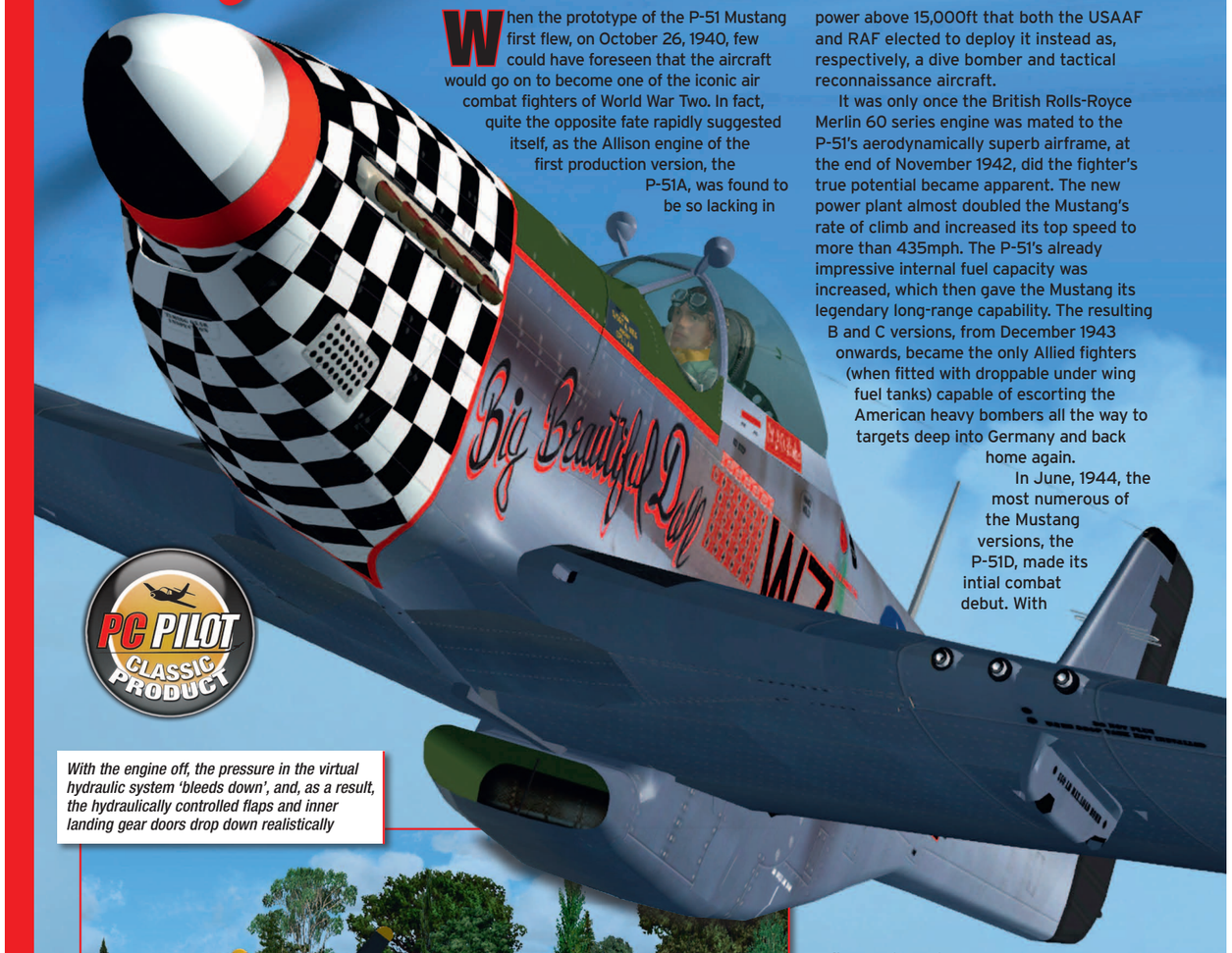
A NEW Big Beautiful Doll!

