

**DIRECTORATE OF MEDIA AFFAIRS  
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# AVIATION WEEK

13 Nov 2011

## JF-17: The World's Next Best Selling Light Fighter?

The Pakistan Air Force (PAF) and its industry partners are following a tradition of participation at Dubai and this year is no exception, with three Chengdu Aircraft Corporation (CAC) JF-17 Thunder/FC-1 Xiaolong fighter aircraft. Until now the only major international air show where the aircraft has performed a flight display was at Airshow China in November 2010.

The JF-17 is a Chengdu design, and the prototypes and first ten Block 1 aircraft acquired by the PAF were manufactured at Aircraft Plant No.132 in the Sichuan province capital. But the program has been as much about transferring modern fighter technology from China to Pakistan as it has been in providing a replacement aircraft for ageing Nanchang A-5, CAC F-7 and Dassault Mirage III/V aircraft in PAF inventory.

Pakistan's JF-17s are manufactured at the Pakistan Aeronautical Complex (PAC) in Kamra, formerly an MRO facility older types. PAF officers refer to the complex of four new buildings there as "Thunder City," and pointed out that they are not just assembling kits.

"We have become proficient in the production of the major on-board systems of the aircraft – even components of the radar set," said one PAF officer who has flown the aircraft and is also involved in its production. "Design and production engineers are fully fluent in the technology and operational details of the Chinese-designed systems that make up the aircraft's configuration."

There are three distinct objectives of the JF-17 program, as different Pakistani and Chinese sources have explained:

- To achieve complete proficiency in production and support with the aircraft in its current configuration of Chinese on-board systems and the Russian-made Isotov/Klimov RD-93 jet engine so that the PAC has complete autonomy in its ability to operate the aircraft.
- To develop "tailored" configurations of the aircraft that incorporate



The JF-17 can carry a broad range of weaponry.

non-Chinese subsystems in place of the current avionics, weapons and powerplant. Both the PAC and the original Chengdu designer seek to make the single-engine aircraft a best-selling, low-cost option for



An experimental radar is flying on a J-10B testbed.

replacing Mikoyan MiG-21s, Northrop F-5s, and similar-type aircraft.

Successful integration of third-party equipment for export customers is a key aspect. Both Pakistan and Chinese program officials have been anxious for another engine option that does not keep them dependent on Russia, and the

Guizhou WoShan (WS)-13 Taishan engine has been flight tested at Chengdu in an FC-1 testbed aircraft. With a thrust rating of 22,500 pounds, it produces at least 10% more power than the RD-93.

- To develop a Block 2 variant with a thrust-vectoring WS-13 engine, a new active electronically scanning array radar, improved infrared search and track module, new avionics, and a next generation variant of the aircraft's China Electronics Technology Corporation KG300G electronic warfare pod.

The aircraft will incorporate more advanced composite structures to address reported problems with cracks in the wing root area, and to reduce the aircraft's radar cross section.

A new radar is expected to be a downsized version of that in the next-iteration version of another Chengdu aircraft, the J-10B. Photos have been seen of a J-10B test

bed with a modified inlet to accommodate a Chinese-made engine and radar – the latter with an electronic array, although it is unclear if this is an active (AESA) or passive (PESA) model.

Russian and Ukrainian radar specialists who spoke to ShowNews and who are familiar with the JF-17's KLJ-7/Type 1478 radar and the Nanjing Research Institute of Electronic Technology (NRIET) that produced it are skeptical of the Chinese ability to produce an AESA radar set at present. However, the Chinese design team have shown themselves to be fully adept at producing the transmit/receive (T/R) modules necessary for an AESA design.

