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ASIAN AIR ARMS NEWSLETTER 19

February/March 2020

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ROCAF

2019

Inside this issue:

AAA Update	ROCAF 2019	"Fury From the North" Book Review	Asian Air Arms Decals	AEW&C in Asia Part 2	"Chinese Army Aviation" Book Review	RSAF Training Operations in USA	"Starfighters in Combat" Iliad Decals	B-25s in RNEIAF & AURI	Complete History of I.N. Harrier Operations	T-28s in VNAF (South Vietnamese Air Force)	"Camo & Markings of RNEIAF" Book Review
2	3-6	7-8	9	10-12	13-14	15	15	16-17	18-21	22-29	30





BRIAN'S UPDATES AT ASIAN AIR ARMS RESEARCH GROUP



1

Firstly, let's get the difficult thing out of the way.

Following the sudden death of my wonderful wife, I've been inundated with messages of sympathy and support from members all over the world. Thanks so very much, they were very much appreciated. As this has knocked me sideways, several key members have offered to step in and take over the running of the group for the time being. While I shall still be contactable on asianairarms1@outlook.com, our Deputy Leader David Thomas will be dealing with most matters. His e-mail is davidtriplea21@gmail.com. Requests for information concerning shows should be directed to Alan Smith at: asmithswork@googlemail.com. With the help of Mark Attrill, I shall try to keep the Newsletters going and shall aim to keep the website up to date. Thanks for your understanding!

2

Well, as a result of Corona Virus, it looks like we're unlikely to be attending any shows at least until the summer, but self-isolation does provide you with time to get on with those projects that have been sitting on the shelf for so long! I hope the contents of this newsletter will give you some inspiration!

3

Here's some interesting news concerning the PLAAF in China—read this report from member Andreas Rupprecht that was featured in Jane's Defence Weekly.

"China's People's Liberation Army Air Force (PLAAF) has issued new guidelines requiring both future and in-service aircraft to be painted with 'low-observable' coatings, colour schemes and markings. The guidelines also mandate that the markings on PLAAF aircraft - including the national flag and service insignia - are gradually standardised, with the implementation of these regulations set to take place throughout 2020, according to a 13 March article by the PLA Daily newspaper. Reporting on this issue the state-owned Global Times newspaper stated that the move is "aimed at giving Chinese warplanes a combat advantage as they will be less likely to be detected by both the naked eye and military radar".



The image is of a J-16 with hard-to-spot markings—on the tail. You might have to enlarge it to see them!

4

Member Werner Hartman has asked me to bring to your attention the huge range of solid aircraft models that he makes in the US. They are really most striking—do click on the logo below to visit his site.



High Quality Models for the Avid Collector



5

Finally, I'm just agreeing a deal with WandD Decals from Taiwan that will enable members to benefit from a 25% discount! They produce a great range of modern decals (not just Taiwanese) as well as pitots and resin. I'll shortly be sending you a separate e-mail asking for your order for some of these superb decals at a great 25% discount. So, keep your eyes open!



F-16s used by 21st FG USAF for training ROCAF pilots



20th Anniversary of Mirage 2000 handover to ROCAF






F-5 MLU Tiger 2000



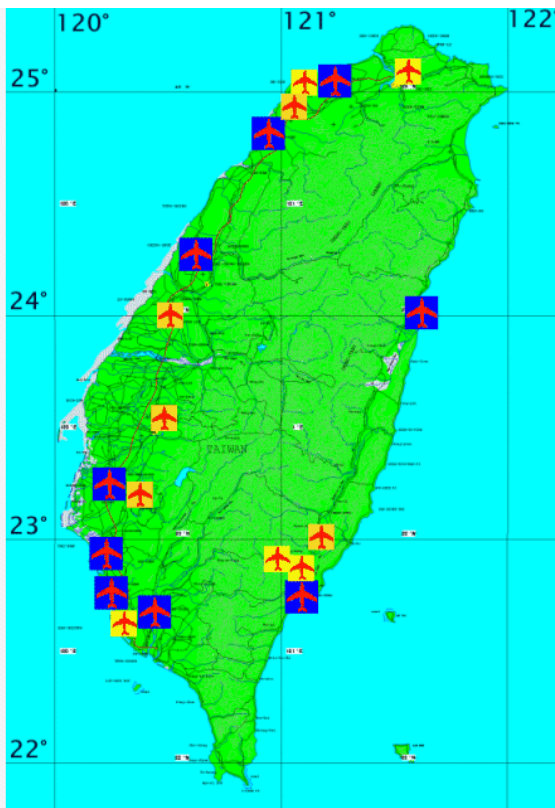
REPUBLIC OF CHINA (ROC) AIR FORCE

Article and photos by member Andy Binks

TAIWAN AIRFIELDS

-  Main Operating Bases
-  Other Airfields
-  Highway Strips

NOTE
smaller facilities
not depicted



The Republic of China Air Force (ROCAF) has a primary mission of defending the airspace over and around Taiwan. It operates from nine air bases around the island of Taiwan itself and one temporary deployment base on the island of Penghu, much closer to mainland China. As a country, Taiwan has an indigenous aviation industry, with support from more recognised countries, and has produced its own aircraft including the F-CK-I Ching Kuo fighter and the AT-3 Tsu Chang two-seat trainer, as well as aircraft modification projects, missile systems and UAVs.

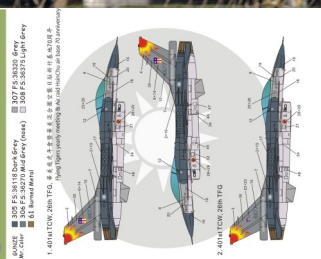
From the history of the country, it is easy to understand why all of the airfields have hardened facilities in order to survive surprise attacks, and whilst this would seem unlikely in all reality, it is a very real threat to Taiwanese independence. According to the People's Republic of China, they send about 2,000 bomber patrols per year down the Taiwan Strait separating Taiwan and China. This explains why it is possible to photograph many aircraft in Taiwan carrying live weapons, something which is not often seen in Europe.

Looking at post-WW2 history, a General Headquarters was formed on mainland China and combat took place between the Chinese People's Liberation Army and ROCAF aircraft on at least eleven occasions in the areas surrounding the Taiwan Strait, until the end of the Chinese civil war in 1948. Following the communist victory, the GHQ was evacuated to Taiwan, along with the rest of the Republic of China government, in April 1949. Since then, both countries have been at loggerheads and the ROCAF has fought many engagements with its Communist counterpart, the People's Liberation Army Air Force (PLAAF), primarily using second-hand equipment from the USA, including such types as the F-86 Sabre, F-100 Super Sabre and F-104 Starfighter.

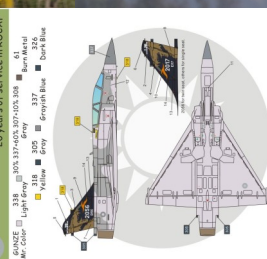


Bestfong

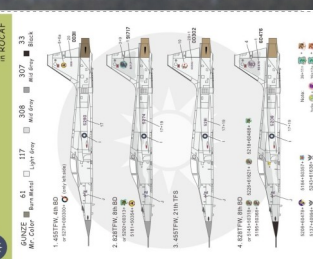
Bestfong
F-16 A 6677
in ROCAF



Bestfong
Dassault Mirage 2000-5
20 years of service in ROCAF

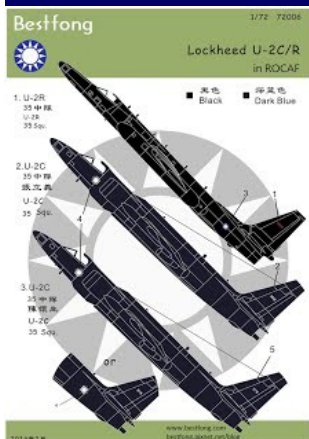


Bestfong
Northrop F-4E / F Part II
in ROCAF





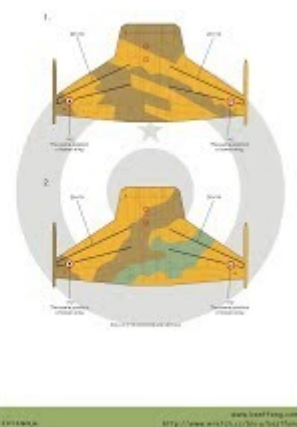
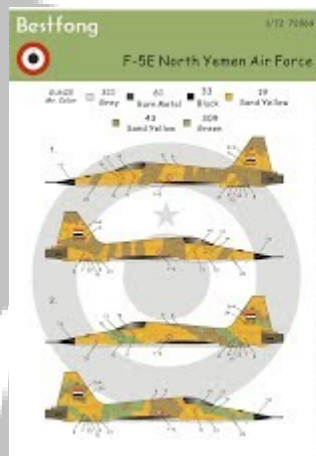
REPUBLIC OF CHINA AIR FORCE by Andy Binks



During the 1960s and the later cold war era, many interesting and secretive episodes took place, including the use of Lockheed U-2 spy planes flown by ROCAF pilots over mainland China. Known as the Black Cat Squadron, they flew more than 200 missions, losing five aircraft along the way, all being shot down by surface-to-air missiles. In the late 1960s, the ROCAF also aided US efforts in the Vietnam War by providing a secretly run transport aircraft detachment, utilising Fairchild C-123 Provider aircraft, tasked with air transportation and electronic reconnaissance operations.

This fight against communism continued from 1979 until 1990, when the ROCAF engaged in a classified military aid program in the Yemen Arab Republic to oppose the Air Force of South

Yemen. Known as the Great Desert Program, it began after American President Jimmy Carter rushed 14 F-5s to the Yemeni Air Force, who, lacking trained pilots and ground crew, were supported by deployed ROCAF personnel. Taiwanese pilots scored a number of kills during this period, but the programme ended in 1990 when Saudi Arabia withdrew its diplomatic recognition of Taiwan.



The current ROCAF inventory includes over 300 combat aircraft, the mainstays being the AIDC F-CK-I Ching Kuo IDF (Indigenous Defense Fighter), the F-16 Fighting Falcon and the Mirage 2000-5. Older Northrop F-5 Tiger II aircraft are used for aggressor training.



