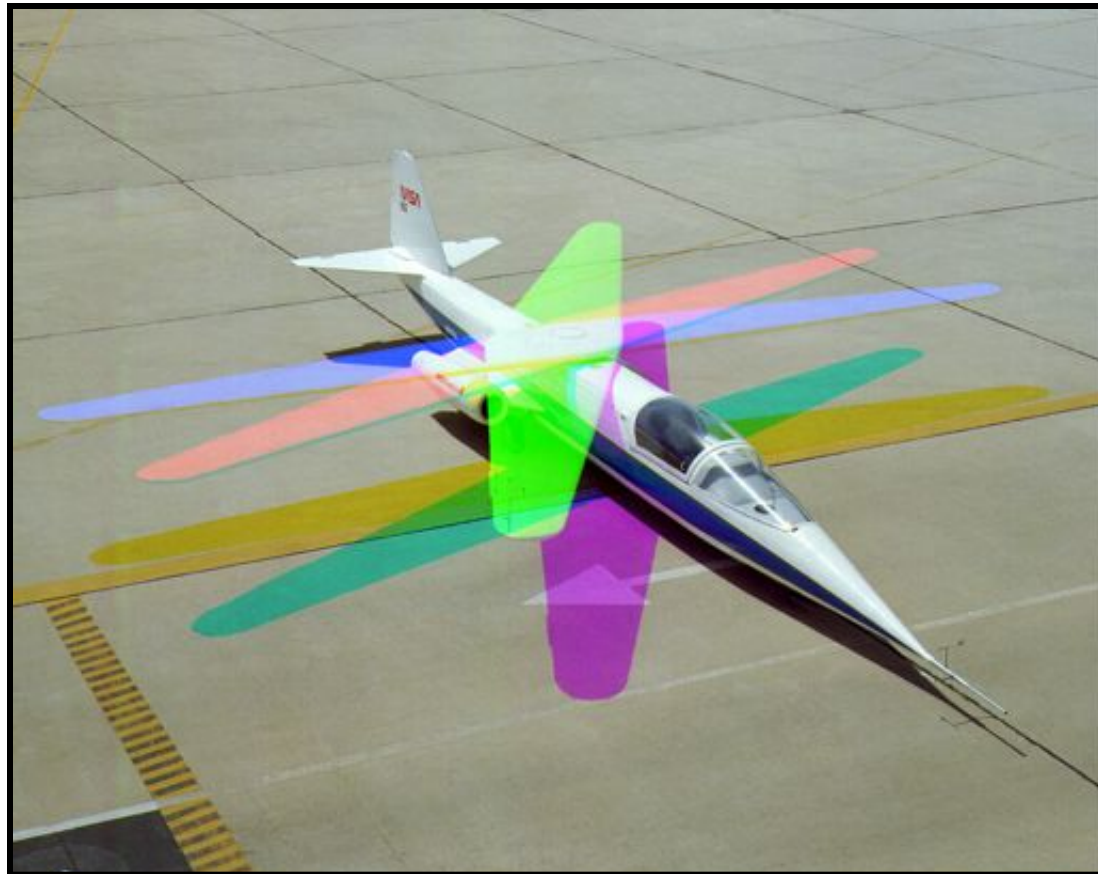


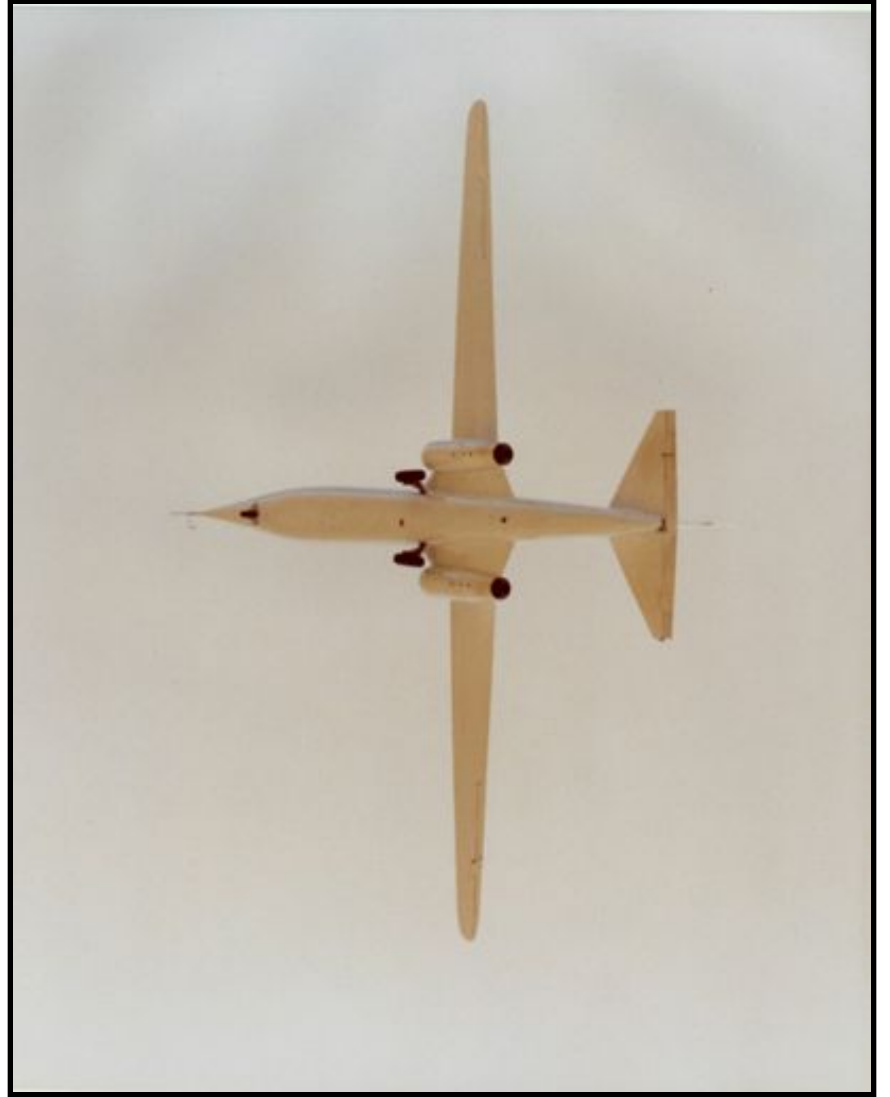
# AD-1 Skew Wing POC

RAF Model 35

## Project Summary

By Burt Rutan





Background that “qualified” me to do  
a NASA Research Aircraft design

BD-5A Designed in Newton Kansas

First flight 1973



# AD-1 Program notes

In 1975, Dick Fischer, NASA engineer and 1964 Cal Poly grad encouraged me to submit a proposal to NASA Dryden FRC for a feasibility study. Plan was for a subscale demonstrator of the skew wing concept. Dick supplied drawings of a Boeing design for a mach 1.3 airliner concept.

AD-1 was the RAF Model 35. Concept and detail design were done in the new Hangar 13 (NC Building) in 1977. RAF projects flown by then were only the VariViggen, POC VariEze and Homebuilt VariEze.

RAF “No Bid” the fabrication program, but later put in a Non-Solicited proposal to do the Flight Tests.

AD-1 was built by Ames Industrial Co, Long Island, NY. Delivered in Feb 1979. That success prompted the formation of Scaled.

First flight was in Dec 21, 1979. NASA pilot Thomas McMurtry.

Tests were baby-step incremental and they finally reached 60 deg skew in mid 1981. X-15 pilot Pete Knight also flew the AD-1.

Flight 79, AD-1's final flight (also by McMurtry) was an Aug 7<sup>th</sup>, 1982 Oshkosh demo, including airshow line passes with 60 deg wing skew

