Ultimate Airliners The Super 80

Taming The 'Mad Dog'

The original Douglas DC-9 aircraft entered service in the early 1960s and was an immediate success, capturing a large percentage of the short-haul market. The aircraft manufacturer, keen to capitalise on this success, regularly released new variants to the family, often stretched to support the greater passenger demand of a growing aviation industry and updated to support new technologies as they became available.

After the merger of the Douglas Aircraft Corporation and McDonnell the aircraft was still at the forefront of the company's strategic planning. The aircraft was renamed the McDonnell Douglas MD80 series and continued to evolve, culminating in the MD90 series of aircraft, complete with a full glass cockpit and an array of electronic navigation equipment. This was a far cry from the original DC-9 and its 'steam-driven' gauges! However, the aircraft still held true to the basic airframe design that had been such a success for the company. Ironically, McDonnell Douglas was purchased by Boeing and the aircraft was renamed the Boeing 717. This year sees the planned retirement by Boeing of the 717 series, with the last scheduled production, barring a last-minute major order or reprieve, being in May 2006, when the production line at Long Beach, California, will close after more than 40 years of producing the DC-9 family.

The 2D panels are a faithful recreation of the MD80 flight deck with a fully authentic autopilot system, period navigation equipment and all the systems and sub-systems of the real aircraft

It is not surprising therefore that current interest in the DC-9 and all its variants is currently running high, with simmers being offered a spate of releases based on this family of aircraft over the last few months. The latest to join the list is the collaborative effort of Flight 1 and Coolsky with their 'Ultimate Airliners – Super 80' package. The choice to model a 1979 vintage MD80 (DC9-81) 'Super 80' has proved to be a fascinating one and represents a stage in the life of the aircraft family when electronic equipment was still in its infancy. McDonnell Douglas was taking its first teetering steps into cockpit integration, with embryonic devices that would evolve into the navigation equipment in use today.

Integrated cockpit training

Upon loading the aircraft into FS2004 we were welcomed by a splash screen superimposed over the aircraft panel, informing us that this was the Super80 integrated cockpit training system. The splash screen immediately highlights the core aim of this package. Rather than simply offering an MD80 and expecting the virtual pilot to get to grips with the systems, the developers have provided a fully interactive trainer, which is used as the core focus of the entire experience. This is certainly the first time we have seen a training package of this type applied to an FS2004 airliner. Training is available for various systems and can be selected from an overlaid menu. The training lessons themselves are comprehensive and discuss items such as automated flight, the Omega Navigation System, the Performance Management System, the auxiliary power unit, take-off and landing procedures. Each training lesson is presented with a text box on the screen, with the software opening sub-panels as required and highlighting the appropriate switch or gauge. It becomes very simple indeed to follow the text instructions, flick a highlighted switch and allow the tutorial to continue interactively. We were fascinated to find that as we followed each tutorial, the view would automatically shift between overhead panel, 2D main panel, the throttle quadrant and on to each part of the aircraft currently being discussed. The impressive array of tutorials and the presentation style are certainly the next best thing to sitting in the aircraft with a real instructor and we were rapidly able to assimilate a great deal of information regarding the operation of the aircraft.

This information is supplemented by the excellent PDF documentation included with the package, which includes more than 400 pages of aircraft systems and details on using the interactive tutorials. Often it will point the student to specific pages to acquire a more in-depth explanation of a key system than what was given on screen. Also included are on-screen checklists, available for all phases of flight, based on the actual aircraft checklists. These follow the interactive style of the tutorials and are voiced by a First Officer, who will provide the appropriate challenge and wait for a response and confirmation from the user, before continuing on to the next item on the list. Aircraft weights and take-off speeds can also be overlaid on to the screen. These are displayed on a dynamic speed chart, the values of which are tailored to the current aircraft weight. The overall effect of tutorials, confirmable checklists and speed charts is to create a superb training environment for would-be MD80 pilots to become acquainted with such a fascinating aircraft. One of the great benefits of the training system is that it is menu-based and purely optional. The aircraft can then be flown akin to any other aircraft in FS2004 in the conventional manner, making the entire training tools completely unobtrusive on flights where they are not desired.

