

# Consolidated OA-10 "CATALINA" (82 Inches Wing Span) Plan

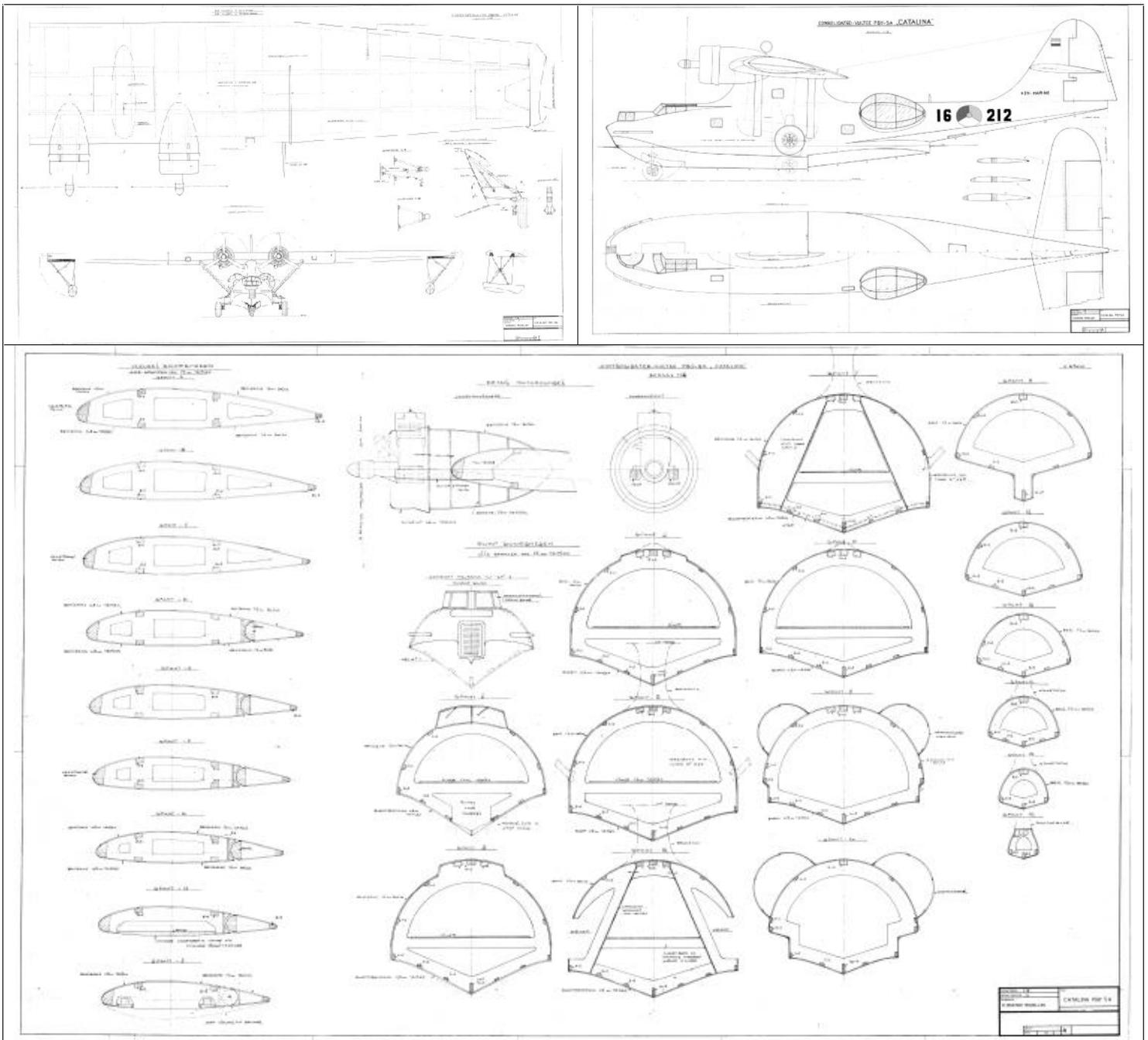


The **Consolidated PBY Catalina** was an [American flying boat](#) of the 1930s and 1940s produced by [Consolidated Aircraft](#). It was one of the most widely used multi-role aircraft of [World War II](#). Catalinas served with every branch of the [United States Armed Forces](#) and in the air forces and navies of many other nations.

During World War II, PBYs were used in [anti-submarine warfare](#), [patrol bombing](#), [convoy escorts](#), [search and rescue](#) missions (especially [air-sea rescue](#)), and [cargo transport](#). The PBY was the most numerous aircraft of its kind and the last active military PBYs were not retired from service until the 1980s. Even today, over 70 years after its first flight, the aircraft continues to fly as a [waterbomber](#) (or airtanker) in [aerial firefighting](#) operations all over the world.