Development of the Ching Kuo began in 1984 due to US refusal to sell F-16s to the ROCAF, as a result of changes in national policy between the US and the People's Republic of China. After a successful maiden flight in 1989, the fighter finally entered service in 1994.

The production of the twin-engine AIDC Ching-Kuo lasted until early 2000. Originally around 250 were to be produced, but due to the successful placement of orders for Dassault Mirage 2000 (60) and F-16A/B (150) aircraft, the final number of completed Ching-Kuos was reduced to 135.



A recent order for upgraded F-16Vs will mean that the country can finally withdraw their F-5E/F aircraft from use in the coming years, once the more modern aircraft come on-stream.



ROCAF 2019 by Andy Binks



An immaculately kept transport fleet is used to cover the needs of the island. This includes C-130 Hercules, Beech 1900s, Fokker 50s and a single VIP Boeing 737. For search and rescue missions, a number of very colourful Sikorsky S-70 helicopters were introduced during the 1990's and then in 2012, the first of three Eurocopter EC225s arrived, with 17 more on option. These have recently replaced the S70s.

Basic training is carried out on the T-34 Mentor and more advanced work is carried out by the locally designed and built twin-jet, the AT-3 Tsu Chang.

In response to American refusals to supply "smart" weapons, Taiwan has developed its own range of missiles including the Sky Sword I Infrared short range AAM, the Sky Sword II radar guided medium range AAM, the Wan Chien stand-off weapon, and the Hsiung Feng II ASM, although in recent times, modern weaponry has become available once again.

World politics and a lack of finances continue to hamper the growth and modernisation of the ROCAF and the long hoped for purchase of F-35B Lightning IIs seems a great way off. More likely to happen is the recent announcement of a wish for a total of 66 new-built F-16V aircraft to replace the ageing Mirage 2000 and F-5 fighters.

For modellers though, there is a wide range of accurate modern kits and decals available, even covering the indigenous types of aircraft. A quick look at Scalemates.com reveals models of the Ching Kuo and AT-3 in the major scales along with very colourful decals from the likes of WandD Studio and Best Fong, so why not give one a go?

(Ed. Note—see Page 2 for info re. special offer for WandD Studio ROCAF Decals.)

Andy Binks

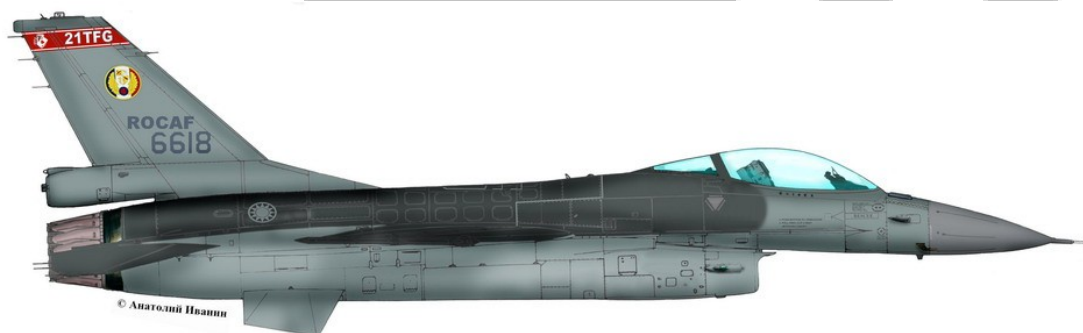
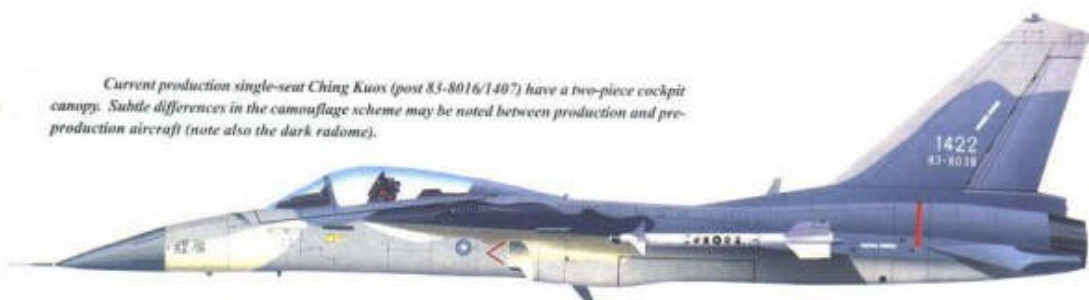




ROCAF 2019 by Andy Binks



Current production single-seat Ching Kuos (post 83-8016/1407) have a two-piece cockpit canopy. Subtle differences in the camouflage scheme may be noted between production and pre-production aircraft (note also the dark radome).

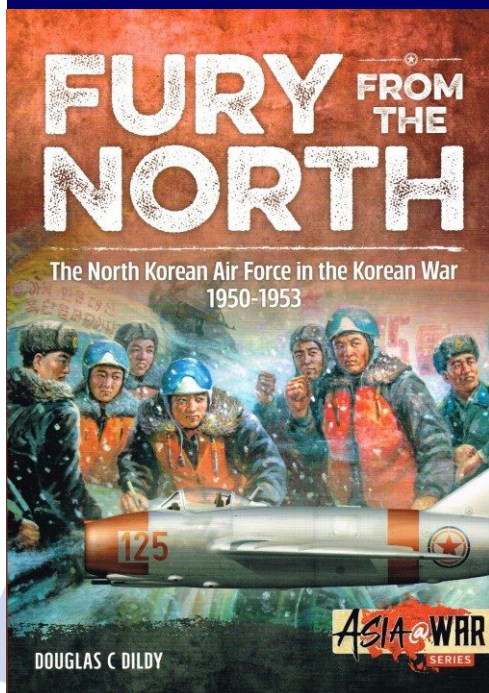


ORDER OF BATTLE	No. (Ordered)
ROC AIR FORCE	
F/RF-5E/F	56
F-16A/B/V	142 (66)
F-CK-1C/D	129
Mirage 2000-5E/DI	55
C-130H	20
E-2B/K	6
P-3C	12
C-27J	(6)
H-225M	3 (17)
S-70/UH-60M	10
AT-3	48
T-34	47
ROC ARMY	
AH-1W	62
AH-64E	29
CH-47SD	8
OH-58	38
S-70/UH-60M	35
Bell 206	29
ROC NAVY	
MD-500	7
S-70/MH-60R	18 (10)



FURY FROM THE NORTH

By Douglas Dildy and reviewed by Mark Attrill



Brian, our illustrious Special Interest/Aviation Research Group Leader, seems to have a canny intuition for inviting me to review books on subjects that are of *particular* interest to me. This latest review is no exception since I have had a fascination with the ebb and flow of the Korean War of 1950-53 since I first studied it seriously for A level History in...ahem....19?? ! There is a family connection too: a relative of mine was a Sergeant in the 1st Battalion of the Royal Gloucestershire Regiment that achieved fame during the Korean War when they held out against overwhelming odds during the Battle of the Imjin River. The stand prevented the encirclement of other United Nations forces, for which the regiment was awarded the Presidential Unit Citation and earned the nickname *The Glorious Glosters*. In 1991 I was invited to participate in a British Army sponsored 'Staff Ride' to South Korea where, as the only RAF Officer on the trip, I had to earn my keep by researching and describing the Korean Air War but also managed to pay homage to my late Great Uncle by visiting an area of the Imjin River that is now known as Gloster Ridge during our nationwide tour of the Republic of Korea.

Enough of the personal background This book, which focuses almost exclusively on the Korean Air War from a North Korean Air Forces perspective is another in the growing number of titles in the @War series from relative newcomer **Helion and Company**. I've

been a fan of this publisher almost from the start as the series aims to cover the lesser-known (and therefore less publicised) conflicts that have afflicted the world in the 20th and 21st Century. As with many embryonic series, the quality and scope of each title has evolved over time and the most recent titles appear to be a little more refined than some of the early ones. "Fury from the North" is no exception and Tom Cooper, the Series Editor, has done his usual fine job in sourcing an author who clearly has a deep knowledge of the air campaign - from a Korean Peoples' Air Force (KPAF) point of view.

This excellent 80 page book starts with the origins of military aviation in North Korea following the arbitrary division of the Korean peninsula by the United States of America and the Soviet Union at the end of the Second World War and after 35 years of Japanese occupation. The first chapter, rather quirkily titled 'How to Build an Air Force', deals with the people and structures that were key to the rapid development of an air force as it faced the challenges of initially trying to operate Japanese types (such as the Ki.51 'Sonia' Type 99, abandoned by the IJAAF) while accepting new equipment from the Soviet Union, including Yakovlev Yak-9 fighters, Ilyushin Il-10 fighter-bombers and Yakovlev Yak-11/18 trainers. The Soviet Union's desire to support Kim Il-Sung's greater ambitions for a unified Korea and potentially to fight a proxy war with the Western Allies, provided the KPAF with a early advantage, although Kim Il -Sung's inability to capitalise on the use of an air force effectively meant that early success was quickly countered.

The bulk of the text throughout the rest of the book then concentrates on describing the aforementioned ebb and flow, and fortunes of the KPAF as it struggled to keep up with all of the technological advances in aircraft design, tactics and doctrine, largely being developed by the competing superpowers, using Korea as a testing ground.

The KPAF relationship with both the Soviet Union and the People's Republic of China, which included the employment of pilots from both nations (flying what were ostensibly 'KPAF' aircraft) is described, together with separate chapters on managing the transition from piston engine aircraft; entering the jet age; and fighting the war at night against increasingly sophisticated USAF and USN adversaries.





FURY FROM THE NORTH

By Douglas Dildy and reviewed by Mark Attrill (Continued)



MiG 15bis Nord Coréen.

