

## Aircraft Description

The Systems Engineering Directorate (SED) of the NASA Langley Research Center desires to fly a generic Unmanned Aircraft Systems (UAS) aircraft at the 31VA Aberdeen Airfield of Smithfield, Virginia. This project activity is provided to the NASA Aviation Safety Program (AvSP) Office request for developing an Airborne Subscale Transport Aircraft Research (AirSTAR) generic transport aircraft test bed for conducting experiments. AirSTAR UAS will be flown at Aberdeen Airfield in support of the Control Upset Prevention and Recovery (CUPR) element of the AvSP. The typical flight agenda at 31VA Aberdeen Airfield will consist of takeoff, traffic pattern maneuvers, and landing. All flight operations will be conducted in day and VFR “see and avoid” conditions within the confines of the airfield property.

The AirSTAR Project UAS physical characteristics are based on commercially available airborne and ground station uplink control sport equipment operating on 2.4 GHz radio frequencies. The vehicle is a turbine powered high performance scaled trainer constructed of fiberglass and graphite reinforced composite. The vehicle as shown in Figure 2-1 is a Commercial off the Shelf (COTS) designed by BVM Jets and is used by the AvSP test bed program for pilot training and proficiency. The vehicle weighs less than 100 pounds and has excellent aerodynamic stability and control characteristics.



**Fig. 2-1 F-100 AirSTAR Project UAS Scaled Pilot Trainer**

- Designed and Built by BVM Jet Models
- Span: 69 inches
- Length: 83 inches
- Weight : 38 lbs. dry, 49 lb. wet
- Wing Loading: 90.4 oz/ft. sq.
- Engine: Jet Cat P-200 turbine, 34 lbs. thrust
- Fuel: K1 kerosene & turbine oil, 203 oz. capacity
- Flying time: 8 minutes
- Speed: 173 knots
- Kinetic Energy: 65,037 ft-lb
- Flights completed: 60