construction Equipment Business Sector and Mr. S.K. Mitra, General Manager, Construction & Mining Equipment Business Unit of L&T, were present at the function.

Contamination control in Hydraulic Systems

Hydraulic excavator or any earthmoving machine has become more versatile and sophisticated over the years. The equipment are loaded with features and mechanisms to ensure high productivity, lower fuel consumption and greater operator comfort. With all this, the equipment have also become expensive and manufacturers are trying their best to see that the operating cost remains low, so that the return on investment increases in spite of the higher machine owning costs. This can happen only when the quality built into the machine is fully utilized for productive work. Down time due to component failures should be minimum, so that the cost of repair is kept low. To ensure this, equipment manufacturers prescribe maintenance schedule for change of oil and filters, which, if followed meticulously, help keep failures under control.

We all know that the two most powerful enemies of hydraulic systems are aeration and contamination. Aeration is the entry of air into the hydraulic system. Air in oil will cause foaming of oil and will drastically reduce the performance. The air bubble can get compressed in cylinders and at the end of stroke the bubble can burst/implode causing a powerful explosion that can damage cylinder seals, chip off metals from cylinders, etc. The most potent area of air entry is the suction line from hydraulic tank to pump. Even during component replacements like cylinders and motors, proper bleeding procedure needs to be followed to avoid the ill-effects of aeration. Special care has to be taken for the suction lines, the seals and o-rings between the tank flange and the pump. Any trapped air should be immediately cleared off the system. Some amount of vigil, therefore, can alleviate this problem of aeration.



Contamination, on the other hand, is slightly more difficult to handle, as there are several factors collectively at work that add contaminants, while there are filters to clean oil and trap the contaminants and keep the system clean. Let us understand contamination in a little more depth, as knowledge of contamination is the first step towards its control.

What are contaminants?

Contaminant is anything that is not supposed to be there in the hydraulic system - things that do not belong there. It could be metallic, fibrous, oxidation, sludge gel or water. Contaminants, the natural enemy of hydraulic systems, cause more than 70% of all failures. If not controlled, particles too small to be seen can reduce the hydraulic system efficiency. System efficiencies may be reduced as much as 20% before it is recognized that something has gone wrong. The clearances in the components are much lesser these days than they were a decade back. Hence, the concern for contamination control needs to be much more. Experts have conclusively found that 75% to 80% of all component failures are the result of contamination. They are not due to any manufacturing or material defect.

But, how do contaminants enter the system?

Contaminants enter the hydraulic system through five different routes, viz.,

- a. Built into the system,
- b. System Generated,
- c. Externally infiltrated,
- d. Escaped, and
- e. Induced.

Built-in contaminants include weld spatter, core sand, paint flakes, metal particles from initially installed fittings... anything which finds its way into the system during the manufacturing or machine building process. Manufacturers have elaborate arrangement to ensure the components are thoroughly cleaned before assembly and the total system properly flushed before a machine rolls out. Particle count done after flushing the system gives the assurance that equipment handed over to the customer is free from harmful built-in contaminants.

System Generated contaminants include metal scrapings from the friction of moving surfaces in pumps, motors, valve-banks, and cylinders, fibre particles from seals and filters. Normal wear and tear thus forms the main source of System generated contaminants.

Externally infiltrated

contaminants constitute dust, bacteria, grease or other matter which finds its way into the system past the rod seals, pump and motor shaft seals. Particles are also carried by air through the breather into the tank. Good sealing system and pressurised tank attempts to restrict these contaminants.

Escaped contaminants enter the system from the system itself. When a filter bypass takes place, some of the trapped particles also enter the system once again. A poor quality filter that does not do its duty properly can be a good source of escaped

contaminants. Similar situation occurs when the filter paper bursts either due to a delay in following the replacement schedule or poor quality.

