

By Dr Carlo Kopp

Over the Hill – and far away?

Before Christmas, Sky News screened an interview with Defence Minister Robert Hill in which he made a number of curious statements about the F-111, raising serious questions about the quality of the briefings he has been receiving.

Ministers are always in the invidious position of being largely reliant upon technical advice from the Department – when the quality of this advice is compromised, the minister is inevitably exposed to criticism, usually undeserved.

• **Hill: There'll be a serious issue as to their [the F-111s] survivability in conflict.**

This is curious in so far as armed with the planned for cruise missile, eg AGM-158 JASSM, the F-111 can egress a threat area much faster than an F/A-18A can. The F-111s are now receiving the Block C-3A upgrade incorporating the DRFM based Elta EL/T-8222 defensive jammer, which is a generation beyond the ALQ-126 carried by the F/A-18A-D and technologically a peer to the ALQ-165 ASPJ, which will probably be fitted to the F/A-18A as a future upgrade. As the F-111 is being equipped with a

vastly better jammer to defeat opposing radars, is equipped with terrain-following radar, and is much faster than the F/A-18A, the survivability argument strongly favours the F-111 over strike tasked F/A-18As.

• **Hill: And that's apart from any issues of the technical difficulty and expense in continually upgrading them. It's proving to be very difficult to upgrade old platforms with new technologies and unless you constantly do that you simply won't have a platform that's competitive.**

This is also a curious argument, since the Block C-4 upgrade weapon system now in test on the F-111 is technologically well ahead of the AYK-14 based HUG system in the F/A-18A – it is using 32-bit microprocessor technology in VME bussed enclosures. The Mil-Std-1760 weapons bus implementation on the Block C-4 F-111 is ahead of the partial -1760 system on the F/A-18As. Therefore the integration of any modern guided weapons on Block C-4 F-111 is apt to be easier than on the F/A-18A HUG – more computing power

available, more growth capacity in the computer system, and a better weapons bus implementation in the F-111.

The F-111 has more usable internal volume for additional hardware compared with a now very cramped F/A-18A HUG. The argument about having to do up grades constantly applies to all combat aircraft, and will be true of the JSF and F/A-22A as well – Moore's Law and rapidly evolving sensor and weapons technology will see to this. It is worth adding that the balance of payments favours in the long run new weapons on the F-111 at Amberley rather than having the work done on the F/A-18A at St Louis.

• **Hill: So the best advice we have is to concentrate our investment on a further capability in the F/A-18s to give them further precision bombs, to provide them with a follow-on stand-off weapon, a longer range missile. And that will give us a better strike capability in those distant years that you're talking about**

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US calls for missile guard

WASHINGTON – The US has named Northrop Grumman, United Airlines and the North American subsidiary of British-owned BAE Systems to develop and test equipment to protect civilian airliners from surface-to-air missile attacks.

They will develop a plan and test prototypes to help determine whether a viable technology exists that could be deployed to counter the potential threat that man-portable missiles pose to commercial aircraft.

The program had a budget of US\$2 million in 2003 and will pick up another \$60 million dollars in fiscal 2004 and FY 2005

RSAF close to fighter choice

SINGAPORE – Presumably timed for the Asian Aerospace Exhibition next month, Singapore expects to decide early this year on its choice of 20 new fighters.

Last year, Singapore shortlisted three – the Eurofighter Typhoon, France's Rafale and Boeing's F-15 Eagle.

Singapore faces slowing economy

SINGAPORE – Singapore's budget deficit will rise sharply in the

year to March 31, forcing the government to cut spending in its next budget due in February.

The Ministry of Finance is targeting a two per cent cut in spending by all government ministries for the next financial year.

The budget for this year to March is likely to show the deficit widening to S\$2.236 billion from an initial target of S\$1.244 billion, because of a combination of a weak economy and government spending to offset SARS.

The economy grew by an estimated 0.8 percent in 2003, down from 2.2 percent in the previous year.

The report did not expect any growth in nominal GDP, worth about S\$155.7 billion, in fiscal 2003.

The F-111 debate

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than what we have at the moment.

Yet another curious argument, in so far as given the choice of putting the JDAM and JASSM on F-111 or F/A-18A, the Block C-4 F-111 presents a core avionic system easier to integrate these weapons into, while the F-111 can carry twice as many weapons to about twice the distance, and is in strike roles demonstrably more survivable.

The investment argument is no less curious, since the expensive NRE component of the F-111 Block C-4 upgrade has largely been spent, and performing a full

Mil-Std-1760 upgrade on the F/A-18A HUG to give it the same weapons capability now being put into the F-111, duplicating that expenditure on a second platform.

• **Hill: You would n't send an F-111 out without fighter support, so you're really bound by the range of the fighter. But when you talk about the F/A-18's range, you've also got to appreciate that by 2010/2012 we'll have new tanker aircraft, a new fleet of tanker aircraft.**

Whether the strike aircraft is an F/A-18A or F-111, F/A-18A escorts will be required if Sukhois are expected to be airborne in the target area – this is an inevitability. The idea that F/A-18A escorts protect

ing F-111s can not be refused to match the range of the F-111, but F/A-18A escorts protecting strike tasked F/A-18As can be refused is a non-sequitur. The reality is that with a finite number of tankers, a force of F/A-18A escorts protecting F-111s can strike much further with more weapons than a force of F/A-18A escorts protecting F/A-18A bombers – the F-111s require no tanking out to 1,000 nautical miles.

Given the errors of fact, the Sky News interview demonstrated the Minister was very poorly briefed. In the Minister's interview simply reinforces the observable reality that the arguments put against the F-111 by Defence lack substance.

JSF bothers GAO, partners

COPENHAGEN – Danish companies involved in the US-led Joint Strike Fighter program are considering leaving the project because they haven't received orders from contractors Lockheed Martin.

"If we don't get firm contracts for the JSF before the summer, we'll give up on the project as a sub-contractor," the head of Systematic Software Engineering, Michael Holm, said.

Four Danish firms agreed in the early 1990s to pay the equivalent of €23 million each and the Danish government 722 million kroner to participate in the project.

One Danish executive said: "The Americans have to give foreign suppliers confidential information with the risk in the worse case that it falls into the hands of enemies. But we

told them that that they will have to do it if we are to participate."

Meanwhile, US lawmakers niggled about the Pentagon's use of foreign software, notably in the F-35 Joint Strike Fighter.

The JSF is being developed with funds from Britain, Canada, Denmark, the Netherlands, Norway, Italy, Turkey and Australia.

Two panels of the House Government Reform Committee have asked the General Accounting Office to investigate the extent to which the aircraft would rely on software written overseas.

Lockheed Martin says said 98 percent of the F-35's software is "US-sourced" and two percent comes from abroad.

The Global Project Authorization, or GPA is supposed to speed the transfer of unclassified material to foreign firms bidding on sub-contracts but it took two years for the State Department to approve the

process and a further 18 months or so for it to go into effect.

Bloomberg reports the F-35 is projected to cost \$5.1 billion or 17 percent more than budgeted, forcing a one-year delay and a cut in the number of planes produced, according to Pentagon documents.

Two years into the program, the cost of developing what's to be the main fighter plane for the Air Force, Navy and Marines has increased to \$40.5 billion from about \$35 billion "due to an approximate one-year extension for additional design work" and a more realistic cost estimate, Comptroller Dov Zakheim says.

To keep within the program's overall budget, Zakheim approved shifting \$5.1 billion from production to the ongoing research phase and he approved reducing to 90 from 160 the total aircraft bought through 2009. In addition, the first production models will be a year later than promised.



HeadsUp Newsletter

is published by . . .

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