The 4200th SRW was established at Beale AFB on 1 January 1965 to prepare for SR-71 operations, the first T-38A companion trainer arriving at the California base in July 1965. On 6 January 1966 the 4200th SRW received its first Blackbird in the form of the trainer '956. The first operational aircraft arrived on 4 April 1966. Soon after, on 25 June 1966, the 4200th inherited the heritage and numberplate of the 9th Bomb Wing, becoming the 9th Strategic Reconnaissance Wing.

The number was then assigned to the 4200th Test Wing, still at Beale, which became the unit responsible for testing and employing the D-21B drone, using two B-52Hs as mother ships. This programme began in late 1966. The first launch was nc undertaken until 6 November 1968, at which time the 4200th TW was flying from Groom Lake. Later launches took place from Beale, and the programme was terminated on 23 July 1971.