

Virginia Aviation History Project Report

Linda Burdette



Fairchild F-24 G “Deluxe”

Pilot Report

By

Tom Woodburn

One of the more enjoyable aspects of the past 30 years of flying has been the opportunity to fly a wide and varied selection of airplanes. Some airplanes I have flown, such as the DC-3 and B-727 marked significant changes in the way we travel. Others marked turning points in general aviation development, the Luscombe 8 series for manufacturing efficiency and Walter Jamouneau’s J-3 for its low cost and sheer number of pilots trained both come to mind. With few exceptions, all the airplanes I have flown to date have been a challenge and several were just plain fun to fly. In the “just plain fun” category, Fairchild’s F-24 G is close to the top.

History

Krieder-Reisner of Hagerstown, Maryland, a division of Fairchild Aviation Corp., developed a light, two-place cabin monoplane that was introduced to the public in 1932. This new airplane designated the F (Fairchild) -24 model C-8 began a manufacturing run that would extend to WW-II and the model F24-W40. Post war production would continue as the F24-W46 by Texas Engineering and Manufacturing (TEMCO) of Dallas, Texas and end in 1949. Throughout the 15 year production run Fairchild made improvements to the F-24, increasing load, speed and range with horsepower increases from the 95 HP Cirrus “Hi-Drive” through the 165 HP Warner “Super Scarab” up to the 200 HP Ranger 6-440 C-5. The F-24 production used engines by Cirrus (A.C.E.), Menisci, Warner and Ranger (Fairchild). During WW-II the U.S. Army ordered the airplane, designated UC 61K (Ranger) and UC61A (Warner), and 2 versions were sold to the British as the Ranger powered “Argus” and Warner powered “Forwarder”.

NC 19123

My experience with the F-24 came by way of NC19123, a 1937 model G “Deluxe” powered by the Warner SS 50 “Super Scarab” of 145 HP. This “Deluxe” version included such niceties as full wheel fairings, flaps, roll



down windows and a hand rubbed, three color dope finish of Loening yellow, Fairchild blue and white. 19123's color scheme duplicates the original as designed for Fairchild by Raymond Loewy, the noted industrial designer. The added weight of the "Deluxe" limited it to a 3-place airplane while the "Standard" G model, without the extras, could carry 4. When I flew 19123 it was based at the Shenandoah Valley Airport in Weyer's Cave, Virginia and was owned by Lyall Steger of Grottoes, Virginia. Lyall had the airplane restored in the early '80s by Al Jenkins and Joe Mathias of Norfolk, Virginia. It was

and still is a magnificent example of a restored F-24 and is currently in the collection of the Virginia Aviation Museum.

Overview

A quick overview of 19123 shows us a conventional high wing monoplane with a 36'4" span and an overall length of 23'10". The construction is typical for the period with an SAE 4130 tube fuselage frame faired with wood formers and stringers. The wings, horizontal and vertical stabilizers are also wood with steel tube elevators, rudder and ailerons. The flaps are aluminum. The structure is covered with "Ceconite" synthetic fabric (cotton was used originally) and finished with butyrate dope. Landing gear and wing struts are SAE 4130 streamline tube. A gross weight of 2400 lbs. allows for two passengers with a lot of baggage with full fuel at 40 gallons and full oil at 3 gal. With 30 gallons of fuel you can easily carry 3 adults with some room for bags. There is no baggage compartment on the G, just space under and on the rear bench seat. Two large doors on either side of the fuselage provide easy access to the front seats, which fold forward to allow entry to the rear of the cabin. A step on the landing gear strut makes the climb over the waist high door sill a bit easier. Dual stick and rudder controls are provided to the individual front seats with the right side controls removable to comply with then current CARs. The elevator tab is actuated by a ceiling mounted crank and includes a position indicator to set takeoff trim based on loading. Toe type brake controls are on the left side rudder pedals only and actuate the 10" Hayes shoe type brakes through cables, providing the only directional control at low speeds due to the non-locking tailwheel. A parking brake lever is installed on the left side. Engine controls are located in the center panel and include Shakespeare throttle, carburetor heater, mixture, spark advance/retard and Bendix ignition switch. A cabin heat control is also located in this group. The split flaps are actuated by a 3-position ratchet type lever with push button release



