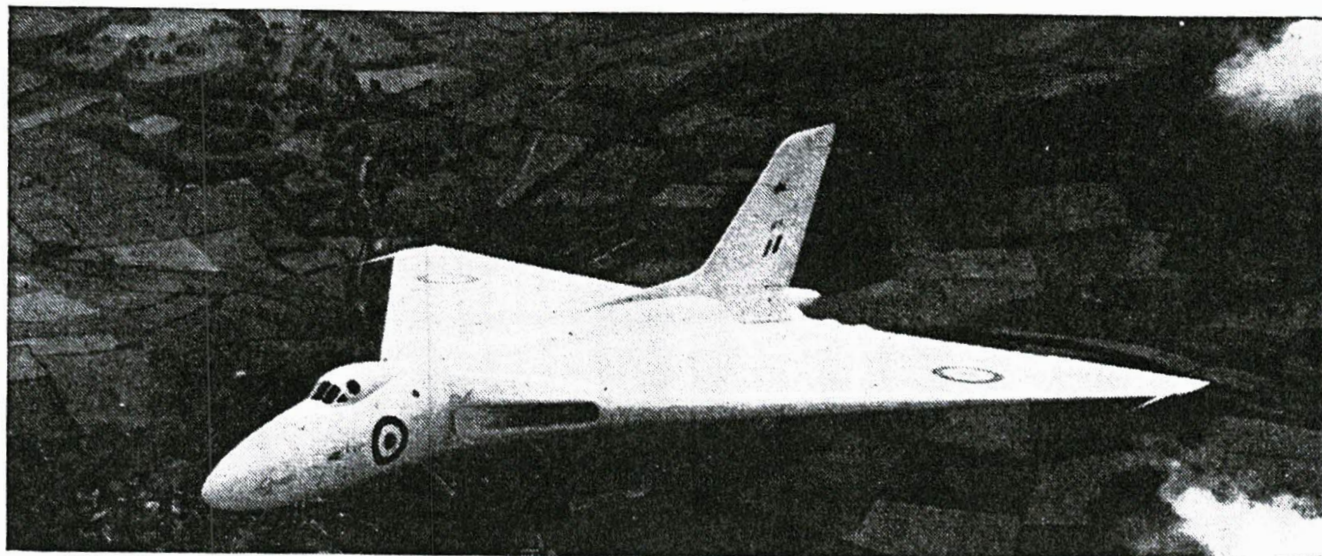


# AVRO TYPE 698 VULCAN



Long-range medium bomber

**E**arly in 1947, the British Air Staff issued a specification calling for a bomber that could be in squadron service by 1957, and which would be capable of hitting the heart of the Soviet Union from Great Britain. After investigating various designs, the Avro team eventually chose the delta planform for their bomber, to permit exceptional high-altitude performance. This configuration, although never tried in flight, offered low wing loading, a large amount of stowage space for the engines, the fuel tanks and the landing gear, and considerable structural lightness necessary for high sub-sonic speed cruising at altitudes of 50,000 feet. After the successful completion of a series of official trials and the resultant assurance of the compatibility of such a radical layout to meet the demands of the present atomic age, the Vulcan was ordered into production.

Presently in super-priority production for the Royal Air Force, and in service since late 1956, the Vulcan nuclear weapons carrier was the world's first delta-wing bomber to fly. It was the second V-bomber (following the Valiant and preceding the Victor) to attain operational status with the Royal Air Force Bomber Command. Based greatly on the research data acquired from the earlier Avro Type 707 series of experimental deltas, the Type 698 made its first flight on August 30, 1952, powered by four Rolls-Royce Avon turbojets. This aircraft was later re-engined with the more powerful Armstrong Siddeley Sapphires, while produc-

tion Vulcans employ the Bristol Olympus, one of the most powerful turbojet engines in the world.

The delta wing of the Vulcan is undoubtedly its most interesting feature. The area being about 3000 sq. ft., the bomber possesses excellent landing and take-off characteristics, not necessitating any special high-lift devices. Control is achieved through extremely large power-boosted ailerons at the outboard trailing edges of the 52-degree-swept wing, while elevators are inboard. Air brakes are eight rectangular surfaces positioned in pairs above and below the wing close to the fuselage sides. The fuselage has a circular section and is exceptionally clean. During the course of development, the Vulcan's wing was modified to conform to the compound sweepback planform, which has been introduced in order to raise the critical Mach number and to improve the stalling properties of the delta's wing-tips.

The five crew members of the Vulcan are accommodated in the pressurized forward fuselage compartment, but the plane can actually be flown by the pilot alone, as has been done many times during the testing of this advanced aircraft.

**TECHNICAL DATA** — Maximum speed: App. 650 mph. Range: App. 3000 miles. Ceiling: App. 60,000 ft. Weight: Loaded app. 130,000 lbs. Engines: Four 12,000-lb. (app.) thrust Bristol Olympus 102 turbojets. Armament: Bomb load of app. 20,000 lbs. Wingspan: 99 ft. Length: 97 ft. 1 in. ■