Each of the ten main chapters that deal with the KPAF since its inception are lavishly illustrated with black and white photographs, many of which do not appear to have been previously published and are certainly not familiar to the reviewer who has, over the years, read many of the books and magazine articles that deal with the Korean Air War. To their credit quite a few of the photos of Allied types also shown in the book are either previously unpublished or are rarely-seen images making the book all the more appealing to this particular reviewer. Prospective buyers should however note that because some of the images are quite rare they can also be poor in quality but this does little to detract from their interest. There are some nice, more contemporary, colour photos of KPAF exhibits from aviation museums North and South of the 38th Parallel, and even one of the MiG-15 that now resides in the National Museum of the USAF at Wright-Patterson AFB, Ohio after its defection to South Korea in September 1953. As with other volumes in this series, the book includes some useful Order of Battle Tables that chart the progressive strength of the KPAF, together with some colour maps showing the locations of the major KPAF Air Bases, both geographically and during the progress of the War.

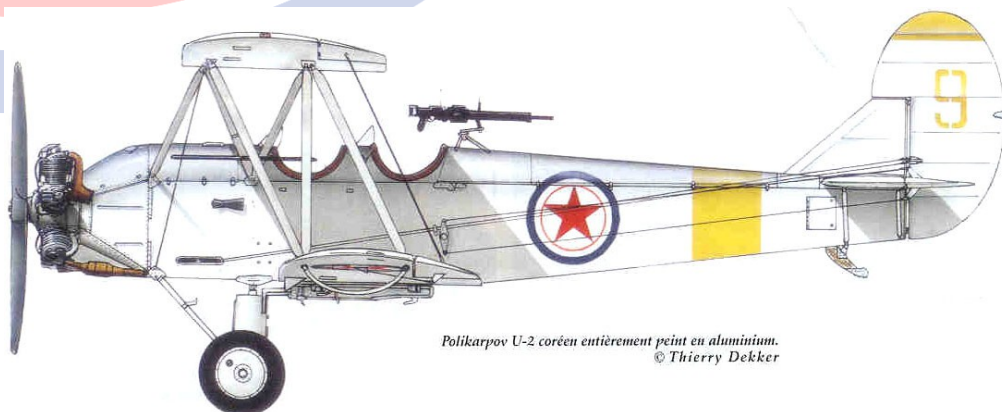
For the modeller in particular, this book also offers an excellent selection of colour side profiles by member Tom Cooper, covering the vast majority of types that served with the KPAF during the Korean War years. In spite of the uniformity of the majority of colour schemes worn by KPAF aircraft, these profiles do provide a great deal of inspiration for modellers: my particular favourites were the 56th Fighter Aviation Regiment Lavochkin La-11 in an unusual Dark Green and Light Grey striped scheme; an ex-IJAAF Tachikawa Ki-54c 'Hickory' twin-engined light transport aircraft; and Douglas C-47/Lisunov Li-2 clones—but there are plenty of others to hold interest. I was, however, surprised by the omission of the interesting variety of night fighter colour schemes applied to the MiG-15s. Some of the subjects, including the ever popular Mikoyan MiG-15, have been regularly covered with kit and aftermarket decal sheets but it's good to see that some of the aftermarket decal manufacturers, (including DP Casper of the Czech Republic and Frontpenny Decals of the PRC) have already started to tap into this potentially rich vein of subjects to complement the high quality models now available on the market.

Have no doubt, this is another extremely impressive book from **Helion and Company** that has captured the birth, development and early history of this rather secretive Asian air force during a particularly turbulent time in North East Asian history. Once again, Tom Cooper, the @War Series Editor has combined the written talents of a well-informed author with a host of previously unpublished imagery sourced from personal collections and archives and a very nice selection of colour side profiles to produce a quality reference book on an unusual and little publicised subject.

Thoroughly recommended to anyone with an interest in the Korean Air War or the early years of the rather secretive Korean Peoples' Air Force.

Mark Attrill

March 2020

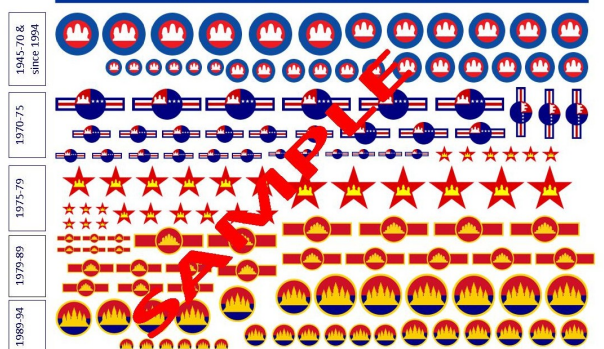


Polikarpov U-2 coréen entièrement peint en aluminium.
© Thierry Dekker



**GENERIC DECAL SHEETS FROM
ASIAN AIR ARMS RESEARCH GROUP/IPMS SIG**

ASIAN AIR ARMS GENERIC DECALS - AS.1—CAMBODIA



Lay white decal paper, or paint, on model and allow to dry before applying



ASIAN AIR ARMS GENERIC DECALS: AS.2a—ROYAL MALAYSIAN AIR FORCE—EARLY



Note on fin flashes: 1962 – 2005 the light blue bar the front of the aircraft.

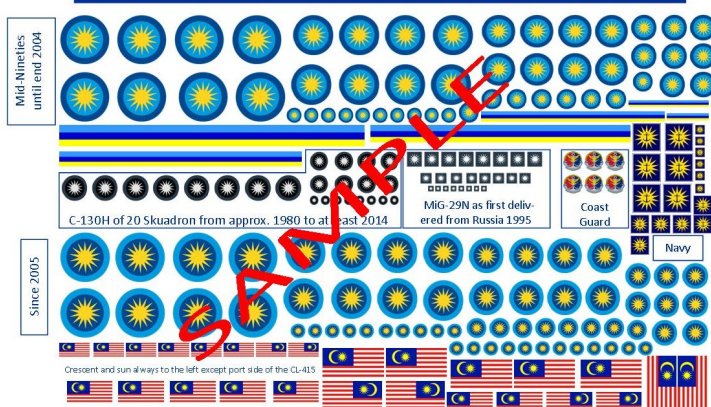
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Lay white decal paper, or paint, on model and allow to dry before applying decals



ASIAN AIR ARMS GENERIC DECALS: AS.2b—ROYAL MALAYSIAN AIR FORCE—LATE



Note on fin flashes: 1962 – 2005 the light blue bar faced the front of the aircraft.
Since 2005 the yellow bar is to the right of the viewer.

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Lay white decal paper, or paint, on model and allow to dry before applying decals

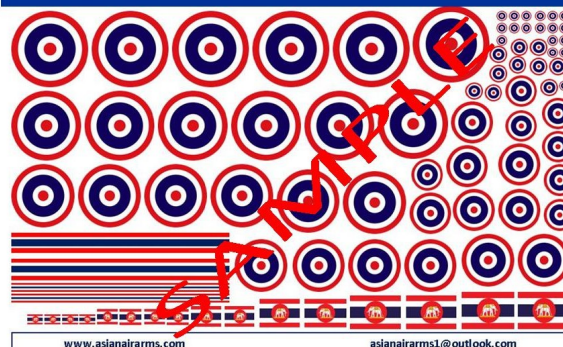


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ASIAN AIR ARMS GENERIC DECALS: AS.3—ROYAL THAI AIR FORCE/



Lay white decal paper, or paint, on model and allow to dry before applying decals.



AEW&C IN ASIA—Part 2

CHINA—PLAAF

One example of the re-engined Tupolev Tu-4 Bull was converted as an AEW test bed and designated KJ-1.



Mick Burton's
1/72 KJ-1



Xi'an KJ-2000



KJ-2000: Developed with some Israeli clandestine assistance initially from a Beriev A-50, four Il-76MDs from China United Airlines were converted and designated as KJ-2000. They entered service between 2005-2007 in the 76th Electronic Warfare Regiment.



1/72 A-Model



1/144 Zvezda

Shaanxi KJ-200: Unable to obtain any more Il-76 airframes, the Xi'an Y-8F-600 transport was substantially modified to carry an AESA pylon-mounted radar, and now serves in PLAAF (Y-8W) and PLANAF (Y-8WH).

Shaanxi KJ-200 "Balance Beam"



1/144 Anigrand



Brian's 1/144 Anigrand KJ-200

1/144 Hobby Boss



Shaanxi KJ-500 is a "next generation" AEW&C aircraft based on the Y-9 (a stretched version of the Y-8) and features a rotodome plus nose and tail radomes.

Shaanxi KJ-500



1/144 Hobby Boss



AEW&C IN ASIA—Part 2

CHINA—PLANAF

Kamov Ka-31



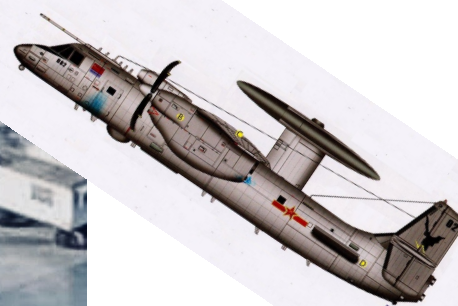
Ka-31 serves in small numbers with the 11th Regiment of the Eastern Theater Command.

Changhe Z-18J



The Changhe Z-18J AEW has a retractable long-range multi-mode AESA radar located behind a completely redesigned rear fuselage. Due to its limited internal space and payload capability, as well as range, this type is most likely a stop-gap solution until a fixed-wing AEW aircraft enters service (see Xi'an KJ-600 below).

Xi'an KJ-600?



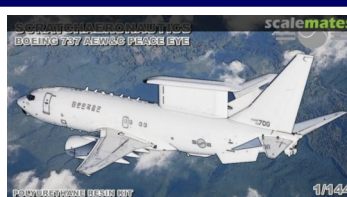
The new carrier AEW, is said to be under construction at Xi'an (XAC), designated KJ-600 or even HJ-600 and eventually should look like the illustrations above. (Credit: Andreas Rupprecht)

SOUTH KOREA

Boeing 737 AEW&C



1/72
Welsh
Models



1/144 Scratchaeronautics



Click image to read about Brian's home-made 1/144 conversion



1/144 Hawkeye
Conversion



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AEW&C IN ASIA—Part 2

JAPAN

NAMC YS-11s operated by JASDF Electronic Intelligence (YS-11EB) and Electronic Warfare (YS-11EA) Support Squadrons.

NAMC YS-11



1/144
Fox One

KAWASAKI EC-1



Just one **Kawasaki EC-1** was built. Since 1984 it has been operated by the Electronic Warfare Support Squadron.



