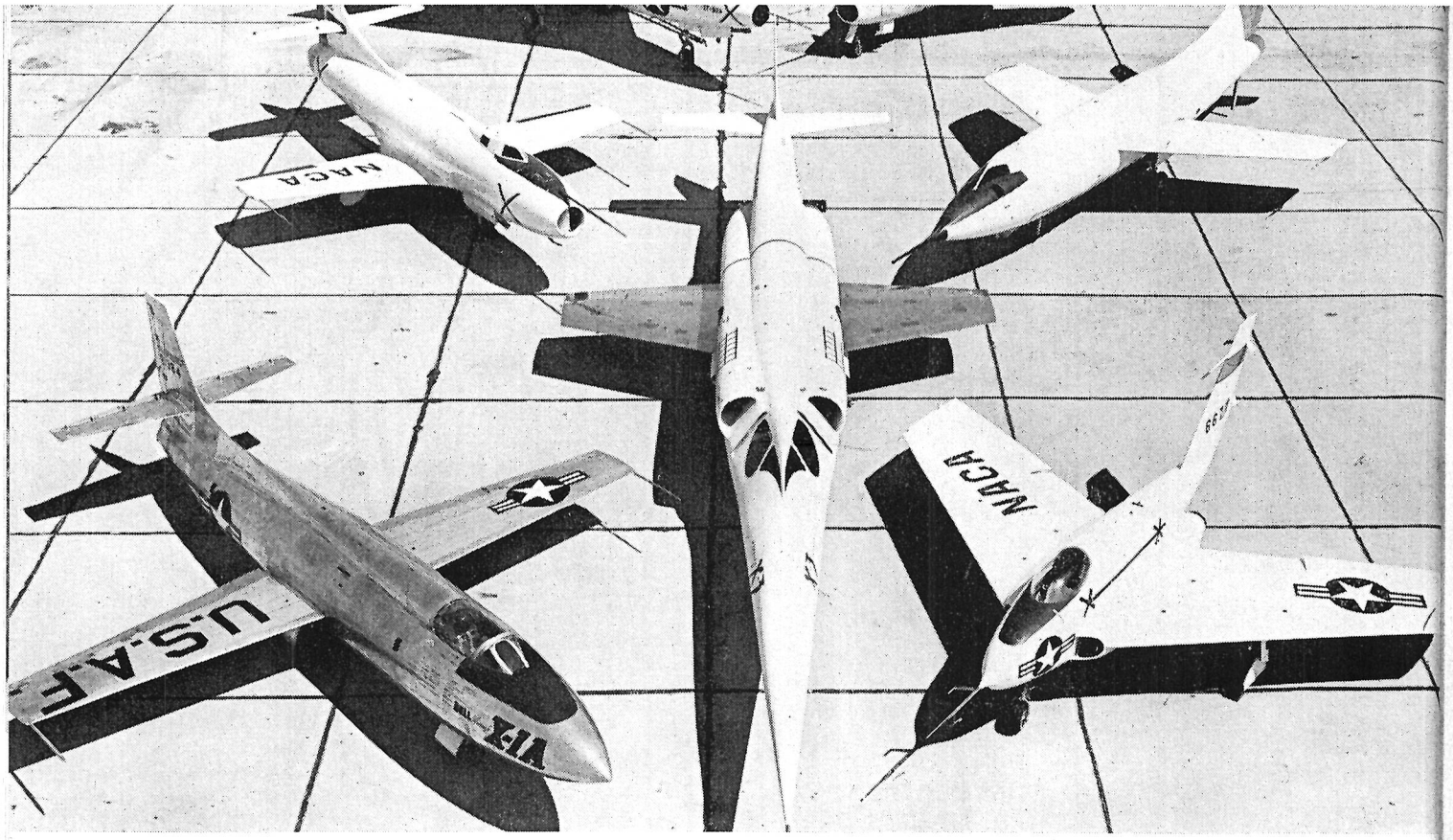

Research aircraft solving problems of supersonic flight at Edwards AFB. Centre: the Douglas X-3. Clockwise from lower left: Bell X-1A, Douglas D-558-1, Convair XF-92A, Bell X-5, Douglas D-558-II, and Northrop X-4.

Is something wrong with our jets?