providing full up, mid and full down selection. The flap lever is on the centerline of the cabin floor just aft of the instrument panel and is accessible to both front seats. Electrical power is provided by a Champion 12 volt wind driven generator mounted on the landing gear/wing strut truss and a 12 volt battery on the firewall. Engine starting is by an Eclipse Y-150 electric starter. Basic blind flying instruments are installed on a shock mounted insert on the left panel with secondary instruments at center and right. Originally the F-24 had shock mounted panels on both sides of the panel but this airplane has been modified with only one. A VHF transceiver and ATC transponder are installed on the right panel. The fuel system consists of one 20 gallon tank in the inboard end of each wing, individual electric panels ahead of each cabin door, external tank drains and a strainer ahead of the firewall. A three gallon oil tank is located ahead of the firewall and is accessible through a door on the boot cowling. The 145 hp Warner "Super Scarab", 7 cylinder radial engine is equipped with a fixed pitch Sensenich wood propeller, NACA ring cowl and oil cooler. This particular engine has no top end pressure lubrication and is thus known as a "greaser", requiring periodic removal of the cowling and rocker boxes to clean and re-grease the 14 rocker arm bearings.

Let's Fly!

19123 rolls out of the hangar easily on its 6.50 x 10 wheels even at 1750 lbs. with full fuel and oil. The tailwheel does not lock so care must be taken with tail clearance in a "T" hangar. This tailwheel also presents a ground handling problem in a strong wind so it's best to have help as the ship will weathervane and you will not stop it from turning into the wind when alone. When you're finished pushing, chock both wheels and start the preflight. Preflight offers no surprises though pay particular attention to ring cowl security and the wood propeller. Also, check the wire clips holding the caps on the Breeze spark plug radio shields. These caps position the ignition lead on the spark plug and if loose will keep the plug from firing. Fuel drains at each tank and the nose are easily accessed from the ground and the tank fillers and vents can be reached by a step provided on the forward side of the landing gear struts. The oil tank filler is also easy to reach through a door on the boot cowl. The boot cowl is secured by trunk latches and, when open, will provide full access to the accessory section of the engine and all oil pipes. When satisfied with the airplane, button up the cowling and we can prepare the Warner for starting. Begin with the fuel and ignition off, pull four blades on the prop to check for hydraulic lock in the Warner. Any resistance indicates oil in a lower cylinder and then it's off with the cowling and out with the rear plugs. With the preflight complete, set the parking brake, pull the chocks and climb in.



All controls are easily reached and logically placed making the -24 easy to operate. Starting the Warner is straightforward:

both tanks to "on", mixture "rich", throttle cracked, spark to "retard", two shots on the primer and you're ready. Master to "on", start button press and after four blades ignition to "both". Smoke and noise should result. Check for oil pressure, set spark control to "advance", head into the wind and warm up at 800 rpm.

Magneto and carburetor heat checks are done at 1500 revs. Ignore the ammeter as the prop blast does not turn the wind generator fast enough to produce voltage and, unless necessary, leave all the electrics off to help the battery. You can turn them on just prior to takeoff.

To taxi, use rudder, engine and brakes, remembering the tailwheel just keeps the back end from dragging and won't help you steer. On ground level with no wind she'll roll straight but any slope or crosswind requires correction. I let the airplane "S" in these conditions, correcting when I get too near the edge of something, as I don't like to ride the brakes and constantly blasting the rudder is tough on the engine. This airplane was built when airports were open grass fields, not narrow paved pathways edged with signs, lights and ditches and you need to keep this in mind when maneuvering on the ground. The -24 is a well behaved airplane but patience and caution work well here. Visibility over the nose is good, some minor "S" turning being required. In warm weather I would just roll down the side window and stick my head out to see, either way works fine.