1/72
North Wing



1/200 Hasegawa

E-2C/D



Since 1987, JASDF has been operating E-2Cs and -2Ds in the Airborne Early Warning Group. At Jan 2020, there were 14, with 12 on order.



1/144
Revell



1/72
Hasegawa



1/48 Kinetic



Boeing E-767



JASDF operates 4 E-767s



1/200 Hasegawa



1/144 Welsh Models



1/72
Transport Wings

TAIWAN



1/72 Hasegawa

Grumman E-2K Hawkeye



1/48
Kinetic



1/32 ID Models



1/144
Heller





Modern Chinese Warplanes—Chinese Army Aviation – Aircraft and Units

by

Written by Andreas Rupprecht and Reviewed by David Thomas



Andreas begins his analysis of Chinese Army Aviation by establishing the position of this young air arm as a part of the “People’s Liberation Army (PLA) - Ground Force”, rather than it being a part of the PLA. The PLA, he explains, is a coverall title of the organisation responsible for the operations of the Air Force (PLAAF) and Navy (PLAN), as well as of the various elements of the PLA- Ground Force of which the Air Arm is but one component.

The Ground Force Air Arm is the youngest of all of the branches of the Chinese armed forces, founded in 1986 and it received its first equipment, inherited from the air force, some two years later. The first true Air Brigade did not appear until as recently as 2009. As a result of its recent formation and China’s concerns about the security of its forces, very little information about its growth and development has been available. This slim volume of some 90 or so pages focuses attention on a part of the Chinese military not previously examined to any great depth, in a single, widely available publication. Indeed, the author states this is the first comprehensive coverage of the subject to be published, certainly

in the West and probably in the world. It is therefore true to say that despite being a very small book it is a most significant volume, in recording the developing doctrines and aims of the PLA in general and the Ground Forces in particular.

The book covers its topics in seven chapters and is well illustrated with a wide range of photos depicting all of the current equipment of the service. He begins in Chapter 1 with a brief history of the air arm and, perhaps more interestingly, looks at how it might be expected to develop in the future.

Chapter 2 deals with aircraft markings and serial number systems. As with the other Chinese Air Arms markings are apparently relatively straight-forward. All aircraft carry the traditional red/yellow “star and bar”, however, several variations are known to exist and these are explained. Serial numbers in Chinese air forces are generally known to be a complicated matter and the Ground Forces system is equally so, but the author deals with their complexity in an easy-to-understand manner in both text and diagrammatic form. Interestingly, all aircraft owned by this Air Arm have serial numbers whose digits are preceded by the western letters “LC”. Although surprised by the lack of Chinese characters here, in my ignorance I presumed that they meant something like “Light Helicopter”. I now know that they in fact are the western abbreviation of the Chinese words “LuBing HangKong” which means, “Army Aviation”.

In the third chapter are listed the current aircraft in use with the Air Arm. There is ample coverage of what the various types are capable of doing and Andreas goes on to explain how their development may continue into the third decade of the 21st century. In addition there are photos of all the types in the inventory, although many are rather small, and modellers such as myself, for example, may find some of them of limited use. The chapter provides details on helicopters, fixed wing aircraft and the numerous UAVs, both large and small, currently on charge. I was particularly interested to discover a section devoted to the XTW-5, a Wing-in-Ground Effect machine (WIG), perhaps better known as an “ekranoplan”, which is used in small numbers by the Border Defence Troops in the north of the country.



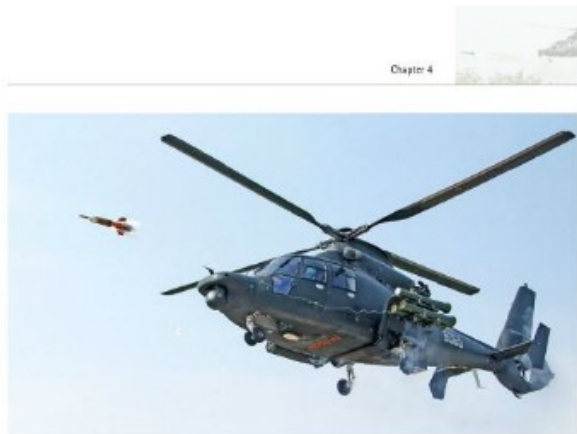
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Modern Chinese Warplanes—Chinese Army Aviation – Aircraft and Units

by

Written by Andreas Rupprecht and Reviewed by David Thomas (Continued)



NORINCO Kong Dian-9 (KD-9) & Kong Dian-10 (KD-10)

These two modern ATGMs are some sort of siblings with the KD-9 (K/AKD9) being the smaller and lighter and the KD-10 (K/AKD10) as the larger and heavier one. Both were developed as a new generation of ATGMs developed specifically for the Z-10, which can use both types and the Z-10, which usually carries the KD-9 only. Initiated as a third-generation successor to the HU-8, both were aimed for missiles in the same class of US AGM-114 Hellfire. Quite interesting both share even a similar design but without the forward control fins. Concerning its background there is much often contradicting information available and some sources even claim it to be based on the HU-8, which however utilises fibre-optic wire-guidance and is externally a very different weapon. Regardless its origin, development was closely linked to the development of the Z-10, its targeting system and therefore was long delayed but in the end evolved into a capable ATGM.

It is said to feature a semi-active laser seeker – some sources claimed being based on the seeker used by the Russian Krasnopol 162mm (6in) laser-guided projectile – making it therefore not a true fire-and-forget weapon. Concerning its warhead, the first variants to enter service featured a tandem-charge warhead designed to defeat reactive armour; while later variants are allegedly fitted with a capability for top attack version.

Since mid-2015 it also seems as if a modified version of the KD-10 – maybe called KD-10A – uses a larger and improved laser seeker and it has been speculated since some time that an MMW seeker is either under development or already in use. This

Although the Z-10W is assigned to the PLA Air Force, it clearly illustrates the launch sequence of the HU-8 wire-guided missile. (COP)

In contrast to the Z-10A, which can use both the KD-9 and the heavier KD-10, the smaller Z-10 usually employs only the KD-9. (www.B1.co)



51

Training and Weapons are covered fairly briefly in the seven pages devoted to Chapters 4 and 5, while Chapter 6 is a much more lengthy affair covering the command structures of the air arm both before and after the reorganisation of the Ground Force, which occurred in 2017. The current (2019) Order of Battle of Army Aviation units is explained, and this includes a comprehensive series of listings connecting individual aircraft types to their parent Air Brigades and on to their regional Ground Force Theatre Commands. The chapter is illustrated with a number of large and clear maps of each of the five command areas and their associated aviation bases. This is, along with Chapter 3 the most impressive and useful part of the book and represents some very thorough research by the author and his correspondents. Included in this chapter is the author's analysis of the overall strategic goals and mission of the Air Arm. It is a very interesting and illuminating section and provides evidence of just how carefully the PLA has been watching the manner in which army aviation assets across the globe have

been developing and acting in recent conflicts. He also brings to one's attention how much has been learned and subsequently brought into the training and development of their own units in a relatively short period of time.

The final chapter, Chapter 7, looks briefly at the development and deployment of aviation units in the country's paramilitary forces such as the Armed Police and Border Defence Corps.

It is, as I mentioned earlier, a slim volume of less than 100 pages but in those pages the author packs a wealth of previously unknown data about the junior aviation air arm of the Chinese Armed Forces. What makes this book so important is that it is the first publication to pull all of this information between the covers of a single book. Whether you are a student of Chinese military affairs, have a professional interest in army aviation in a period of major growth of a branch of the military of a major world power or simply an interested amateur, this book will be of great interest to you. I do wonder how long it will be before a second edition becomes necessary.

David Thomas



Changhe Z-10

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RSAF JOINT TRAINING WITH USAF



425th Fighter Squadron celebrates 25 years at Luke

Leadership assigned to the 56th Fighter Wing and the 425th Fighter Squadron attend a parade ceremony commemorating the 25th anniversary of the United States Air Force and Republic of Singapore Air Force partnership at Luke Air Force Base, Ariz., May 22, 2018. During the ceremony, a commemorative F-16 tail flash painted by the 56th Equipment Maintenance Squadron corrosion control was unveiled. (U.S. Air Force photo by Staff Sgt. Jensen Stidham)

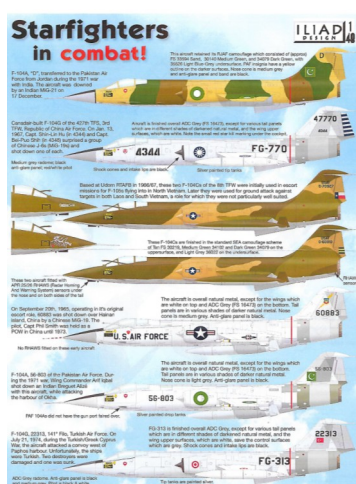
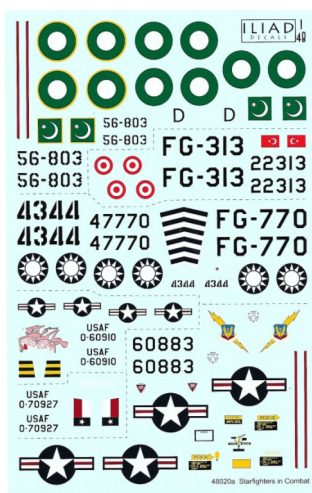


Click this image for a great video of RSAF F-15SG operations at Davis-Monthan Air Force Base.

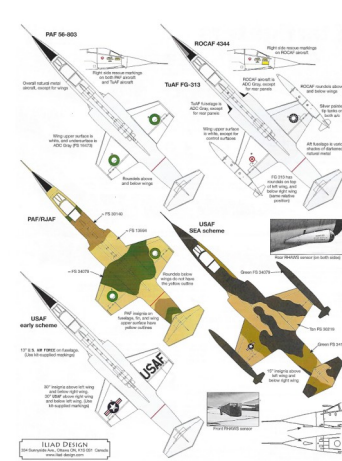


Superb RSAF decals

STARFIGHTERS IN COMBAT—ILIAD 1/48 DECALS



Another fine decal sheet from member Bob Migliardi in Canada, focuses on Starfighters that have seen military action and includes some interesting examples from Asia. First up is a camouflaged Pakistani bird that had been transferred from the Royal Jordanian Air Force, but was shot down by an Indian AF MiG-21. The next a/c is also from the PAF, this time in a natural metal/white finish, that shot down an IN Breguet Alize. The final Asian example is from the ROCAF that, with a wingman,



surprised a flight of Chinese J-6s, both shooting down one each. The sheet also features three USAF and a Turkish examples, all accompanied by most informative notes. Well up to Iliad's usual superb quality. Highly recommended.