NATO powers face new problems

By Dick LaCoste

WASHINGTON, D.C. — Today's supersonic jet fighters are giving NATO air industries and air forces plenty of teething troubles—enough to seriously delay standard in service use of the faster-than-sound piloted air weapons.

These troubles are shared both by the RCAF in choice of a successor to the Sabre jets and by Avro Canada in its development of the supersonic CF-105.

The root of the problem is lack of knowledge: of high speed boundary layer control; high speed shock waves and turbulence affecting flying surfaces; and external stresses encountered at varying speeds.

▸ **Speed Wobble.** When the new types of supersonic aircraft have been pushing past the speed of sound (Mach 1) they have developed "snaking" and "pitch-up."

In "snaking," a jet moves slightly left and right, alternating that movement with an up-and-down motion. As it moves past Mach 1, the "snaking" even strips a jet of its "skin."

"Pitch-up" is even worse. When the jet approaches Mach 1, the wind blowing around the wings and tail causes the aircraft to rise along its longitudinal axis. At this time, pressure bears on the wing and tail structures, on the engine mounts, and along the fuselage members.

It now can be revealed that the North American F-100 has experienced both "snaking" and "pitch-up." The plane is an off-shoot of the F-86 (Sabre) which proved so successful in combat in Korea.

(More than 400 jets were grounded at an airfield in New York State. Security forbids mentioning the type at present.)

Both North American and the U. S. Air Force have high stakes in the F-100 fighters. More than $100-million worth have been ordered. Yet, despite the trouble, the U. S. Air Force appears to be committed to the F-100 series.

The F-100s have only recently been cleared for flight again.

Early in February (1955), a joint Air Force-company statement was released listing improvements made on the plane. These include a revised tail (like that on the XF-100), pitch and yaw dampers. Changes also were made on the wing tips.

▸ **F-100 Performance.** The F-100 is a swept-wing fighter. It is powered by a Pratt & Whitney J-57 turbojet which can generate 10,000 lb. thrust.

The F-100 measures one and a half times as large as the F-86. Even the degrees of the wings are different. The F-100's wings sweep back at 45 deg.

During test runs the F-100 reached level flight speeds of around Mach 1.08 in more than 30 flights. At the time of the tests, the F-100 was reported to have the lowest speed of the entire supersonic group. Combat range of most of the series ran from 300 to 1,000 miles — this despite the use of external fuel tanks.

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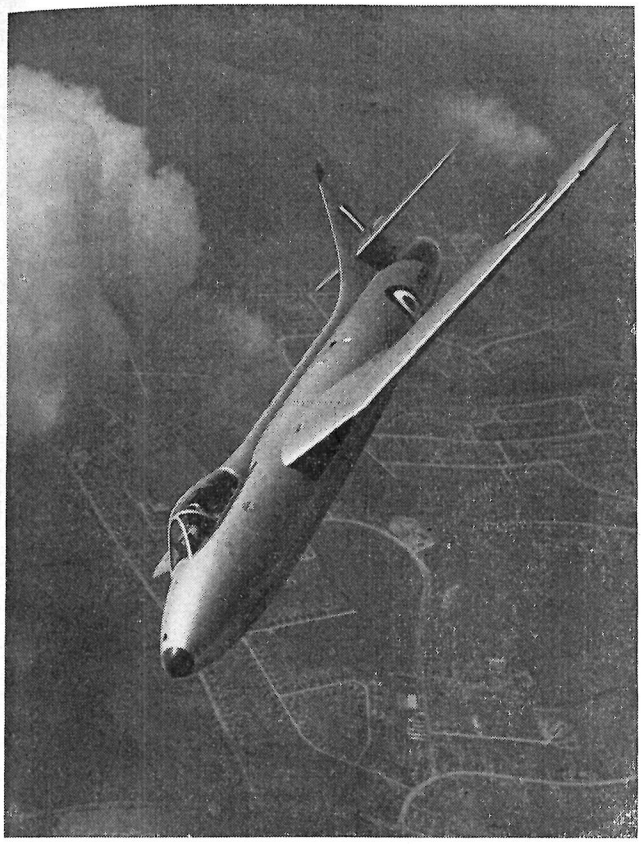
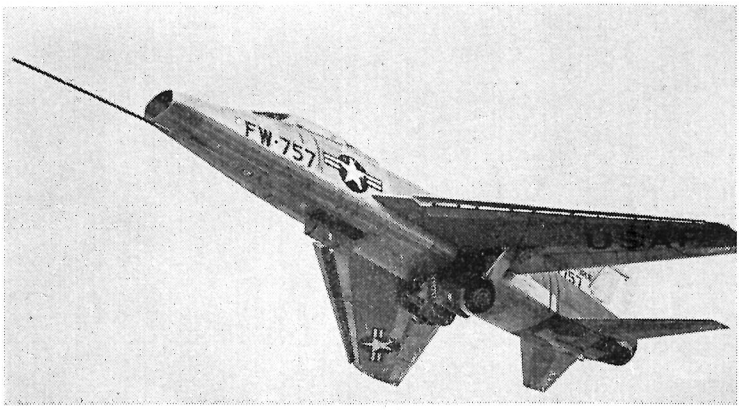
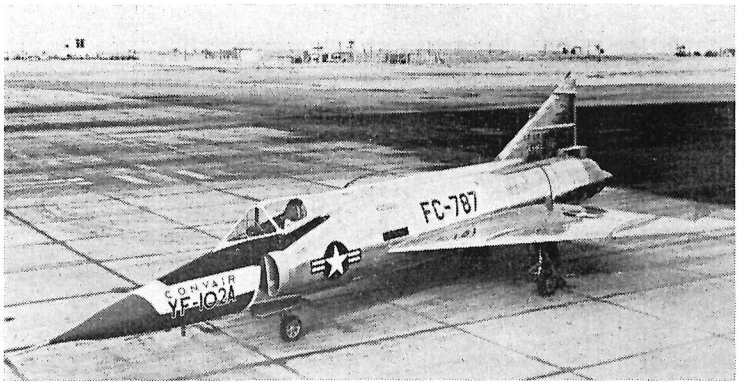