At present several nations in the immediate region have indicated an interest in some variant of the JF-17. Egypt, Azerbaijan, Sudan, Iran, Zimbabwe, Nigeria and Bangladesh have all indicated interest in the aircraft. —Reuben Johnson

## PAC JF-17, The Pakistan Air Force Thunders

Pakistan's JF-17 Thunder light fighter has made public appearances in China, the UK and Turkey but it's still a relative rarity on the world stage. The Dubai debut of three operational Pakistan Air Force JF-17s shows the aircraft to a whole new audience, to make the case for affordable airpower that the jet embodies. Pakistan's Air Chief Marshal Rao Qamar Suleman says, "co-produced with our all-weather friend China, induction of the JF-17



Thunder into the PAF combat fleet is indeed a landmark occasion. The aircraft offers the best replacement for the ageing fleet that is currently more than 75% of the PAF inventory. In addition to being an affordable replacement for vintage fighter aircraft, the project is helping our economy by providing a large number of job opportunities through in-country production."

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JF-17 Fighter:  
It's Our Own Program  
Says Pakistan

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Officials from the Pakistan Aeronautical Complex (PAC) here at Dubai 2011 tell *ShowNews* "we want it to be very clear that the [Chengdu] JF-17 is our program being produced in Pakistan. We have the lead in this effort, and many of the configuration decisions are being made by us."

The other variant of this aircraft built at the Chengdu Aeronautical Corporation (CAC), the FC-1, looks very much like the JF-17 "but it is a fundamentally different aircraft," says one of the Pakistan program team. "The FC-1 is not the same configuration as our aircraft. The FC-1 is an all-Chinese aircraft with all-Chinese avionics that will be built and delivered to the People's Liberation Army Air Force (PLAAF)."

JF-17 – the "Thunder"—is designed to be a program that can be sold to multiple nations and can be fitted with different hardware according to the customer's requirements. While Chengdu has been flying an FC-1 testbed with a Chinese-made engine with an eye towards eventually replacing the Klimov/Sarkisov RD-93, CAC is happy to keep using the Russian-made powerplant.

"We have had joint meetings with the Russians and the Chinese on this issue," says a PAC representative, "and we have



been assured that there are no issues with re-export of the engine. However, if a customer wants another engine then we can accommodate them."

So far, two squadrons of the JF-17s have been stood up in Pakistan – roughly 38 aircraft - with a third one in process. The initial production run, plus a follow-on, should total more than 90 fighters.

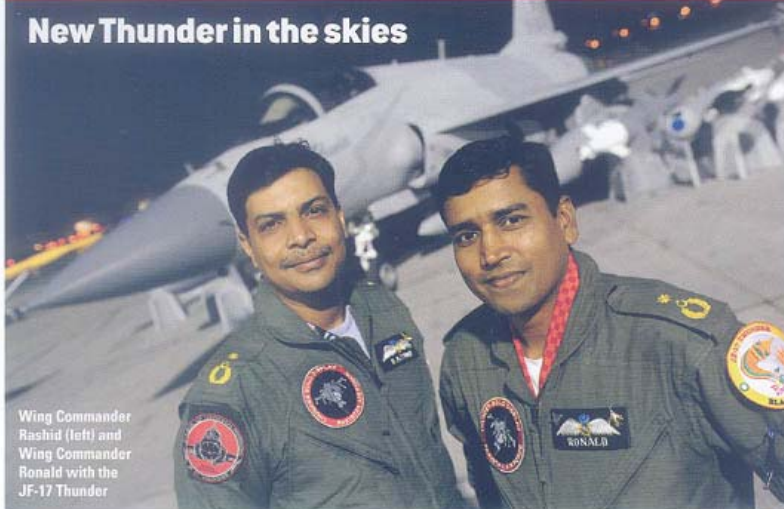
—Reuben F. Johnson



## **JF-17 is the right way up**

The Chengdu JF-17 is making its debut at Dubai this year with three aircraft from the Pakistan Air Force. Jointly developed by China and Pakistan, the JF-17 is pitched at developing nations that need a relatively cheap multi-role fighter to replace aircraft such as the Northrop F-5 and Mikoyan Gurevich MIG-21.