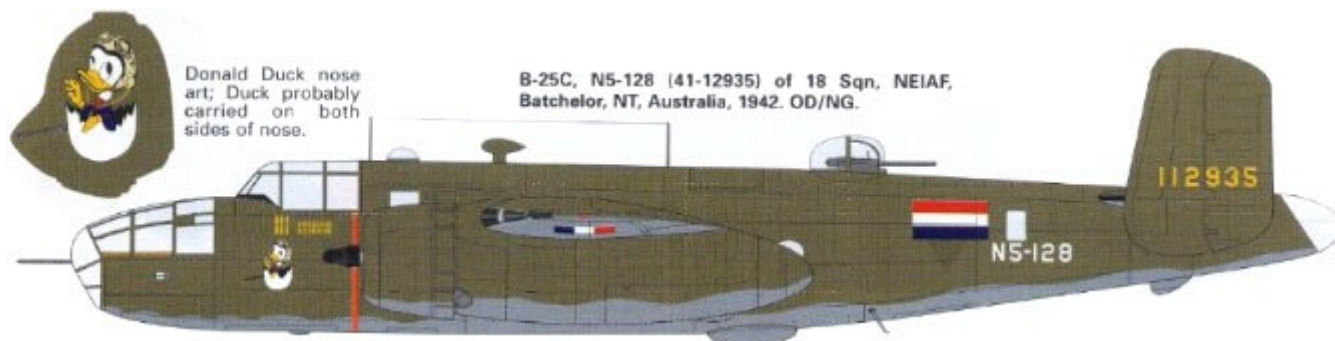


North American B-25s in the Netherlands East Indies AF—Part 2

By Max Schep



This is the second of a series of articles explaining the types, finishes and modifications used between the acceptance of the first B-25 aircraft for the Netherlands East Indies Air Force (NEIAF) in February 1942 until the handover in 1950 to the Angatan Udara Republik Indonesia (AURI). Here, Part 2 describes the second batch of B-25C/D until B-25D-15 1943.



New aircraft

The six B-25Cs in use were, during August/September, replaced by 18 B-25C/Ds. 11 of them are lined up at Fairbairn Canberra in their delivery scheme of Olive Drab and Neutral Grey. N5-128 arrived with Disney's "Donald Duck" design at starboard and is already armed with two 0.5s in the nose. (Photo Langdonesmith)

Mascot

Disney's design became the mascot for the members of 18 Squadron which was handled with care by the groundcrew. In Canberra it was painted on the portside and transferred during time. By the Fall of 1942 moral in 18 squadron was low and members were arrested and convicted. Probably to express their feelings on the arrest they completed Donald with a cracked barrel! (photo G. Barendrecht)



Long Range

1 December 1942, 18 Squadron came under command of RAAF HQ North Western Area. To increase the operational range it was decided to modify the aircraft with extra tanks in the bomb bays and wings. Based at Mc Donald they flew to Darwin for standby and to start operational missions. Groundcrew at Mc Donald make B-25C N5-153 "Rene" ready for an operation. (collection Tornij)



Firepower

The Headquarters of Netherlands East Indies Air Force was not pleased with 18 Squadron's role and wanted the squadron better equipped for it. NEIAF had hired Jack Fox, from North American, to instruct their crews on the B-25. He stayed in Australia and in co-operation with the Philippine pilot "Pappy" Gun developed, at Eagle Farm Brisbane all kinds of modifications for B-25s. 18 Squadron was permitted the use of these modifications. 10 aircraft were modified as "strafers" with 8 extra guns in the nose as shown by N5-143 "Shark Mouth". Separate side packs were delivered to modify aircraft in the field with two extra forward-firing guns on each side of the fuselage. (photo J. Lantang)



North American B-25s in the Netherlands East Indies AF—Part 2

By Max Schep

Side Packs

N5-161 Mississippi Dream with the field modification after removal from Mc Donald to Batchelor. The extra plate fitted to protect the fuselage from the blast of the additional gun-pack is clearly visible. (collection Tornij)



Factory modification

The field modification was later incorporated in the production line in the USA as shown on N5-192 with Disney's "Shooting Gremlin in a Wooden Shoe" and supplemented with the name of an NEI airfield, in this case, "Palembang I" (collection Geldhof)



©M.T.A. Schep 25 February 2020

AURI B-25s in Indonesia—sent by Hizkia Steven



Pesawat Pembom B-25 Mitchel.

1	Version	S/N	C/N	Status
2	B-25C	M 329		Withdrawn From Use
3	B-25C	M 346		VIP Transport, Withdrawn From Use
4	B-25C	M 365		Withdrawn From Use
5	B-25C	M 372		
6	B-25C	M 378		
7	B-25C	M 380		Withdrawn From Use
8	B-25C	M 408		
9	B-25J	M 418		
10	B-25J	M 421		
11	B-25J	M 423	43-27926	written off, May 1958
12	B-25J	M 433	44-29022	Emergency Landing at Manado during Permesta
13	B-25J	M 434		Preserved in Abdulrahman Saleh AFB, Malang
14	B-25J	M 437		Withdrawn From Use
15	B-25J	M 439		Preserved in Dirgantara Mandala Museum (Fake s/n M 443)
16	B-25J	M 440		Withdrawn From Use
17	B-25J	M 444		
18	B-25J	M 448		Withdrawn From Use
19	B-25J	M 449		
20	B-25J	M 450		Withdrawn From Use
21	B-25J	M 451		Written Off
22	B-25J	M 456	44-30505	
23	B-25J	M 458		Preserved in Museum Satria Mandala
24	B-25J	M 459	44-31201	Written off
25	B-25J	M 464	44-31259	Preserved in Netherlands

Guideline Publications



THE COMPLETE HISTORY OF INDIAN NAVY HARRIER OPERATIONS

By Dave Fleming

In the early 1970s, India maintained its maritime aviation capacity with the Colossus-class carrier INS Vikrant (ex-HMS) however the Hawker Seahawks that it operated were past obsolescence. Whilst in the market for a modern carrier based fighter/attack aircraft, the Indians were constrained by lack of availability of suitable aircraft due to the size of Vikrant and power of its catapults, which limited them to only those aircraft it could operate.

With this in mind, in 1972 Hawker Siddeley's Harrier team visited India as part of a sales tour of the Middle East and South Asia. Whilst a demonstration was given to the Indian Air Force, the prime target for the team was the Indian Navy. The demonstration Harrier T52, G-VTOL, was based at the Indian Naval Station at Cochin and, starting on 5th July 1972, flew a series of sorties on INS Vikrant, piloted by Hawker CTP John Farley, but with Indian pilots in the second seat. The first Indian Navy pilot to fly in the Harrier was Captain Tahiliani. Farley flew 11 more solo sorties from Vikrant on the 5th, followed by 10 more on the 6th. A lack of suitable Liquid Oxygen (LOX) in India meant further familiarisation sorties were not possible, however three senior Indian Navy pilots were able to fly in G-VTOL and all had taken control in both conventional and vertical flight modes.

The HS team were convinced that they had shown the Indians that the Harrier was the aircraft for them, and discussions continued for a number of years. India also looked at alternatives, principally the MDD Skyhawk (embargoed by the USA), the Dassault Etendard and, briefly, the Yak38.

While that was ongoing, the Royal Navy had ordered a maritime version of the Harrier as the Sea Harrier FRS Mk1. (SHAR). This aircraft, equipped with an air-to-air radar and modern air-to-air missiles, was an obvious match for India. In 1977, the Indian Defence Minister announced that they would buy 'a VSTOL jet fighter' to replace the Seahawks, confirmed in 1978 as the Sea Harrier. In early 1980 it was confirmed that the Indian Navy would obtain 6 Sea Harriers plus 2 two-seat trainers.

Sea Harrier FRS Mk51

The Indian Sea Harriers were designated FRS Mk51, FRS standing for Fighter, Reconnaissance, Strike, indicating it could perform air to air, recce and air-to surface missions (In Royal Navy parlance 'Strike' meant nuclear strike, and the RN's Harriers had the capacity to carry the WE177 weapon. Whilst this was not fitted to the Indian aircraft, the designation was retained) The '51' followed the then British practice of giving export variants mark numbers beginning with 50 – the Harrier Mk 50 was the US AV8A)

The aircraft were very similar to those supplied to the Royal Navy, with some minor amendments. The

liquid oxygen that had proven troublesome on G-VTOL's tour was replaced by an Onboard Oxygen Generating System (OBOGS).

The principal armament of the AIM9 Sidewinder was embargoed by the USA, so the Indian SHARs were designed to operate with the French Magic AAM.



© B. Harty / ACIG.org





THE COMPLETE HISTORY OF INDIAN NAVY HARRIER OPERATIONS (Continued)

Some minor changes were also made to the IFF and radar systems to avoid using US components. Although the Indian aircraft did not have the nuclear wiring of the UK's Sea Harriers, they retained the re-shaped inner pylons that modification required. (From the modeller's point of view, this means that any FRS1 kit can be used to represent the FRS51.) The Indian Sea Harrier Project team formed in the UK in late 1980, and the first pilots began training in the UK in 1982, initially at the Tactical Weapons Unit at RAF Brawdy to become familiar with British operating procedures and environments. One of the Indian pilots had a rather unwelcome experience when his Jet Provost T4 suffered engine failure over Wales and he and his RAF instructor, Dave McIntyre, had to eject. The Indian pilot was Commander Arun Prakash, who was destined to be the CO of the first Indian Harrier Squadron, and later Chief of Staff of the Indian Navy.



