

## WHEELTUG DRIVES GREEN AVIATION

**LONDON, 8 June** — WheelTug plc reported today that new analysis shows that its on-board electric drive system for aircraft will provide greater environmental benefits than previously expected.

Aircraft using the WheelTug system for taxiing to and from runways and to move around gate areas will sharply reduce both pollution and noise at airports. Compared to a conventional dual-engine taxi, ground emissions of carbon dioxide (CO<sub>2</sub>) by a Boeing 737NG will be reduced by over 650kgs for a typical flight. WheelTug will also enable a reduction in fuel consumed during taxiing for such flights by over 200 kgs, or more than 65%. The new studies are based on data from: FAA ASPM; the ICAO Engine Exhaust Emissions Databank; FAA's EDMS modeling tool; and EPA Publication R-99-007.

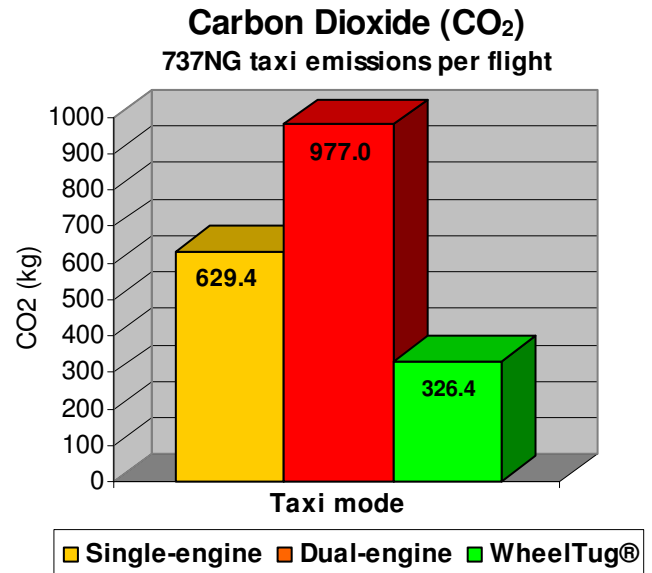
The WheelTug aircraft drive system is designed around twin high-torque Chorus motors integrated with the aircraft's two nosewheels. It enables aircraft to back away from gates without using a tow tug, and to taxi to and from runways without using the engines. This will result in fuel savings, reduced emissions, and reduced engine damage from ingestion of ground objects (FOD). The system is projected to produce significant savings for airlines in direct operating costs, maintenance and damage repair, as well as enabling faster gate turnarounds and greater schedule reliability.

"We are very pleased to see that WheelTug will be such a substantial contributor to green aviation," noted Isaiah W. Cox, president of WheelTug. "We are also pleased to be working with the first generation of WheelTug test motors designed for the 737NG wheel. Testing of these motors is about to commence at our development facility."

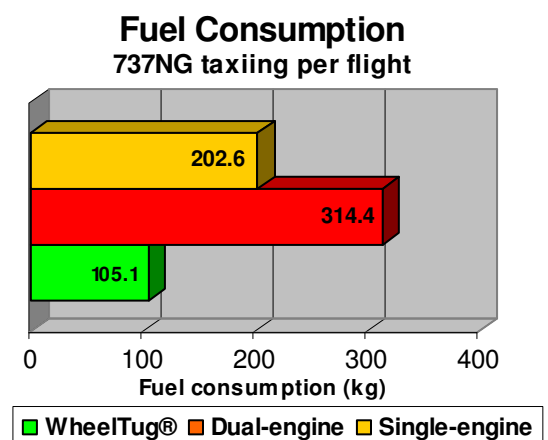
The WheelTug system enables pilots to keep the aircraft's main engines turned off until just before takeoff. It uses electricity generated by the aircraft's auxiliary power unit (APU), which produces the electric power to run WheelTug as well as the aircraft's other electrical systems.

WheelTug is the latest example of commercial aerospace innovation from an independent company that will benefit the airline industry and the flying public. Many other such independently-developed technologies, including winglets, in-flight internet service, electronic flight bags, in-flight entertainment systems, flap modifications, damage tolerant primary composite structures, electro-hydrostatic actuators, and synthetic vision have won FAA certification and been adopted by airlines worldwide.

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Latest WheelTug development motor — on test stand



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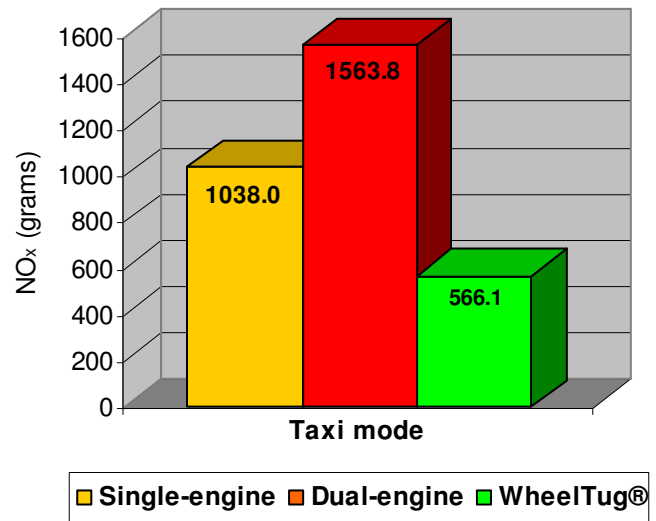
WheelTug will first be used as a retrofit solution on Boeing 737NG aircraft. Subsequently the system will be developed for new installation or retrofit on a range of other aircraft including narrow-bodies, business and regional jets, and certain military aircraft and helicopters. WheelTug plc is a subsidiary of Chorus Motors plc; both companies are based in Gibraltar.

