



DISPLAY NEWS

VOLUME 5 ISSUE 1

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News Flash...

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From the Managing Director



I am delighted to have the opportunity to contribute to the latest TEOA newsletter, which I trust will provide our clients, suppliers and staff with an interesting overview of the recent activities at Thomas Electronics.

Having been the Chief Executive Officer of TEOA for over eleven years now, it is worthwhile to look back and see how far we have developed as a company over that period, in terms of scale, technical

capabilities and infra-structure. All three elements are indicators of business success but I can honestly say that my greatest satisfaction comes from the development of our technical capabilities in display systems with the transition from CRT to flat panel technology. We will continue to pursue a wide range of opportunities which should provide future growth for the business. I am confident that the best is yet to come, and once again would like to recognise the great team behind me which has made our success possible.

You will see from the articles in this newsletter that 2005 is shaping up to be an extremely busy year for TEOA with the award of additional airworthiness certification, the successful completion of two major subcontract projects for defence primes, the signing of distribution agreements with an Italian avionic test equipment supplier and a specialist American power supply manufacturer, as well as the participation at the Avionics Maintenance Conference (AMC) and the forthcoming Land Warfare Conference (LWC).

I look forward to meeting with our many defence contacts and defence industry colleagues at the LWC 2005 in early October and being a significant participant in future programmes associated with the upgrading of the Australian Defence Force.

Land Warfare Conference 2005

Thomas Electronics of Australia (TEOA) has been involved with the local defence industries since 1984, when it started production of the avionic CRT assemblies for the F/A-18 Hornet jet fighter and the Royal Australian Navy (RAN) Seahawk Helicopters under the Australian Industry Involvement (AII) program.



For the past 20 years, the Projects and Engineering division of TEOA has gone from strength to strength, catering to a wide range of clients within the local defence industries.

For the first time, TEOA will exhibit at the annual Land Warfare Conference, to be held on the Gold Coast from 4th to 7th of October. On display will be some of the technologies that TEOA has developed for the Commonwealth, on platforms such as the ASLAV Crew Procedural Trainer (CPT) and the Collins-class submarines. TEOA would like to extend an invitation to all existing and future clients to visit its exhibition booth, #75 at the LWC 2005, Gold Coast.

Nelson Mino, a design engineer with TEOA who was involved with the ASLAV project, will present a paper titled "High Fidelity Optical Systems for Armoured Vehicle Simulators" as part of the conference proceedings. Please see related article for more details.



LCD Capabilities Upgrade

A significant new addition to TEOA's Milperra facilities was made in July 2005, with the completion of an upgraded Clean Room. Built by Arden Pty Ltd, the leader in the construction of pharmaceutical grade clean rooms in Australia, the Clean Room contains state-of-the-art equipment and marks an exciting step in the expansion of TEOA's core capabilities.

Inclusive of both Stage Two and Stage Three work areas, the Clean Room is equipped with HEPA filters, which circulate air within the facility at a rate of up to 40 cycles per hour. The facility also includes a larger and more advanced TAB bonder, capable of bonding Tab's, chips on glass (COG), and chips on film (COF). The new tab bonding machine extends TEOA's bonding capabilities from plasma and LCD screens of 22" up to sizes of 65" and also enables the support of new, large screen TV's.

The facility has been certified to international standards, with 16 sq metres of Class 3.5 (US standards 100), and 100 sq metres of Class 350 (US standards 10,000). The completion of the Clean Room makes TEOA one of the few facilities within Australia equipped and approved to perform highly specialized LCD and Plasma panel repairs to OEM specifications and standards.

The completion of the Clean Room has been a major step forward for the company and puts TEOA at the forefront of the industry in its repair facilities. This subsequent extension of repair capability has been followed by the successful negotiation of a contract with industrial leader Sony for the repair and refurbishment of Plasma and LCD screens.

Thomas Makes Chinese Connection

A significant long term goal for Thomas was realised in May this year, when it was granted certification from the General Administration of Civil Aviation of China (CAAC). CAAC certification allows Thomas to perform repairs and overhauls on display components for Chinese airlines, enabling TEOA access to the rapidly expanding Chinese aviation market.

The CAAC approval is the result of two years of effort from TEOA, with considerable assistance from Victoria Qiu of Australian Business Limited.

Victoria recently traveled to China with a team from TEOA to assist in negotiations with a variety of companies within the aviation industry. Her comprehensive knowledge of the Chinese language, business practices and culture was absolutely invaluable and proved to be instrumental in the certification process.