Cdr Prakash and Lt Sinha started the first Indian Harrier Conversion Course at Yeovilton in May 1982, and the Indian Navy Training Unit formed at Yeovilton in late 1982. The first Indian FRS51 (IN601) was delivered in January 1983, and that (along with G-VTOL; an RAF T4; and one of the Royal Navy's specially modified Hunter T8Ms,) allowed the first Indian Pilots to qualify. In November 1983, the first three Indian Sea Harriers were ferried to their new home. IN603, IN604 and IN605 were ferried via Malta, Egypt and Dubai by RN pilot Taylor Scott, IN Cdr Prakash and Lt Cdr Gupta, whilst IN601 and IN602 remained in the UK to complete the second conversion group. On arrival the Sea Harriers formed the new element of 300 Squadron, ('The White Tigers') and to mark the occasion, the squadron was presented with a stuffed white tiger which remains in the crew room to this day.

The remaining aircraft, including the two trainers (designated T60) were delivered in 1984/85. The T60s were based on the Royal

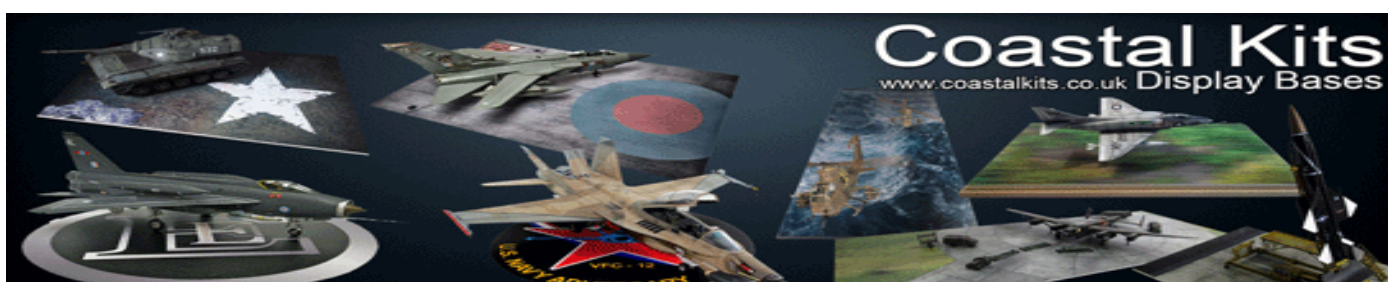
Navy's T4Ns, with modifications in line with those applied to the FRS1. The T60 also had the under-fuselage Doppler panel that was only applied to the RN's aircraft after their later upgrade to T8. The serials applied were IN651 and IN652

Also in 1985, a further batch of 10 FRS1s plus one T60 was ordered, followed by a third batch of 7 FRS51s and another T60 in 1986.

The first of the second batch was delivered in 1989, and deliveries of the third batch commenced in 1991. The aircraft of the third batch were delivered in an amended colour scheme as noted below. In addition, it was announced in 1986 that India was to purchase the retired UK carrier Hermes, which was renamed INS Viraat. Hermes was no stranger to the Indian pilots, as their initial sea training had been done on board her in 1983.

The arrival of Viraat gave the Indian Navy the ability to conduct simultaneous carrier operations on both the East and West of the sub-continent, or form a two-carrier task group if needed. It also meant they could maintain carrier operations if one ship was on refit. Indeed Vikrant was given a refit between 1987-89 that saw her emerge with a similar ski-ramp to Viraat.

The final delivery of Harriers to the Indian Navy was the purchase of 2 ex-RAF T4 trainers as attrition replacements. India had been looking for attrition replacements for the two seaters they had lost in accidents, and had at one point considered ex-USMC TAV-8As – if that had been followed, they would have been the first US combat aircraft supplied to India. In the end, the much younger ex-RAF aircraft were purchased. These were given some naval adaptations, but retained the 'Dolphin' nose of the RAF's LRMTS equipped aircraft. These were delivered in 2002. INS Vikrant was finally retired in 1995, but maintained afloat until decommissioned in 1997, leaving Viraat as the Indian Navy's sole carrier.



THE COMPLETE HISTORY OF INDIAN NAVY HARRIER OPERATIONS (Continued)



SHOFTU/INAS 551B/INAS 552

Until the late 1980s, all Indian Sea Harrier pilots did their initial Harrier conversion in the UK on the Indian Sea Harrier course run by 233 OCU at RAF Wittering. The arrival of the second batch enabled the Indian Navy to commence training their pilots in India. The Sea Harrier Operational Flying Training Unit (SHOFTU) was created in April 1990. The unit operated as part of INAS 300. In 1991, it was merged with INAS 551 and became known as INAS 551-B. In time, the multi-airframe nature of INAS 551 led to the SHOFTU operating as an independent unit again.

In 2006, the Sea Harrier training function was given full squadron status, and INAS552 was commissioned on 7th July. Although it pooled its aircraft with 300 Squadron, the unit had a small emblem that was carried on a number of aircraft.

Mid Life Update

By the late 1990s/early 2000s, the Indian Sea Harriers were becoming slightly dated, especially in terms of the Blue Fox radar. The RN had already upgraded their Sea Harriers to FA2 standard, with Blue Vixen look down/shoot down radar and AIM-120 AMRAAM capability, but political restrictions preventing US technology going to India meant this was not an option for the Indian Navy. (Although the Indians did consider purchasing some ex-RN FA2s when they were retired in 2006, this was not practical due to the same restrictions).

For some time, the Indians had been considering an alternative upgrade package from Israel, and in 2006 the go ahead was given to this program. Given the name 'LUSH' (Limited Upgrade Sea Harrier), the project involved fitting a new ELTA EL/M-2032 radar, Tarang RWR, ELTA self protection and jamming equipment and the Rafael medium range 'Derby' air to air missile. 15 airframes were scheduled to go through the conversion, but by the time it had finished, attrition losses meant there were only 12 FRS51s remaining in the fleet.

End of an Era

Time waits for no man, even an aircraft as iconic as the Sea Harrier had to retire eventually, and that time came in 2016. An official disembarkation from INS Viraat took place in March, with the aircraft being officially retired on 22nd March 2016. However they kept flying for a few months, and 300 Squadron was officially disbanded as a Sea Harrier unit in May, to reform on the new MiG 29K. This occasion was marked by a flypast of two Sea Harriers and two MiGs. The era of the Sea Harrier was over.

Stores

On delivery, the Indian Sea Harriers carried two 330 (imp) Gallon ferry tanks and, like most Harriers, in service carried the 'combat' 100 gallon versions. (Even in the light grey scheme, these were often in the two tone colours).

Whilst they had the capacity to carry the two under-fuselage 30mm Aden cannon pods, these were rarely seen on Indian Harriers, the aircraft usually being fitted with the alternative strakes. Presumably this was an attempt to keep the weight down in hot conditions. In addition, Indian Sea Harriers were often seen flying with no under-wing or under-fuselage stores when operating from land bases.

It was rare to see Indian Sea Harriers carrying any sort of weapons, even practice rounds, at least in publicly available photos. The weapons that could be carried included Matra Magic AAMs, BAe Sea Eagle anti-ship missiles, MATRA 68mm rocket pods and conventional bombs. Later in service, they could be seen with the Derby AAM or ELTA ELL-8222 jamming pod on the outer pylons

Colours and Markings

The initial two batches of Indian Sea Harriers were delivered in the original Royal Navy scheme of Gloss Extra Dark Sea Grey upper surfaces with white lower surfaces. Orange/White/Green roundels were carried in 6 positions, and the leaping White Tiger of 300 Squadron was carried on the fin.

The aircraft carried white 'Navy' on the fin, and the aircraft serial number was written in black on the ventral fin, with the last three (e.g. 601) on the intake side. The serial was also repeated under the wing in UK fashion, with the IN on one line and the numbers on the next. The serial under the starboard wing was read with the nose pointing up, the port with the nose pointing down. The T60s were finished identically, making them the smartest of all the two-seat Harriers in the author's opinion!



ASIAN AIRCRAFT MARKINGS A History

Tajikistan



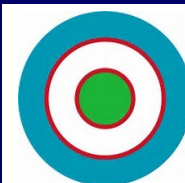
Sometimes straight or wavy on fuselage.

Turkmenistan



Both types of roundels seen on contemporary a/c. Stars always on left.

Uzbekistan



Source:
Military Aircraft
Insignia of the World:
Cochrane/Elliott

THE COMPLETE HISTORY OF INDIAN NAVY HARRIER OPERATIONS (Continued)

The third batch of Indian aircraft has a slightly modified colour scheme, with upper surfaces of matt Dark Sea Grey and lower surfaces of matt Light Aircraft Grey. This gave the aircraft a less contrasting appearance than the earlier scheme. The leaping tiger had been moved to the nose, although it was common to see aircraft in service with the tiger in both positions. The three digit side codes were replaced by two digit ones, and the underside serials were not applied. The 'Navy' on the fin was changed to black, and the script on the starboard side of the tail was written in Hindi characters rather than Arabic. This scheme was also applied to the Harrier T.4Is.



Roundel Colours on all three schemes were Green (Indian Standard 284/ICI F407-904), White and Saffron (Indian Standard 574/ICI-F903)



There may have been some aircraft finished in a two tone scheme, with undersides in a colour close to Light Gull Gray, but this has not been confirmed (and the two colours are very close). The light grey aircraft also regained their 'last three' serials on the intake sides, but in a dark grey rather than black.

The aircraft initially retained their black radomes, but those aircraft that went through the LUSH upgrade had the radomes repainted in gray.

Four Indian Sea Harriers were given names associated with big cats at some point in their lives. The names were painted in white on both sides of the tails and were:

IN607/07 – Simba; IN608/08 – Cougar; IN613/13 – Lion; IN616/16 – Panther

Retirement Schemes

There was no flamboyant retirement scheme for the Indian Harriers, but a few aircraft carried 1983 – 2016 in small letters on the fin, just below the Tiger insignia, and one (IN623) had part of the fin painted in a dark grey (close to Dark Sea Grey) with the original white 'Navy' and white '1983 – 2016' titles.

