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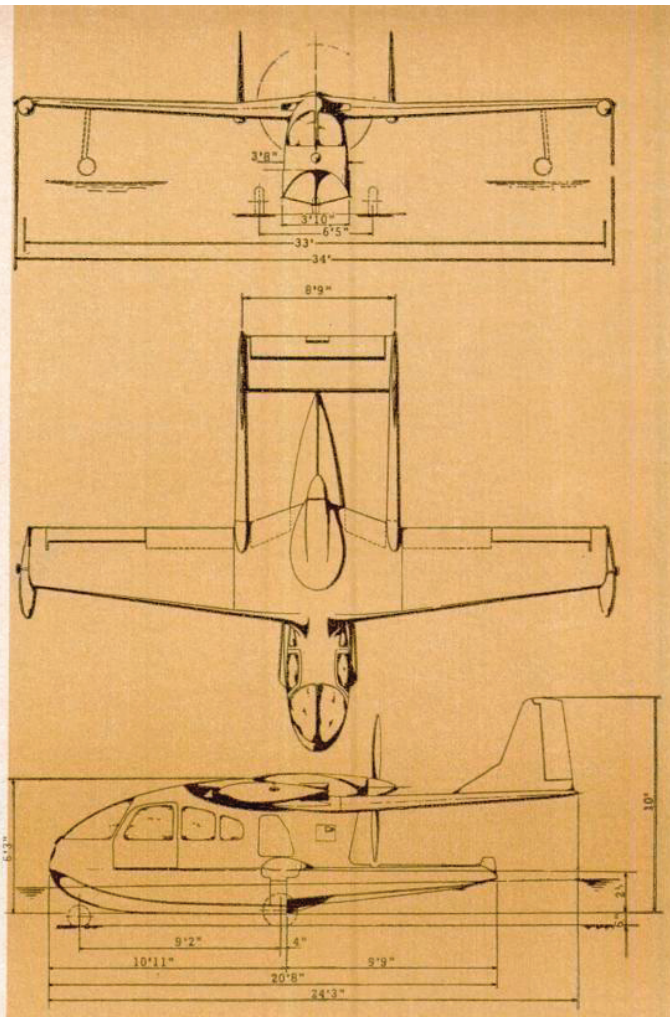
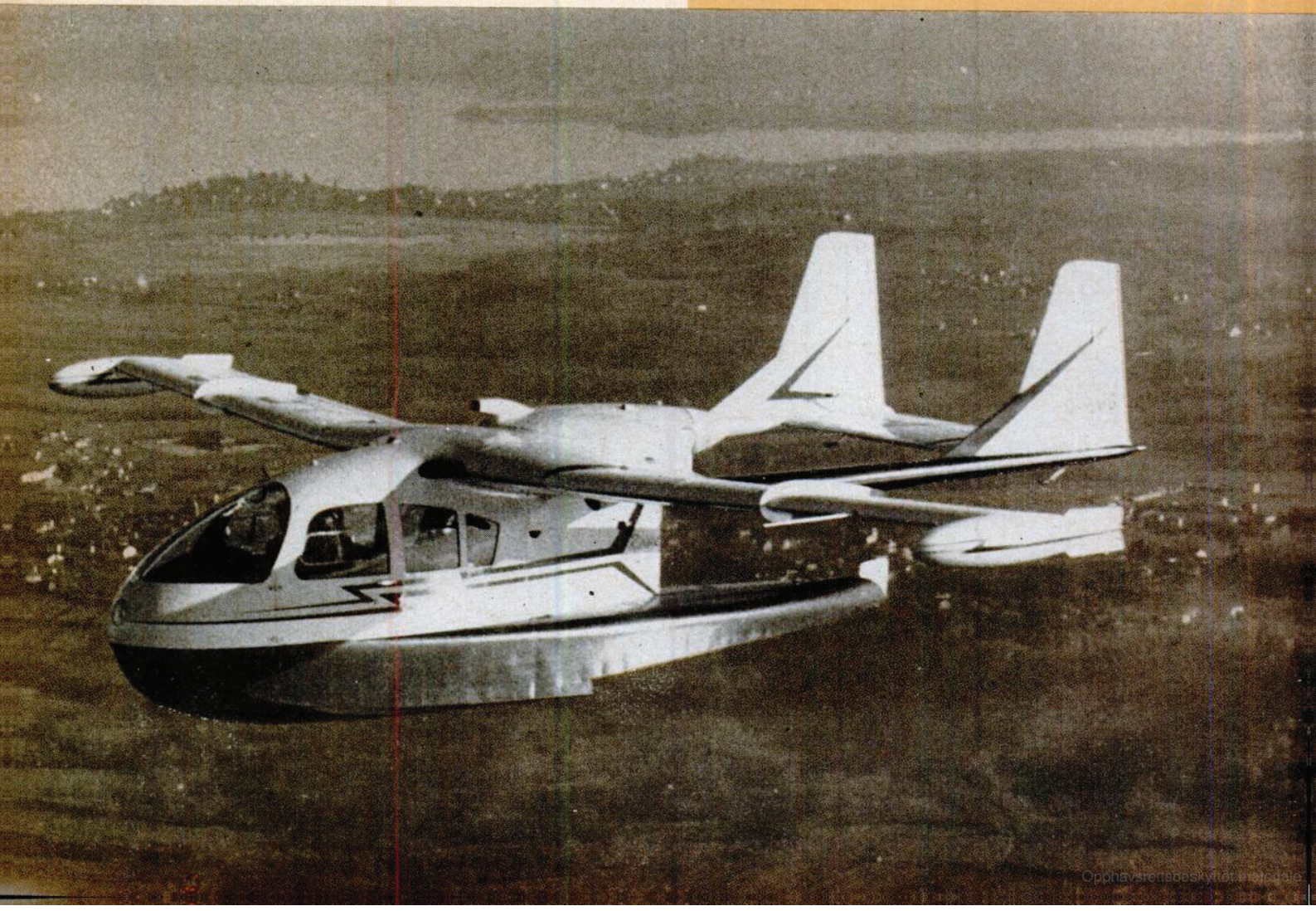
PILOT REPORT

