LOCAL SUPPORT, TOTAL COMMITMENT
TLD is a Group totally dedicated to the design, assembly, distribution and after-sales support of aviation Ground Support Equipment (GSE), with a history of 60 years in the industry.

7 factories in 3 continents
1,200 employees

Over 110 R&D engineers and 10 MUSD spent on R&D each year

Over 120 employees dedicated to after sale support through spare parts and field technical service

Group spare parts inventory of 33 MUSD

3,000 motorized units delivered in 2014

513 customers in 127 countries (in 2013 and 2014)

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 seven facilities located in North America, Asia and Europe.

TLD strongly invests in product innovation with a 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.
37 SALES AND SERVICE OFFICES
IN 22 COUNTRIES

▲ Sales and support offices
▲ Manufacturing facilities
▲ Sales and service partners
TLD OPENS A NEW FACTORY IN SORIGNY (FRANCE)

In late 2014 TLD opened a new facility at Sorigny, 30 km south of Tours (in the Loire Valley area of France), incorporating a large part of the activity of the nearby historical TLD Montlouis production facility.

TLD Sorigny is a state-of-the-art facility fully dedicated to aircraft tractors. With a land reserve of 20 acres and 7,000 square meters (75,350 sq. feet) built in phase 1, the site now houses Product Support, Development, Supply Chain, Quality and Production departments with the capacity currently to produce 250 tractors per year. With new IT based technologies applied to support and monitor the assembly process, best-in-class Quality standards are implemented for continuous improvement of the TLD tractor line which include Conventional tractors (TMX-150 up to TMX-650), Towbarless tractors (TPX-100-E up to TPX-500-MTS) and the new TAXIBOT vehicles for narrow and wide body Aircraft.

In order to meet future tractor production growth and the TAXIBOT ramp up, the planning of the phase 2 extension of the facility is already on going. By mid 2017, the workshop will be increased by an additional 2,500 square meters, and a warehouse building of 2,500 square meters for parts and components will be added. The existing tractor test track will also be extended. Upon completion of phase 2 all TLD EMEAI (Europe, Middle East, Africa & India) staff still

TLD WINDSOR CONTINUES TO GROW!

The TLD WINDSOR site, located in Windsor, Connecticut, USA, is in the center of Connecticut’s High Tech Manufacturing Corridor. The facility is surrounded by leading aerospace manufacturing companies such as Pratt & Whitney, Sikorsky Helicopters, Kaman Aerospace, and United Technologies. TLD WINDSOR manufactures TLD’s energy efficient power conversion equipment – Air Conditioners, Air Start Units and Ground Power Units.

This site enjoyed a significant facility expansion in 2015 - increasing our capacity to meet our customer’s demand. Due to growing volumes and product offerings, TLD invested in a facility expansion to more than double the space, to increase it to more than 10,000 sq meters (or 110,000 sq feet). The products assembly space grew by nearly 100% to over 5,000 sq meters (or 54,000 sq feet)! This increased manufacturing space allows application of improved manufacturing techniques aimed at improving quality, on-time delivery and production efficiency.

The new manufacturing space is designed to provide dedicated work areas for sub-assemblies and final unit assembly. This allows specific tools, fixtures and jigs to be staged near the work area, providing easy methods for our operators to provide high quality work.

TLD WINDSOR has also expanded the Quality Control areas, with expanded test facilities, a dedicated First Article Inspection facility and additional Quality Control personnel. TLD Total Quality Commitment ensures continuous quality improvement, even during periods of high production.

Some of the expanded manufacturing space is dedicated production of specialized thermal management equipment for the F-35 Joint Strike Fighter. These specialized units
THE TLD PRODUCT RANGE REMAINS IN SYNC WITH THE LATEST EMISSION REGULATIONS

The EU Stage 4/U.S. EPA Tier 4 final emissions regulation sets the most stringent engine exhaust emission requirements for off-road mobile equipment to date. These steps lead to emissions reductions of up to 90% compared to the Tier 3 emissions levels introduced in 2006.

The solutions offered by the diesel engine industry to meet the new exhaust emissions standards brought with them a lot of acronyms, especially relating to engine after treatment systems (EAT). The regulated substances that have to be reduced are Nitrogen Oxides (NOx) and Particulate Matter (PM). NOx can be reduced with advanced engine control, or exhaust gas recirculation system (EGR), or cooled exhaust gas recirculation system (cEGR), or selective catalytic reduction (SCR), or a combination of these. PM emissions can be reduced to acceptable levels by using an exhaust filter: diesel oxidation catalyst (DOC) and/or a diesel particulate filter (DPF).

Engine manufacturers have different approaches to meet the Tier 4 Final requirement. By compromising with combustion temperatures, valves, turbo, and other parameters, in the same power range, solutions applied by manufacturers differ from one to the other, but they all use above solutions or combinations of them.

For engine power below 75 HP, Engine After Treatment can be simpler and DOC is sufficient. For power range above 75 HP, engine manufacturers choose SCR only or DOC + SCR or DOC+ DPF+SCR.

The way the engine manufacturers package the EAT solution vary drastically from one to the other and some are not applicable for GSE application, as deviation in layout can compromise the performances. Some solutions are designed for On-Road Applications and “adjusted” to Industrial off-road applications.

For the Tier 3 to Tier 4 interim transition TLD chose to adopt the Transition Program for Equipment...
For the Tier 4 Final transition, TLD defined some guidelines for engine selection to ensure consistency within our product range regardless of location of manufacture:

- **Preference of SCR to DPF** as GSE Customer experience with DPF trucks had been poor and some concerns were raised about high exhaust temperatures.

