Local Support, Total Commitment

TLD HIGHLIGHTS 2010-2011
TLD is a Group totally dedicated to the design, assembly, distribution and after-sales support for aviation Ground Support Equipment (GSE), with a history of fifty five years in the industry.

1,000 employees

6 factories

in 4 countries

30 sales and service offices

8 million USD in spare parts inventory

TLD manufactures and distributes worldwide, through its global sales and service network, a complete range of GSE equipment, designed by its R&D teams and assembled in its six facilities located in North America, Asia and Europe.

In the recent years, TLD has steadily invested in product innovation with a strong focus on energetic efficiency, green technologies, and optimization of equipment total cost of ownership.

TLD is highly committed to bringing to its customers in the field, beyond and after the equipment sale, the highest level of support through its extensive network of technical and parts centers around the world.

Revenues
Ariwest Group in millions USD

<table>
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<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<td>Revenues</td>
<td>220</td>
<td>270</td>
<td>300</td>
<td>280</td>
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Shareholders
as of December 31, 2010

- AXA Private Equity funds: 21%
- Management: 26%
- Barclays Private Equity funds: 53%
TLD ready for “Taxiboting”
Taxibot answers the growing concern on fuel cost and polluting emissions

TLD stepped onboard the Taxibot programme two years ago, as an exclusive partner for the engineering and manufacturing of the aircraft tractor platform. Today, the Taxibot programme is moving forward as the concept becomes reality, with the unveiling of the first prototype for single aisle aircraft at the 2011 InterAirport Show.

Taxibot is a semi-robotic Dispatch Towing Vehicle concept allowing taxing operation from gate to runway with no jet engines used for propulsion. It offers a cost effective solution to green taxing challenges and brings sustainable benefits to the aviation industry:

- reduction of fuel consumption and CO2 emissions per flight
- reduction of Foreign Object Damages risk and jet engine maintenance costs
- improvement of airport environment safety, with reduced risk of runway incursion, improved aircraft traction on slippery taxiway surfaces and less noise pollution

Taxibot is based on the “Pilot in Control” principle, with steering and braking performed by the pilot as per standard taxiing procedures with jet engines running. The taxibot concept will also dramatically reduce the stress on aircraft Nose Landing Gear compared to current towbarless tractors, thanks to a new innovative clamping system with dampening device and a real-time torque control. Unlike on-board solutions, Taxibot implementation requires no or minor modifications to the aircraft. The first Taxibot units will be ready to be delivered to customers in 2013 after completion of field tests and certification process started in 2010.

From its inception, this project has benefited from the active support of Lufthansa LEOs; demonstration tests were successfully performed at Frankfurt airport in December 2010 and March 2011 with a research vehicle and a real aircraft. Cooperative efforts in the Taxibot program continued in May 2011 with Airbus and TLD engineers participating in a review of towing tests involving a new TLD TPX-500- MTS equipped with a load recording system. This extensive testing campaign confirms to the partners the proof of concept feasibility and provides a better understanding of the dynamic behaviour of aircraft towing and associated induced loads on the Nose Landing Gear.

Technical Excellence in Towbarless Technology
More than in any new towbarless project, Taxibot is a fantastic opportunity for the TLD Montlouis engineering team dedicated to this programme to develop innovative solutions in a rewarding international environment.

TLD’s initial share of the program is the design of the vehicle platform which will integrate the project promoter IAI’s Vectronics Suit (an embedded system communicating with aircraft and tower and defining in real time the vehicle steering angles and drive torque). TLD engineers successfully met many technical challenges during the past year, in order to meet the safety, reliability, control and performance requirements specific to Taxibot.

In cooperation with SIEMENS Drive Technology, TLD has developed for the Narrow Body vehicle a 750Hp diesel-electric drive line, derived from hybrid buses technology, capable of providing a very fine control of the drive torque with a very short reaction time.

