Ever Thought of using a Flying Carpet?

Australian Engineer Rob Wallace has come up with an idea to help smooth the boarding process on medium-size airliners. Tom Allett reports.

Everybody knows that aircraft only earn money for their owners when they are airborne. Improving efficiency is on everybody's mind and every safe opportunity to slice a minute from turnaround times is taken; time definitely equals money.

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Semi-retired Australian engineer Rob Wallace, who is a director and owner of the RoundPeg Innovations company in Melbourne, has created his very own *Flying Carpet*, literally a rectangular piece of flooring – perhaps carpet or a rubber mat – that maps out an aircraft's cabin seat plan and is located at the airport departure gate. To give you some idea of the dimensions relative to the size of an aircraft, to represent a single-aisle airliner with 30 rows of seats in a 3+3 configuration (total 180 seats), the carpet measures only 6ft 7in x 19ft 8in (2 x 6m). While that is suitable for aircraft types like the Airbus A320 or Boeing 737, a slightly longer carpet would be needed for a 36-row Airbus A321. It was essentially created with airlines that offer pre-determined seat numbers in mind, but Mr Wallace told *Airports International* that he thinks it could also streamline the boarding procedure for free-seating carriers.

He explained: "Basically it is all about getting everyone in the right order before entering the aircraft. Boarding is carried out via several consecutive groups of 30-40 passengers, boarding in rapid succession.

"It works in the following sequence. First group, as per existing industry standards, passengers with special needs, parents with babies, etc, followed by any premium class passengers who are ready to board. Then, economy class passengers can take their places on the *Flying Carpet*, corresponding to their seat number."

As soon as the Carpet is full the group can proceed to the aircraft. Obviously it is best to stay so that everybody can go straight to their seats. Meanwhile the next group of passengers can take their places on the carpet and proceed to the aircraft. "This procedure is repeated a couple of minutes apart until all passengers – in about five or six groups – are aboard. "Obviously, not everybody can fit on the carpet at once, so, as in 'Musical Chairs', the first to claim their space has priority. Those passengers that don't get a seat are asked to step back and join the next group of 30-40 people that will assemble only a minute or so later, and so on. Being passenger-friendly, with minimal regimentation, I think that the *Flying Carpet* means less anxiety and stress for passengers.

"Those who like to be first - or last - aboard can do so. Live display screens show which passengers have gone through the gate, so that those remaining can judge when best to make their move. The boarding groups are regulated by announcements and gate staff removing and

The carpet – it could be a rubber mat if the customer prefers – is effectively a scale map of a single-aisle airliner's seating layout. (All images – RoundPeg unless stated)

To date, the Flying Carpet boarding method has only been tested on passengers taking a pleasure flight on a vintage Douglas DC-3 Dakota. It appeared to work without any problems but this method can only really prove its worth if an airline/airport will trial it under today's commercial conditions. (Rob Wallace roundpegin@bigpond.com)

replacing tape barriers. Ultimately this function could be fulfilled or at least augmented by some kind of 'traffic lights'. I think the *Flying Carpet* will enable us to forget the 'cattle crush' – not only does it get passengers aboard much faster, it does it in a civilized manner.

"Though passengers will be standing close together on the carpet, they will have plenty of room once inside the aircraft to stow your bag and take your seat."

All this information would be printed on the passenger's boarding pass and Mr Wallace adds: "the message on the boarding pass would recommend that window seat passengers joined the first group

and that aisle seat passengers should follow. When the window seat passenger in your row has gone aboard, you won't be disturbed later and of course, we would ask everyone to respect other passengers. Ultimately, with passengers' co-operation, everybody will be able to board quickly and be seated comfortably with the minimum of fuss."

Given the current trend towards automating passenger processes such as self check-in and mobile phone boarding passes mentioned at the start of this article, Mr Wallace says that he thinks his *Flying Carpet* boarding method works well alongside the use of boarding equipment such as boarding pass scanners. "It works because

passengers are well able to arrange themselves and proceed through the gate with minimal staff input," he said.

To date though, the only live use of the *Flying Carpet* boarding method has been thanks to the cooperation of an Australian carrier that operates pleasure flights on a vintage Douglas DC-3 Dakota. This one-off experiment, conducted with the carpet on the ramp rather than boarding via an airbridge, went without problems, but its capacity is far less than a modern airliner, so the idea still needs a wider-ranging examination.