Induced contaminants are the ones that enter into the system while servicing a machine. When systems are disassembled for service or repair, it is vulnerable to dust and air borne particles. Dust particles will stick to filter and breather caps, transfer pumps and even on replacement parts. If hydraulic tank is wiped with a rag, for cleaning, it leaves behind lint or thread in the tank, which may lead to damage.

Having understood the various mechanisms through which contaminants enter hydraulic system, manufacturers and users together have to play an important role towards contamination control. Machine makers take care of built-in and system generated contaminants, while the maintenance team has a major role to play in order to control externally infiltrated, escaped and induced contamination. Though it is very difficult to eliminate, good work habits will definitely help in reducing contaminants.

The following photographs depict some of the recommended practices and some common mistakes we commit due to ignorance and at times lack of discipline at work.



Hoses stored with both ends covered with plugs



Hoses stored unprotected.



Components covered with plastic and stored



No protective covering for components stored



Cylinders wrapped with plastic and stored on racks



Cylinders not protected and not stored on racks

- Clean the exterior surfaces of dust, dirt, oil, etc., before removing covers,
- Make sure that the new parts are clean,
- Use a vigorous wash when cleaning parts,
- Keep parts protected prior to assembly,

An effective method to study the health of hydraulic system is through regular Oil and Wear Analysis. Elaborate study has been done on the wear particle presence in oil in case of new oil and used oil. The following table shows the presence of certain contaminants in oil in PPM

Oil analysis result of new and used oil samples

	Si	Na	Fe	Cu	Al	Cr
Source	PPM					
New Oil	0	1	0.9	0.7	1	0.7
Excavator	9	5	5	3	0	2
Dozer	21	11	10	8	10	2
Loader	10	29	31	28	1	2

Silicon (Si) in Oil indicates the presence of dirt. Sodium (Na) is an indication of the presence of water in the system. The levels of iron (Fe), copper (Cu), aluminum (Al), and chromium (Cr) in the system indicate the extent of wear in the hydraulic component parts like pumps, motors and cylinders. Copper indicates wear of pump bushings, end plates, slippers and port plates, based on the type of pumps installed in the system. Iron and aluminium indicate pump and cylinder wear. Chromium indicates wear on cylinder rod coating and pump rings.

If oil and wear analysis is carried out periodically from oil samples taken from various compartments, the presence of wear metal plotted on a graph will form a trend line. A sudden increase in the quantity of wear particle will indicate the imminent failure of a system or a component. This input can substantially reduce the downtime and the cost of repair, as we all know that repair before failure is always less expensive than repair after failure. L&T's Product Support Department is geared up to undertake oil and wear analysis and support our valued customers in this front.

Some simple points to be practiced during repair and maintenance are given below:

- Protect system openings – use covers, tape, plastic wrap, etc.,
- Clean the transfer containers, funnels, nozzles, etc.,
- Use covers to protect drums from becoming dirty or wet around their lids,
- Filter fluids before filling sumps, don't remove filler screens, and
- Use clean filters for all hydraulic fluid handling.

Contamination control is, therefore, the key to longer life of earthmoving machines. It is also the joint responsibility of the manufacturer, the Product Support Department and the user to implement effective contamination control measures, so that the modern day machines perform at their peak.

In the next issue of L&T Earthmovers News, we shall touch upon something equally important and interesting. So, keep track of the next issue. For further information, please contact emst-bw@bw.ltindia.com

New CE of L&T-Komatsu Limited



Mr. S. R. Subramanian has been appointed as Chief Executive of L&T-Komatsu Limited, Bangalore, with effect from 2nd May 2006.

Daring pays off at RSG Stones – Jaipur

Mr. R.S. Gupta, a Chemical Engineer from BITS - Pilani (1972), started his career in an oil extraction firm at Ganganagar. After a short stint, he moved on to his



Mr. R.S. Gupta

family business at Andhi. Mr. Gupta's inner urge to achieve something special attracted him to the Civil Service, as he felt that it would be the best position one could achieve, besides its glamour and status in the society. As time passed, however, Mr. Gupta's ambition for self-achievement was not satisfied.