Performance and engineering details of the new, single-engine Italian import, about to be marketed here in the States

By VICO ROSASPINA

RIVIERA AMPHIBIAN





SOON to be marketed in this country by Lane Aircraft Co., Dallas, Tex., the Italian single-engine amphibian, SIAI Marchetti Riviera, is a sturdy four-place, all metal aircraft with exceptionally good performance. The airplane, subject of this evaluation for FLYING, was flown by the author at the SIAI Marchetti facility at Vergiate, Italy prior to its shipment to the United States.

The rather unusual configuration of the amphibian was dictated by the desire to obtain best efficiency both as a landplane and a seaplane. The high placement of the pusher engine and the boom-supported empennage permits the propeller and the tail surfaces to be kept out of the water spray during takeoffs and landings. The retractable wing floats, which fold against the wing tips when not in use, serve a dual aerodynamic purpose of reducing drag and acting as tip plates, thus increasing the aircraft's efficiency.

Power is provided by a Continental I0470 fuel injection engine of 260 hp at 2,600 rpm for takeoff. The propeller is a Hartzell constant speed, reversible pitch. The entire structure of the Riviera is corrosion proofed according to U. S. Navy specifications. Common steels are used only where it is absolutely necessary. All structural members which come into contact with water are fabricated of either alluminum, stainless steel or nickel alloy. Care has been taken that dissimilar metals do not come into contact with each other, to prevent corrosion through electrolytic process.

For the evaluation, the Riviera was flown with 30 gallons of fuel and 3.5 gallons of oil. Standard fuel capacity is 37 gallons contained in two rubber cells located in the center section of the wings. Two auxiliary tanks of 14 gallons each can be installed in the outer wing panels, giving a total capacity of 65 gallons. With three people on board—myself, the copilot and a passenger—the total weight of the aircraft was approximately 2,820 pounds. Maximum permissible gross weight is 3,720 pounds.

