

MOTORFALKE

The Motorfalke two-place powered sailplane is certainly a remarkable and possibly a very significant development in soaring. The Motorfalke is the world's first general purpose, low-cost, two-place, self-launching sailplane to be produced in quantity. Its performance as a sailplane is good (better, in fact, than many utility trainers), and since it is provided with a tow coupling, it can be winch-launched exactly like a normal training sailplane if desired. With engine running take-off and climb performance is as good or better than usual with airplane tow. The engine can be stopped and started in the air, and thus flights can be extended as desired. Considering these facts, plus the machine's good handling characteristics and low initial and operating costs, the Motorfalke could well cause revolutionary changes in training methods. The banishment of the perennial curse of soaring, dependence on a crew for launching, could also make the Motorfalke popular in the United States for general pleasure flying.

The Motorfalke has a conventional lightplane configuration: engine in nose, high-mounted cantilever wing, and side-by-side seating. The landing gear consists of a large mainwheel half-buried in the fuselage and two removable eight-inch outrigger wheels, plus tailwheel. The engine is a Hirth 4-cylinder two-cycle aircraft engine developing 26 HP and driving a 63-inch propeller through reduction gearing. The engine is started from the cockpit, both on the ground and in the air, by a pull-cable starter.

Since the wing and flying weight are about the same as for the Bergfalke, the Motorfalke is able to make the slow, tight-radius turns necessary for soaring. Normal circling speed is 40-45 mph and minimum sinking speed about 2.6 to 3.1 fps, depending on loading. Best glide ratio is 22. The Motorfalke displays excellent handling and slow flight characteristics, about like those of the Bergfalke.

With the engine running the Motorfalke sounds like a well-muffled two-cycle motorbike. Its take-off performance is astonishing for such a small engine. One becomes unstuck after a run of about 330 to 650 feet depending on loading, and a 50-ft. obstacle can be cleared in less than 1500 feet at maximum gross weight. Rate of climb is 250 to 400 ft./min. Maximum level airspeed under power is about 93 mph and, if desired, the machine can be flown for over two hours like a normal airplane.

On my second visit to the Scheibe works I had the benefit of lighting in the plant that was sufficient to permit taking a series of snapshots showing various stages of the construction process. In addition, I was privileged to witness the assembly and flight test of four ships during my visit, and I made a most interesting flight in the Motorfalke with Dr. Hartmann. The Motorfalke turned out to be a most interesting machine, in particular for training purposes, since the seating arrangement is side by side and the engine can be started from the cockpit in flight. I immediately thought about what an ideal solution this machine would be to a problem we have had in our flight training operation, that of being able to fly to an area of lift (shear line, or roll clouds for example) that is not within safe reach of the airport for a ship of limited performance. As to handling characteristics, the Motorfalke, like its parent ship the Bergfalke, is, as they say

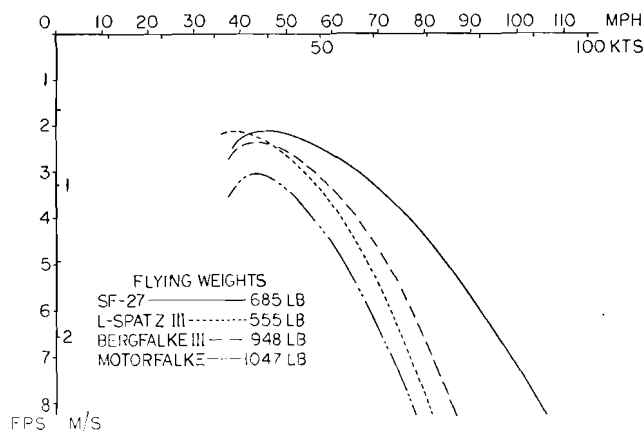


Table 1: Performance curves of four Scheibe gliders.

in German, "sehr gutmütig" or "very good-natured." Another nice feature are the auxiliary wheels (outrigger type) on either side of the main landing gear wheel. These permit the ship to be operated without the need for a wingtip runner and keep it from resting on a wingtip when parked or coming to a stop on the ground.

In evaluating the flight-performance characteristics of the Motorfalke, I thought it would be interesting to measure the time it took to climb 2,000 feet from the field, since this is the normal tow height we use for instructional purposes in our flight group. We were flying in a dead calm. Temperature was about 65 degrees F, and the field elevation approximately 1,000 ft. MSL. From the start of our takeoff roll to the point where we reached 2,000 ft., following a rectangular pattern with six 180-degree turns, our elapsed time was just under 13 minutes. This is only three minutes longer than the average aero tow at El Mirage using our Schweizer 2-22. We cruised around at this altitude with power on to get the feel of the ship, then cut the engine and did some turns, stalls, and slips. Unfortunately, there was no lift to be found so I couldn't find out how the ship handles when thermalling, but its response to the controls and behavior in stalls is certainly excellent. Because of the wing's taper (18 percent at the center, tapering to 11½ percent at the tips), the onset of stall is very gradual. No matter how hard one pulls the stick back in a stall there is no break and drop. Instead the nose raises, speed gradually drops, and the sink rate increases. These are the only tangible evidence that the ship is stalled. Recovery is very rapid, with good aileron control throughout, since the usual loss in forward speed is considerably lower than that of other ships. During the approach I purposely came in high since I wanted to see how effective the DFS spoilers were in limiting the speed buildup during a steep final approach. I had to apologize to Herr Hartmann since I had not forewarned him of my intentions and he had no way of knowing how skilled (or whether) this German-speaking visitor really was. With full spoiler the Motorfalke came in at about 7:1 in a dead calm and never gained a knot during the entire approach. My only regret was that we couldn't stay up longer and do some real soaring, but I hope that it won't be too long before I can fly the Motorfalke again, this time in California. Yes, I ordered one, and an SF-27 too, both to be delivered next year.