



*The Consolidated XPY-1 Admiral was the Navy prototype of the civil Commodore airliner. Although designated a patrolplane, it could carry bombs and torpedoes. Built in 1928, it had a gross weight of 13,500 pounds, a top speed of 120 mph and open cockpits for the pilot and bombardier.*

# The Consolidated Commodore

*America's first commercial flying boat*

BY PETER M. BOWERS

The Consolidated Model 16 flying boat, called the Commodore, is a very significant but nearly forgotten milestone in the development of American transport airplanes. Some surplus World War I flying boats had been converted to passenger configuration and used by some short-haul (and short-lived) airlines in the early 1920s, and Sikorsky amphibian flying boats had been used on relatively short stages of international routes starting in 1928. But the Commodore was America's first real commercial flying boat. As such, it had a significant influence on subsequent designs.

The Commodore's origins, however, were not commercial. The Consolidated Aircraft Corporation was formed in 1923 after Major Reuben Fleet, an Army Air Service purchasing officer, resigned his commission to become general manager of the ailing Gallaudet Aircraft Corporation of East Greenwich, Long Island, New York. While there, he saw an opportunity to take over the designs and an Army trainer contract from the financially troubled Dayton-Wright Aircraft Company. Gallaudet was not interested in taking on this program; so Fleet founded Consolidated and leased space in the Gal-

laudet plant for its operation. When this dual arrangement proved unsatisfactory, he resigned from Gallaudet and moved Consolidated into a leased portion of the old World War I Curtiss plant in Buffalo, New York. There, the original Dayton-Wright trainer was refined for both the Army and the Navy, and Consolidated became the principal supplier of primary trainers to both services into the early 1930s.

Consolidated had no experience with anything other than two-seat biplanes when the U.S. Navy Bureau of Aeronautics invited bids for a prototype long-range, twin-engine patrol flying boat late in 1927. The tight specifications and requirements that accompanied the request for proposal amounted to a preliminary design of the airplane, essentially leaving the bidder to fill in detail and build the airplane. The Navy already had developed the hull lines, for example, and specified the airfoil.

Consolidated submitted a bid after Fleet secured the services of Isaac M. Laddon, previously a senior designer for the Engineering Division of the U.S. Army Air Service, as his chief engineer. Although the Navy requirement was strictly military,

Fleet and Laddon saw the potential for an airliner. Airlines were becoming firmly established and growing, thanks to government support through new legislation and air-mail contracts. Actually, Fleet already had been approached by Ralph O'Neill, who was surveying the route for a new 8,900-mile airline from New York to Buenos Aires, Argentina. He needed long-range flying boats for the major portion of the route, not so much because of the major over-water hops, but because of the almost total absence of airports along the route capable of handling large airplanes.

Consolidated's bid to the Navy was the winner, and the firm received a \$150,000 contract for one airplane designated XPY-1, for experimental (X) patrol airplane (P) by Consolidated (Y) first configuration (-1). (Curtiss already had the logical manufacturer's designation C.) Construction began in March 1928.

The structure was all metal, a rarity for the time, with metal skinning on the hull

*Intrigued by airplanes long before his first ride in a Travel Air, at age 10, Peter Bowers, AOPA 54408, has since logged more than 4,200 hours.*

and fabric covering on the wings and tail; the tail used spars built up of riveted aluminum angles with ribs of riveted aluminum channel. Power was provided by two 420-hp Pratt & Whitney "Wasp" air-cooled radial engines. The Navy recently had decided to abandon liquid-cooled engines for its aircraft, and the Wasp was the only air-cooled model of suitable power available.

The XPY-1, which Consolidated named "Admiral," was completed in December 1928, and a major disadvantage of Consolidated's Buffalo location immediately became clear. Winter ice on the Niagara River and Lake Erie made it impossible to launch the new seaplane there, so it had to be shipped by rail to the Naval Air Station at Anacostia, just across the Potomac River from Washington, D.C. It made its first flight there on January 10, 1929. The two Wasps did not provide enough power, and, since nothing more powerful was available, a third Wasp was added above the wing on a quickly removable mount.

