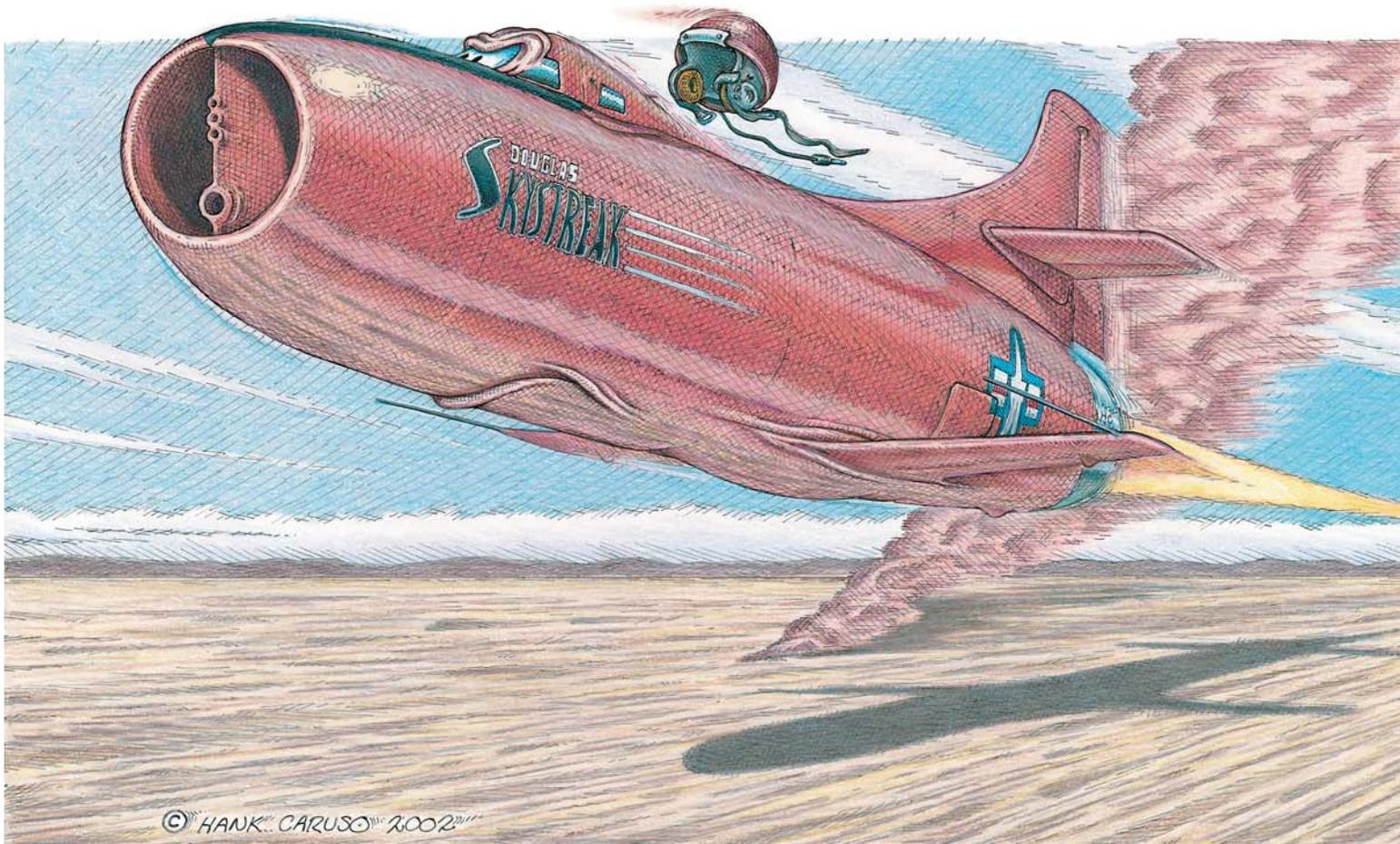


Hank Caruso's Aerocatures™ Sketchbook:

The Navy's X-Planes

Navy X-planes? Were there any? Don't all X-planes belong to NASA and the Air Force? Although it never adopted the X-plane designation system, the Navy has nevertheless developed its share of experimental platforms that are every bit as exotic as those of its counterparts. These Aerocatures™ are a tribute to some of the U.S. Navy's experimental aircraft over the past six decades.

Chromakinetic Augmentation. The Douglas D-558-1 Skystreak, below, was designed to investigate the mysteriously turbulent transonic environment just below the speed of sound. To make the Skystreak go faster, it was painted with brilliant, gloss red paint. (The scientific principle by which red paint seems to make an airplane go faster is called "chromakinetic augmentation.") The Skystreak established a world speed record of over 640 mph on 20 August 1947. Here a Skystreak is shown passing a smoke signal that marks the starting gate for its record run.