The designation "PBY" was determined in accordance with the [U.S. Navy aircraft designation system of 1922](#); *PB* representing "Patrol Bomber" and *Y* being the code assigned to [Consolidated Aircraft](#) as its manufacturer. Catalinas built by other manufacturers for the US Navy were designated according to different manufacturer codes, thus [Canadian Vickers](#)-built examples were designated **PBV**, Boeing-Canada examples **PB2B** (there already being a [Boeing PBB](#)) and [Naval Aircraft Factory](#) examples were designated **PBN**. Canadian Catalinas were named **Canso** by the [Royal Canadian Air Force](#) in accordance with contemporary British naming practice of naming seaplanes after coastal port towns, in this case for the town of [Canso](#) in [Nova Scotia](#). The RAF in contrast used the Catalina name. The [United States Army Air Forces](#) and later the [United States Air Force](#) used the designation **OA-10**.

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## Design

The PBY was originally designed to be a [patrol bomber](#), an aircraft with a long operational range intended to locate and attack enemy transport ships at sea in order to disrupt enemy [supply lines](#). With a mind to a potential conflict in the [Pacific Ocean](#), where troops would require resupply over great distances, the [U.S. Navy](#) in the 1930s invested millions of dollars in developing long-range flying boats for this purpose. Flying boats had the advantage of not requiring [runways](#), in effect having the entire ocean available. Several different flying boats were adopted by the Navy, but the PBY was the most widely used and produced.

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Although slow and ungainly, Catalinas distinguished themselves in World War II. [Allied](#) forces used them successfully in a wide variety of roles that the aircraft was never intended for. They are remembered for their role in rescuing downed airmen, in which they saved the lives of thousands of aircrew downed over water. Catalina airmen called their aircraft the "cat" on combat missions and "Dumbo" in air-sea rescue service.<sup>[1]</sup>

## Development

As American dominance in the Pacific Ocean began to face competition from Japan in the 1930s, the U.S. Navy contracted Consolidated, [Martin](#) and [Douglas](#) in October 1933 to build competing [prototypes](#) for a patrol flying boat.<sup>[2]</sup> Naval doctrine of the 1930s and 1940s used flying boats in a wide variety of roles that today are handled by multiple special-purpose aircraft. The U.S. Navy had adopted the [Consolidated P2Y](#) and [Martin P3M](#) models for this role in 1931, but both aircraft were underpowered and hampered by inadequate range and limited payloads.

Consolidated and Douglas both delivered single prototypes of their new designs, the XP3Y-1 and [XP3D-1](#), respectively. Consolidated's XP3Y-1 was an evolution of the XPY-1 design that had originally competed unsuccessfully for the P3M contract two years earlier and of the XP2Y design that the Navy had authorized for a limited production run. Although the Douglas aircraft was a good design, the Navy opted for Consolidated's because the projected cost was only \$90,000 per aircraft.

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Consolidated's XP3Y-1 design (company *Model 28*) had a [parasol wing](#) with external bracing struts, mounted on a pylon over the fuselage. Wingtip stabilizing floats were retractable in flight to form streamlined wingtips and had been licensed from the [Saunders-Roe](#) company. The two-step hull design was similar to that of the P2Y, but the Model 28 had a cantilever [cruciform tail](#) unit instead of a strut-braced [twin tail](#). Cleaner aerodynamics gave the Model 28 better performance than earlier designs.

The prototype was powered by two 825 hp (615 kW) [Pratt & Whitney R-1830-54](#) Twin Wasp [engines](#) mounted on the wing's leading edges. Armament comprised four .30 caliber [Browning](#) AN/M2 machine guns and up to 2,000 lb (907 kg) of bombs.

The XP3Y-1 had its maiden flight on 28 March 1935, after which it was transferred to the U.S. Navy for service trials. The XP3Y-1 was a significant performance improvement over previous patrol flying boats. The Navy requested further development in order to bring the aircraft into the category of *patrol bomber*, and in October 1935, the prototype was returned to Consolidated for further work, including installation of 900 hp (671 kW) R-1830-64 engines. For the redesignated XPBY-1, Consolidated introduced redesigned vertical tail surfaces which resolved a problem with the tail becoming submerged on takeoff, which had made takeoff impossible under some conditions. The XPBY-1 had its maiden flight on 19 May 1936, during which a record non-stop distance flight of 3,443 miles (5,541 km) was achieved.

The XPBY-1 was delivered to [VP-11F](#) in October 1936. The second squadron to be equipped was [VP-12](#), which received the first of its aircraft in early 1937. The second production order was placed on 25 July 1936. Over the next three years, the Catalina design was gradually developed further and successive models introduced.