The Navy liked the XPY-1. Although Consolidated had done much of the detail design and built the airplane, the Navy owned the design as well as the actual airframe. When production aircraft were needed, the Navy invited bids from the entire industry. The Glenn L. Martin Company of Baltimore underbid Consolidated and received an order for XPY-1 duplicates designated P3M-1 (3 units) and P3M-2 (6 units).

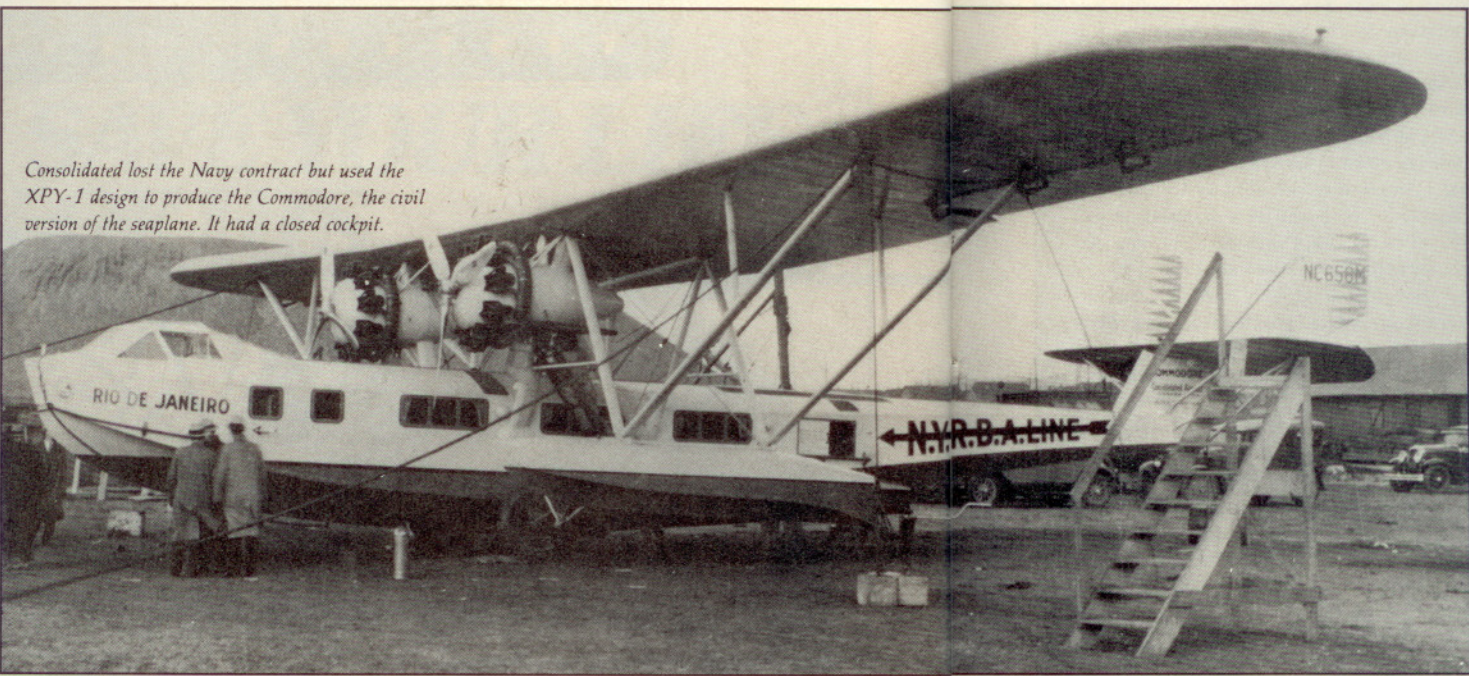
This left Consolidated holding a very empty bag; but help came in the form of a six-airplane order for civil transports—the Commodores—from O'Neill, who had succeeded in forming his New York, Rio de Janeiro, Buenos Aires airline—NYRBA. The NYRBA order eventually grew to 14 Commodore flying boats and 10 Model 20 "Fleetsters"—high-speed single-engine landplanes for the overland portion of the lines' routes. Fleet and Consolidated assisted NYRBA with an initial investment of \$500,000, and the aircraft firm became a major NYRBA stockholder.