## New Thunder in the skies



Wing Commander Rashid (left) and Wing Commander Ronald with the JF-17 Thunder

The JF-17 Thunder – a joint venture by the Chengdu Aircraft Industries Corporation (CAC) of China, the Pakistan Aeronautical Complex (PAC) and the Pakistan Air Force – is making its Middle Eastern debut at Dubai.

The type was designed principally to meet a Pakistan Air Force requirement for an affordable multi-role combat aircraft to replace older Chinese fighters and fighter-bombers like the Nanchang A-5 'Fantan' and Chengdu F-7 Skybolt, and for its large fleet of Dassault Mirage III/5 fighters.

It was also intended to offer an alternative to more expensive Western fighters on the export market. The prototype made its maiden flight on August 24 2003 and Pakistan received eight of the 16 Chinese-built pre-production aircraft before local final assembly began on June 30 2009.

The first Pakistani JF-17 unit, No 26 Squadron, 'Black Spiders', stood up on February 18 2010. The aircraft on display here is from the second unit, No 16 Squadron 'Black Panthers', which re-equipped in April 2011.

## AEW/AWACS contenders do battle for UAE deal

**T**here are a number of outstanding UAE Air Force and Air Defence's (AF&AD) requirements and many hope that the Dubai Airshow might see some of these finally being resolved.

Arguably the most urgent of these is the requirement for a new AEW/AWACS aircraft.

The UAE selected the Saab 340-based Erieye as an interim solution for training, operational evaluation, and for the development of AEW tactics and doctrine.

### Hidden away

The first of two aircraft was sighted in the UAE, and was known to be in service, by the time of the IDEX exhibition in February, though the aircraft remained hidden away. The second of the UAE's two Erieye aircraft was delivered by the Saab Group during April 2011.

But acquiring a definitive AEW/AWACS aircraft remains an urgent priority for the UAE, and the Saab 2000, Grumman's E-2 Hawkeye and Boeing's 737 AEW&C, all remain in contention to meet the full requirement.



The Pakistan Air Force flew in an Erieye-equipped Saab 2000 for the show

Examples of all three competing types are attending the Dubai show, with the E-2 represented by a US Navy Hawkeye, the Boeing 737 AEW&C by a Turkish Peace Eagle aircraft and the Erieye by a Pakistan Air Force Saab 2000 – one of four AEW&C variants fitted with Erieye radar and associated systems.

Each aircraft offers a quite different solution to the UAE

requirement, with the combat-proven Hawkeye representing a smaller and cheaper option, and the 737 AEW&C a more 'high-end' solution.

Saab claims that its Saab 2000-based Erieye represents the best compromise, providing a more spacious cabin, longer-range and greater persistence than the Hawkeye, at a more affordable cost than the 737 AEW&C.



ARABIAN  
AEROSPACE

15 Nov 2011

## PAF commander Thunders his approval for fronttime fast jet

Air Chief Marshal Rao Qamar Suleman, Pakistan's Chief of the Air Staff, underlined the importance of the new JF-17 Thunder



Air Chief Marshal Rao Qamar Suleman

which, he said, "represented a much-needed capability for the Pakistan Air Force".

A 20-fighter squadron air force, the PAF currently operates five frontline fast jet types, consisting of the F-16, the Mirage III/5/50, the Chengdu F-7 and F-7PG, and the Nanchang A-5.

All but the F-16 are based on 1950s or 1960s technology and were described by Suleman as being "obsolete and expensive to maintain and support".

Replacing 250-275 fighters would have placed a heavy burden on Pakistan but the JF-17 offers what Suleman called "cutting edge capabilities at an affordable cost" – estimating that the JF-17s cost one third of the price of fighters offering equivalent capability.

Moreover, because the JF-17

was "developed from the start by PAF fighter pilots and engineers", and because the Chinese team was guided by Pakistani operational experience, the aircraft is tailored to meet Pakistani requirements.

### Robust path

The aircraft's performance is already "far exceeding our expectations", Suleman said. A robust growth path is in place and deliveries of Block 2 aircraft will begin next year, after the last of 42 Block 1 JF-17s is delivered.