Above: After a 1,500-foot run the Riviera is airborne from a lake. Aircraft was originally designed by Fiat-Nardi and still bears designation FN-333. The SIAI-Marchetti firm then acquired license to build the amphibian in 1959.

Left, above: Three-view of the Riviera to be marketed by Lane Aircraft Co. *Below:* Riviera in flight shows its clean lines. Note aerodynamic fences on wings which retard progression of stall from wing roots to the tips, making ailerons effective when inboard sections stall.

Access to the cabin is through two large doors on each side of the forward hull section, and entering the cabin is as easy as getting into an automobile, even for the ladies with narrow skirts. The cabin is roomy, and its eight windows offer excellent visibility and plenty of light. The seats are bench type equipped with foam rubber cushions. The forward one is adjustable fore and aft with both backs folding forward to permit entrance to the passenger compartment. There is space for luggage under the rear seat as well as generous room behind. Total baggage capacity is 330 pounds.

The airplane was equipped with dual controls and standard instruments consisting of airspeed indicator, sensitive altimeter, rate of climb, turn and bank, clock, magnetic compass and outside temperature gauge, all located on the left side of the panel. Grouped on the right side were the engine instruments: tachometer, manifold pressure gauge and fuel pressure indicator.

The stall warning indicator also is placed on the same side. On a small panel below are two fuel quantity indicators, one for each tank; oil pressure gauge; cylinder temperature indicator; hydraulic pressure gauge and the ammeter. Radio equipment consisted of a 36-channel VHF unit.

Throttle control, with vernier adjustment, propeller pitch control, mixture control and the elevator trim wheel with continuous position indicator are in the center of the panel.

Flaps, landing gear, wing floats and the water rudder, located in the stern of the hull, are hydraulically operated. Three selector controls, for gear, flaps and tip floats are located on the center pedestal. The water rudder is operated by a button on the control wheel. Position of landing gear and floats is indicated by six warning lights on the instrument panel.

Two top lights, red and green, indicate gear up or down; two lower ones show wing float position, while two lights on the side bear the words WATER (on the red one) and FIELD (on the green one) to indicate whether the aircraft is in seaplane or landplane configuration. Thus when the gear is retracted and the floats are down, the red indicator with the word WATER lights up. Conversely, the green FIELD light indicates landing gear down and floats retracted. A manual emergency hydraulic system, operated by hand pump, is provided in the event of main system failure.

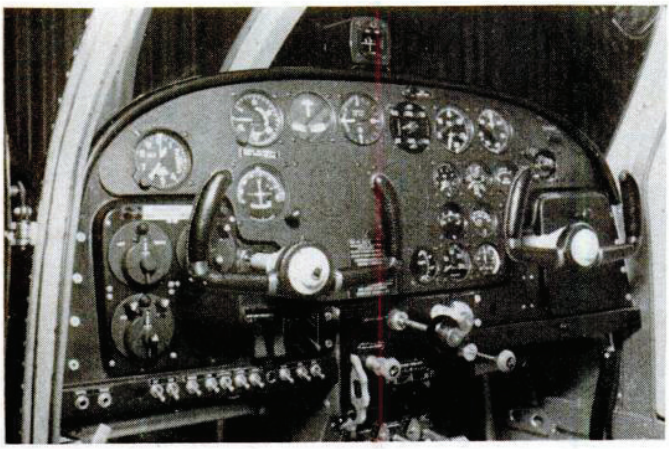
Flap position is shown by a dial indicator located on the console, just below the throttle.

