



THESE photographs, just received from Convair's Fort Worth factory, are the first to do justice to the B-58 Hustler, one of the most remarkable aeroplanes yet to have taken the air. The world's first supersonic bomber (subject of an extensive article in our issue of September 21), it has been built for the U.S. Air Force; and it flew for the first time on November 11 last.

The B-58 has a geometry essentially similar to that of the F-102 interceptor. The scale factor was about $\sqrt{2}$, so that areas are doubled; the B-58 wing, for example, packs some 1,430 sq ft into its 55ft span. The air-to-air picture (above, left) shows the conical camber of the leading edge, a principle which appreciably reduces subsonic induced drag without incurring a supersonic penalty. Roll and pitch control is effected by powered elevons, inboard of which are minute trimming surfaces. Most of the underside of the wing, and certain other areas, is skinned with metal-bonded stainless-steel sandwich. Though on most missions the cruise will be subsonic, special cooling systems are provided for the crew (numbering three), avionics and wheel bays. All air is taken in through the double-shock, variable-geometry intakes to the four General Electric J79 turbojets; a diagram of a complete nacelle was published in *Flight* on September 21. At altitude, afterburning thrust at maximum forward speed is about 18,000 lb per engine.

In our earlier analysis we emphasized that the Hustler is the first aeroplane built from the outset as a weapon system. The aircraft as depicted here is only part of the system; it is, in fact, the transport vehicle. All the "operational" equipment is housed in a streamlined container under the fuselage. There are to be several of these "mission pods," varying in size and character according to their purpose. Some will carry free-falling bombs or air-to-surface missiles; others will contain television, photographic or countermeasures equipment, and yet others will house air-to-air weapons for either offensive or defensive purposes. Pods which do not have to be carried on the return journey can violate the area rule and may be as much as 50ft long and 8ft wide. The size of the pod is partly responsible for the height of the undercarriage; all three legs break at knee-joints and the main units each have eight high-pressure, flat-tread 22in. tyres.

Many of the systems, such as the Bendix-Eclipse transistorized autopilot, the Sperry bombing/navigation system and the Hamilton Standard air-conditioning, were proved on ground rigs and on other aircraft. Flight testing has been remarkably trouble-free and very encouraging. The prototype has been flown in close formation with F-102s, has exceeded Mach 1 without using afterburners, and has outrun an F-100 (capable of Mach 1.4) at partial power. A pre-production batch of 12 is in hand.