Flight1's P-51D Mustang By Adam Cotton



PC PILOT CLASSIC PRODUCT

With the engine off, the pressure in the virtual hydraulic system 'bleeds down', and, as a result, the hydraulically controlled flaps and inner landing gear doors drop down realistically

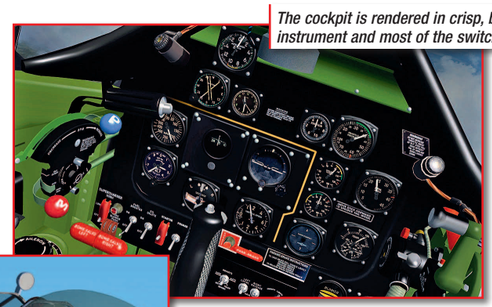
When the prototype of the P-51 Mustang first flew, on October 26, 1940, few could have foreseen that the aircraft would go on to become one of the iconic air combat fighters of World War Two. In fact, quite the opposite fate rapidly suggested itself, as the Allison engine of the first production version, the P-51A, was found to be so lacking in power above 15,000ft that both the USAAF and RAF elected to deploy it instead as, respectively, a dive bomber and tactical reconnaissance aircraft.

It was only once the British Rolls-Royce Merlin 60 series engine was mated to the P-51's aerodynamically superb airframe, at the end of November 1942, did the fighter's true potential became apparent. The new power plant almost doubled the Mustang's rate of climb and increased its top speed to more than 435mph. The P-51's already impressive internal fuel capacity was increased, which then gave the Mustang its legendary long-range capability. The resulting B and C versions, from December 1943 onwards, became the only Allied fighters (when fitted with droppable under wing fuel tanks) capable of escorting the American heavy bombers all the way to targets deep into Germany and back home again.

In June, 1944, the most numerous of the Mustang versions, the P-51D, made its intial combat debut. With refinements such as a one-piece, sliding tear-drop canopy, cut-down rear fuselage, and the addition of two extra machine guns, this became the definitive Mustang, and like its predecessors, it served in every major theatre of World War Two, both as an escort fighter and, armed with bombs or rockets, as a highly successful ground attack aircraft. Of the 16,766 Mustangs built, more than 8,100 of them were P-51Ds.

It later went on to serve with distinction in the Korean War, re-designated F-51 (F for fighter), and became a favourite mount of pilots competing in post war air races such as the Thompson Trophy. Perhaps because of this popularity, which allowed airframes that would otherwise have been scrapped to continue to fly, Mustangs have always been well represented in the world of warbird restorations, a trend that continues to this day. Given its place in history, it is therefore hardly surprising that the Mustang has received its fair share of attention from developers, and the latest offering, published by Flight1 exclusively for FSX, comes from the hangar of Aeroplane Heaven.

Pull the emergency canopy release lever in the cockpit, and the canopy flies off into the slipstream, thus allowing a speedy bail out!



The cockpit is rendered in crisp, beautifully textured detail. Every instrument and most of the switches and controls are fully functional

This shot shows the Mustang's beautiful surface texturing and highly detailed cockpit area

Tip! 'S-turn' when taxiing to afford a better forward view

The port engine cowling and starboard wing ammunition panels are detachable

The Package

The developer has chosen to model the definitive P-51D, which is available as either a boxed CD-ROM or a 136mb direct download from the Flight1 website. There are 13 liveries included (and there is also a paint kit if this is insufficient for you), most of which are extremely colourful and striking. Many are of well-known USAAF aircraft, but there are also lesser-known examples from the RAAF and RNZAF to add contrast, plus two modern restorations, *Marinell* and *Janie*, both of which are currently owned and flown by British warbird restorer Maurice Hammond.

The extensive documentation includes a fairly comprehensive 26-page set of pilot's operating instructions, which contains (among other things) checklists for the various phases of flight, explanations of the major systems, and some suggested upper air stalling exercises. Oddly though, some key speeds such as the Vy speed (the indicated speed for best rate of climb) are omitted. Fortunately, this information can be found in the mass of operating data contained in the two reproduced official flight performance charts from 1945 and 1954, which are included as separate PDFs. These are particularly useful for long-distance flight planning, and while the level of detail they go into is probably excessive for the average simmer, they will be welcomed by World War Two fighter aficionados seeking absolute realism. Overall, the documentation contains everything you need to know to fly the P-51 accurately and by the numbers, and is even rounded out with a reprint of *Flypast* magazine's article on the wartime operational history of *Marinell* and its recent four-year restoration to airworthiness.

