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AFA Members, Congressional staffers, civic leaders, and DOCA members, I have been both astonished and dismayed when I see cost numbers cited in the press and in Congressional hearings. The simple fact is that many of these numbers are being "spun" by the user. [Who was it that said something famous about the use of statistics?]

So, what I have done is to present to you how the Air Force buys aircraft ... for a fleet that will last ... 20, 30, 40 years ... perhaps longer.

It's a bit complicated ... so bear with me.

For your consideration.

Mike

Michael M. Dunn, Lt Gen (Ret)
President/CEO

- First, the combat requirement is determined. How many orbits do we need? How many Air Expeditionary Forces (AEF) do we need? How many "wars" do we plan to fight? This is basically taken from the defense strategy.
- In this example, let us say we have 10 AEFs (which we do) and need one squadron (24 aircraft) per AEF. That means the required **operational** fleet size is 240 aircraft [assuming none is needed for other missions ... like Air Defense of the US]
- In addition to the operational aircraft, we will need initial-training aircraft for the pilots/crews to learn fly. This amounts to 25% of the total operational aircraft. Total number needed is now 300 aircraft.
- Next, we need test aircraft for developmental, initial operational, tactical (weapons, computer changes, etc) testing. We also need aircraft for our maintenance school to conduct initial maintenance training. This is usually 5% of the total ... but these aircraft sometimes never get to an operational configuration. Total number needed is now 315 aircraft.
- Next, we plan for a certain number of aircraft to be in depot maintenance, modifications, inspections and repairs. This is usually 10% of the total. Total number needed now is 347 aircraft.
- Finally the AF calculates aircraft service life ... generally in the 25 year time frame. This coupled with an expected accident rate and a wartime loss rate ... tells us we need a few aircraft extra to take the place of those which are lost in accidents. This category is Attrition Reserve. This is usually 10% more. Therefore in our example 240 operational aircraft turns into a fleet size of **381 aircraft**.

- This number should sound familiar. It is the number the Air Force says ... and DOD admits ... is the required number of F-22s we need. If you use the OSD number of 183 aircraft and back out the factors ... you can see they started with 115 operational aircraft - ***which is not even half of a squadron per AEF. Plus it does not allow any aircraft for Air Defense of the US.*** Clearly it does not meet the operational requirements nor the strategy. Nor does it permit the Air Force to operate in sufficient numbers to do its job.

- **Cost**: There are 5 major costs.

- First is R&D Costs. These are spread over the entire buy of aircraft. Thus if you buy 2500 aircraft, the R&D costs will be spread over lots of airplanes. Fewer numbers means very high component of R&D ... such as with the B-2.
- Secondly there is Flyaway cost. This is the actual cost to manufacture the aircraft. It begins very high for the first aircraft and then gets lower and lower for each additional aircraft ... down a fairly-well known learning curve. There are a lot of factors which help the AF get the most for the taxpayer's dollar. Three important ways are: (1) order a large number of aircraft ... which permits the manufacturer to buy tooling to make the process efficient (2) commit to a multi-year procurement ... which permit the manufacturer to make economic order purchases on items it needs to buy and permits a longer-range planning of the labor force and (3) limit the changes the Congress/and or DOD/AF make to the numbers to be bought and to the design.
- Thirdly, there is acquisition cost. This is basically the cost to fight the aircraft. It includes spare parts, ground equipment, training, etc.
- Fourth is the program cost. This is the total cost of everything needed for the aircraft ... to include hangers, squadron facilities, weapons, spares, etc
- Fifth is the life cycle cost. This is the total cost of the program plus the costs to fly, maintain, and operate the fleet - to include modifications, depot costs ... everything - over the life of the weapon system.

Cost ... even more complex is the type of dollars in the cost. Basically there are two sets of dollars. The first are **constant year** dollars ... where inflation is taken out of the equation. Usually, the Air Force uses the year of the IOC of the airplane. But ... this approach misses the fact that in the Aerospace industry, costs don't always follow the CPI. In fact, with the shortage of engineers, it costs the industry more than just inflation to keep their work-force together. Critics sometime use constant year dollars ... but use the year as the present year ... or a future year - which results in higher numbers. The second type of dollars is **then-year** dollars. This is the sum of all the monies that Congress appropriates for a system - regardless of inflation or any other factor.

Why is this important? One way to try to kill systems is to cut the number of aircraft you need ... which spreads the R&D over fewer A/C ... and changing the buy raises the flyaway cost because the tooling, plant and equipment are amortized over fewer aircraft.

Thus if you cut the buy, the aircraft "cost more" which ... in the minds of the critics, means you should cut even more. Another way is use the cost data favorable to help you make your case to cut aircraft. You use Program Costs in then-year dollars - which is the highest number that can be proven [LCC are estimates]. In reality, the decision policy makers and Congress face is deciding how many aircraft to buy ... and the best data to use is Flyaway cost - because that is the marginal cost of the next aircraft off the line.

Confused? It can get worse ... but you should always be suspect of anyone telling you how much a system will cost ... especially as DOD has done when they compare the cost of an F-22 with that of an F-35 ... which won't go into production for the AF until 2013. Not only will the cost rise ... but what you don't know is: A lot of the R&D cost of the F-22 folded into the cost of the F-35 ... and ... was "free" to the F-35 program.

We are seeing these types of factors at play today. Listen and read closely and you can see them yourself.