After 20 long years in the Civil Service, Mr. Gupta decided to be on his own and dared to launch RSG Stones as a proprietary firm in the year 1999. "Mining was our family business; hence, it was not new to me. The only thought haunting me was, how do you mine? Is there any innovative method or do I continue with the conventional method? That made the difference. With all my educational background and field experience, I could carry out technological changes in the mining operations," he says proudly and continues, "The market condition was also favourable at that time. The surge in demand for sand stone due to its multi-usage, and our increase in the production with the systematic mining systems yielded benefits."

To gear up for the product demand, Mr. Gupta brought in technological change by using some of the machines used in mining. Hydraulic excavators helped him to get bigger and better block sizes, besides larger quantity. Now, he has four L&T - supplied hydraulic excavators, one each of L&T 90, L&T 170, L&T 300 and the latest addition to the fleet - L&T-Komatsu PC 300LC-7. According to Mr. Gupta, "Machines are the need of the hour, without these we cannot compete."



On product marketing, Mr. Gupta says, "Customers come to the mine, select the product, and pay the price depending on the quality. We also do value addition at our end. We are also into stone slabs and tiles. Most of the end products are going to the export market, only a small amount is supplied to the domestic market."

Though the mines are 225 km away from Jaipur, Mr. Gupta finds that communication is not a problem with the advancement of technology. He visits the mines once in a week to oversee the work in progress. Day-to-day activities are reported over phone or through other modes. "In case of any major decision to be taken at site, the site-in-charge will consult Mr. Gupta. Routine decisions are vested with the site-in-charge. As far as the machines are concerned, since the operators are experienced, they take care of them."

Mr. Gupta is versatile in his activities. He feels that with one's own business or self-employment there is no age limit to retire. "We can continue as long as we deem fit," he says and reveals the secret for leaving the Civil Service - One needs to retire at a particular age.

Mr. Gupta's day starts at 6.00 in the morning. After the morning exercise and yoga, he reaches office at 10-30 a.m. Evenings are spent mostly with the Industry Associations, Rotary Clubs or with ex-colleagues from Civil Service.

His vision for his organization, for the time being, is diversification into real estate and manufacturing marble tiles. His wife is an MBA and takes care of the company affairs when he is away on business tours. Their two daughters and one son are getting professionally qualified, and are yet to be groomed to take over, as Mr. Gupta feels that they are still too young to be burdened with responsibilities.

All India Dealer C



*Inaugural Speech by Mr. J.P. Nayak,
President (Operations), L&T*



*Mr. Bharat Panchal (right) of V.B. Techno Enterprises,
Ahmedabad, receiving the award from Mr. S. Raghavan,
Vice-President, Construction Equipment Business Sector, L&T*



*Mr. Vijayendra P. Bhat (centre), Mr. Sanjay Kumar Hegde
(left) of Anugraha Construction Equipment, Bangalore,
receiving the award from Mr. S.K. Mittra, General Manager,
Construction & Mining Equipment Business Unit, L&T.*



*Mr. Joseph Zacharias (left) and Mrs. Cynthia Zacharias
(right) of CINZAC, Kochi on receiving the award from
Mr. S.K. Mittra*



*Mr. S.K. Dutta (left), Mr. A.S. Manohara (centre),
Mr. K.R. Bhalabhaskar of L&T showcasing dealer uniform.*



*Mr. A.K. Kandda (left) of Suchitra Sales Pvt. Ltd.,
Chandigarh, receiving the award from Mr. J.P. Nayak.*



*Mr. Subrahmanyam flanked by Mr. Srinivasa M (left) and
Mr. Sekhar Nethi (right) of Mithra Earthmovers,
Hyderabad, receiving the award from Mr. J.P. Nayak.*

The first ever All India Dealer Conference for dealers of Construction & Mining Equipment Business Unit (CMB) was held in Goa - the land of Sun, surf and sand, between 21st and 23rd June 2006. The venue was 'The Leela', where all delegates were accommodated. The conference provided an opportunity to dealers from across the country to interact informally and exchange their experiences with each other.