Takeoff

When the oil is warm and you're ready to go, check your trim setting in the overhead against your load, the engine and flight controls for correct operation, and the wind sock so you're aimed in the proper direction. This is not an airplane to make down wind takeoffs or landings. Line up on the runway, bring your power up easy, you're looking for 2050 maximum rpm, and you'll find that rudder alone will take care of directional control. A stiff wind from the left may require some right brake until the rudder starts to bite but go easy here as the brakes are very effective. With the control stick at neutral elevator the tail will fly up on its own with the airplane flying off in less than 500 feet at full load. 19123's propeller is biased toward climb and she gets off quickly even when at the 2400 lb. gross weight. This prop does limit the cruise speed a bit. Climb speed is a compromise between altitude and engine cooling with 80 mph giving best rate of climb. At this speed the best you can expect is a climb of 600 fpm so my choice is to lower the nose once I'm out of 500 feet and head off to where I am going at 90 to 95 mph.

Cruise

At cruise altitude, level off and set 1700 to 1800 rpm. (Use the Warner charts). At 75% power 19123 would turn a solid 10 indicated at 4500' msl (remember the climb prop). Fairchild claimed 118 mph for this airplane and I think it would do it with a cruise pitched propeller and it definitely would with the optional Curtiss Reed prop. Once settled down at altitude, you can check the mixture and then relax. At 7-1/2 gallons per hour you could fly 5 hours and 20 minutes with full tanks and the front seats are comfortable enough to do it. With the Warner's cruise fuel burn the G can carry a good load with less than full tanks while still covering a respectable distance. Besides, I think two hours in the rear seat for an adult should be considered a limit. Watch the fuel gauges and use the individual fuel valves to balance any wing heavy tendency due to uneven draw from the wing tanks. In cruise the F-24 is truly a lazy man's airplane. The flight controls are wonderfully



harmonized in all three axes and aerodynamic balancing makes them light to the touch but not overly sensitive. The differential ailerons help with adverse yaw and the rudder is very effective at all speeds through landing rollout. All controls are on ball bearings and, combined with push pull tubes to the elevator, rudder and ailerons, make for a low drag, no slop system. Flight maneuvers, including stalls, are straightforward and the airplane exhibits no bad characteristics. Out of deference to the gyros I did not spin the airplane but I expect it would be equally well behaved. The view through the safety glass windshield is spectacular as the nose moves well down in level flight while the side and rear windows provide excellent visibility everywhere but directly behind. One thing to be aware of while flying the Warner powered airplane is a phenomenon associated with the “greaser” engine and the location of the exhaust collector. I was cruising over the Shenandoah Valley one sunny afternoon when a burst of smoke blowing across the windshield made me sit up very straight. It happened again and two things immediately went through my mind: Where am I going to put this thing down; and, It’s not my airplane so how am I going to explain the smoldering remains to the owner! Heading for the big airport, one emergency landing field at a time and expecting unwanted noise or silence from the engine; it became obvious that when the smoke appeared it was short lived. When a large glob of grease hit the windshield I realized it was rocker bearing grease oozing from the unsealed rocker covers blowing back onto the exhaust. I began breathing again and continued the flight with an old airplane lesson seared in my mind. I think you will find the F-24 to be great for just messing about in the air while still being a very comfortable and capable cross country machine.