BELOW LEFT: The cockpit, forward starboard side. Prominent is the red lever for emergency canopy release, behind which is the 'hand-wound' crank for normal operation. Below it sits the Morse tapper and the electrical control panel

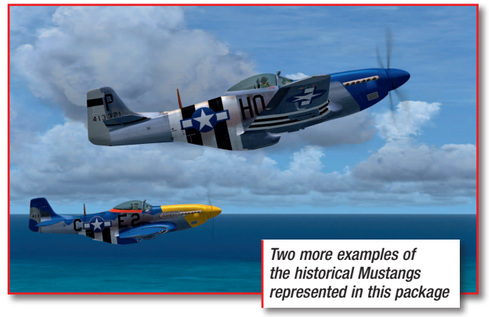
BELOW RIGHT: Just like its real-world counterpart, the gunsight has adjustable range bars and wing span controls, and clicking on the bulb holder for the sighting reticule reveals two replacement bulbs

A detailed look

An initial 'walk around' shows the loving care that Aeroplane Heaven has poured into their recreation of the Mustang. The fine lines of the aircraft have been perfectly captured and, regardless of the viewing angle, the proportions seem spot-on. From the AN/APS-13 Rear Warning Radar (RWR) aerials on the tail fin to the VHF radio kit beneath the plexiglas canopy, right through to the undercarriage bay (the inner doors of which are realistically affected by hydraulic bleed down) and the Hamilton Standard Hydromatic propeller, everything is modelled in exquisite and convincing detail. Even the famous laminar flow aerofoil section, which was key to the Mustang's great range and speed, is well rendered. All included variations of the Mustang have been modelled as 'factory fresh' aircraft, circa 1945, and zooming in for a close up view of the surface texturing reveals just a small amount of authentic airframe staining aft of the exhaust stacks, together with well defined riveting and clearly readable stencils. Aside from the usual animations, there are working radiator and oil coolant shutters, plus some eye-pleasing novelties. For instance, the gun panels on the starboard wing detach, thereby allowing a close inspection of the three beautifully detailed point fifty calibre MG53-2s, and their full ammunition feed trays, nestling inside. Similarly, the port engine cowling removes (and rests against the forward fuselage) for a look at the Packard Merlin V-1650-7 within.

Into the 'office'

One anomaly I noticed upon jumping into the virtual cockpit (there is only a vestigial 2D equivalent), and sliding the canopy aft, was the slight additional weathering on the wings around the ammunition panels and fuel filler caps, which, while appropriate, is not present when viewing externally. However, the pristine cockpit itself is what strikes you most. Every instrument, control, ▶



Two more examples of the historical Mustangs represented in this package

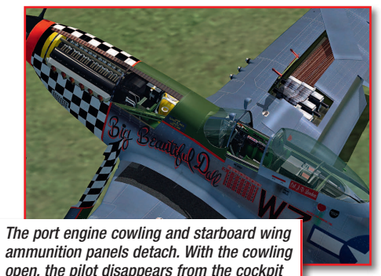
and switch is an exact copy of those found in Maurice Hammond's *Janie* and *Marinell* aircraft, which were lovingly restored to stock condition. Consequently, everything has a truly authentic World War Two feel about it.

All cockpit hardware is rendered in state-of-the-art crispness. Almost all of it is fully functional and even non-working equipment, such as the RWR and Identification Friend or Foe (IFF) control panels, still have clickable switches. Unusually, there is also a beautifully detailed, semi-functional gun sight, plus a working copy of the lever used for emergency ejection of the canopy in flight, and a 'hand wound' crank to open and close it with (using the mouse wheel) during normal operations. A nice touch (particularly for those who like to fly online) is the working Morse buzzer, which facilitates the transmission of messages to fellow simmers via the independently switchable under-wing recognition lights, although you need to learn Morse code in order to exploit it fully.