Mr. J.P. Nayak, President (Operations), inaugurated the event by lighting the lamp. He addressed the gathering by sharing L&T's growth plans and its vision. Mr. S. Raghavan, Vice-President, Construction Equipment Business Sector spoke on the boom in construction sector and its catalytic role in the growth of construction equipment business.



*Mr. S.K. Mittra handing
over the GD511 Filter kit to
Mr. Bharat Panchal of
V.B. Techno Enterprises,
Ahmedabad*



Mr. J.P. Nayak lighting the lamp.



*Welcome Address by
Mr. P.R. Naik,
Support Department*

Conference at Goa



lighting the lamp



Mr. & Mrs. Mukund Dhariya (right) and Mr. Prasad Kulkarni (left) of Aryan Earthmovers, Pune, receiving the award from Mr. S. Raghavan.



Mr. J. Sharma (centre) and Mr. Alex (left) of Saurav Auto Pvt. Ltd., Guwahati, receiving the award from Mr. J.P. Nayak

Mr. S.K. Mittra, General Manager, Construction & Mining Equipment Business Unit, L&T, while sharing CMB's vision with the gathering, emphasised the importance of team work for achieving success.

Special recognition awards were given to Dealers - Winner and Runner Up in various categories.

During the conference, the 1000 hours GD 511 Filter Kit was launched. The proposed uniform for Dealer Personnel was also displayed.

The conference achieved its zenith during the gala dinner, where all the participants were enthralled by "Rudraksh" a well known local orchestra, which kept the beat in consonance with the mood of people present interspersed with peppy Goan dance. All shed their inhibitions and took to the dance floor stomping to the exuberant music and the mood.



Address by
Head, Product
Department, L&T



Enthralling music concert by Rudraksh troupe



Mr. D. Vijayan (right) of Aay Cee Excon-Chennai, receiving the award from Mr. S. Raghavan



Mrs. Chitra Bagrecha & Mr. Rajesh Bagrecha (right) of Abhinav Industrial Products, Kota, receiving the award from Mr. S. Raghavan.



Mr. Raminklal Thacker (left) of N.K. Bhojani Pvt. Ltd., Barbil, receiving the award from Mr. J.P. Nayak.



Mr. S. Raghavan handing over the GD511 Filter kit to Mr. D.R. Deshpande (third from right), Mr. N.C. Ghosh (second from right), Mr. S. Basu (right) of Preti Engineering Services, Kolkata



Goan dance in progress

Efficient overburden removal at Nakoda Earthmovers – Kota



Mr. Pradeep Jain

Mr. Pradeep Jain started Nakoda Earthmovers in January 2005 as a partnership firm. After coming out of government service at Jhalawar, Mr. Jain wanted to focus on the mining business. Though the family was associated with mining activity much before, Mr. Jain got involved only after leaving government service. “My brother was in mining business since 2003,” says Mr. Jain. He also brought in partners who had a long stint in the line. “Their experience contributed a lot to the firm’s performance,” he adds. Their mines, measuring five hectares, are about 100 km from Kota, at a place called Biriyaakheri.

Initially machines of different brands were taken on hire for the overburden removal jobs. “Besides rental for the machine, we also paid per cu.m. rate. Also its timely availability became unreliable,” he states. “As the demand for the stone increased, we had no alternative but to own the machine. But, the choice came down to L&T-supplied machines. Thus, two machines, both L&T-Komatsu PC 200-6, landed in our mines in 2005, the first machine proving itself for more than 2000 Hrs within 6 months of operation.”



“Now the machines are operating for over 16 hours a day, clocking over 5000 and 2000 hours, respectively.” On machine maintenance, Mr. Jain says, “These machines do not require any regular maintenance, hence, it is need-based.” Mr. Jain believes in experienced operators. “This adds to the production, in addition to taking care of the machine health,” he maintains.