Landing

Don’t let anyone tell you this is a hard airplane to land. The approach is stable and predictable and when landed on grass, the surface this airplane was designed for, you can almost close your eyes and put your feet flat on the floor for rollout. In no wind, if you touch down straight, the airplane will roll straight while the wide gear with its long stroke oleo struts and the 6.50 x 10 tires smooth out any bumps in the strip. Approach the field with both tanks on, the mixture rich and set flaps for full down on final. 60 mph works well across the fence with the flaps full down and 69 mph with them up. Touch down in the three-point attitude will be at just under 50 mph. Wheel landings are as easy as three-point but, personally, I see little reason to land that fast so I stick with the three-point, even in crosswinds. The split flaps add a little lift but their main contribution is extra drag. They really help to get the nose down out of your way giving an excellent view during the entire approach. No flap landings are different only for the slightly higher approach speed and more cowling in the windshield. Rudder control is adequate until very slow and then the brakes can be used to check any excursions. One note of caution about this airplane: the landing gear that makes the F-24 so pleasant on grass will eat you for lunch on asphalt. Add a crown to the runway and a grooved surface and you will be convinced you should quit flying and take up stamp collecting as a hobby. In 1985 I spoke with Richard Henson, my boss at Henson Airlines, about the F-24. Henson was Fairchild’s chief test pilot from the Krieder-Reisner days at Hagerstown through the FH-227 program and his name was listed in 19123’s logbook as the production test pilot. Even after 50 years he clearly remembered the airplane’s handling qualities for which he had high praise. When we got to the ground handling part he said, “That was a sweet airplane on grass, but put it on pavement and it was one nasty airplane”. I couldn’t agree more. As the Shenandoah Valley Airport’s runway was built to accommodate the one Piedmont 737 a day to Roanoke and not ‘30s vintage airplanes, I learned a lot about asphalt and old airplanes. My trick on asphalt was to make a firm three-point landing to compress the struts and spread the wheels out quickly and evenly. This went a long way to keeping the airplane straight on rollout. In a crosswind on a crowned runway I would favor the left or right side of the runway letting the turning tendency caused by the slope to help counteract the weathervaning effect of the wind. With strong crosswinds I would angle across the runway, even using the exit to the taxiway to roll out on. My motto was “Someone paid to pave that

runway 150' wide so I may as well put it all to use!" The F-24 was always manageable but you needed to stay focused when on the hard surface to keep out of the weeds.

Shut down is typical for a small radial. Set 800 revs to cool the engine and scavenge the oil and shut off the fuel to let the carb run dry. Service the fuel with 80 octane mixed with "Marvel Mystery Oil", this helps the top end, and keeps the oil tank at three gallons with Grade 100 oil in the summer, 80 in the winter. The Warner runs dry, except for the rocker grease so clean up is easy. It couldn't be easier.

Final Impressions

What a wonderful airplane the F-24 is. Fairchild identified a market (2 place cabin type) and designed a great airplane to serve that market. The F-24s combination of speed, range and handling, all for the 1932 price of \$6700.00 was difficult to match. Even today, maintenance issues aside, I think it beats a modern "Skyhawk" or "Cherokee" hands down. 19123 itself is a wonderful example of a fine airplane and stands out as one of the nicest flying machines I have been privileged to fly. If you should get a chance to fly any version of the F-24 don't pass it up or you will miss a real treat. And don't forget to call me; I would sure like to ride along.



Big Fellow

By

Beirne Lay, Jr. (1)

As appeared in "The Sportsman Pilot", September 15, 1938

The Boeing B-15 bomber recently turned over to the 2nd Bombardment Group at Langley Field, Virginia for service test has been referred to in the papers as the "Army's Mightiest Bomber," the "Sky Battleship" and the

"Super Flying Fortress." It is. In size, defensive fire power, bomb capacity and eventually in speed, it's a tall drink of water. You don't get the idea from a photograph or from watching the big fellow rumble by overhead. You have to ride inside on a few hours' trip to understand what 150 feet of wingspread and 34 gross tons of weight involve. I recently had the opportunity to make such a trip.



The Sportsman Pilot, Sept. 15, 1938

A view from the cockpit of a Cyclone-powered Boeing B-17 as it passes over the last ridge of the Siskiyou Mountains from Oregon into northern California.

The B-15 was sitting on the grass in front of the 2nd Bombardment Group Headquarters with a B-17 and a two-engine B-18 lined up beside it. The B-17 looked about the size of a Beechcraft by comparison and the B-19 showed up like the tail section of a cub. They