FR-1 FIREBALL . . .CONTINUED

operating at highest efficiency at lower altitudes, and the jet engine reaching its greatest efficiency at higher altitudes. With both engines operating, the plane could take off with a very short run and immediately go into a steep climb. Despite the fact that the FR-1 had two separate power plants and was built to typical Navy strength specifications, Ryan engineers were able to keep the gross weight to 9800 lbs., much lighter than many types using but a single power plant.

Two fuel tanks, of 125 and 51 gallons capacity, were carried in the fuselage, and an external, jettisonable tank of 100 gallons capacity could be mounted under the starboard wing. These three tanks fed either or both engines, as the jet unit had been modified to use the same fuel as the reciprocating engine. Providing that sparing use was made of the jet unit, the very low percentage of the total power required for cruising gave the Fireball its unusually long range of 1,500 miles. Maximum speed was 425 mph. Because of the engine layout, none of the swing or turning difficulties associated with single-engine flying on a conventional twin were experienced.

Maintenance also received careful attention. The fuselage was designed to be separable into two main sections just aft of the wing. This feature, in conjunction with the tricycle landing gear, made engine changes very simple, either engine being replaceable within four hours. Being a carrier-based aircraft, the wings could be folded just outboard of the main landing gear for economy of space. The main gear retracted outward into the main folding section of the wing. This left room in the inboard wing for the jet air intake ducts, set in the leading edge adjacent to the fuselage, and two 50-cal. machine guns just outboard of the ducts on each side. An advantage of this layout was the accessibility of the guns for servicing with the wings folded. For carrier landings, an arresting hook was hinged under the fuselage just forward of the break point. Having the arrestor hook near the center of the airplane made it possible to land much farther off center of the deck without damaging the craft, and the tricycle gear permitted flying right onto the deck, if necessary.

In addition to the four 50-cal. guns, four rockets could be carried on detachable mountings on the outer wing sections, as well as two 1,000 lb. bombs slung under the inner wing sections.

Design work had commenced in 1943 and production was proceding at the time of the Japanese capitulation. Sixty-five FR-1s were built, together with four experimental models which differed from the production type mainly in power plant installations.

One final note: On November 6, 1945, a Fireball, with its nose engine unserviceable, made a successful landing on the U.S. aircraft carrier "Wake Island" off San Diego using *only* its rear jet unit. This was claimed to be the *first* occasion on which a pure jet landing was made on a carrier.

CONSTRUCTION

Fuselage: Start construction with the fuselage. Cut out the fuselage crutch which is shown in heavy outline in the top view. Note small cutout in the aft portion of the crutch to admit the tab of vertical stabilizer section V1, shown in side view. Cover the plans with wax paper and pin the crutch over the plan on a flat surface. Cut out fuselage formers F12 through F20. Formers F17, 18 and 20 are plywood. Bend landing gear from 1/8" wire and attach main gear to front of F17 and the nose gear to the rear of F20 with J-bolts. Glue formers F12 through F20 to the crutch, making sure all are normal to the crutch. When dry, glue a 1/4" sq. strip down the centerline of the formers from F12 to F20. This will give the formers support during the rest of the fuselage construction. The assembly can now be removed from the board and

Continued on page 54)