Mr. Jain says, “Kota stone is in great demand, due to its quality and multi-usage. It does not require much of marketing, as the customers buy the product from the site itself. Since the demand for the product exceeds the supply, we are not concentrating on export business.” According to Mr. Jain, the pricing depends on the quality and colour.

Mr. Jain is also into charitable activities under the name of Premdevi Chaudhary Charitable Trust and he does the funding for this trust.

Their vision is to get into agri-business in line with the government plans.

Demonstration of WA180 & WA380 Komatsu Wheel Loaders

With the growing iron ore exports from Goa, Wheel Loaders are in great demand. Goa was the first area for the introduction of Komatsu WA180 and WA380 Wheel Loaders in the iron ore sector. Since the performance of these Wheel Loaders have been very encouraging, the need was felt to demonstrate its prowess, so that additional units can be inducted in this sector.



In order to exhibit its versatilities and to create awareness among the contractor segment as well as the institutional customers, a machine demo was conducted in DMC’s PISSURLEIM Mines (Damodar Mangaliji and Co. Ltd.) on 20th March 2006. Many contractors and representatives of institutional customers like Sesa Goa, Chowgules, Fomentos, Velingars & Salgaocars attended this demo.

Machines for expansion at Ujjwal Granites Pvt. Ltd. - Jaipur



Mr. Hanuman Poonia

Mr. Hanuman Poonia is now the Director of Ujjwal Granites private limited, which started in 1990 as a proprietary concern. Going down the memory lane, Mr. Poonia states that after acquiring B.Sc., degree in the year 1984, he joined his family business of wholesale liquor

trade. "This business still continues," he says and adds, "It was the suggestion by a well-wisher that we needed to diversify, hence, the mining line was chosen. This is a good line and I have no regrets. There is a good growth in the turnover for this group."

The initial years in mining operations were manual. "The deployment of machines for certain activities was gradual", says Mr. Poonia and claims, "that he was the first one to introduce the machines in granite in Jalore." Now with a fleet of five L&T-supplied machines, Mr. Poonia has also expanded the mining operations. Nearly eight mines operate under the group banner.

Ujjwal Granites is also in the finished product market. The factory at Jalore caters to this. The end-products like granite slabs and tiles are allotted to the export and domestic market equally. Mr. Poonia feels, "the export market is

better because of volume and pricing," and says, "The export market has the preference for certain brands like marigold, red, green, royal green... depends upon the country which imports it."

As the business grew, Mr. Poonia realised the need for machines and purchased the first L&T 90CK machine; and later added three more L&T 90CK machines to the fleet. The demand for the bigger size blocks prompted him to go for bigger size machine... naturally the choice was L&T-Komatsu PC300LC-7 in 2005. "The machine has since clocked over 2500 hours without any problems," he asserts. Having realised the potential of the bigger machine, Mr. Poonia is convinced to go in for bigger size machines for future requirements.

On maintaining the machines, Mr. Poonia says, "Machine maintenance is done as per OEM's specifications and the required spares are procured from L&T's authorized dealers."

He visits the sites once in a fortnight to assess the situation, besides getting regular reports on a daily basis. Other diversified business lines of the group are Wholesale Liquor Trade, Hotel Project at Jaisalmer and Educational Institutions; but the focus is on expansion of mining operations.

Mr. Poonia's brothers and his uncle assist him in his business. Mr. Poonia has two sons aged 17 and 15.



Bikaner Service Camp

CEB - Jaipur team conducted a service camp in Bikaner from 20th to 23rd March 2006.

Bikaner is having a good population of L&T supplied machines, which are operating at different locations. The average distance to each site from Bikaner is appr. 120 Km, where all customers have their offices.

The programme was conducted "on site" for each and every machine specifically.

The Team explained to customers in detail about the importance of maintenance schedules & preventive measures to increase machine uptime. The Team also inspected customers' machines, carried out PM checks and conveyed feedback to owners.