The Commodore was basically the XPY-1 airframe adapted to passenger configuration. The hull interior was divided into three passenger compartments, with eight seats in each of the forward compartments and four in the other, and included lavatories, a galley and a baggage compartment. A significant safety measure, adopted by subsequent propeller-driven airliners, was to locate the baggage compartment just behind the pilot's cockpit, thereby keeping personnel out of the plane of propeller rotation.

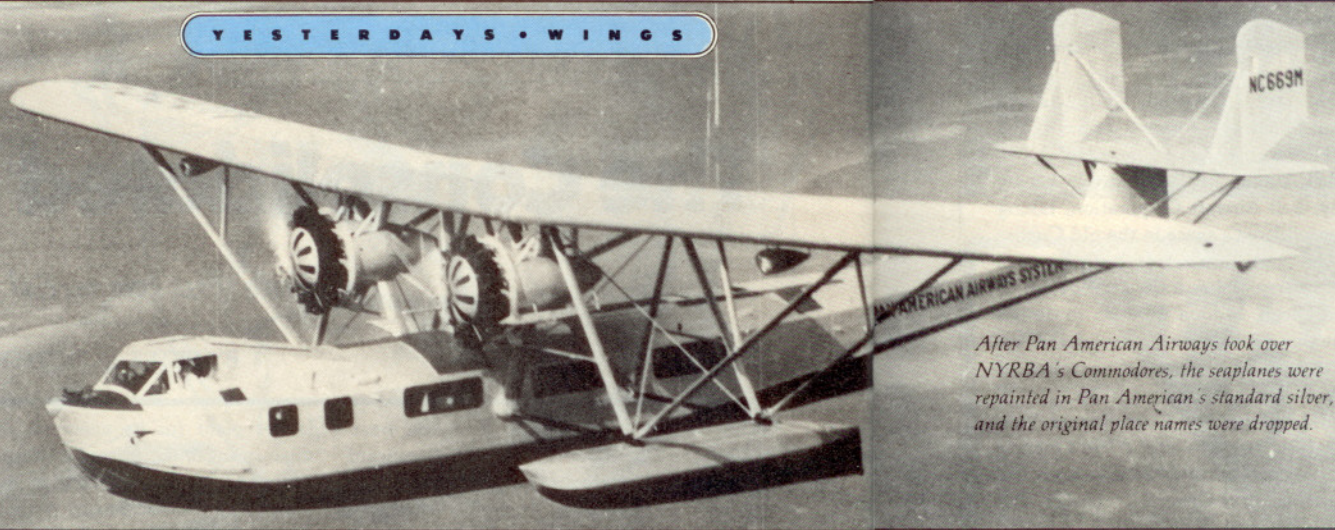
Maximum passenger capacity was 33, but seating was determined mainly by stage length as the fuel load was increased. Model designations of 16, 16-1 and 16-2 applied to the 20-, 25- and 33-passenger versions, respectively. The civil prototype retained the XPY-1-style open-cockpit for the side-by-side pilot and copilot.

Consolidated expected the XPY-1's inadequate power problem to be overcome by

Consolidated lost the Navy contract but used the XPY-1 design to produce the Commodore, the civil version of the seaplane. It had a closed cockpit.



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After Pan American Airways took over NYRBA's Commodores, the seaplanes were repainted in Pan American's standard silver, and the original place names were dropped.



Clarence Chamberlin acquired this ex-NYRBA/PAA Commodore as a waterborne extension of his late 1930s barnstorming operation. Note how easily the single-wing PAA emblem on the seaplane's nose was adapted to a two-wing emblem for Chamberlin Air Lines.

substitution of the new 575-hp Pratt & Whitney "Hornet" engines for the Wasps. However, it turned out that insufficient power was to be a chronic shortcoming of the Commodore, particularly in the tropics.

The first flight of the sea-going airliner was in September 1929. After some minor structural bugs were corrected, the new flying boat received Approved Type Certificate A-258 on November 20, 1929. Prior to certification, NYRBA's first Commodore was christened *Buenos Aires* by the wife of President Herbert Hoover on October 2 in ceremonies at Anacostia.

