Introduction to Aircraft Design
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Lecture – 38
Landing Gear of some Famous Aircraft

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Let us end by looking at some landing gear of famous aircraft and try to familiar ourselves with their functioning. This is the landing gear of the F-22 aircraft. You can notice here that the landing gear is short and compact and as it retracts inside, you have this conformal cover that will fit into the geometry and make the whole aircraft fuselage very much smooth to avoid darg.

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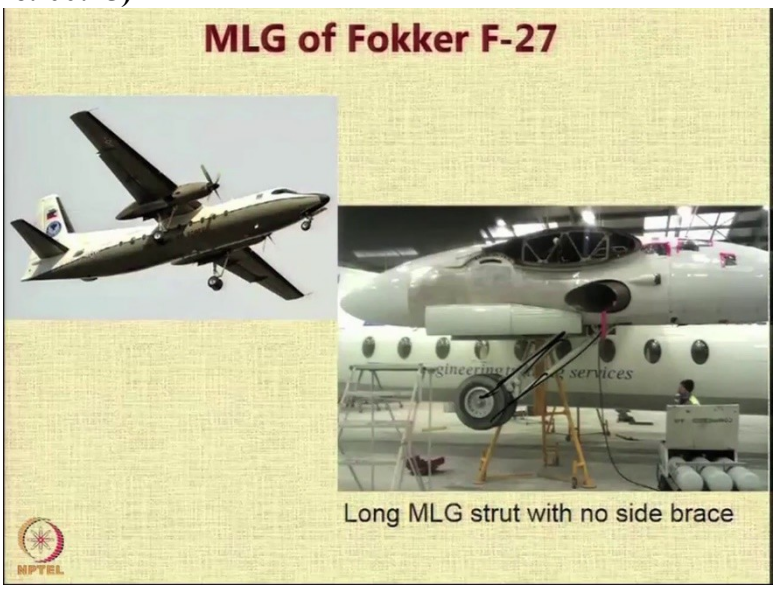

Here is the main landing gear of the Fokker F-27 aircraft which is now obsolete. It had long main landing gear struts with no side braces. So, these were the landing gear struts which are quite long because it was mounted on the wing and the wing was a high wing. So on a high wing aircraft, where the wing is above the fuselage when you mount the landing gear of course they mounted it below the engines, but still it was an example of a long main landing gear stuck with no side braces.

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On a BAe 146 aircraft, you have to provide landing gear on the landing gear on the fuselage because it is again a hiding aircraft and when you have turbo fan engines mounted on the wing, then mounting the landing gear on the wing becomes a serious problem what we saw in is an exception, so in this case, you have the landing gear mounted on the side of the fuselage, but you need to have minimum some minimum wheel tracks so that you can get the when you can avoid the tip off.

So, therefore, you have to have landing gear which is coming out of the fuselage and then when you retract it inside then you require a small blister. So, you can see this is a blister in which the landing gear gets compacted and this is the covering for the blister. So, that the drag is minimized after the landing gear is retracted the same covering can be seen here also.

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Let us look at the landing gear of an aircraft called as a Vought F4U Corsair this particular aircraft had engines embedded in the root of the you can see there is some intake here and in this case the main landing gear retracts rearward into the wing so it goes back.

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If you look at the De Havilland caribou aircraft, this has got a Gull wing configuration and on the Gull wing configuration because the main landing gear is mounted below the engine and it is a gull wing. So therefore, you tend to reduce the strength the strut length of the olio strut on with landing gear is mounted.

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This is the landing gear of Airbus 380. You can see that there are 4 main legs there are 2 on the fuselage on the sides and there are 2 on the wings. So there are 20 wheels in total. There are 6 wheels on each of the main legs on the fuselage, so 12 wheels here and then there are 4 wheels on the main landing gear leg which is in the wing. So, on each side you have 6 + 4. That means you have total of 20 main landing gear legs, and then you have the nose landing gear also which has 4 wheels.

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If you look at the landing gear of AN-125 Ruslan aircraft, this is a very interesting aircraft. It is a cargo aircraft for transporting cargo over long distances. So the nose of the aircraft completely bends up. And you have as you can see 5 pairs of landing gear legs on the main landing gear and on the nose wheel; you have 2 pairs on 2 nose wheels. Now, this particular landing gear, we can adjust the length of the struts so that the aircraft can be made to kneel

and that allows easy loading of cargo. You can see in this configuration there is a ramp here and you just drive in with the cargo.

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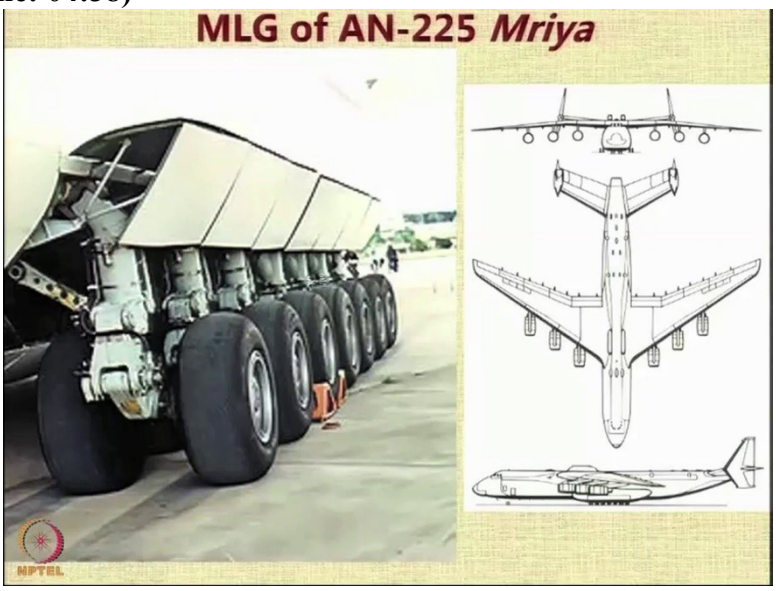

Then let us look at the monster the largest aircraft that we have seen AN-225 Mriya. It is one step ahead from the Ruslan it has got 7 pairs of main landing gear, you can see there are 7 pairs. And you know, in the nose also you have several landing gears. So, 7 pairs of main landing gear 2 pairs on the nose wheels, 2 pairs on the nose wheel, and you can adjust the pressure of each tire on the main landing gear. And you can also retract or extend those each individual strut which allows you to change the tyre.

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Finally, we will look at the landing gear of Boeing 787. And you can get an idea about the size by comparing with the person here. And this particular video will show you how the testing is done.

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Thanks for your attention.