Is there an airline or airport out there willing to put the *Flying Carpet* through a real test? ■

Boarding Methods: How they work
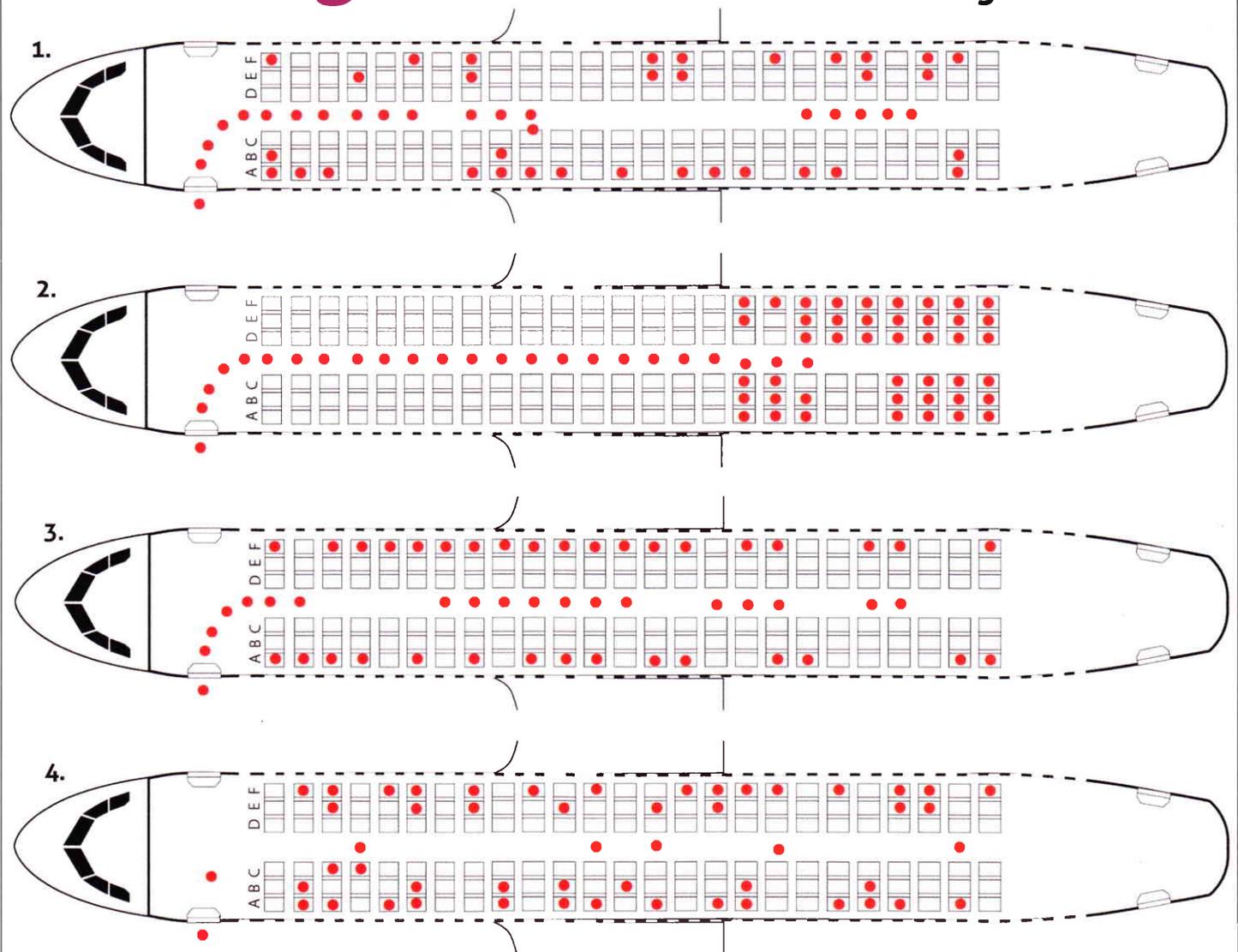
1. Random
A passenger in a front row holds up all the other passengers while he stows his/her coat and bag before sitting down. This gets repeated over and over again resulting in a series of bottlenecks. Aisle congestion often means that boarding proceeds very slowly.

2. Rear-to-front
Though it reduces aisle congestion, Rear-to-Front boarding creates row congestion. The passengers are all clumped together and get in each other's way. Rob Wallace says that some studies have

shown that rear-to-front boarding is actually slower than having no system at all.

3. Windows First
'Wilma' (Window, Middle, and Aisle) and Reverse Pyramid are variants based on the obvious, desirable principle of getting window seat passengers seated first. Studies show that this is much faster in theory, though minor bottlenecks still occur. However, the high degree of regimentation required and, most importantly, the splitting up of couples or families is not acceptable to the travelling public.

4. Flying Carpet
RoundPeg's Rob Wallace says that computer simulations he commissioned show that the Flying Carpet boarding method is almost twice as quick as the rear-to-front system. He says that "passengers enter the aircraft in the right order and go straight to their seats unimpeded. No aisle congestion. No row congestion either; being well spread out they have plenty of elbow room while they stow their bags and get seated."
You can watch a Flying Carpet boarding simulation at:
http://www.youtube.com/watch?v=LuJjF7ph2h4