

Time flies at Douglas Equipment thanks to SpacePilot™

3D Mice: SpacePilot™ / SpaceNavigator™ for Notebooks

CAD Application: Autodesk Inventor



The move to a more efficient two-handed work style using **SpacePilot Professional 3D Mouse** technology from 3Dconnexion has dramatically cut design cycles at Douglas Equipment, reducing the amount of engineering time spent on projects by as much as 30%

Douglas Equipment Limited, based in Cheltenham, UK, is one of the world's leading suppliers of aviation towing tractors, ground support vehicles and yard shunting tractors. The company has been in business since 1947 and over the years has built a solid reputation for cutting edge design. In 1989 Douglas Equipment introduced its Douglas-Kalmar range of towbarless aircraft handling tractors and is now the world's foremost manufacturer of these vehicles with hundreds of units in operation across the globe.

Danny Hyatt is a senior design engineer at Douglas Equipment. The company uses Autodesk Inventor 2009 and AutoCAD Electrical 2009 for its design work. It also uses Autodesk Productstream PLM for data management. In 2005, when Hyatt was charged with procuring a new CAD system, an Autodesk reseller came to demo the Autodesk solution and it was during this demo that Hyatt first encountered 3Dconnexion's 3D mice.

"I was immediately struck by the potential of the 3D mouse," said Hyatt. "I did some research to see what they were all about and decided it was definitely the way forward. I put in a recommendation that we kit out each CAD station with the top of the range **SpacePilot** and that

we invest in the portable **SpaceNavigator for Notebooks 3D mice** for use with laptops. We standardised this approach so that 3D mice are supplied with the systems so we have been using them from day one with Inventor."

Douglas Equipment still runs its old CAD system so Hyatt has been able to compare the old way of working with the new method of deploying the SpacePilot 3D mouse.

"We are running our old system in parallel with the new Autodesk system as we have a lot of legacy data. It feels very strange not using the SpacePilot 3D mouse. It is very slow and feels awkward. The two-handed style where one hand drives the SpacePilot to pan, zoom and rotate the 3D model while the other hand uses the mouse to make selections and choose commands is a much more intuitive way to work."

The designers at Douglas Equipment spend about six hours a day working in the CAD environment, so user fatigue was an important issue as well. "Repeatedly clicking on the normal mouse can be uncomfortable but by shifting navigation and application commands to the SpacePilot, we've eliminated the problem and there are no fatigue issues any more."

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3Dconnexion 3D mice are now a standard part of the CAD workstations at Douglas: “Any system we buy in automatically comes with a SpacePilot,” says Hyatt. “On average, it takes the individual user about two days to feel comfortable and after three days they are completely proficient. From this point on, they could not imagine going back to not using a SpacePilot.”



Among the benefits to the business Hyatt reports fewer design errors as well as overall productivity improvements: “The SpacePilots give us the ability to move around the CAD models very quickly and easily when we are doing engineering work. They help us with visualisation on screen and manipulation of the models. The main benefits are fewer errors because we can visualise components from any angle quickly and we have also found that productivity is up because we are not constantly switching between mouse and keyboard.”

SpacePilot incorporates a built-in LCD display that allows users to easily view dynamically labelled and extendable key assignments. This extra functionality built into the intelligent SpacePilot means users do not have to reach for the keyboard.

“It is definitely a more natural and intuitive way to work with 3D content,” says Hyatt. “Something that takes me ten minutes to do with the SpacePilot takes thirty minutes without it because of the dependence on toolbar controls.”

The Douglas Equipment name was recently immortalised in Bond history. The company was approached by Pinewood Studio to see if it could modify its aircraft tugs to travel at 50mph for an action scene in Casino Royale. The tow tractors, which normally travel at 10mph and weigh up to 60 tonnes, had to shed half their weight and Douglas Equipment added racing car engines so that the tugs



could reach the required speed.

3Dconnexion’s 3D mice helped Douglas Equipment add to the action. “Three vehicles were built especially for the film and featured heavily. The design team worked 18-hour days for six weeks to get the tractors ready. It is testimony to the skill and dedication of the design team and also to the optimised workflow we are experiencing since the switch to Autodesk Inventor and 3Dconnexion SpacePilots that we were able to get the job done on time.”

Just as 007 has come to depend on his gadgetry to successfully complete each daring mission, Hyatt and his team have come to depend on their SpacePilots to really get the most out of their Autodesk CAD system.

“The SpacePilots have certainly optimised the workflow. The move to this more efficient work style has reduced the amount of engineering time we spend on projects by as much as 30 percent, and that is purely down to the ease and speed at which we can use the tools in Inventor.”