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## Modern Combat Aircraft Design

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Huenecke, Klaus. *Modern Combat Aircraft Design*. Annapolis, Md.: Naval Institute Press, 1987. 254 pp. \$28.95

Beautifully illustrated and filled with elegant diagrams, Huenecke's book appears to be just another coffee table book on combat aircraft, but it is not. It is a solid technical book that provides a comprehensive treatment of the aerodynamics and engineering realities that govern the design of specialized combat aircraft.

Huenecke opens with a discussion of the performance requirements associated with each of the basic missions of air superiority, battle-field interdiction and close air support. Fundamental aerodynamics for combat aircraft is introduced with treatments of both high subsonic and supersonic flow, and forces on wings and control surfaces. The issues of longitudinal, lateral, roll and directional stability and control are covered with a special focus on the problems of high-speed maneuvering flight. Gas flow in jet engines is explored along with the problems of the design of high-speed air intakes. A section on the air intake designs for the F-15 and F-16 is included, illustrating two quite different approaches to the problem. Finally, consideration is given to cockpit and avionics design, the effect of aircraft armament on wing performance, and artificial stability.

The text, translated from the original German, is clear and concise. This is a book that will be of particular value to test pilots,

aeronautical engineering students and those involved in the preparation of specifications for the selection of modern combat aircraft.

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Braybrook, Roy. *V/STOL: The Key to Survival*. Osceola, Wi.: Motorbooks International, 1988. 224 pp. \$39.95

V/STOL, an acronym for Vertical/Short Take-Off and Landing, appears to be a practical way of operating aircraft. Prime real estate is not needed for airfields; military bases need not impose on the civilian sector for any more room than a parking lot; ships no longer need the dangerous, expensive, and hell-to-maintain catapult and arresting gear. Why then, any discussion on V/STOL? If the technology is there, build the thing and move on! This proposition is examined in depth by Roy Braybrook in his well-researched book, *V/STOL: The Key to Survival*.

Despite the title, the author remains objective as he takes the reader through a clear, comprehensive, and well-illustrated discussion of V/STOL capabilities versus those of conventional aircraft. As it turns out, there are significant trade-offs, even with today's technology.

Braybrook makes the case for V/STOL by examining the vulnerability of airfields. He uses the Falklands/Malvinas conflict in 1982