Britain's Hawker Hunter; production held up by armament problems.



North American F-100 Super Sabre, recently grounded, and now undergoing modifications.



Convair YF-102A, being considered for production in Canada.

in developing supersonic fighters

Voodoo. McDonnell Aircraft Corporation's F-101A, Voodoo, is an aerodynamic version of the earlier XF-884. The plane is of especial interest to the USAF.

The Voodoo can be refueled while in flight. It also is designed to carry atomic weapons. Sporting a wing span of 37.7 feet, it measures 67.4 feet long and 18 feet high.

The Voodoo's wings and stabilizer are swept back 35 degrees. Its wing skin boasts of heavy, tapered, preformed sections.

Convair's F-102A. Latest model of this delta-wing interceptor, the F-102A, is a late entry into the U. S. supersonic field.

Main external differences between the F-102A and its predecessors is the droop-snoot — about six feet longer — and a longer fuselage. The longer droop-snoot is designed for better visibility.

Other design changes: canopy redesign has eliminated side bulges; new design has almost flat side panel; new air inlets have been installed below the canopy. They feed more air to the larger P&WA J-57 turbojet and enable the plane to develop a 16,000 lb. thrust with afterburner.

New Designs. Expected to be used in a major portion of Republic's F-103 is titanium, a metal with high durability in airframe construction.

Lockheed also will enter the supersonic race with the F-104, a stripped-down lightweight fighter (which is of great interest to the RCAF). It's expected to have a straight, very thin wing configuration — probably 28 feet. Present plans call for the plane to be powered by a Wright turbojet to enable it to attain speeds as high as 1,500 mph.

The F-105 will be a Republic product — a supersonic fighter-bomber. The plane is almost 1½ times as large as the thunderjet.

F-105s are scheduled for production late in 1955 or early 1956. The RF-105, a recon version, also is scheduled for production.

Hunter Future. Currently, aviation eyes are focusing on Britain's U. S.-backed Hawker Hunter jet fighter. U. S. Air Force officials had high hopes for the craft. Past plans centred on the plane as a British and NATO mainstay.

Now, reports reaching Washington are that the RAF is wondering whether or not the aircraft should be kept in production.

An interesting financial aside is that the British developed the Hawker Hunter with their own funds. But the U. S. allocated $140 millions for production models. The plane is being built under license and contract in Holland and Belgium.

Information in Washington is that high speed causes the plane's wings to bend.

Additional information from England is that the engine stalls "when the guns are fired." Muzzle blast from the plane's four cannon affect the air intake, it's thought. As a result, the plane's power fluctuates.