

The Fighter after the Next



Royal Air Force Typhoon two-seater takes off with afterburner power of its twin EJ 200 turbofans.

The central factor in selecting the M-MRCA

With the technical, flight and staff evaluation of all the six contenders for the 126 M-MRCA fighters now done, time has come to seriously look for a national consensus on the parameters of the selection. This is not a simple acquisition and the decision making will be extremely difficult unless we are clear of the key factors that should be decided upon in advance besides the technical specifications met and as no doubt spelt out in the RFP (Request for Proposals). Our decision must be guided by two basic factors: that nearly a decade has gone past from the time that IAF was

looking for a 'Mirage 2000' type to fill the slot that has come to be described as the M-MRCA (Medium-Multi Role Combat Aircraft). This term is critically important for a number of reasons.

To begin with, like in most countries, the Ministry of Defence (ours is at South Block) would decide the mix of aircraft types that the IAF would need in future, based on the operational tasks and capabilities, that is, the quality and the quantity, while the Finance Ministry at North Block would look closely at the budgetary costs of acquisition as well as the 'life-cycle' costs which would have a major influence on defence budgets

for the coming decades. An excessively high-performance (beyond the medium level fighter) will lead to higher costs and budgetary commitments which will force the size of the IAF to be curtailed when it actually needs to get back to 39+ combat squadrons and then expand to the Cabinet-sanctioned 50 squadrons. For obvious reasons the bulk of these factors should, and would, remain classified. Yet the informed public in the world's largest democracy needs to have some idea of at least the parameters that might finally go into decision making.

The most crucial parameter has already been indicated by the very

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nomenclature which provides the description of the type of aircraft required: that is, a **medium** sized multi-role combat aircraft. The necessity of this class of aircraft has arisen due to a number of factors. Firstly, we need to fill the gap that has already arisen due to life-expiry of a large force of MiG-21s. The only 'medium' sized multi-role combat aircraft left in the IAF today is the Mirage 2000 with an inventory of around 50 aircraft. At the level above that, we are already committed to the **heavy** Su-30MKI being manufactured in HAL for the past few years. And at the lower size level, that is the **light** combat (multi-role) combat aircraft: we have already embarked on the indigenously designed LCA (Light Combat Aircraft) that was to have replaced the MiG-21s before they went out of service, which Russian-type itself was a 'light combat aircraft'. The LCA's glitches, which inevitably exist in all complex new

designs (for example, the F-35), would no doubt keep getting resolved as we go along. Of course it would be useful if the vendor selected for the M-MRCA also gives assistance in incorporating the necessary improvements in the LCA to improve upon it.

In the class of **heavy** multi role combat aircraft, the choice was made (wisely under the circumstances) a long time ago and the Su-30MKI, which is the envy of our neighbours and the satisfaction of the IAF, is already under series production and this type will likely equip over 60% of IAF's authorised combat force by the time the last Su-30 rolls out of HAL's Nasik factory. No doubt the FGFA fifth-generation fighter (which is largely based on Su-30/35 technologies) to be jointly developed by Russia and India would at a later date add to the heavy category. About 16-20% of the authorised combat force (around

126-200 aircraft) would then need to be equipped by the medium multi-role combat aircraft, the balance 20%, hopefully by the indigenous LCA. This raises the question of what type and size of aircraft we should looking at, subject to its operational parameters for satisfying the IAF needs.

The cost and performance of a combat aircraft broadly depends upon its size and weight and what avionics and weapons it carries. This parameter would virtually rule out the Boeing Super Hornet (an excellent aircraft in its class) and the MiG-35 (for another reason) but both not too far from the Su-30 in size or origin. It would neither be prudent nor affordable to maintain nearly 80% of the combat force consisting of just heavy multi-role aircraft from a single source for the coming decades since the world situation would no doubt have undergone major changes during this period.



Elegant lines of the Dassault Rafale, fitted with long range tanks and weaponry, seen over the Gulf.

Dassault's Rafale.

Elettronica

At around 24,000 kg maximum weight, the French Rafale and the European Eurofighter Typhoon also come closer to the upper end of a medium combat aircraft. They offer great advantage in the quantum of fuel and weapon load carried, but it is only actual operation and detailed cost calculations that can tell us of their desirability in our inventory. This leaves us with two types with obvious advantages

of being clearly in the category of 'Medium' multi-role combat aircraft that have been offered in the RFP: the US Lockheed's F-16IN Super Viper and the Swedish Saab Gripen NG/IN, both configured specially to meet Indian requirements (hence the 'IN' in their nomenclature).



Pair of Boeing F/A-18E/Fs of the United States Navy at Aero India 2007 show. The naval flavour of the Super Hornet are discerned by the 'folded wings' allowing for easier storage on board aircraft carriers.

