



Newsletter

LHMarthinusen

SCHOOL OF ENGINEERING AND MAINTENANCE

JULY 2010



From The Managing Directors Desk

Feel it. It was here. Not since 1995 have we seen scenes of South Africans of all colours and creeds celebrating together in the stadiums, in the fan parks and even on the streets. What an exciting couple of months this has been. The soccer fever was kicked off when the Super 14 Rugby Final visited "Soweto". The event was a success and a precursor of events to follow. The mainly Afrikaans "Blue Bull" fans embraced "Soweto" as if it were a suburb of Pretoria. That was shortly followed by "Bafana Bafana" going on an open bus tour through Sandton. Then on the 11th June the world came together to watch the opening ceremony of the first "FIFA World Cup" on "African soil". The 2010 World Cup was an incredible success and catapulted our country into the minds of many foreigners. Together with millions of my fellow countrymen and women, South African experienced what will be recorded as not only a historic event, but also one of the most significant bridge building events in our country's transformation.

The "LHM Denver" Team decided to showcase their support for the nation, by organising all our staff members to wear their "Bafana Bafana" shirts every Friday. To ensure the spirit was not lost, all LHM employees took to the street on June 11th, to blow their "Vuvuzelas" in support of their country. With assistance of the Metro Police, along with the support of the neighbouring factory employees, LHM could hear "The sound of a "Victory" not only for the boys wearing green and gold, but for South Af-

rica as a Nation. Although Paul the octopus preferred the colour red, I would like to say I have never been prouder to wear the colours, Green and Gold. Congratulations South Africa, on hosting a most successful World Cup!

The financial markets again proved to be very volatile during the quarter. We have seen the Rand trading within a range of 7.15 and 8.08 against the Dollar, we saw Gold hit an all time high of \$1 231 per fine ounce and we saw the recent equity market rise come to a gradual halt. Across the globe we have seen a slew of information that supports and condemns global growth. Not until this ambivalence disappears will we see global market return to a more "normal" phase.

Amongst the World Cup celebrations, LHM had some success stories themselves. We have managed to once again, excel the 2010 Strat / budget plan and its objectives. Although, sales in the Transportation Sector were disappointing in both Manufacturing and Rotating Machines Divisions, LHM has still managed to produce year on year excellent results. Some of the more obvious and interesting projects completed in this financial year were our Power Generation facility, Condition Assessment Centre, Acclimatized Transformer Electrical Assembling Centre, which you can read in more detail in this edition.

I would like to take this opportunity to thank all staff at LHM, for their hard work and dedication. With the financial year end fast approaching, I would like everyone to keep the words of "Shakira" in mind: We're on the frontline, Everyone's watching, We know it's serious, We're getting closer, This isn't over. The pressure is on, you feel it, but you've got it all, "Believe" it. When you fall get up oh oh, and if you fall get up get up eh eh....

"IT'S TIME FOR LHM!"

Last but not least Wikus Williams buys a gift for Moipone Mvimbi baby shower now that's a sound of a "VICTORY" . Moipone gave birth to a baby girl on the 6th of August her name is "Keamogetswe" congratulation to both proud parents.

Altino da Silva

Manufacture Of 'Butterfly Type' Generator Coils

The HV Coil manufacturing facility was recently tasked with the design and production of particularly special coils for use in the rewind of a 10MW gas turbine generator stator.

Limited space in the machine meant that the conventional diamond type coil arrangement could not be accommodated due it's significantly longer projections either side of the core. The requirement was therefore to use what is known as a 'butterfly' coil where the projection geometry would allow for the condensed overhangs.



Special multi stage tooling was developed in-house to form and shape the unusual coil profile.

Article Compiled By: M Abbott

Power Generation



As part of the phase 3 building upgrade, LHM have dedicated an area within the pressurised, climatically controlled electrical workshop, purely to Power Generation work. This area is serviced by a 100Ton and 2 x 40Ton overhead cranes.

This section is lead by Manny Faria, a power generation specialist who spent many years with Alstom Power before joining LHM. Manny has many years' experience with turbine-, diesel and hydro power machines and is well respected in the industry.

Although LHM have been involved with power generation work in the past, these developments have put LHMarthinusen on a different level when it comes to this specialised product line. To this end, the market has awarded LHM's efforts with orders for a 60MW turbo rotor rewind; a 10MW turbo rotor- and stator rewind and a large hydro-generator rewind that was performed on site in Kenya in the last few months - and there are a number of exciting projects

in the pipeline.

The Power Generation department is ably supported by a number of existing capabilities, such as a large stator bar press; 4.2 meter diameter VPI tank; 35 ton balancing machine; large boring mill and a variety of testing (and interpretation) capabilities that are unparalleled in the industry. These skills have led to the award of orders from Sasol Synfuels to perform digital EL-CID and Partial Discharge testing (including bus coupler installation) on a 36MW machine recently.

LH Marthinusen has also recently been appointed as the Southern African agent for Cummins Generator Technologies (CGT). CGT is based in Ingolstadt Germany and produce generators under the brands MARKON, Stamford and AvK up to 20,000 kVA.

