Introduction to Aircraft Design
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Lecture - 28
Thrust Vectoring

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Another feature that we see in an aircraft is thrust vectoring in some aircraft we use thrust vectoring for reducing its you know takeoff distance and landing distance in some aircraft it is given to provide vertical takeoff and landing capability as the requirements may dictate. So, a recent example of provision of thrust vectoring was the F 35 lightning 2, which many people feel is the last manned fighter aircraft that the US DOD is going to fund. Let us have a look at how this particular aircraft behaves when it goes for thrust vectoring.

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So, notice there is a complex interplay of many surfaces. Let us watch it once again to get a good idea about how these services operate in uniform.

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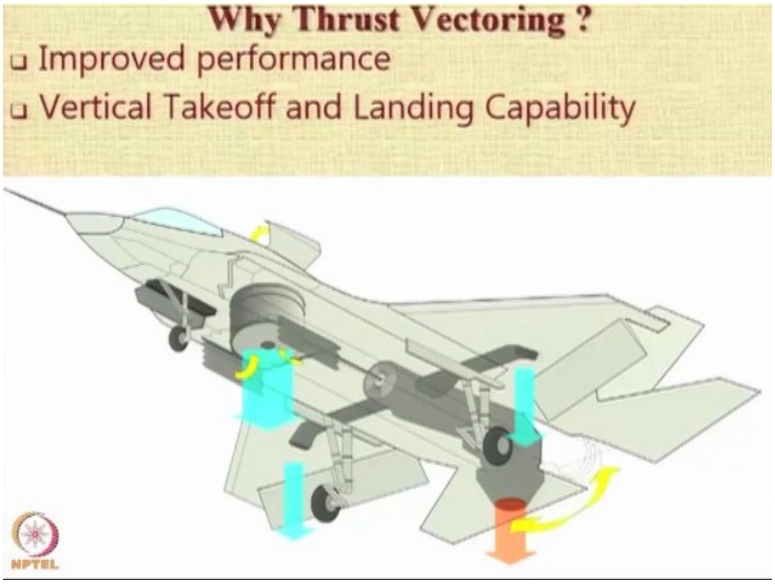

So, this is how it works, there is a dedicated lift fan in the front portion of the aircraft which is normally covered in the normal flight or in the forward flight it is covered by these cowlings and these bottom cowlings and there is also a duct which is going to create 2 jets of air coming out from the main engine and the nozzle of the engine the rear of the engine is also swivel down.

So, you actually are going to provide 4 vertical forces. And with these 4 vertical forces, the aircraft is balanced and it is lifted up. Thanks for your attention we will now move to the next section.