- **Flexibility in packaging**

- **Rating optimization**, when possible, to below 75 HP

These directions lead to the selection of engines and EAT, while also eliminating some traditional GSE engine alternatives in some power ranges. As we speak, most of the TLD equipment range is available as Tier 4 final/phase 4:

- DOC only solution was selected on JST-20/25/30 baggage tractor, JCT-40 cargo tractor, TXL838 loader, and TMX-150 aircraft tractor.

- DOC + SCR solution was selected with 4 cylinders engines on JCT-60 cargo tractor, TMX-250/350 aircraft tractors, ACU-302 air conditioning unit, GPU-409 Ground power unit, TPX-200/200S towbarless tractors, and 929/121 cargo loaders.

- DOC + SCR solution was also selected with 6 cylinders engine on GPU-412/414/418 Ground power units, ACU-804 and ACU-802 air conditioning units, ASU-150/180 air start units, TPX-200-MT/MTS/MTX and TPX-500-500-S towbarless tractors and TMX-450 & TMX-550 conventional tractors.

- SCR only solution was selected on TMX-650 conventional tractors, ASU-600-270 air start units as well as TPX-500-MTS towbarless tractor.

TLD also offers Electric GSE solutions for many applications, which meet emission regulations. TLD’s aggressive approach to meeting the new emission regulations with both diesel and electric-powered equipment has been a major engineering investment but will keep TLD the dominant GSE supplier now and in the increasingly environmental friendly future.

---

A NEW PASSENGER STAIR FOR SINGLE AISLE AIRCRAFT IN THE TLD RANGE

TLD’s new ABS-2045 offers airlines elegant features in a telescopic type passenger stair for boarding narrow-body, single-aisle aircraft with door sill heights between 2,000 and 4,500mm.

The stair flight is mounted on a self-propelled chassis powered by a diesel engine with an automatic powershift transmission. Four sturdy stabilizers located at front and rear of chassis provide maximum stability.

The ABS-2045 shares many common parts and components already proven on TLD products. As simple electric and hydraulic system and good accessibility to key components offer ease of maintenance.

Many of the options existing on the well-known ABS-580 stair are also available on the ABS-2045. The robust and compact design of this competitively priced equipment, allows two units to be shipped in one 40ft container.

The ABS-2045 is now in operation with many airlines and ground handlers. This new model now provides a full range of motorized and towable passenger boarding stairs from TLD, with the ABS-580, the ABS/ABT-2045, and the ABS/ABT-1740.
TLD ADDS A HEAVY CARGO TRACTOR TO ITS CARGO AND BAGGAGE TRACTORS RANGE

TLD proudly introduces the JCT-series, a new heavy cargo tractor line. The JCT cargo tractor will share several design features with the smaller JST baggage tractor but with a heavier frame, a more powerful diesel driveline and 2 different sizes from which to choose.

The JCT Cargo Tractor has been developed according to the TLD engineering spirit: Simple, Reliable and Easy to Maintain. Designed for robustness, the JCT Tractor is based on a single part chassis with a galvanized front, offering excellent access to maintenance areas in the engine compartment. The key components of the tractor have been selected with the aim of high reliability.

The JCT tractor is designed to move cargo loads long distances at high speeds (27Km). It is available with 2 drivelines (55kW and 75kW), can comply with Tier 3 or Tier 4F regulation, and offers a dedicated cooling system. Due to its performance and drawbar pull range from 3,500 to 4,500 daN (7,700 to 9,920 lbs) the JCT tractor can also handle light aircraft for pushback or other applications.

The JCT Tractor, like all TLD tractors has been developed to address operational and safety issues and includes a long list of standard features including the incorporation of an inching mode.

In parallel, the TLD baggage tractor range that includes the JST series and the JET-16 electric tractor line, has also evolved. The JST diesel tractor now has a new façade, a larger engine compartment providing easier access for maintenance, a stronger front grill and LED head lights. The JST is powered by different power plants, including Tier 4F, EUR Stage IIIB/IV and gasoline engines.

TLD AIRCRAFT TRACTORS RANGE WIDENS

The new TPX-200-MTX introduced at the end of 2014 is meeting its expectations!

Based on the proven design of the TPX-200-MT, used for many years all over the world, this new aircraft tractor has rapidly achieved success with many orders received in its first year of production. The TPX-200-MTX handles the widest range of aircraft from smaller narrow body aircraft such as the EMB190 or A318 to the larger wide body aircraft like the B777-300ER or A340-600 fully loaded. The tractor’s 4 front wheels and oversized wheel motors provide ample power to push back heavy aircraft and also to perform long and high speed maintenance towing, making the TPX-200-MTX the most versatile tractor on the market.

TLD also introduces the new TMX-550 in its conventional aircraft tractor range.

With a maximum gross weight of 62 tons, the TMX-550 is a heavy conventional pushback tractor filling the need for pushback performance between the TMX-450 towing performances and the TMX-650 pushback capacity for wide body aircraft up to the A380 in most conditions.
TLD NORTH AMERICA HEAD OFFICE
Tel: +1 860 602 34 00
Fax: +1 860 688 78 95

TLD EUROPE HEAD OFFICE
Tel: +33 2 47 45 77 77
Fax: +33 2 47 45 77 66

TLD CHINA HEAD OFFICE
Tel: +86 21 5815 3322
Fax: +86 21 5815 4400

TLD MIDDLE EAST - AFRICA - INDIA HEAD OFFICE
Tel: +971 4703 0409
Fax: +971 4299 5852

TLD SOUTH EAST ASIA - KOREA HEAD OFFICE
Tel: +852 2692 2181
Fax: +852 2691 2604

TLD LATIN AMERICA - AUSTRALIA - JAPAN HEAD OFFICE
Tel: +1 305 716 11 30
Fax: +1 305 716 10 77