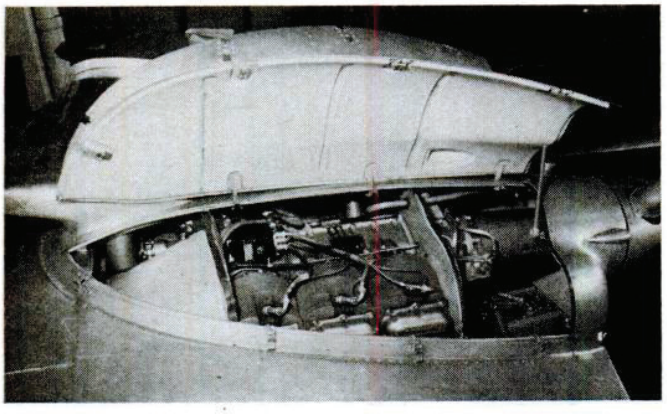
The electrical system consists of a 24-volt d.c., 25-amp. generator with dual voltage current regulator and a 24-volt, 20-amp.-hr. battery located in the bow. The battery is easily accessible by unfastening the quick-disconnect landing light panel. Fuel pump and fuel booster pump are electrically driven. Circuit breakers are located in a small receptacle on the right side of the instrument panel. Cabin heating and windshield de-

frosting is provided by two heat exchangers placed on engine exhaust pipes. Hot air is drawn from the exchangers into a mixing box to which cold air is admitted from two air scoops in the leading edge of the wing center section. Ducts from the mixing box vent air to the cabin and the windshield. A three-position push-pull knob permits regulation of the system to the desired temperature. In addition, the windows in the doors are designed so that they can be opened.

The schedule called for flights from both land and water in order to properly evaluate the entire performance range of the aircraft. As the Riviera was based at the Vergiate airport, the initial takeoff was from land.

After going through the check list procedure, the Continental engine was started and warmed up. It was easy to hold the airplane against the thrust of the propeller with the effective parking brake even when revving up to full power. As soon as all the engine instruments were in the "green," the aircraft was taxied out to the active runway using the grass strip on the side to test the shock absorbing qualities of the landing gear.





Above: Flight instruments and radio are grouped on the left, engine instruments on the right. *Below:* Engine is a Continental 10470-H 260 hp.

Visibility out of the windshield is excellent both forward and to the sides due to the generous glass area and because the nose is not encumbered by a cowled engine. It is almost like sitting on the glass-enclosed veranda.

Changing direction while taxiing is no problem; ground maneuverability is very good and the nose wheel steers easily with the rudder pedals. The Nardi shock absorbers give a smooth, comfortable ride, even on rough terrain, and are capable of absorbing ground loads at taxiing speeds as high as 50 mph.

Takeoff was made with 20 degrees of flap, requiring a ground run of 900 feet. The Riviera became airborne at an indicated airspeed of 75 mph (1.3 of stalling speed). At this speed, the airplane held its course well and was easily controllable in all three axes. At 105-110 mph IAS (20 degrees C outside temperature) the aircraft climbed at better than 1,200 fpm with gear and flaps retracted.

Leveling out at 3,500 feet, we proceeded with speed and stability tests. At 65 per cent power (2,250 rpm and 22 inches mp) the indicated airspeed was 150 mph; at 75 per cent power (2,400 rpm and 24 inches mp) the IAS was 155 mph. Static stability tested, in cruising configuration, from a minimum IAS of 95 mph to a maximum of 170 mph, with C.G. location at 29 per cent, showed the airplane to be statistically stable. Return to original trim position was accomplished with minimum oscillation. The airplane also proved to be dynamically stable as it took only four oscillations and 58 seconds to return to trimmed attitude (65 per cent power) after having been put through an oscillation phase with speeds varying between 105 mph and 190 mph IAS.

Encouraged by these good stability characteristics, we climbed the Riviera to 5,000 feet, where the airplane was put through normal and accelerated stalls in various configurations: with power off and on, landing gear, flaps and wing floats retracted and extended. Stalling speed varied from a minimum of 65 to 70 mph with power on, flaps and undercarriage extended, to 85 mph maximum in accelerated turns and side slips. The stalls, in most cases, terminated in clean downward pitch; tendency of a wing to drop developed only during stalls executed in turns or with power on. Even then, they were easily controlled.