The electronic system of the vehicle includes a failure-tolerant Steer-By-Wire system, offering multiple steering modes and excellent manoeuvrability. In order to finish the mission in any single failure scenario, full redundancy is achieved by dual drive systems powered by 2 SCANIA diesel engines, redundant controllers and CAN networks, and an electronic Safety Module managing Fail Active and Fail Passive modes of operations. Both Narrow Body and Wide Body vehicles are sufficiently powered to be able to reach 20 knots with respectively fully loaded B757 and A380.

After integration of the Vectronics Suit and functional tests at the TLD factory, field tests kick-off is planned in March 2012 at Chateauroux Airport in France. Six to eight months of intensive tests with an instrumented Airbus A320 will be required for complete certification of the different systems and for certification process, up to October 2012.

In the mean time, more technical challenges will keep TLD engineers busy as the design of the Taxibot Wide Body Vehicle has already started!

Innovation continues and TLD is pleased to be a part of this exciting new phase of advancement in technology for the GSE and the ground handling industry!
TLD introduces the new TMX-250, TMX-350 & TMX-650 conventional pushback tractors and now offers a complete solution to perform the towing of all aircraft from regionals to the A380

Three new tractors join the TLD conventional tractor line that currently feature the existing TMX-150, TMX-400 and TMX-450, ranging from 9 tons to 45 tons gross weight.

The TMX-250, with its 2 ballasted versions (18 tons to 21 tons gross weight) is powered by the environmentally friendly Cummins 120 kW Tier 3 engine and is capable of performing push back on aircraft up to 280 tons.

The TMX-350 is offered in gross weights ranging from 24 to 28 tons for handling aircraft up to a maximum ramp weight of 300 tonnes including the new upcoming B787 and A350.

These tractors were developed to meet and exceed demanding design criteria and successfully completed an extensive and severe testing regimen resulting in the award to TLD of a large military contract for hundreds of machines.

A quiet, comfortable and spacious cab offering ideal all-round visibility eliminates the need for an elevating cab option on these tractors. In order to withstand severe ramp environments over the years, the cab is treated for anti-corrosion by cataphoresis treatment.

The new TMX-650 is the result of 20 years of experience of TLD with heavy tractors which includes, most recently, the large success of the simple and reliable TMX-450.

The TMX-650 is the heaviest tractor of the TLD conventional pushback line with its 70 ton version and its maximum driveline capability of 105,660 lb (46000daN) drawbar pull. This tractor is designed to perform push back, repositioning and towing operations on medium and wide body aircraft up to a fully loaded A380. Two powerplants are available from 200kW to 330kW to perform maintenance towing on wide body aircraft.

The TMX-650 is designed to operate under tough and extreme climatic conditions. Its four steering modes (2 wheels steering front or rear, 4 wheels steering, CRAB steering) maximize the tractor’s manouevrability to cope with a busy apron environment. The option for an additional rear driving station offers more versatility to operators and a 90kVA ground power unit can be installed on the rear platform for long distance towing operations.

TLD, faithful to its green orientation, offers a mechanical lock up clutch for the new generation of power shift transmissions in order to reduce the fuel consumption when moving at higher speeds.

The TMX-250, TMX-350 and TMX-650 are designed to provide a very low Total Cost of Ownership. The commonality of components within the TLD range allows TLD to focus on technical and spare part support. Performance-leading operating characteristics in conjunction with very competitive pricing clearly make these tractors the best value in their categories.

As with all TLD GSE these new tractors embrace the criteria that has made TLD an industry leader for decades: simplicity and reliability.

Electric GSE gains strong momentum in 2011

The high price of oil and the growing concerns over CO₂ emission levels are likely to boost the level of electrical power technology in GSE in the coming years. The use of electric GSE is becoming more prevalent in the aviation industry and 2011 appears to be a turning point. The capability of the terminal infrastructure to support electric recharging stations remains an issue in some cases, but is being taken into account by the airport authorities more frequently and is less of a real obstacle.