For more information:

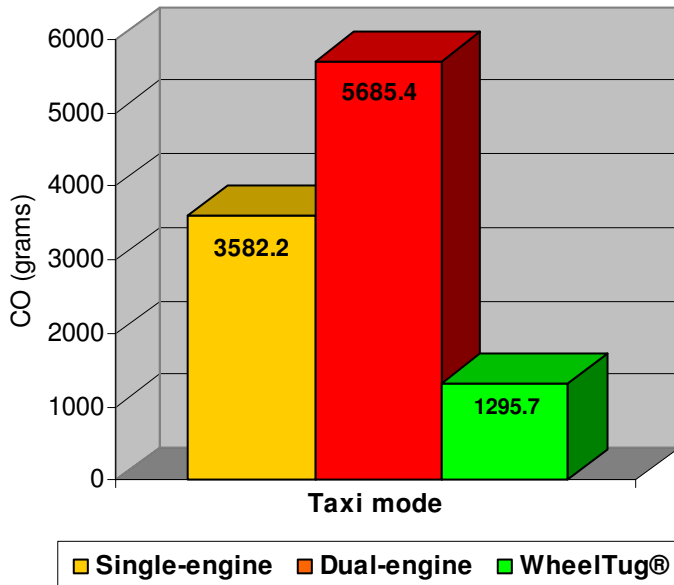
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Forward Looking Statement:  
<http://www.wheeltug.com/fls.shtml>  
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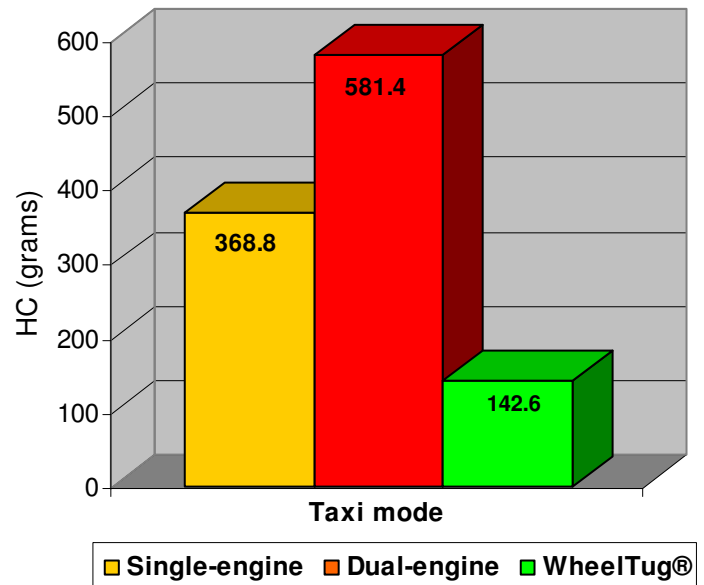
### Nitrogen Oxides (NO<sub>x</sub>) 737NG taxi emissions per flight



### Carbon Monoxide (CO) Taxi emissions per 737NG flight



### Hydrocarbons (HC) 737NG taxi emissions per flight



**Aircraft type:** Boeing 737-800, **Engine type:** CFM56-7B26, **APU:** Honeywell GTCP 131-9B

All figures include combined aircraft engine, auxiliary power unit (APU) and pushback tractor emissions and fuel consumption. All figures include combined taxi-out and taxi-in. In WheelTug-taxi scenario, both engines are assumed to be operating for 3 minutes of warm-up on taxi-out and 2 minutes of cool-down on taxi-in. In engine-taxi scenarios, APU is assumed to operate for 6 minutes of taxi-out during pushback. Figures reflect FAA average 2008 taxi time based on 75 major U.S. commercial airports (ASPM75).

**Note:** Other examples of typical operating procedures that can lead to higher emissions are not considered here. Single-engine taxi mode emissions are assumed to be at the constant International Civil Aviation Organization (ICAO)-defined "idle" 7% taxi thrust level, which does not reflect real-world intermittent acceleration requirements. In an additional example, cross-bleed engine start in the single-engine taxi mode (instead of starting from the APU) requires run-up of the taxi engine to higher thrust, resulting in higher fuel consumption and emissions.

**Sources:** FAA Aviation System Performance Metrics (ASPM75), 2008; ICAO Engine Exhaust Emissions Databank; FAA Emissions and Dispersion Modeling System (EDMS); EPA R-99-007, *Technical Support for Development of Airport Ground Support Equipment Emission Reductions*.