Dave Fleming



SOME USEFUL LINKS

Video including Indian SHARS carrying bombs

<https://youtu.be/YeX4-vVWmRM>

Interesting Indian thread on Naval aviation

<https://www.team-bhp.com/forum/commercial-vehicles/163578-indian-naval-aviation-air-arm-its-carriers.html>

Arun Prakash interview

<https://www.telegraphindia.com/india/end-of-road-for-navy-plane-slower-than-birds/cid/1516005>

Shekhar Sinha Interview

<http://forceindia.net/guest-column/guest-column-shekhar-sinha/swan-song/>

In service, the three digit codes of the first batches were replaced by two digit codes, and the 'Navy' was re-marked in black in English and Hindi, as with the third batch. The operating environment of strong tropical sun and sea meant that the aircraft weathered quickly, although it is usually possible to see in photos if the underside is white or Light Aircraft Grey

In the early 2000s, some Indian Sea Harriers began to appear in a light grey overall colour scheme, with what appear to be toned down roundel colours and no white in the roundel. (*Editor's Note: Some in this scheme also featured the white in the roundel—see the difference between these two photos.*) The exact shade of grey used has not yet been firmly established, but information suggests it to be FS595 36375 Light Compass Gray.



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North American T-28 in the South Vietnamese Air Force (VNAF) 1961-64

By Mark Attrill



North American Rockwell T-28C Trojan of the 1st Air Commando Squadron located at Tan Son Nhut during early 1963. The 1st Air Commando Squadron arrived in Vietnam as part of the Farm Gate program.

The North American T-28 Trojan, originally employed as a military training aircraft by the USAF and US Navy, was later successfully employed as a counter-insurgency (COIN) aircraft by a number of embryonic air forces during the early years of the Indo-Chinese air campaigns. The first true combat aircraft operated by the VNAF was the F-8F Bearcat which had been inherited from the departing French Armée de l'Air and transferred under the US Mutual Defence Assistance Programme (MDAP). The Bearcat was successfully employed by the VNAF during the late 1950s but heavy utilisation and unforgiving climatic conditions inevitably led to maintenance issues and some losses, such that by the early 1960s the VNAF were looking for an urgent replacement type.

It was the height of the Cold War and the Kennedy Administration was keen to provide the Vietnamese with their first jet aircraft, in the form of COIN-optimised Lockheed T-33 Shooting Star and RT-33 reconnaissance variants. The conditions set out in the Geneva Accord for Vietnam, however, specifically forbade the supply of jet aircraft to either side in the conflict, so the US authorities initially supplied ex-Navy AD-4 and AD-6 Skyraiders to re-equip the 1st Fighter Squadron F8F Bearcats. Although the Douglas Skyraider would in time become the dominant combat aircraft in VNAF Service for most of its twenty year existence, initial experiences were not encouraging with availability for missions hampered by poor training and a lack of appropriate maintenance facilities, all of which was having an effect on the VNAF's ability to support the campaign.

In an effort to bolster South Vietnam's campaign against the Viet Cong and mitigate the initial shortcomings with the AD-4/6 Skyraiders, the US then decided to deploy one of their recently formed Air Commando units, specially orientated to supporting so-called Bush Wars and combat the influence of Communist backed regimes. Known as *Jungle Jim* the US deployed A-26 Invaders and T-28 Trojans to Bien Hoa AB in November 1961 to undertake a combat training task, since there was no mandate for US forces to be involved in operations at the time. The 4400th Combat Crew Training Squadron (CCTS), which later became the 1st Air Commando Squadron, was initially equipped with the T-28B/C variant and operated under the code-name *Farm Gate*.

Frustrated by the US State Department's further insistence on adhering to International treaties, and having built up some initial experience on the T-28 Trojan through the *Farm Gate* project, the US decided to equip the VNAF with a combat-capable variant of the T-28 Trojan and provide a support package to include US advisers to train Vietnamese pilots and maintenance staff. Initial deliveries consisted of fifteen T-28C-1s, with modifications for combat operations including strengthened wings to accommodate six underwing stores pylons or four underwing stores pylons and two machine-gun pods, which enabled the 2nd Fighter Squadron to be established in December 1961. Over time, the VNAF would eventually receive seventy T-28 aircraft, including a modified RT-28 reconnaissance variant, to equip one Combat unit and partially equip a Special Mission Squadron.



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North American T-28 in the South Vietnamese Air Force (VNAF) 1961-64

By Mark Attrill



Initially dismayed that they had been denied the use of a jet-powered combat aircraft, the newly created 2nd Fighter Squadron of the VNAF based at Nha Trang AB, soon appreciated the more practical aspects of operating a less complicated aircraft which also appeared to be quite robust and well suited to the rudimentary operating conditions it sometimes faced. In keeping with early US support arrangements for the VNAF, the T-28s were initially flown by US pilots under the Military Assistance Scheme, with Vietnamese Observers on board to gain experience and satisfy the legal requirements for operating VNAF marked aircraft over Vietnam. Tracking VNAF-operated T-28 aircraft would have been difficult since all of the Trojans/Nomads [For a brief period those T-28B/C Trojans converted to the COIN role were known as T-28 Nomads and this reference is often seen in publications] in the Vietnamese Theatre of Operations sported VNAF insignia regardless of which unit operated them. As previously noted, the combat variant of the T-28 was only ever operated by the 2nd Fighter Squadron that, with the initial expansion and reorganisation of the VNAF, transitioned into the 516th Fighter Squadron. The RT-28B was an unofficial designation given to modified T-28B/C Trojans to give them a rudimentary reconnaissance capability by fitting a belly camera pack similar to that used in the RF-84F. Approximately twenty aircraft were modified and served with the 314th Special Mission Squadron [Later re-numbered the 716th Composite Reconnaissance Squadron], alongside the RC-47 variant of the C-47 Skytrain, at Tan Son Nhut AB.

In spite of initial concerns over the viability of the T-28 Trojan, the VNAF were quick to appreciate the performance and reliability of the aircraft, during a period where the availability of the Douglas A-1 Skyraider, which equipped their only other combat aircraft unit was proving to be problematical. Although the T-28 had been principally designed as an advanced training aircraft, it had already proven to be a rugged and solid performer in the COIN role, with the French Armée de l'Air successfully employing the T-28 *Fennec* derivative during the Algerian campaign between 1959-62. [The French acquired 148 ex-USN T-28As which were converted by Sud-Aviation in France to T-28S Fennec (Desert Fox) standard and equipped with an uprated engine and four underwing hard points, or a combination of .50 calibre machine gun pods and hard points.] The 2nd Fighter Squadron was thus declared operational in the Spring of 1962 and began to fly combat missions from Nha Trang Air Base. The timing was crucial since ground fighting had intensified with a concomitant increase in requests for VNAF air strikes. In order to increase its reaction and loiter times, the 2nd Fighter Squadron deployed a detachment of T-28s to Da Nang AB, from where the aircraft could provide much needed air support to ARVN units operating in the Northern and Central regions of Vietnam. Early combat operations revealed the VNAF's lack of adequate reconnaissance capabilities to accurately pinpoint communist targets for air strikes. In an effort to enhance these capabilities a number of modified aircraft types were supplied by the US Government and pressed into service, including eighteen RT-28 Trojans which equipped the 716th Composite Reconnaissance Squadron. In some cases, Trojan pilots from the 716th CRS also flew strike missions with standard T-28s, such as the dearth of adequately trained VNAF pilots at the time. In general the T-28 Trojan performed well in the COIN role providing the air situation was relatively benign, with the aircraft effectively utilising the variety of weapons that could be fitted on the underwing stores pylons. As the VNAF slowly built up its capability, so the Viet Cong substantially increased the anti-aircraft capabilities of their frontline cadre units in late 1962.

It is understood that ten surviving VNAF T-28s, including five RT-28Bs, were transferred to the 'Waterpump' project at Royal Thai Air Force Base Udorn in May 1964 where six were subsequently supplied to the Royal Lao Air Force for service in the COIN and reconnaissance role.

3. The French acquired 148 ex-USN T-28As which were converted by Sud-Aviation in France to T-28S Fennec (Desert Fox) standard and equipped with an uprated engine and four underwing hard points, or a combination of .50 calibre machine gun pods and hard points.

As an interesting footnote, the T-28 Trojan also became the first fixed wing combat aircraft to enter service with the Vietnamese People's Air Force (VPAF) in 1963 when the pilot of a Royal Lao Air Force T-28, temporarily based in Thailand, defected to North Vietnam. The aircraft was subsequently refurbished, received a new camouflage scheme and was then commissioned into the VPAF.

The South Vietnamese Air Force (VNAF) was supplied a number of T-28Cs modified with armament and with the arresting hook attachment point faired over. The T-28s were used to replace the Grumman F8F Bearcat in VNAF fighter squadrons.





VNAF North American T-28 Trojan Colours and Markings

By Mark Attrill



The North American T-28s supplied to the VNAF only ever sported one colour scheme during their brief service, which consisted of Light Grey (FS3644) upper surfaces, with White (FS37875) under surfaces although on the arrestor hook equipped T-28C variant the upper surface colour extended down to the lower portion of the fin surfaces. In the early years, the majority of T-28s also sported yellow wingtips and at least one aircraft was seen with a yellow cockpit canopy frame although it is understood that this may have been a distinguishing feature of the Squadron Commander's personal aircraft. A black anti-dazzle panel and the prominent very dark grey exhaust mask area that extended along a significant portion of the mid fuselage section were common features on all aircraft.

Unlike other VNAF types, and possibly due to its relative brevity of service, the application of standard national markings on VNAF T-28s remained fairly standard with the traditional VNAF 'Stars and Bars' of one style, applied in six positions on the fuselage sides and upper/lower wing surfaces. The narrow fin flash in the standard red/yellow colours of South Vietnam was always applied to the upper portion of the rudder. Over time, the yellow wingtips would give way to the standard colour scheme. There were variations in the size and location of aircraft serial numbers and individual codes; the former moved from below to above the tailplanes while the individual codes were often found either on the rear fuselage surfaces or on the fin in line with the fin flash. Following the initial expansion of the VNAF, and like other units, the 516th Fighter Squadron adopted a two letter individual code, which was relocated to the rear fuselage surfaces in order to accommodate the Unit's tiger head insignia on the upper fin surfaces. Photographs of the RT-28 reconnaissance variant operated by the 314th Special Mission Squadron are rare but one example does seem to indicate that these aircraft sported a more official version of unit insignia on the upper fin surfaces on an otherwise standard aircraft.