The DC9 (MD80) family is immediately recognisable by the long 'pencil' fuselage with rear-mounted twin engines

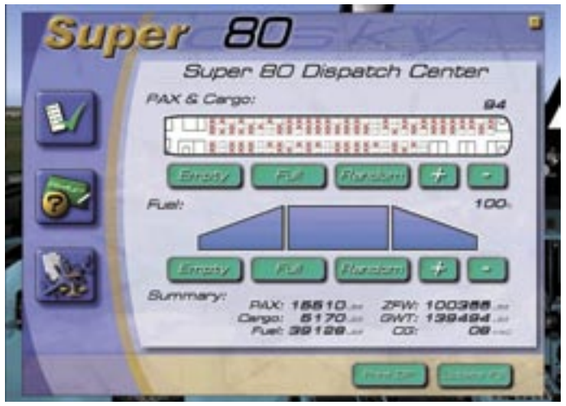
Cockpit details

There is much to become acquainted with, as the systems are modelled in detail and certainly rank alongside the very best of procedural simulators for FS2004. The included Omega Navigation system (ONS), one of the early ancestors of today's flight management computers, is depicted within the simulation and provides lateral navigation, following a string of waypoints, in a manner somewhat similar to a GPS flight plan within FS2004. A full training tutorial for the unit is provided within the suite of training tools, fully describe the unit and its operation. We were intrigued by the ONS and thoroughly enjoyed delving deeper into its intricacies. Rather than entering a route of flight directly into the ONS, a flight plan is downloaded from company headquarters into an ACARS (Aircraft Communication Addressing and Reporting System) unit. The use of ACARS permits an aircraft to transmit data via a radio link to an airline operations base and to receive data from the airline. This is often used to transfer routes of flight directly from the airline office to the aircraft navigation systems. Obviously in FS2004, there is no radio link to an airline, so the included ACARS unit simulates radio communication by accessing standard FS2004 flight plans that have been previously saved. The ONS unit then receives the required flight plan through the simulated ACARS link. Once transfer has taken place, the ONS can be used in conjunction with the autopilot to have the aircraft follow the desired track. The ONS itself has no concept of vertical navigation and this task is delegated to the simulated PMS (Performance Management System). Entering the aircraft weight, fuel load and length of flight allows the PMS to calculate

The perspective of the 2D landing view, and the ability to auto-land in poor visibility make the Super80 a great all-weather performer

The virtual cockpit is crisp, clear and fully functional and sports excellent frame rates.

The MD80 is very rare among passenger aircraft in this class in that it is permitted to use reverse thrust to pushback from the gate at many airports.



An integrated 'Dispatch Center' can be used to load the aircraft with passengers, fuel and freight as desired or to start the aircraft in various modes such as cold and dark or with engines running

the optimum cruise altitude and speeds for the flight, as well as calculate a climb and descent profile and a bottom of descent point. Using the PERF function of the autopilot, the aircraft will follow the climb and speed profile calculated. Again, a comprehensive tutorial for the PMS is included which gives a fascinating insight into the unit. The third computer aboard the aircraft is the trim computer. Entering the aircraft centre of gravity into the unit, situated on the throttle quadrant, will provide the pilot with the appropriate take-off trim. In modern aircraft the functions of the ONS, PMS and trim computer have all merged into a single flight management computer that does a lot more!

The modelling of the vintage navigation equipment only scratches the surface of the systems that have been included. Others include a fully functional primary panel, gauges and autopilot system. For the pilot more familiar with the standard Boeing or Airbus autopilot deck layout, the MD80 will be extremely unfamiliar and idiosyncratic. This is one of the great charms of this aircraft package in that it offers an aircraft that is not only extremely challenging, but is so radically different from the Boeings and Airbuses that dominate the FS2004 market. As a result it offers a breath of fresh air with a whole new approach to airliner flying, that we found both refreshing and extremely rewarding.

This new approach is also mirrored in the systems located in the overhead panel. These have been modelled in detail. It took us quite a while to get to grips with just starting the APU (Auxiliary Power Unit), which on the MD80 is a multi-stage process, with the procedure being dependant on whether ground power is available. This is in stark contrast to the simple flick switch operation of a Boeing or Airbus!

The unique design of the DC9 family is held in high regard by the engineering departments of many airlines, who view it as a very reliable aircraft, even in the toughest conditions. Furthermore, the unusual placement of the engines, being positioned at the rear of the fuselage and higher than the under-wing engines favoured by many other short-haul airliners, has helped ensure that each engine can avoid the ingestion of slush, snow and other environmental debris. This rear positioning of the engines has also given this family of aircraft the rare distinction of being authorised for 'powerback' operations at many airports. This means it can push away from the gate using reverse thrust, without the need for manual assistance. This capability is fully modelled in the Flight 1 package, which also has a menu of options for various forms of pushback and powerback.