The large size of the Chinese aviation market holds much potential for Thomas. To date, TEOA has already secured repair contracts from the major Chinese carriers and maintenance and repair organisations (MROs).

European Aviation Safety Agency (EASA)

The recent achievement of CAAC certification enables Thomas to concentrate on gaining European Aviation Safety Agency (EASA) approval. After more than 3 years of work, TEOA expects to have EASA approval by November 2005. EASA approval will enable Thomas to repair and overhaul avionics components for European airlines and maintenance and repair organisations (MROs). The European avionics industry is perhaps the most regulated in the world, and EASA certification will be a significant milestone in the company's history.

Quality and regulatory certifications currently held by TEOA:

1. Société Générale de Surveillance (SGS)
 - ISO9001-2000 Certification
2. Australian Department of Defence
 - Defence Recognised Supplier
 - Authorised Maintenance Organisation
3. United States Federal Aviation Administration (FAA)
 - Approved repair station (FAR145)
4. Civil Aviation Safety Authority Australia (CASA)
 - Certificate of Approval
5. General Administration of Civil Aviation of China
 - Maintenance Organisation Certificate

Thomas Electronics ESG Restructuring

Effective from August 2004, the Electronic Services Group (ESG) of Thomas Electronics of Australia (TEOA) was spun off into a separate corporate entity, and is now known as Thomas Electronics ESG Pty Limited. With this re-structuring, both TEOA and ESG are able to consolidate their respective resources to achieve more streamlined operations, and are now able to offer an even higher level of service and expertise to their respective clientele.

Thomas Electronics of Australia (TEOA) will offer engineering, sales and services for electronic hardware and systems to clients in the aviation, defence and other industrial sectors. Thomas Electronics ESG will direct its resources to service OEM and consumer customers, offering technical support, product management as well as integrated logistic services.

ESG IT Initiative

Since July 2002, Thomas ESG has progressively been implementing and upgrading the ACCPAC online accounting system for use in its day-to-day operations. The system is periodically customized for Thomas ESG's specific business management requirements and has been able to dramatically increase efficiency throughout all administration and reporting procedures.

ESG IT Initiative cont...

New features were recently added to the system, and they include the following:

- Remote system accessibility for service providers and inter-state office
- Real-time processing to provide accurate up-to-the-moment information
- Refinement of workflow processes
- Improved traceability or job status for inventory levels and serialised items
- Automation of repetitive processes

These new changes have facilitated reductions in time spent on data entry and have simplified the overall process of administration for all repairs.

In conjunction with the ACCPAC system, a new call centre monitoring system was implemented, enabling the supervisor to control and manage the handling of all calls. This in turn has allowed for maximum efficiency in the delivery of customer interface and service.

The aim for the next financial year is to further upgrade the current system. This will enable Thomas ESG to progressively improve upon the level of services provided to clients and end-users.

Panasonic Toughbook

Thomas ESG's long established relationship with Panasonic has been strengthened with the negotiation of an agreement with Panasonic of Japan to provide ongoing support for their specialist IT product, the Panasonic Toughbook, which is designed to withstand the rigors from across a wide spectrum of industrial applications.



As the designated Australian service provider, Thomas ESG will provide all technical and after-sales support for Panasonic Toughbook products.

Over the past decade, Thomas ESG has worked extensively with Panasonic Australia to provide support for a wide range of Panasonic products. A valued partnership, this agreement signifies another step in a relationship with Panasonic that has lasted well over 30 years.

New Products Added

Thomas Electronics has recently acquired the Australian distribution rights to another two world class brands of electronic equipment.

D. Marchiori (DMA)

DMA was established in 1938 to provide test equipment to the Italian Air Force, and is world renowned for its innovation. Today they design and manufacture a range of test equipment including calibrated tilt tables and air data test sets that are used in the calibration of altimeters and speed indicators for both military and commercial aircraft.

DMA currently supplies test equipment for Australia's new TIGER attack-helicopter as well as the Airbus A380 airliner.

Technology Dynamics Inc. (TDI)

Technology Dynamics is a US company that, since 1966, has specialised in high quality power conversion equipment. Their major product lines include:

- Switching power supplies
- DC-DC converters
- Hot Swap power supplies
- UPS systems
- DC-AC Pure Sine-wave Inverters
- Frequency converters
- Laboratory and bench supplies

Technology Dynamics is renowned for the quality of its products and supply equipment from normal commercial grade right up to military specifications. Custom-designed equipment is also available for specific applications that require more than the standard products available.

New Products Added cont...

Technology Dynamics products are in use on the Collins class submarines, one of the most demanding applications with very high quality requirements and uncompromising technical demands.