Two NASA RC models preceded the AD-1 POC

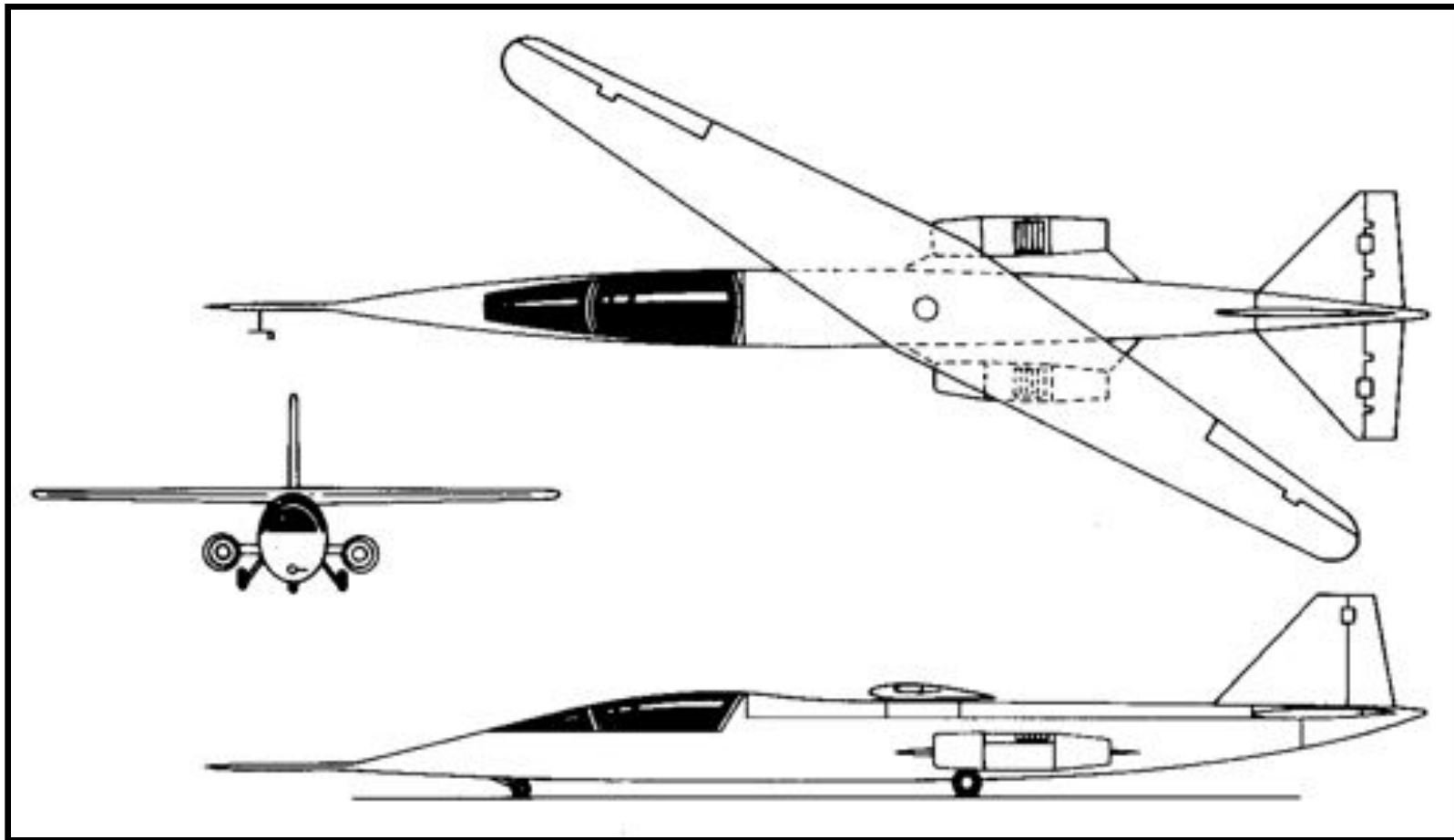


## Model 35 AD-1 Specifications

Microturbo TRS18-046 turbojet engines. 220 lb thrust.

Length 38.8 ft Span 32.3 ft

GW 2,145 lb 1450 lb empty



## AD-1 Program History (1 of 2)

- Propulsion origin was BD-5J 1973
  - Microturbo TRS18-046 turbojet
- Invention of skew wing concept NASA aerodynamicist R T Jones early 70s.
- Failed attempts to fund a transonic test program ~ 1973-75
  - F8 and F104
- The RC models ~ 1976
- Ames/Dryden Customer – name origin
- Unsolicited Proposal for Feasibility study. Provided to NASA FRC on Dec 1975. POC cost estimate 87k\$.
- AD-1 POC was a 15% “semi-scale” model of a Boeing transonic ( $M=1.3$ ) airliner concept.
  - \$740 (too busy for a longer study)
- Design Contract
  - \$15,000 (about 40 drawings on vellum paper with pencil)

## AD-1 Program History (2 of 2)

- NASA released a formal RFP, including the 40 design blueprints. The primes ignored the RFP. RAF no-bid, even though it was 'wired' for RAF.
- Talked Herb Iverson into bidding (experience was building several BD-5s). He won.
- Notification of NASA Headquarters before contract award.
- The Dryden Press release/ NASA Headquarters' panic.
- Proof-of-concept prototype program.
- Delivery to Dryden (Sunday taxi/tow-bar dilemma).
- The NASA test program.
- Oshkosh demo.
- Now in San Carlos Hiller museum.









Model 35 AD-1 at the Hiller Museum

Note RAF Model 40 Defiant in background.