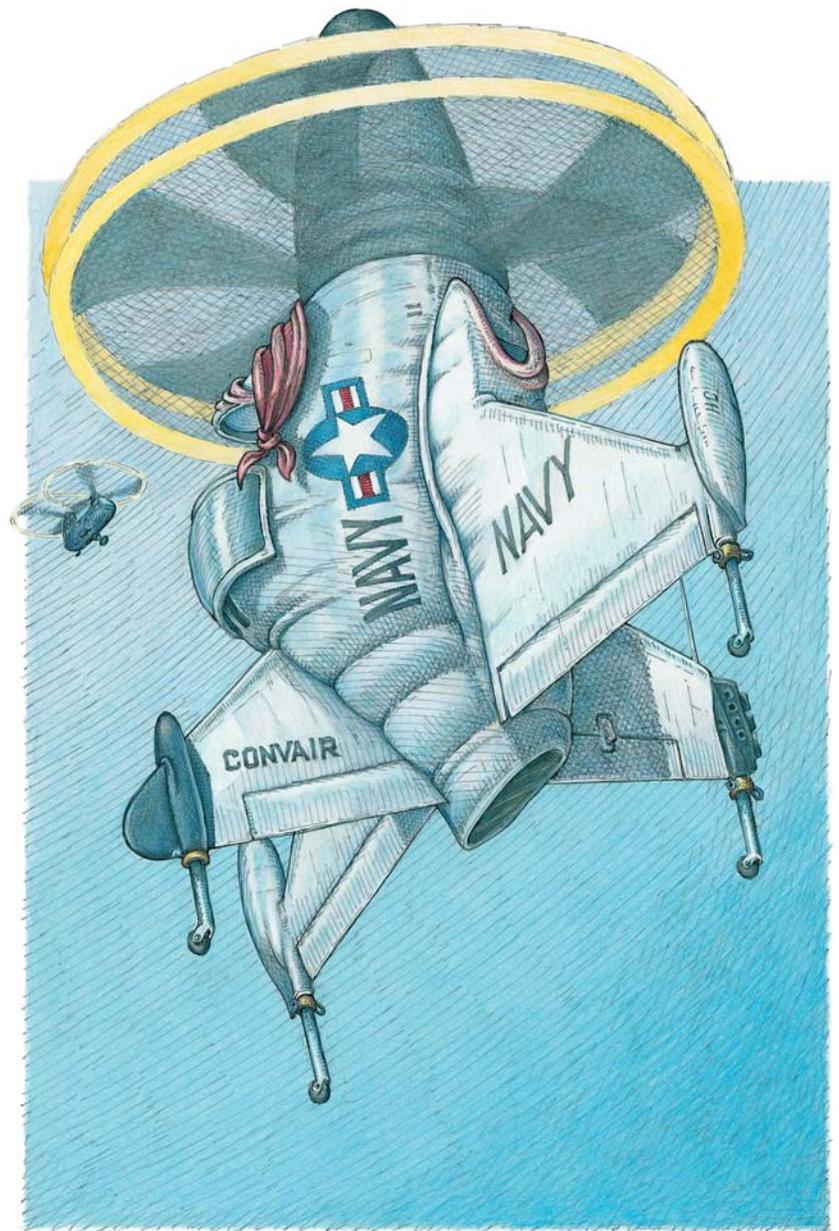




Better Living Through Rhinoplasty. In August 2003 a strangely deformed Northrop Grumman F-5E, above, flew at Edwards AFB, Calif., to validate design strategies that might someday lead to quieter supersonic aircraft. As part of the Shaped Sonic Boom Demonstration program, NAVAIR, NASA, and DARPA produced the first in-flight validation of hitherto untested theories about how modifying an aircraft's shape can affect sonic boom intensity. Measured test data matched the engineers' predictions, shown as the graph lines painted on the sides of the fuselage.



Just a Single Finalist. The Lockheed Martin F-35 Joint Strike Fighter (JSF) is the next-generation strike aircraft for the U.S. Navy, Marine Corps, Air Force, and Royal Air Force. The JSF combines enormous thrust, revolutionary sensors, low-observable technology, and short takeoff and vertical landing capability. Below, the X-35C prototype completes its final test flights in the setting sun over NAS Patuxent River, Md., in March 2001.



Going Up Was the Easy Part. In the late 1940s, the U.S. Navy envisioned turning hundreds of surface ships into miniature aircraft carriers by deploying fighters that could take off and land vertically. One of the candidates for this role was the Convair XFY 1 Pogo, above. Hanging from two huge counter-rotating propellers, the Pogo had no trouble rising vertically or transitioning to normal horizontal flight during its 1951–1955 flight testing program. The problem came when the pilot had to back the airplane down to the ground: rearward visibility was nearly nonexistent and vertical depth perception was nil. Shipboard operations would have been impossible.



Splash and Goes. During the 1950s, the U.S. Navy saw a bright future for seaplanes in fighter, bomber, and transport roles. One of the most exciting seaplane designs was Convair's XF2Y-1 Sea Dart, a twin-engine, jet-propelled fighter that took off from and landed on water. This meant that, in theory, 70% of the earth could be used as a runway. Although not without problems, the Sea Dart flight testing program (1952–1957) was an interesting technology experiment. But the Sea Dart was eventually canceled, along with the rest of the U.S. Navy's seaplane programs.