TEOA Projects Division Update

Australian Light Armoured Vehicle (ASLAV)

In May this year, TEOA shipped the final batch of optical components for the ASLAV Crew Procedural Trainers to Thales Training and Simulation, concluding a project that lasted more than 24 months. The ASLAV project has been a very demanding engineering exercise, tapping into a very substantial portion of the in-house engineering resources of TEOA. Much valuable experience was accrued, the most significant being arguably the expertise in optronics and optics that was developed over the course of the project.



About two years ago, the Commonwealth instigated a major program to upgrade and refit the ASLAV with improved weaponry, armament, battle-space management and non-cooperative target identification systems. Part of this proposed upgrade involved the supply of new training systems for the crews to become familiar with the improved version of the ASLAV. Existing options on the market did not provide the fidelity required for the level of training envisaged. The Commonwealth turned to the Australian defence industry to design and manufacture a world-class training solution that met their stringent requirements.

After due process, the contract was awarded to Thales Training and Simulation (TTS), who in turn sub-contracted TEOA the design and manufacture of the display component, TTS having been aware of TEOA's expertise in this field.

TEOA is proud to be associated with this program and looks forward to the prospect of exporting this developed-in-Australia technology to the world.



Collins-Class Submarine Replacement Combat System (RCS)

Another defence project that was successfully completed this quarter was the subcontract work for Raytheon Australia's Naval Systems Group, part of the overall project to replace the combat system onboard the Collins-class submarines for the Royal Australian Navy (RAN).

This project entailed the design and manufacture of the test equipment for the onboard intercom systems, as well as the production of the actual intercom systems. The entire project took more than 12 months, with the final delivery of the equipment completed in August 2005.

Once again, TEOA was able to deliver world-class electronics for use in the demanding military environment, not withstanding the strict documentation standards and stringent technical requirements. TEOA is now looking forward to being part of the Raytheon team participating in the local building of the Air Warfare Destroyer for the Royal Australian Navy (RAN).

Avionics Maintenance Conference (AMC) Atlanta 2005 Review

In April it was time again for the annual Avionics Maintenance Conference (AMC), held this year in Atlanta. AMC is attended by over 750 maintenance personnel representing all of the world's major airlines. The objective of this forum is to get airline operators and suppliers to focus on improving reliability and reduction of operating costs by sharing the lessons learnt over the previous 12 months. A key area of interest is in the development of new and innovative approaches to aircraft maintenance.

Thomas Electronics sent a contingent of six people that included Jeff Boyle, the North American representative and John Smith, who represents TEOA in Europe and the Middle East. It was a good opportunity for TEOA to meet up with the various representatives of its avionics clientele and the overall feedback was that they were very happy with the products and services from TEOA.

The support option that Thomas offers for the DU7000 display unit onboard the B747-400 as well as other avionics displays

continued to generate a lot of interest from prospective clients and praise from existing ones. Several airline representatives had already indicated that they would be interested in additional products that TEOA had developed in the past six months, such as the low-cost DU7000 bench tester for use with the Boeing 747-400 Primary Flight Display (PFD).

High Fidelity Optical Systems for Armoured Vehicle Simulators



Fig.1 View of conventional system

Fig.2 View of optical system by TEOA

Over the last two years, Thomas Electronics has developed optical systems for Thales Training and Simulation to be used as the primary visual tool in all of its Crew Procedural Trainers (CPT). These simulation based trainers are used by the army to bring ASLAV (Australian Light Armoured Vehicle) crews up to operational readiness. The sights generated a very good response by General Dynamics and the Commonwealth and bring previously unattainable fidelity to the trainer. Thomas Electronics sought the opportunity to present a paper written by Nelson Mino, regarding its developments and findings and as a result the 2005 Land Warfare Conference Committee has accepted the paper "High Fidelity Optical Systems for Armoured Vehicle Simulators" to be included in the conference proceedings and be displayed as a poster presentation at the conference in October.

The paper highlights key parameters in visual representation which make the sights a unique and novel solution. A close study into eye performance and human reaction emphasizes the need for high fidelity visual systems rather than more conventional solutions such

as the direct view of an LCD/CRT or projected image. Key findings of the research highlighted in the paper include the influence perception and visual acuity has on the ability to detect, recognize and identify targets. The high fidelity system allows the trainee smooth transition into the real armoured vehicle platform with heightened conscious and reflex responses. Additionally the novel approach of utilizing Multi-layer displays for generating out of focus effects and visual enhancement puts Thomas Electronics at the forefront of simulation display technology, and signifies a major step forward for TEOA's move into optronic technologies.

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