

JET PROPELLED SAILPLANE

By ALEXIS DAWYDOFF

TO a soaring enthusiast, the most interesting feature of the All American Air Maneuvers, held the week-end of January 13-15, was the French Fouga Cyclone jet powered sailplane. It was flown by the famous French aerobatic pilot Fred Nicole who was accompanied by team manager Marcel Doret, former holder of the International title of glider aerobatic champion, and mechanic Jules Baudet. From our point of view, it was unfortunate that the exhibition consisted entirely of showing off the performance of this excellent machine as a jet airplane and not as an auxiliary powered sailplane, but the French are mainly interested in the application of the power plant for private airplanes. However, two projects for use of the Turbomeca engine in conjunction with soaring craft are in the works at the present time.

The Fouga Cyclone in its present form is a standard all-wood Castel-Maubussin C.M.8-13 sailplane built by Fouga & Cie and modified to take the Turbomeca jet engine. For this purpose the conventional tail surfaces consisting of elevators and rudder were replaced by a V-tail to permit an unimpeded passage for the exhaust gases of the turbo-jet located above the fuselage directly behind the cockpit. A metal plate covers a section of the rear deck to prevent the charring of wood by the hot exhaust. The cockpit is exceptionally roomy and comfortable, reminding one of the Air-100; a moulded plexiglass canopy fits snugly over it. Made of 1/8th in. transparent plastic it is optically corrected and offers exceptionally good visibility, totally free of distortion. Standard sailplane instruments are carried on the panel with the addition of tachometer, temperature indicator, fuel and oil gauges required for the operation of the jet plane. A throttle handle is on the left and a three position fuel valve is on the right. Legend above

the fuel valve reads "Off", "Gasoline", "Kerosene". All starting of the Turbomeca is done on gasoline, immediately after take-off it is switched to kerosene and then back to gasoline just before landing. Starts are easier on gas, and switching back to it on landing assures burning off of all sludge and kerosene deposit, thus keeping the engine clean. A 26.5 gallon fuel tank is carried in the right wing and a one gallon oil tank is located above it. Fuel is fed to the engine and injected into the annular combustion chamber by a rotary injection pump. The power plant, Turbomeca TR-011 manufactured by the Societe Turbomeca, manufacturers of superchargers, consists of a radial compressor, an annular combustion chamber and a single stage turbine. Without cowling, its dimensions are: diameter 16", length 31.7". Weight dry is 100 pounds. The little engine develops 202 pounds of thrust at 34,300 rpm and Nicole told me that for a short period of time it can be revved up to 35,000 rpm at which it develops 220 pounds of thrust. Cruising power is 176 pounds of thrust at 33,000 dpm. Starting is accomplished by a high torque portable electric motor with a long shaft which is inserted into a hole through the air intake screen and coupled to the compressor. Power to the motor is supplied by a battery on a wheel cart. Subsequent Fouga jet powered sailplanes will carry their own starting equipment for restart in the air.

The airframe has a span of 42 ft. 7-3/4 in.; wing area is 139.8 sq. ft., aspect ratio, 13; wing loading under full gross weight condition (1182 lbs) 11.8 lbs. sq. ft. Fuselage length is 21 ft. 10 in. Weight empty is 806 lbs. The Fouga is equipped with rotary semi-disc spoilers and dive brakes as well as flaps. Just

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French team with Fouga "Cyclone" at Miami. Left, mechanic, Jules Baudet; center, Fred Nicole, pilot; right, Marcel Doret, famous French Aerobatic pilot and team manager.



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The "Cyclone" in flight. The standard C.M. 8-13 sailplane had empennage changed to "V" configuration to permit passage of exhaust gases.