The Block 2 aircraft incorporates avionics improvements (especially to the data link and EW systems), new guided weapons, and air-to-air refuelling capability. It will include the first two-seat versions.

A Block 3 configuration is planned to follow from 2016.

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Air Chief Marshal  
Rao Qamar Suleman.

## **AVIC, CATIC, Pakistan See JF-17 as Best Seller**

In a wide-ranging set of presentations involving the Commander-in-Chief of the Pakistan Air Force (PAF), Air Chief Marshal Rao Qamar Suleman, the president of China Aerotechnology Import-Export Corporation (CATIC), Ma Zhiping, and JF-17 chief designer from Chengdu Aerospace (CAC), Yang Wei, all declare that the objectives of the program are to make the aircraft a best-selling, popular alternative to far more expensive western, aircraft.

“Look at the aircraft many air forces are flying today in developing countries – MiG-21s, F-5s, F-4s – these are all aircraft where their airframe life is over and they must be replaced,” says Suleman. “When you look at the capabilities required to be on board a modern fighter aircraft you see that they all come at a high cost – all except for JF-17. Our aircraft comes at almost one-third the cost of any other aircraft with similar capabilities and this is our competitive advantage in the market.”

CATIC's Ma echos the comments of the PAF Chief,



JF-17 chief designer from CAC, Yang Wei.

## Saab, A Silent Partner In The Middle East



Pakistan's Erieye.

Interviewing Saab's new CEO Hakan Buskhe about his company's Middle East work is a difficult task. For one thing, Saab doesn't make public any figures for its business in the Middle East and won't even say what percentage of turnover comes from the region. Sitting down to talk to *Show/News* Buskhe says, "our special focus is on the UAE, Oman, Qatar and Saudi Arabia. Our operations base is in Abu Dhabi, with more than 20 people in that office. It's an important part of our business, it's growing – but there's pretty much nothing I can say in any detail because everything we do here is bound by confidentiality agreements."

Asked how Saab has been performing on the contracts it has, he replies, "the things that we are doing here have had a good reception. There is a very high expectation among the customers here that their demands be met – and their demands are high – but so far we have achieved just that."

Saab's biggest sales success, in terms of major

platform sales, has been across its airborne surveillance business – chiefly the Erieye AEW&C system now ordered by Pakistan, Saudia Arabia and the UAE. Within the UAE Saab has already put two Erieye systems into service, and is one of the suppliers chasing a larger follow-on order for more AEW&C aircraft. "We've had many discussions about helping to grow the UAE's industrial base," says Buskhe. "The UAE has the right idea about technology transfer and partnership and we have a lot to offer. It's not just all of Saab that's involved but the entire Wallenberg group, so we provide opportunities well beyond the obvious security and defense work."

"The UAE has made huge investment in tooling and engineering resources," he adds, "and even without procurement programs here there



Saab's new CEO Hakan Buskhe.

opportunities for us to look at more sourcing from the UAE." Buskhe says Saab is examining several supplier options in the Emirates, but declines to add any details – but he does note, "We are not a huge company, so a big deal for us might look small to someone else, but what will always offer is a better and more affordable partnership."

—Robert Hewson

# FLIGHT

DAILY NEWS  
15 Nov 2011

▼ **COST ADVANTAGE:**  
The aircraft is being pitched as affordable



## JF-17: FIGHTING TALK

Five countries in the Middle East are evaluating the JF-17 as an affordable replacement fighter alongside China's Peoples Liberation Army Air Force (PLAAF).

The sales opportunities for the programme were described by the head of the Pakistan air force, Air Chief Marshall Rao Qamar Suleman. He was speaking at a press briefing hosted by the PAF and the China Aviation Technology/Import-Export Corporation

(CATIC), the government-owned company responsible for Beijing's aerospace defence exports.

He added that the five countries could send pilots to Pakistan to evaluate the single-engine fighter.

He also said he visited the PLAAF in China recently, where he discussed the programme with his Chinese counterparts.