Electrical GSE offered by TLD includes aircraft pushback tractors, belt loaders, baggage tractors, cargo loaders, air conditioning units, and passenger stairs, as well as other equipment.

Despite the fact that TLD has offered Electric GSE for more than 15 years, the share of electric products in the total production mix has remained small. This situation is changing.

A good example of this trend is the sales volume of TLD electric belt loader, the NBL-E, which has exploded this year: 27% of the total belt loaders sold by TLD during the last 12 months were electric while this share had historically been below 12%.

The TLD NBL is assembled in our factories in Saint Lin (France), Sherbrooke (Canada) and Shanghai (China), but for the time being, the demand of electric belt loaders is mostly impacting the European market.

Electric baggage tractors are also a good example of popular electric GSE. The JET-16 is the latest generation of electric baggage tractor produced by TLD and the production is growing fast, as more than 400 JET-16 are already in operation worldwide in many places under very different climates.

Passenger stairs also appear to be one of the most logical applications for Electric GSE. TLD has released in July 2011 an improved electric version of its well known passenger stairs, the ABS-S80-E, with 2 controllers and a maintenance free AC brushless E-pump. Several units with this new configuration have been sold in cold weather countries and adapted, in cooperation with the customers, to cold weather operations. Also available, the BBS-S80-E is the electric version of passenger stair with operator’s station located on the top platform. Although TLD offerings in electric passenger stairs is quite recent, the dynamic is strong with already 16 of the stairs sold today being in an electric configuration.

A large fleet of 3.5 ton electric container loaders, the TXL-737-E have been in operation for several years and TLD has continued to innovate with the introduction of the TXL-838-reGen. This loader, that regenerates power at the descent of the platform, has been tested very successfully in real operating conditions and is entering the market with a strong dynamic. All configurations of TXL-838-reGen from Standard to Superior are now available.

The TXP-100-E, electric two-towerless pushback tractor for regional and single aisle Aircraft, manufactured in TLD Montlouis and TLD Sherbrooke factories, is becoming very popular in most of the European market, but also progressively in the US, thanks to its easy use, autonomy and low maintenance cost.

Mobile air conditioning units are key products of the TLD range and typically powered by diesel engines. In the move to electric, TLD has introduced the Electric ACU-95W, with a rating of 215kW, already selected by some customers after intensive testing and, more recently, the ACU-904 with a rating of 158 kW. The ACU-304 has also tested with success with many customers throughout Europe and judged technically superior to other machines of comparable size. Both units combine a proven refrigeration system with an innovative design focused on energy efficiency.

As evidenced by all these innovative developments, TLD remains eager to cooperate with our customers in the evolution of more cost efficient and environmentally greener equipment.
TLD introduces its latest heavy duty Main Deck Loader with 36 tons lifting capacity

TLD has been a major player in the field of big loaders for years, with its 30 ton 121 loader, the new off road air transportable 24 ton PFA-50, and the monster loader DBL-110 used to load sections of aircraft fuselage into the Boeing Dream Lifter. Freight forwarding companies need more and more lifting capacity for specific heavy operations, and TLD is ready with equipment to support these customers and their larger requirements.

TLD’s well-known Model 121 with a capacity of 30 tons has been in production for more than 13 years but as result of anticipation for customer load capacities up to 36 tons it has been decided to launch a new version. The 121-S is born.

The concepts of the 121-S are common with the 121. Its main features include:

- The Flat Top Chains convey system which brings a very high longitudinal transfer efficiency.
- The Can-Bus electronic control system, piloted by a PLC, which insure a highly reliable electrical circuit and a very user friendly diagnostic center.
- The Grasshopper lift system which distributes the stress equally on the platform and the chassis.

In order to handle the additional 20% weight, the 121-S offers additional chassis structure and a higher hydraulic pressure.