Article Compiled By: David Sullivan

Transformers



1. New Pressurized Electrical Assembly Facility

The new pressurized electrical assembly workshop was occupied in January 2010. In the past transformer active parts were assembled individually by small and large transformers, today and since taking occupation of our new pressurized, dust controlled electrical workshop, all transformer active parts are assembled in one facility under the supervision of an experienced Manager. Although the facility has only been in operation for four months, the improved quality and efficiency is already apparent, all active parts are assembled whether it be a 10kVA or a 200MVA, are all assembled to one procedure and one quality standard. On completion the active parts are handed over to either small or large transformers for vacuum drying and tanking.

2. Small Transformers

Small transformers have taken occupation of the new workshop adjoining the electrical assembly facility. The new workshop is approximately 2340M2,

offering an additional 936M2 to that of the old workshop. The facility is self sufficient in terms that it has been equipped with 1 x 40T and 1 x 20T cranes, vacuum oven, oil processing plant and an electrical test bay capable of testing up to 33kV.

3. Substation Upgrade

Our new 11kV substation incorporating SF6 switchgear and new transformers, is presently in progress and due for completion by the end of June. The old Videx workshops demolished to make place for the new phase 3 expansion project, was fed by a 380 volt municipal supply. A decision was taken to abolish this supply and take one 11kV municipal supply and supply our workshops with a 380 volt supply via our own transformers. In this way we can ensure the proper maintenance of our supply equipment.

Article Compiled By: A Laval

Rotating Machines Condition Assessment Centre.



Is the Market Ready for an Independent Condition Assessment Centre?



With another Industry first - LHM Denver recently opened its new Rotating Machine Condition Assessment Centre in Denver. The facility is unique in the industry because it is a completely separate facility dedicated solely to condition assessment of rotating electrical machines. This involves:

- Disassembly
- Washing / cleaning
- Drying
- Visual Inspection
- Mechanical Inspection: Full range of Non-destructive testing methods
- Electrical Testing: Partial Discharge and Tan Delta testing, among other standard methods
- Customer visits and inspections in a convenient, neutral environment

The LHM Condition Assessment Centre is intentionally located separately from other LHM facilities, to provide a neutral venue for customers and competitors to view machines and interact. LHM's commitment to this facility is considerable, with a 1400 m² new building, 40 ton crane capacity, dedicated administrative offices and test facility.

But despite all this commitment - is the market ready for such a unique dedicated assessment facility? LHM's opinion is of course that the market is ready but there are important advantages which customers must be made aware of, because customers (not competitors) will ultimately determine the success or failure of the bold LHM initiative.

Dedicated Personnel

Firstly, LHM has raised the bar by developing and training the necessary dedicated personnel with tailored training in order to carry out all the related condition assessment functions. This is particularly important in the repair environment where delivery pressures often create personnel who are skilled at "stripping" and repairing as quickly as possible. The LHM condition assessment centre personnel are trained to be meticulous and to pay attention to details which would normally be unimportant to a repair but may be crucial to determining a cause of failure.

Dedicated Processes and Procedures

The completely separate facility allows every part of the assessment process to be performed unaffected by the often hectic routine and production pressures typically encountered in a repair environment. This naturally compliments the dedicated staff's meticulousness and attention to detail by allowing them to focus on the sole function of condition assessment. To further enhance the quality of assessment - all processes, procedures and inspection techniques are tailored specifically with the objective of producing an accurate, detailed and objective condition assessment report in the minimum time possible - because in many cases the information contained in these assessments is critical for the customer (or repairer).

Dedicated Infrastructure and Equipment

The exclusiveness of the LHM Condition Assessment Centre, its dedicated personnel, procedures, processes and techniques are further assisted by the customised infrastructure, equipment and work-centres which the LHM facility enjoys.

Is the market ready?

Asking if the market is ready for a unique first-class dedicated Rotating Machine Condition Assessment Centre such as this is equivalent to asking if the customer is ready for accurate, detailed, objective, quick and cost-effective condition assessment reports which can be tailored to suit their technical or financial interests or constraints.

The market most certainly is ready for this centre. The market needs this centre. The customer must just be made aware of these very clear advantages to ensure the success of the LHM Rotating Machine Condition Assessment Centre.

Article Compiled By: Aris Meligaloti & R Melaia.

INSTALLATION OF THE LARGE VPI TANK

After months of deliberation and intense planning, the installation and commissioning of the VPI tank has successfully been completed.

This project posed a number of challenges, one of them being getting the tank in to the main shop area where modifications to the small crane gantries had to be made. Further challenges included the enlarging and deepening of the existing pit which were disadvantaged by space constrictions, as well the modifications to the lid support arm. These consisted of reinforcing in order to accommodate the heavier lid weighing 6 tons.

The installation and commissioning work was carried out by LHM using an external contractor for the pipe manufacture and welding. The fabrication, welding and rerouting of the pipe work, as well as the vessel inspections were conducted with the supervision of an approved vessel inspections inspector.

Finally, the installation and commissioning of the VPI tank was completed in time for a 7000kW AVK 11KV alternator stator rewind. This stator previously was wound with a resin rich system.

In order to expedite and meet the strict time frame criteria of 17 days it was necessary to convert to VPI system thus also enhancing the winding with numerous advantages, i.e. improved heat dissipation, and improved coil sealing from external ingress oil moisture etc. This was accomplished with good results as well in the set time frame.

The VPI tank dimensions are diameter of 3990 mm and flood depth of 3745mm.

Article Compiled By: Aris Meligaloti



Baby Shower for Moipone Mvimbi



Baby Keamotetswe Born 6 August

LHM charge to the street blowing the Vuvuzela on the 11th of June 2010