The airline soon began taking delivery of the first production models and thus was stuck with all the inevitable shake-down problems that had not appeared during the initial test program. Survey flights to South America quickly proved the unsuitability of the open cockpit; so this was enclosed, and the second and subsequent airplanes were fitted with cockpit enclosures in the factory.

Airline operations in the tropics, plus operation from rough water, revealed structural deficiencies that required alteration and even redesign. On an early publicity flight, which carried the family of the president of Cuba, the hull cracked open during a rough-water takeoff and the airplane had to be beached immediately to keep it from sinking. On another rough-water operation, the impact knocked one of the engine nacelles loose and the still-turning propeller cut into the baggage compartment—in a fast payoff for that choice of location.

Pioneers always face unforeseen problems, but NYRBA had a special one. Since there were no heavy civil flying boats in the United States until the advent of the Commodore, there was no pool of qualified civilian pilots for them. Further, no civil flying school was in a position to train such pilots. O'Neill solved the problem (with the approval of Admiral Moffett, chief of the Navy Bureau of Aeronautics) by persuading some qualified Navy pilots to either retire or take extended leave and join his airline. He wanted pilots with more than 2,000 hours of big-boat time, but few of the two dozen Navy pilots he hired had that many.

The bugs quickly were worked out of the Commodore, and it became a reliable and very comfortable transport on the Miami - Rio run. It was not in service with NYRBA for very long, however. O'Neill had been fighting major political battles all the time he was surveying his route and making personal deals with foreign governments; there was a lot of opposition to his operation at home, in government as well as private circles. Forces entirely beyond his control forced the sale of NYRBA to Pan American Airways on September 15, 1930. Pan Am paid between \$97,000 and \$106,000 each for the 10 \$125,000 Commodores on hand, depending on condition, and took delivery of the final four directly from the factory. It also hired many of NYRBA's ex-Navy pilots, some of whom eventually rose to high

positions with Pan Am. The Commodores continued to fly Pan Am's Miami - Rio route until 1935, when they began to be replaced by later models, including land-planes. Pan Am sold some and stationed the others at Miami for use as trainers. Most of these remained in service into World War II, and a couple survived until 1945. Clarence Chamberlin used one as a waterborne extension of his late-1930s barnstorming operation with other retired airliners.

Although it built only the 14 Commodores, Consolidated profited from its experience with them and the XPY-1. Navy procurement policy had changed, and the service bought airplanes from the builder of the prototype instead of through industry bidding. Consolidated went after further Navy business with a refined model, the XP2Y-1. It sold 46 of the record-breaking P2Ys (-1, -2 and -3), plus eight export models, and soon became the Navy's principal supplier of flying boats until the type began to be phased out during World War II.

In 1934 Laddon designed the XP3Y-1, prototype of the famous PBV. The prototype was built in Buffalo, but production was in San Diego. Since flyaway deliveries were impossible during Buffalo winters and rail delivery of such a large airplane was highly impractical, Consolidated moved to a new plant in sunny California. Some of the personnel, notably factory manager Lawrence Bell, stayed behind to form a new company, Bell Aircraft Corporation, taking over Consolidated's space in the old Curtiss plant. The new firm's first business was building subassemblies for Consolidated.

In San Diego, Laddon went on to design other famous airplanes for Consolidated, including the B-24 "Liberator" bomber of World War II and the unique B-36.

Consolidated became Consolidated-Vultee Aircraft—ConVair—after a 1943 merger with Vultee, and since 1954 has been the ConVair Division of General Dynamics. The name Consolidated is unforgettably linked with big flying boats of the past, but mostly with the legendary PBV—few remember the XPY-1 or the Commodores that started Consolidated in the flying-boat business. □

**THE CONSOLIDATED COMMODORE**

**Specifications**

Powerplants	2 Pratt & Whitney Hornet B (R-1860) 575 hp @ 1,950 rpm
Wingspan	100 ft
Length	61 ft 8 in
Wing area	1,110 sq ft
Wing loading	15.86 lb/sq ft
Power loading	15.3 lb/hp
Empty weight	10,500 lb
Gross weight	17,600 lb

**Performance**

High speed	128 mph
Cruising speed	108 mph
Landing speed	60 mph
Initial climb	675 fpm
Ceiling	11,250 ft
Range	1,000 sm (650 U.S. gallons)