Popular perceptions may opt against the F-16 since this has been mainstay with the Pakistan Air Force since 1982 and recent inductions are raising that force level to as many as 118 F-16s in PAF inventory. These are being upgraded, but are expected to remain somewhat 'inferior' to the F-16s being

offered to India which should be taken serious note of. While the F-16 would remain the backbone of the Pakistan Air Force, its Indian version would imply a maximum of 16-20% of the IAF combat force level with the Su-30MKI far outstripping it in numbers. There is also an advantage if the United States



Working on it: prototype of MiG-35 on display at Yelahanka 2007.

is willing to transfer (on lease or sale) 100-odd partially used F-16s from its Air National Guard to the IAF.

However, the choice that comes closest to the 'medium' multi-role aircraft that the IAF has been seeking since a decade ago (the Mirage 2000 type) is the Swedish Gripen which has maximum and empty weights at around 17,000 kg and 7,000 kg respectively, almost equal to that of the Mirage 2000. Since the Mirage 2000 is not in the running anymore, this makes it necessary to focus on the aircraft

But there is a larger issue that should receive serious attention: this refers to the other matter we set out to deal with, that is the impact of acquisitions from abroad on our aircraft industry in the future. It is vital that the next fighter deal must go well beyond simple purchase and even local manufacture of the fighter and its major systems. Even the licence manufacture option leaves the country dependent on external sources of supply. We were lulled in the past into the belief that 'transfer of technology' was taking place while

the reality that it was 'production technology' that was actually transferred and not the essential design technology and data. This is why we have had to go back to Moscow to upgrade even the comparatively less sophisticated aircraft like the MiG-21. We now have the Su-30 being manufactured under license though we don't know how much design data is being transferred to HAL. This is probably the reason for Russian discomfort over inclusion of the offsets clause from new purchases from them.



type closest to the medium combat aircraft, that is, the Swedish Gripen and Lockheed-Martin F-16, with the EADS Eurofighter Typhoon included at the higher end. Gripen's manufacturers could also offer some aircraft from Swedish Air Force reserves as an interim. However much would depend upon what is carried by the aircraft in terms of avionics and weapons apart from its flying performance that meets our needs.

and vertical partnerships and, secondly, empower India's industry through capacity building with acquisition of modern aerospace technology. Both these principles are crucial to strengthening self-reliance through enhancing mutual dependence with countries and their industries that are willing to do so. These are also important for sustaining our broader techno-economic growth rates. But these requirements can be met only through

Large investments in defence modernisation with high-technology weapons, particularly the acquisition of new fighters must be leveraged to energise our defence (especially aerospace) industry once it is clear that they fit into our doctrine and strategy in the larger context of what quality and quantity of aerospace forces are required for the next several decades. This should aim to serve two key purposes: build interdependence through horizontal

process of acquisition and horizontal diffusion of technology beyond our present vertically organised hierarchical aircraft design and development model remotely, but firmly, managed from South Block. Global trends in aerospace industry on one side and India's growing technological and economic capabilities on the other, point towards seeking mutual advantages in pursuing the horizontal technology diffusion route. This is where the issue of offsets assumes great importance.

The offsets clause in our procurement policy may be seen by many as infusing

crucial to maintaining high serviceability and low accident rates of the combat force and hence its effectiveness during war over the next three decades, and more.

The IAF's new fighter would require a mid-life upgrade 10-15 years after it enters service and this should provide a benchmark criterion for offsets to establish the ability to design and undertake that in India. This can be expected only if the prime manufacturers establish the necessary design, development and production facilities in country. The Maruti-Suzuki experience

and (grand?) geopolitical strategy to sustain them beyond system costs and performance factors. The question of American 'reliability' will continue to worry a lot of minds for a long time. But in this business, most suppliers would be under the same scanner. European policies in the past have raised doubts about the impact of US policies on even product support and now some EU partners' differences may also impact their future actions. The Soviet Union (and the relationship it had with us) disappeared long ago and new dimensions are already impacting



Pair of Lockheed Martin F-16C Fighting Falcons of the USAF at Aero India 2007.

FDI to the extent of 30-50% of every contract into our economy. In spite of large reserves of foreign exchange available, future FDI would continue to be an important factor. But this cannot be the primary reason for seeking offsets. We will need spare parts for thirty years or more. In between there will be many requirements of modifications and upgrades of the systems. We should be able to provide as much as possible from indigenous (mostly private) industry through joint ventures that must be negotiated now. The importance and extent of such agreements would be

of vendor development which has led to high levels of automotive parts exports needs a special look in this regard. It needs to be remembered that design and development is the foundation for self-reliance and till recently this had suffered in our aircraft industry. The new M-MRCA has already been designed elsewhere. But we still have opportunities to access design and development of components, systems and sub-systems in partnership with foreign enterprises.

Ultimately all this must fit into the principle of broader national interests

Indo-Russian arms relationship, not the least of them being the Russian high-end military technology flows to China and the China-Pakistan strategic nexus where China is one of the two suppliers of high-technology arms for the Pakistan Air Force. The signals that Moscow is sending out are not very encouraging.

In the ultimate analysis our decision on the new M-MRCA must rest on broader national interests.

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