At the end of these tests we proceeded to Lake Como to shoot water landings. Making sure that the landing gear was retracted and the wing floats down, a long approach to the lake was made at over 90 mph without flaps, but as soon as the flaps were extended we were obliged to slow down to around 80 mph in order not to come in short with excessive speed. After touchdown, control remained effective, and taxiing turns below 30 mph could be made without the use of water rudder. The water rudder is exceptionally useful on a windy day as precise water maneuvers can be made with it. The lake was calm that day, but the Riviera has been landed in a 15-knot cross wind on waves 2.5 feet high.

Here in Como, our passenger debarked and the two of us took off for the SIAI Marchetti airport at Vergiate. With 20 gallons of fuel remaining, and 20 degrees of flap, the Riviera got on the step, with slight forward control pressure, after a run of 1,000 feet. In another 500 feet it was ready to fly and a slight back pressure got it off the water at 80 mph IAS. A quick climb brought us to 4,000 feet in three minutes, following which we proceeded to the home base at cruising speed. The wing floats were retracted immediately after takeoff.

Approaching Vergiate airport, the landing gear was extended at 100 mph and the aircraft was landed with 45 degrees of flap. Ground-landing characteristics of the Riviera are completely conventional and similar to such single-engine U.S. aircraft as (*Continued on page* 58)

Riviera

(Continued from page 34)

the Comanche or the Debonair.

In my opinion the Riviera is a fast, comfortable airplane with a high utilization factor because of its amphibious qualities. It is easy to fly and is tailored to the capabilities of landplane pilots. As a seaplane, it has certain limitations imposed by its small size and light weight. Nevertheless, its ruggedness and excellent corrosion protection make it suitable not only for lake operations but for flying off salt water too.

The Rivieras marketed in this country will be shipped from Milan, Italy to Dallas, Tex. minus engines, propellers and instruments. Southwest Airmotive in Dallas will assemble the airframes, mount the powerplants, which will be Continental I0470Ps rated at 250 hp, and install the instrumentation for Lane Aircraft.

The models sold in the United States will differ slightly, constructionwise, from the European counterpart in that the metal skin will be of heavier gauge; and all nuts, bolts and fasteners will be of U.S. standard. The aircraft is FAA Type Certificated in normal category. Price of the Riviera will be $34,950 f.a.f. Dallas. Standard equipment will include dual controls and full instrumentation.

SIAI-MARCHETTI RIVIERA

Specifications:

Wingspan	34 ft.
Overall length	24 ft. 3 in.
Height (at rudder)	10 ft.
Wing area	163 sq. ft.

Weights:

Weight empty	2,137 lbs.
Gross weight	3,270 lbs.
Useful load	1,133 lbs.
Baggage capacity	330 lbs.

Fuel and oil capacity:

Fuel capacity (standard)	37 gals.
With auxiliary tanks	65 gals.
Oil capacity	4 gals.

Performance:

Maximum cruising speed 75% power (187 hp at 2,300 rpm, 164 mph at 5,000 ft.) 65% power (162 mph at 2,300 rpm, 159 mph at 9,000 ft.)	
Maximum speed at sea level	177 mph
Initial Rate of climb at sea level	1,280 ft./sec.
Takeoff run (land)	925 ft.
Takeoff run (water)	1,480 ft.
Range at economical cruise at 8,000 ft. with 65 gallons of fuel	1,025 miles
Service ceiling	19,000 feet

As soon as the first aircraft is assembled, it will be flown on a 45-day demonstration tour during which its sales potential in North and Latin America will be sampled.

