

A push please

Motorised nose wheels will let planes leave gates by themselves

They will no longer need to wait for a tug



Print edition | Science and technology

Dec 14th 2017

THE frustrations of air travel are many and varied: enduring the scrum to board; rummaging for room in the overhead lockers; waiting patiently for “the last two remaining passengers” to be extracted from the shops. After all that, those on the aircraft often find that it has failed to push back from the gate in time to meet its take-off slot. Because, under their own power, planes can only go forward, they rely on a tug when reversing from a gate. If such is not available, has lost its driver or has broken down, at the gate the plane must stay.

This may soon change, though. WheelTug, a company in Gibraltar, has spent over a decade developing electric motors to drive an aircraft’s nose wheel. This month it employed Stirling Dynamics, an engineering firm in Bristol, England, to help prepare the device for certification by air-safety authorities. It has tested a prototype and hopes its motorised wheels will be available in 2019 for fitting onto versions of the Boeing 737, and later onto other aircraft. The company says 22 airlines are already keen.

In theory, planes could leave gates using the reverse-thrust baffles deployed to slow them during landing. This, though, would mean revving the engines up so much that it would be safe neither for ground staff nor for other aircraft in the vicinity. So, some sort of system would still be needed to manoeuvre aircraft when they were near the terminal. Motorised nose wheels are

just that, says Isaiah Cox, WheelTug's boss. Using them planes could push back and taxi to the runway with their engines ticking over. This would, Mr Cox says, reduce noise, save fuel and cut emissions.

The WheelTug incorporates the elements of an electric motor, such as the stator and the rotor, inside the hub of each of the 737's twin nose wheels. Instead of a battery, these motors draw current directly from the auxiliary power-unit, a small generator in the rear of an airliner that is used on the ground to run its electrical services. For a long taxi, they can also take power from the generators driven by the aircraft's jet engines.

A rival idea is the TaxiBot, developed by Israel Aerospace Industries. This is a semi-autonomous tug with a hybrid diesel-electric motor that is controlled directly by a plane's pilot, who can use it to drive the aircraft from the gate to the runway with the jet engines switched off. The TaxiBot is already used at Frankfurt airport, but means planes still rely on the services of another machine. A motorised nose wheel provides independence, although it also adds weight—and therefore increases fuel consumption. But the value of the time saved by faster pushbacks would more than compensate for that. Passengers do not mind how they depart, as long as they do so promptly.

This article appeared in the Science and technology section of the print edition under the headline "When push comes to shove"



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