As some of the instruments and switches are partially hidden by the controls, there is a 'click spot' provided on the panel to offer the option of removing the control column and throttle quadrant. Custom views are provided for you to check the floor and rear fuselage gauges. The only pop-up panel is the default FSX radio. Unfortunately, the functionality of the four-channel period radio is limited simply to switching 'on' and 'off' the FSX default unit, and this is one of the few areas where the realism suffers. Another is the bomb release salvo handles (in reality, also used to release the drop tanks), which are completely non-functional. The only way to drop under-wing stores in flight is via the custom load-out manager, which sits discreetly on the right side of the cockpit, and enables you to select a load from bombs, rockets, launchers, and jettisonable fuel tanks or, with one click, to remove them all. While this is very simple to use, it didn't exist on the real aircraft, and I would have preferred the load manager to be in a separate pop-up, with functioning in-cockpit salvo handles (as is the case with A2A Simulations' P-47 Thunderbolt). However, in a non-combat simulator such as FSX, it has to be admitted that this is of little real consequence.

Into the wide blue yonder

In firing up the Merlin from a 'cold and dark' state there is a trap for the unwary: over-prime her and huge sheets of flame belch out of the exhausts, just as in the real aircraft. The virtual engine sounds incredibly real, and you can almost feel the vibration in the airframe.



The port engine cowling and starboard wing ammunition panels detach. With the cowling open, the pilot disappears from the cockpit

Tip! Rudder trim - Set 5 degrees right before take-off

Maurice Hammond, in his distinctive black and yellow "bone dome", at low-level in "Marinell". All the other Mustangs feature World War Two-era pilots at the controls

Once in the air, climb at the correct speed, manifold pressure, and rpm setting and you will get to any given altitude in the time quoted in the performance charts, the elapsed time varying slightly with the weight of fuel on board. It is worth noting here that loading droppable fuel tanks does not automatically increase the available fuel supply; this must still be manually increased using the FSX fuel and payload manager. If you want War Emergency Power (WEP), there is another 'click spot' behind the throttle, which simulates pushing it 'through the gate', and realistically gives you around 5 minutes of additional power. Another nice touch is the oxygen mask that suddenly appears on the face of the animated pilot as you pass through 8000ft, although I would personally have preferred to be required to perform this operation myself, with a hypoxia penalty for forgetfulness, as with A2A's P-47.

I tried the stalling exercises from the pilot's operating instructions and, as stated, each time she dropped a wing and, upon application of the correct control inputs, recovered cleanly. Aeroplane Heaven enlisted the help of the aforementioned Maurice Hammond, and other Mustang experts, to get the flight

The day's work ahead, Mary Mac *climbs into the dawn sky over England*

characteristics and performance as accurate as this, but there are a couple of areas of the flight envelope less well replicated. For instance, the real Mustang was notorious for being directionally unstable with the rear fuselage tank full, yet I could discern no appreciable difference in handling, full or empty. And even with the further addition of a load-out of drop tanks and bombs, the take-off run was not protracted, nor did the tail take longer to rise. I suspect the reason for this is that the flight model is based exclusively on

Mary Mac *getting ready to start engine*

Marinell and *Janie*, both of which are modern restorations and, as such, are flown without the large capacity fuselage tank or under wing stores. However, none of this mars the real joy to be had in flying this aircraft, particularly in the upper air, where it practically begs you to do aerobatics, after which, as you turn onto base leg in the airfield circuit, you can experience the power of the accurately modelled flaps and descend to land with an audible squeal of rubber on tarmac.

In conclusion

Aeroplane Heaven/Flight1 has done an excellent job of bringing this classic aircraft to life for the desktop. While it hasn't quite reached the bar raised by A2A Simulations with the release of their P-47 Thunderbolt, it comes remarkably close, and is sure to be enjoyed by anyone with an interest in World War Two era combat aircraft. ■

REVIEW SCORE 90

Publisher: Flight1 Software

Developer: Aeroplane Heaven

Price: £22.12/$34.95/€24.61

Website: www.flight1.com

At a Glance: If you love flying World War Two fighters with a high degree of realism, this new Mustang should suit you perfectly. While not quite as sophisticated as A2A's Thunderbolt, its level of systems modelling, flight model fidelity, and overall appearance nonetheless ensure an immersive experience for warbird fans.

Minimum Specs: Flight Simulator FSX with Service pack 2, 2.8 Ghz CPU, 256 Mb graphics card, 1 Gb RAM, 450 Mb available hard disk space, Windows XP or Vista.