The programme was highly appreciated by various customers.



Machines help meet demand at Shanta Sales Corporation – Bikaner

Mr. S.S. Baid, after his B.Sc. (1963), moved out of Jaipur in search of a job and landed at Golcha's as a Technical Quality Control person. "It was an experience I gained at a young age and acquired good knowledge of mining and mining products," says Mr. Baid, recalling the past. Being with Golcha's for 13 long years, the urge to be on his own compelled him to move out of Jaipur, but with greater responsibilities of developing the mines at Bikaner, again for Golcha's. "Here I learnt the practical mining operations," he asserts.



(L-R) Mr. S.S. Baid and Mr. Himath Baid

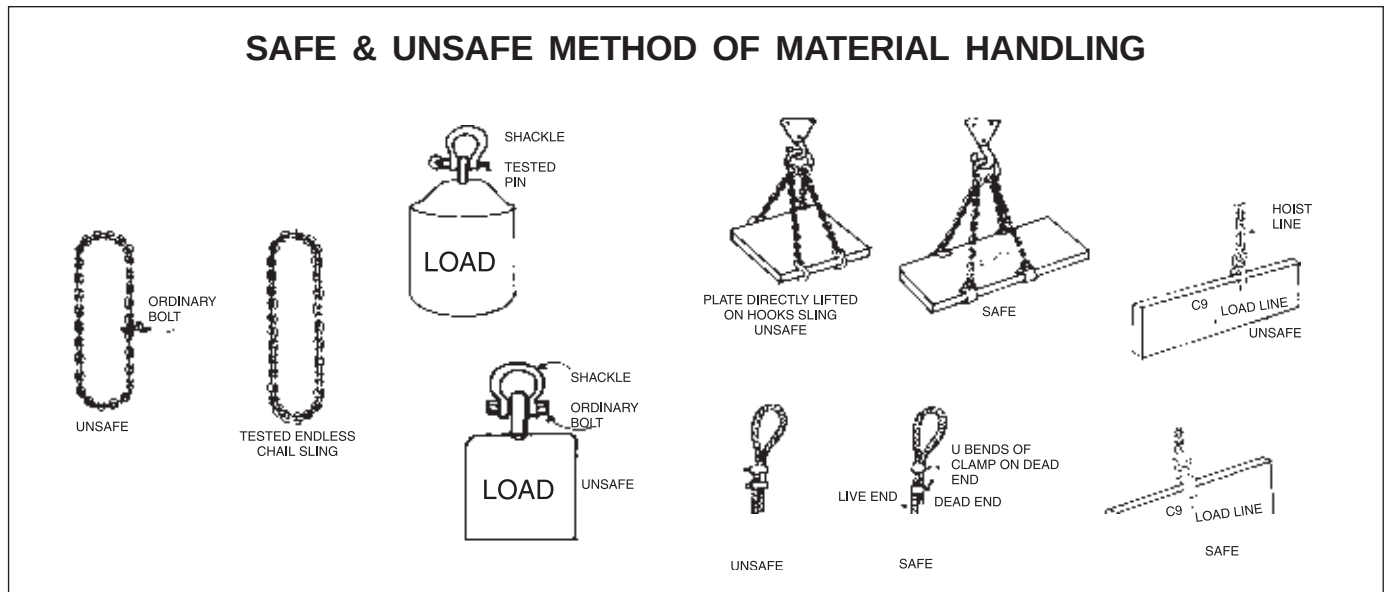
the group, all with clay mining. He despatches material to locations all over India to cater to the ceramic industries. As the demand for the material increased many fold, the need to augment production accelerated. This is when he realised the requirement of machines for certain activities.

Mr. Baid is a shrewd businessman. Initially, he hired machines of different

brands for his applications to avoid regretting, in case one brand turned out to be of a poor quality. Only after getting fully convinced of its versatility and compatibility, he opted for L&T supplied machines. Thus, the flow of machines started coming in - first L&T 72 in 1998 followed by L&T 90-3, a secondhand machine. In the year 2004, he bought two L&T-Komatsu PC 200-6 hydraulic excavators.