The real heart of the simulation is the interactive cockpit training, which provides interactive tutorials for all the primary aircraft systems

The aircraft can be flown from either 2D panel views, or from a superbly detailed virtual cockpit that is fully interactive. The latter allows the aircraft to be flown entirely in this view for maximum immersion and works well with equipment such as TrackIR or utilities such as Active Camera. For those conscious of simulator performance the aircraft can be loaded with 2D panels only. The 2D panels are of a similar high quality to the virtual cockpit and really seem to convey the look and feel of the real MD80. The 2D view also incorporates a panel-switching device, which utilises drop-down icons, allowing the ability to switch between, for example, the main and overhead panels, ONS and other ancillary screens and the ability to access the throttle quadrant. We were particularly pleased to see a landing panel, giving excellent outside visibility and the inclusion of a zoom panel that expands the primary gauges and engine instruments, making the aircraft a joy to fly in all phases of flight.

Frame rates were excellent in both 2D and VC views giving a very fluid simulation of the aircraft. This fluidity carried through to the flight dynamics, which were responsive and performed close to the specifications of the real aircraft. However, we did notice

that the aircraft felt slightly underpowered at high altitudes, but the developer has informed us that this will be addressed in a forthcoming patch. As with flying the real aircraft, the MD80 needs handling with care and precision and perhaps is not as forgiving as more recent aircraft. The aircraft can 'bite' you quickly if allowed to get below the optimum power curve. Sounds of the engines screaming and an electronic warning voice, recreated from the real aircraft, quickly highlight any poor piloting! It is not without reason that pilots dubbed the MD80 "the Mad Dog"!

External details

When it comes to the external modelling, we find that the developers have produced a convincing replica of the real MD80, although it would be fair to say that it is not quite as detailed as some recent airliner releases, but it is certainly very close to the cream of the crop. However, because of this the aircraft manages to offer good frame rates. These are very close to those of the default FS2004 aircraft, which should please those who are 'performance-conscious'.

Liveries for Spanair, Scandinavian Airlines, Continental, PSA, Alitalia and Spirit are included in the base package at time of purchase, but many other liveries are available for free download and at the time of review.

The realism of the aircraft is further enhanced by the inclusion of checklists for all phases of flight that can be spoken by a First Officer, who waits for confirmation for each item before proceeding.

The MD80 has been much in demand with airlines in the far north, due to excellent performance in extreme cold and snow. Carriers such as SAS and FinnAir have made them an integral part of their fleets

A range of liveries is included in the base installer, supplemented by a huge selection of liveries that have been made available for free download. At the time of writing nearly all of the primary MD80 operators have been included

Load and configuration editors have now become something of a de-facto standard for FS2004 airliners and the MD80 is no exception. Rather than offer an external program, the developers have supplied an editor that is fully embedded into the simulation and is available via the drop-down panel switcher icons. This comprehensive tool, referred to as the Super 80 'Despatch Center', provides the user with the ability to load the aircraft with freight and passengers, and even fuel the aircraft. Other screens offer selections relating to aircraft, the configuration of navigation radios for auto-land and instrument preferences, to name but a few. Given the complexity of the aircraft, the inclusion of options to start the aircraft 'cold and dark', ready to taxi, and in various other configurations, will also be welcomed by many.

Without the implementation of such a comprehensive training suite, we would still have thoroughly enjoyed this aircraft, with its meticulous attention to system details and nuances, which will delight procedural simmers. With the inclusion of these superb training tools, their ease of use and integration, this aircraft has been elevated into a class of its own. It sets new standards in terms of cockpit training within FS2004, and may well be seen as a watershed for a new era of simulation aircraft that train as much as they entertain! ■

Jane Whittaker

Review Score

Publisher: Flight 1 Software

Price: $34.95 (£20.15 approximately)

Website: www.flight1.com

Developer: Coolsky and Flight 1 Software

At a glance: The MD80 provides an ideal platform for the concept of an interactive cockpit-trainer within FS2004. This package excels as a procedural trainer and is a delightful aircraft to fly with or without the use of the training tools. This is the first time we have seen an FS2004 airliner presented in this manner and it will undoubtedly set a benchmark for a new approach to aircraft simulation in FS2004.

System requirements: FS2004; PC 1.6GHz; 512MB RAM; 128MB graphics card

Recommended: FS2004; PC 2GHz; 1 gigabyte RAM; 128MB graphics card