The overall performance of the 121 and the 121-S, beside the lift capacity, is identical. In particular, operating, driving and elevating and convey speeds are the same. This allows a high level of commonality between the two loaders for the benefit of our customers. As there is no major change compared to its little cousin the 121, the introduction to operations and maintenance start-up of the 121-S will be fast and easy.

The 121-S will be available from the TLD Sherbrooke facility at the beginning of the second quarter of 2012.

ACU-802-S: Economical, Efficient, and Environmentally Friendly

TLD is pleased to introduce the new ACU-802S Air Conditioning and Heating unit. The "S" stands for SMART. The ACU-802-S takes the inherent efficiency advantages of the ACU-802 and provides improved fuel efficiency and previously unimaginable ease of operation.

The improved fuel efficiency is achieved by operating at a lower speed via TLD’s Advanced Control System which matches air conditioner performance to actual cooling requirements. By operating at a lower speed, the unit consumes 14% less fuel than a conventional ACU-802, while providing the same level of performance. TLD’s Advanced Control System can provide up to an astounding 50% additional fuel savings.

The ACU-802-S Advanced Control System optimizes the performance of the air conditioner by adjusting the operating speed to match the aircraft and prevailing ambient conditions. Through a very simple menu, the operator simply selects the type of aircraft to be cooled, and the ACU-802-S does the rest. The Advanced Control System automatically regulates the speed of major components simultaneously, i.e., the engine, compressor, blower, and condenser fans, ensuring the appropriate amount of cooling or heating is delivered. TLD’s infinitely-variable screw compressor provides precise load control and automatically adjusts to any changes.

The ACU-802-S Advanced Control System can also take advantage of closed loop control through a temperature sensor that can be located inside the aircraft. When operated in this mode, the ACU-802-S is regulated based on actual aircraft temperature, ensuring the most economical operation possible.

The ACU-802-S relies on proven TLD compressor technology with its direct drive screw compressor, infinitely variable load control, and vapor injection. TLD is the industry leader in the development of vapor injection, which significantly increases refrigerant flow at minimal increases in power consumption essentially “boosting” compressor performance like a supercharger does for an engine. The screw compressor allows variable speed operation with the efficiency benefit of vapor injection over a wide operating range.

In periods of extremely low refrigeration system load (low cooling load or low heating load), the compressor’s infinitely-variable load control device is used to completely match the compressor’s performance to the cooling load and make the most effective use of power possible. No other compressor technology provides this level of control and efficiency, which is a standard feature in all of TLD’s direct drive air conditioners.

Direct drive technology uses mechanical components to transmit the engine power to the air conditioner components. These inherently high efficiency devices eliminate the 18% power loss associated with electrical power conversion from a generator and electrical motors found in diesel-electric air conditioners. TLD’s direct drive technology utilizes a single heavy duty industrial-strength compressor designed for harsh environments such as GSE, as opposed to multiple, light-duty scroll compressors designed for stationary and interior applications. Multiple scroll compressors also require a very large amount of electrical components to control them, further increasing maintenance costs. TLD knows our customers realize the value and lower total cost of ownership provided by Direct Drive Air Conditioners.

The ACU-802-S, like the ACU-802, remains environmentally friendly thanks to the use of R-134a refrigerant and the latest emissions engines. R-134a is used exclusively by TLD because it is the most efficient refrigerant available today and is well suited for the hot, high ambient conditions faced by many customers. The ACU-802-S is available with a wide range of engines ensuring a suitable selection to meet emissions requirements throughout the world: the USA with a Tier 4i engine and in the European Union with a COMLLB engine.

The ACU-802-S is available with a full reverse cycle to operate as a heater in cold ambient conditions. The reverse cycle operation provides high efficiency heating while eliminating the need for another, single function machine. The ACU-802-S is the culmination of over 50 years of proven refrigeration design experience combined with innovations focused on energy savings. TLD’s direct drive technology, smart Advanced Control System, and use of the cleanest engines available, ensure the ACU-802-S is the economical, efficient, and environmentally friendly choice for today’s aircraft cooling and heating needs.