Mr. Baid is a trend-setter in Bikaner in the introduction of machines for mining applications.

As far as the machine operators are concerned, Mr. Baid has upgraded the operators with most experience to operate L&T-Komatsu PC 200-6 machines. "We go for experienced operators and the operators' opinion is that PC 200 machines are the best to operate," he maintains.



**Speak gently, kindly to the poor; Let no harsh tones be heard;
They have enough they must endure, Without an unkind word. – Lewis J. Bates**

Bulldozer



The concept of bulldozer has evolved over a period of time. From the primitive one to the present technologically superior bulldozer, it evolved through different stages. There are different versions on development and the claimants are also many. But ignoring the claim for title, one can derive the meaning of the word “bulldozer” from the habit of bulls pushing their lesser rivals backwards in not so serious contests of strength. Even today, in our daily usage the term derives the similar meaning.

The history of bulldozer began with the development of the track-laying vehicle. A steam powered one was first used in Crimea in 1854. Early models took sometime to find their ideal form and it was sometime before steering by differentially controlling track speed became general and allowed dispensing with a leading axle.

The first recognizable bulldozers appeared around 1922 and the following years it saw intensive innovation in mounting and controlling the traction.

Komatsu, the renowned name in construction equipment is the leading manufacturer of dozers to suit all requirements. These dozers have the track record of proven performance. Most familiar models in the range are depicted in the next page – Table 1.

Komatsu has the record of making the largest dozer in the world.

Komatsu dozers are making their own mark on Indian soil. The product reliability, backed with L&T's unmatched product support, makes Komatsu dozers more popular among the user segment. We all know the dozer is used for pushing the material/rock and for cleaning/leveling the area. With the change in environmental requirement, there is a need for the alternative mining. Komatsu, the biggest size Dozer manufacturer, helps in achieving the “Clean Environment” and “Eco-Friendly Mining”.

In one of the cement plants, the mine has stopped doing any drilling & blasting and gone for ripping operation, which not only saves the environment, but also helps in achieving record production. Advanced technology has facilitated ease in operation and higher component life.

Table 1

Model: D41P-6

Flywheel (kW(HP): 82(110)
Operating weight (kg): 11340
Blade type: PAT
Blade Capacity (m³): 2.6



Model: D275A-5

Flywheel kW(HP): 306(410)
Operating weight (kg): 49850
Blade type: Semi-U/Full-U
Blade Capacity (m³): 13.7/16.6



Model: D41E-6

Flywheel kW(HP): 82(110)
Operating weight (kg): 10950
Blade type: PAT
Blade Capacity (m³): 2.6



Model: D375A-5

Flywheel kW(HP): 391(525)
Operating weight (kg): 66985
Blade type: Semi-U/Full-U
Blade Capacity (m³): 18.5/22.0



Model: D65E-12

Flywheel kW(HP): 135(180)
Operating weight (kg): 19125
Blade type: Angle Dozer
Blade Capacity (m³): 3.55



Model: D475A-5

Flywheel kW(HP): 641(860)
Operating weight (kg): 102500
Blade type: Semi-U/Full-U
Blade Capacity (m³): 27.2/34.4



Model: D155A-5

Flywheel kW(HP): 225(302)
Operating weight (kg): 38700
Blade type: Semi-U/Full-U
Blade Capacity (m³): 8.8/11.8



Model: D575A-3

Flywheel kW(HP): 783(1050)
Operating weight (kg): 121835
Blade type: Semi-U/Full-U
Blade Capacity (m³): 34/45



To understand your requirement and offer/suggest the appropriate dozer, you may send the details to Mining & Allied Equipment Business, Larsen & Toubro Limited, Lakshminarayan Complex, 10/1, Palace Road, Bangalore - 560 052, meb@pro.ltdia.com or to your nearest L&T office.

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