

V-tail

[caption id="attachment_2727" align="alignleft" width="300" caption="Beechcraft B35 Bonanza



[/caption]V-tail -- A design which utilizes two slanted tail surfaces to perform the same functions as the surfaces of a conventional elevator and rudder configuration. The fixed surfaces act as both horizontal and vertical stabilizers.

The most popular V-tailed aircraft in mass production was the Beechcraft Bonanza Model 35, often known as the V-tail Bonanza or simply V-Tail. Other examples include the F-117 Nighthawk stealth fighter, the Fouga Magister trainer, and the RQ-1 Predator UAV.

Ruddervators are the control surfaces on an airplane with a V-tail configuration. They are located at the trailing edge of each of the two airfoils making up the tail of the plane. In 1930 Polish engineer Jerzy Rudlicki designed the first V-Tail configuration -- ruddervators which combined in one system, ailerons and elevators.

They were first tested and flown on a modified Hanriot H-28 trainer in 1931.

The name derives from a combination of the word rudder and elevator. In a conventional aircraft tail configuration, the rudder provides yaw (horizontal) control and the elevator provides pitch (vertical) control.

<http://www.youtube.com/watch?v=RfilWNOymnA>

Ruddevators provide the same control effect as conventional control surfaces, but through a more complex control system that actuates the control surfaces in unison.

Yaw moving the nose to the the left is produced on an upright V tail by moving the pedals left which deflects the left-hand ruddervator down and left and the right-hand ruddervator up and left. The opposite produces yaw to the right. Pitch nose up is produced by moving the control column or stick back which deflects the left-hand ruddervator up and right and the right-hand ruddervator up and left. Pitch nose down is produced by moving the control column or stick forward which induces the opposite ruddervator movements