It has long been known that the PLAAF has fol-

lowed the JF-17 programme closely, but most industry observers have shared the view that it prefers to focus on replacing older aircraft with the J-10A, J-10B and Shenyang J-11.

ACM Suleman and the other presenters placed great emphasis on their claims about the JF-17's affordability. They claim the aircraft is two to three times cheaper than rivals on a flyaway basis, and that the aircraft is also inexpensive to support.

## **JF-17 CRASH KILLS PILOT**

A Chengdu/Pakistan Aeronautical Complex JF-17 fighter aircraft operated by the Pakistan air force has crashed shortly after taking from Kamra air base, killing the pilot, an industry source said.

The PAF confirmed that the aircraft was flying at low level and crashed shortly after takeoff on 14 November. The lost aircraft was due for induction into the PAF's third operational JF-17 squadron. This is the first known crash of the aircraft.

The incident came as China and Pakistan mounted a major sales push for the JF-17 (static park A4) at the show. This is the JF-17's first major international air show since Farnborough in 2010.

17 Nov 2011

# Thunder in Dubai Skies

Three 'JF-17 Thunder' aircraft of Pakistan Air Force are participating in Dubai Air Show. The impressive JF-17 (Thunder) jointly co-developed (by PAF & CATIC), and co-produced by PAC (Pakistan Aeronautical Complex) and CATIC (China Aero-technology Import Export Corporation) has been put up for static as well as aerial display in the Air Show.

Chief of the Air Staff Pakistan Air Force Air Chief Marshal Rao Qamar Suleman accompanied by officials from aviation industry of China attended the Airshow. The JF-17 aircraft displayed its agility and outstanding flight characteristics. The JF-17 made its debut at Farnborough Air Show in 2010, when two JF-17s flew all the way from Pakistan to Farnborough, UK. At Farnborough, the aircraft attracted intense focus of visitors and international media. Four months later in November 2010, three JF-17s flew over to China to participate in Zhuhai Air Show, where the aircraft made its first ever aerobatics display. In June 2011, three JF-17s participated in aerobatics and static display in 100-years celebrations of Turkish Air Force.

The JF-17 Thunder is an all weather, multi-role, light combat aircraft that



has the potential to be the main stay and work horse of any Air Force. The design of JF-17 aircraft is based on modern concepts of aerodynamics. The aircraft is equipped with a digital fly-by-wire flight control system that gives it the agility in all regimes of the operational flight envelope. The JF-17 has a complete glass cockpit, excellent man-machine interface and modern self-protection suite, which enhance combat potential and survivability of the aircraft. The JF-17 is equipped with fourth generation avionics systems, wide range of conventional and smart weapons, long range glide bombs. Beyond Visual Range and short range Air-to-Air missiles, Anti-Ship missile and Air-to-Surface missiles. The aircraft requires remarkably short lengths of runway for take-off and landing, which offers flexibility of aircraft operations at short air strips. Shortly, the aircraft will also have Air-to-Air refuelling capability, which will further enhance its combat potential and employment options. Pakistan

Air Force has inducted JF-17 in its fleet and with the co-production in full swing the aircraft are rolling out from Pakistan Aeronautical Complex (PAC) Kamra. The JF-17 Programme has been a success story since its inception in 1998. Developmental work on the aircraft commenced in the year-1999 and detailed design was finalised in September 2001. After flight testing, a Small Batch of 08 aircraft was produced in year-2007 and finally serial co-production of the aircraft started in Pakistan in the Year-2009. So far PAF's two Squadrons have been equipped with JF-17s, while the third is planned to be raised by beginning next year. At present, JF-17 aircraft stands prominent in its own class of fighters. In the present environment, when defence budgets are shrinking and Air Forces face difficulties in affording modern combat aircraft, JF-17 offers a highly cost effective solution with cutting edge capabilities. In the shape of JF-17 aircraft, Pakistan Aeronautical Complex and CATIC offer a cost-effective, highly potent, multi-role combat aircraft which is capable of meeting the challenges of present and future Air Power employment.