According to Gerald L. Spear, Lane Aircraft's executive vice president, there has been considerable interest in the amphibian with inquiries coming from all over the United States, Canada, Puerto Rico and South America. Sales territories, at present writing, have not been assigned. END

THE THRUST LEVER

By CAPTAIN DAVE KUHN

THERE ARE MANY problems connected with operating a safe airline. Some of them are self induced. Most carriers insist on serving alcohol to the customers despite the serious threat to safety drunks aloft pose.

The captain in command is charged under the law not to carry persons under the influence of drugs, liquor or narcotics. Yet, there is not a plush flight flown by the large U. S. carriers today, but that some of the passengers get "boiled" by the time they reach destination. Why this treatment is necessary has never been explained.

Now, pilots have been known to gaze at the grape on occasions. However, they have long protested the added chore of wet-nursing inebriated passengers. It is a nuisance at best. It takes only one drunk on a flight to create enough havoc to jeopardize safety. Aside from the social aspects, such as cursing, vomiting or responding to Cupid, a drunken crazed inebriate can wreck a plane.

Then, of course, there is no way to determine which passenger will get out of hand after imbibing. On one occasion, a movie mogul was caught trying to bash a window out with his shoe. He was too warm and couldn't raise the sash. Had he been successful, he would have left like a shot from an air gun. There also would have been more serious problems, such as getting down to a breathing altitude in time to save the flight.

One wild-eyed passenger broke into the cockpit and started pummeling the captain on the head. The flight was a bit late and the drunk was urging more speed. He was tied up, with a ditching rope, for the remainder of the flight.

Drinkers are careless with cigarettes and matches. There are not many situations more dreaded than fire aloft. This writer had one such incident caused by careless drinkers. The hostess came up front in tears. A group of six men returning from a sales convention were in the lounge section insisting on being bartenders. The hostesses, being outnumbered, had lost a battle. A first look revealed a group of salesmen in a singing, drinking, storytelling mood. A second look revealed smoke pouring from under a seat. A live cigarette had been dropped between the rugs. Rugs on airplanes are fire-resistant to some extent. However, grease from the ramp, hydraulic oil, and whisky can make a start on a good fire, especially when a live cigarette is used as an ignitor.

The ALPA and their sister Union, ALSSA (pilots and hostesses), have kept records of drinking incidents. They are rather impressive to those taking the time to read them. The worst cases develop from individuals who have had a few belts prior to boarding. Altitude gives an added lift from the booze already consumed and currently in hand. Instead of reading a magazine, sleeping or enjoying the "captain's comments," our glassy-eyed subject is up and down the narrow aisle with a drink in one hand, making friends.

Being irresistible (he thinks), he gets miffed when he is requested to sit so that others might be served. If he does not get all the drinks he thinks he needs, everyone in the plane is informed that the president of the airline will hear of this outrage. He advises that he is gonna get someone's job. (It is doubtful if he would like the pay of a hostess.)

On rare occasions, the passenger agent will request that you take a look at a suspected inebriate prior to boarding. Without looking you know from past experience, that the suspect is either stumbling, incoherent, or abusive. You take a look anyway. It is impossible to inspect 120 people for sobriety before departure. Besides, some folks look drunk in their natural state. Many flights have been forced to land and deplane drunks. Lawsuits result. The companies have trapped themselves. It costs millions each year to give free liquor to customers that may destroy a flight or cause additional expense. Unscheduled landings mean late arrivals which means late originations or cancellations. The Canadian airlines carry passengers and do not feel obligated to pour free drinks. It seems that a fast, smooth, safe trip would suffice. Bars are not competing with airplanes.

Despite several pages in the company manuals on how to cope with drunk passengers, the instructions never seem to fit the conditions. Bars have husky bouncers. On an airplane, a 110-pound hostess has no place to bounce a 210-pound "cassanova." The final word is to "advise the captain."

In 1954 the Airline Pilots Assn. adopted a policy prohibiting drinking aloft. Unfortunately, they have been less successful implementing this policy than the "fail safe concept." Congress has before it two bills outlawing drinking aloft. ALPA was instrumental in getting these bills on the agenda. It is hoped Congress will act.