VNAF T-28 Trojan Units – 1961-64

Unit	Wing	Location	Unit Code	Dates
1st Fighter Squadron ⁴	N/A	Nha Trang		1961-63
516 th Fighter Squadron ⁵	12 th Tactical Wing	Nha Trang ⁶		1963-64
314 th Special Mission Squadron	33 rd Reconnaissance/Transport Wing	Tan Son Nhut		1962-65
716 th Composite Reconnaissance Squadron	33 rd Reconnaissance/Transport Wing	Tan Son Nhut		1963-64

⁴. The 1st Fighter Squadron was re-designated the 516th Fighter Squadron in January 1963 following a reorganisation of the VNAF Command structure.

⁵. The 516th Fighter Squadron maintained a detachment of six aircraft at Da Nang AB under the 41st Tactical Wing

⁶. The entire Squadron relocated to Da Nang AB in February 1964





The North American Rockwell T-28 Trojan in Miniature

By Mark Attrill

The North American T-28 Trojan, or Fennec in French parlance, has fared well over the years when it comes to the availability of kits with some notable and high quality releases in the larger scales in recent years. A 1/72 T-28 Trojan/Fennec has appeared in the Heller catalogue several times since its initial release in 1981 and it has also been re-released by Testors. In spite of its title and the inclusion of US markings in the initial release, it is in fact closer to the Fennec derivative with its high profile cockpit canopy and integrally moulded stores pylons. The kit is typical of its age with raised panel lines and some simplistic detail but it does benefit from the availability of some excellent aftermarket detail/correction sets with which to make a nice replica and the modifications necessary to reproduce an accurate replica of a VNAF machine are not that onerous.



In 2012, Sword added the T-28 to their catalogue with the release of two accurate multi-media kits for the T-28B and arrestor hook equipped -C variants. The kits are typical of the other short-run Sword products, produced in their shiny, rather hard medium grey plastic with lightly engraved panel lines and detail. The engine block is cast in resin for additional fidelity and the clear parts are also of very high quality. As a bonus, the clear sprue includes the parts necessary to complete the reconnaissance variant, since one of the decal options in the T-28B kit caters for a JASDF RT-28 so the modeller could reproduce a 314/716th Squadron aircraft if so desired. On the downside, these Sword kits are short run and out of production so may not be readily available.

In 1/48 scale, Monogram were quick off the mark with their initial issue of a T-28B Trojan back in 1956 and the kit has been the subject of multiple re-releases by Monogram and some of its subsidiaries, notably in Japan and Mexico, ever since. The most recent incarnation was the 'Red Bull Gift Set' release by Revell-Germany in 2013. The kit is typical on Monogram releases of the period with a low parts count, raised panel lines and operating features including the undercarriage. The kit is, by all accounts, an accurate representation of the original and enjoyed some attention from the aftermarket manufacturers with a nice range of items to improve the cockpit, flying control surfaces, undercarriage etc so, with some work, a nice replica could be produced.



It was not until 2012 that a worthy successor in 1/48 scale would appear in the shape of a T-28 family by Roden. To date, Roden have released three separate kits which include different parts to cater for the T-28B, -C and -D variants so any of the VNAF operated aircraft, with the exception of the RT-28, can be replicated. The kit is moulded in the traditional Roden dark grey plastic with engraved panel lines and nice detail throughout. Some flash and fairly prominent ejector pin markings or towers were present so care will need to be taken in eliminating these features from exposed surfaces of the model. The kit also suffered from some minor sink marks, particularly on the flying control surfaces. In overall terms the Roden family of T-28s are judged

to be accurate in shape although there are some recognised deficiencies in the accuracy of some parts since certain details differ between each variant that have not been fully taken into account within each boxing. The most serious of these issues relates to the shape of the cowling although D-Mold have now produced a resin drop-in part that corrects the shape of the original prototype. Aires, Eduard, Pavla and Quickboost have also produced several resin or photo-etched detail sets or items to enhance, rather than correct, the kit parts which will satisfy the more fastidious modellers. For those that like to reproduce a more dynamic display model, Aerobonus (by Quickboost) also produce a very nice resin seated T-28 aircrew set consisting of two figures with different poses and minor equipment differences, which would make a nice addition to a diorama setting. Thanks to AOA Decals, which have specialised in Vietnam-era markings, there is a very nice set of decals covering several South East Asian T-28 Trojan operators including the VNAF.



The North American Rockwell T-28 Trojan—in Miniature

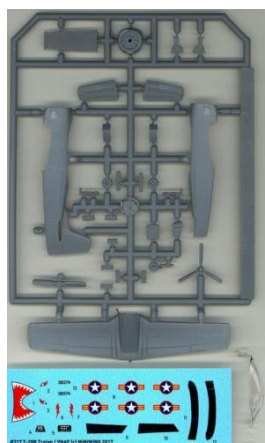
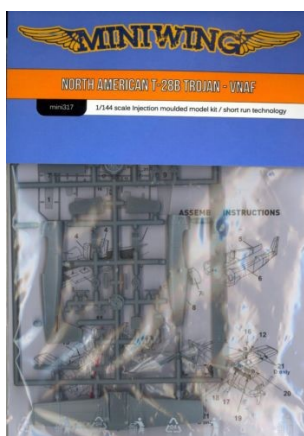
By Mark Attrill



In 2016, Kittyhawk announced their plans to produce a brand new 1:32 scale kit of the T-28 Trojan with at least two different releases to cover the most common variants of the aircraft. The first kit, for the T-28B/D 'land' variant of the Trojan was complemented with a second kit for the arrestor hook equipped T-28C Naval variant. Since the VNAF ultimately operated all three variants, (and mindful that the arrestor hook was removed from their T-28Cs), both releases can be employed to reproduce a VNAF example since the latter kit retains the weapons sprue included in the T-28B/D boxing. On opening the rather large box, you are presented with five finely moulded light grey and one clear sprue, which is safely packaged in a small cardboard box and a separate photo-etched fret with engine grilles and seat belts. The kit is one of Kitty Hawk's more improved offerings with nice surface detail consisting of restrained panel lines and riveting

and a noticeable absence of the large ejector stubs that plagued earlier releases from this company. A large percentage of the kit parts is dedicated to reproducing a very nice, highly detailed, Wright 1820 engine and the cockpit interior, which is key given the rather large canopy which is a key feature of the type. The kit also provides some nicely rendered separate flying control surfaces but on this occasion Kittyhawk have, thankfully, resisted the urge to include separate open panels for the engine bay etc. I'm sure the super detailers will want to add to the cockpit, but the rather comprehensive set of kit parts will be sufficient for most, although the photo-etched seatbelts are a little thick and may be difficult to use, probably benefiting from being replaced by aftermarket alternatives. Some early dry-fitting suggests there will be few issues with putting this kit together and reviews elsewhere bear this out, stressing the improvements Kitty Hawk have made in this particular aspect of plastic kit production. The kit includes a comprehensive set of external stores, including drop tanks, napalm bombs, rocket pods and bomblets, although not all of these are applicable to VNAF examples and the modeller may wish to source alternative weapons from another kit or aftermarket products. The only downside from my perspective is the lack of any VNAF options on the decal sheets included in the two releases although the T-28B/D edition does include markings for examples operated by the Royal Thai Air Force and Philippines Air Force. Fortunately AOA Decals have produced a very comprehensive sheet for Indo-Chinese aircraft including VNAF examples and this is highly recommended. Care will need to be taken in matching the kit and aftermarket options with the variance in fuselage (standard or arrestor hook equipped), aerial and stores fits between individual aircraft so a careful check of references will be necessary. This kit has certainly lived up to my expectations in terms of presentation and quality and I am sure it will build up in to a nice replica. Apart from the aforementioned, very minor issue, with the kit seatbelts, I would also recommend the addition of Scale Aircraft Conversion white metal replacement undercarriage legs as I suspect the kit parts may exercise a tendency to buckle slightly under the weight of the completed model.

At the other end of the scale is the recently released 1:144 scale kit from MiniWing. The company has released the kit with several decal variations including one with 'VNAF' markings (MINI317) for a Light Grey example, which is actually one of the aircraft operated by the 1st Air Commando Squadron (previously 4400th CCTS). The nicely detailed thirty-one part kit is moulded in medium grey and clear plastic. [Ed. Note: RetroWings have released a corrected cowl for the T-28B/D variants in 1/144.]



NEXT PAGE

I have prepared a list of all of the known aftermarket items that have been produced to date (February 2020) to correct or complement the various kits in each of the three main scales. Most of the items listed are currently available and show up in the catalogues of some of the major on-line model shops and vendors. Where possible, I have highlighted items which may now be out of production.





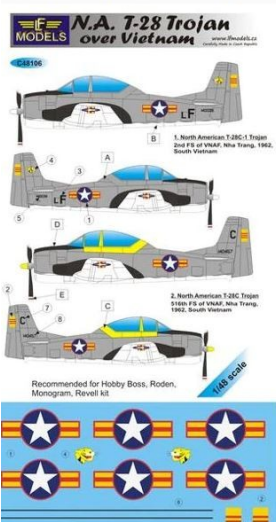
The North American Rockwell T-28 Trojan—in Miniature

By Mark Attrill

1:72 Scale – Heller

Make	Reference #	Item	Notes
Heller	HE80279	North American T-28 Trojan/Fennec	Original release includes decals for 'VNAF' T-28 (38371/TL371), of the 1 st Air Commando, Bien Hoa AB, 1963. Re-released in 2019
Sword	SW72066	North American T-28B Trojan	Includes clear plastic parts to reproduce the photo reconnaissance pack fitted to the RT-28 variant
Sword	SW72067	North American T-28C Trojan	
Testors	TM410	North American T-28B/C Trojan	Heller Kit – not a true T-28B/C Trojan
Airwaves	AEC72110	T-28 Trojan Detail Set	Photoetched – (For Heller Kit)
Armoury	ARAW72304	T-28 Trojan Wheel Set	Resin
Croco	CMDA7208	T-28 Trojan/Fennec Armament Set	
Pavla	PAVC72095	T-28 Trojan Cockpit Detail Set	Resin (For Heller Kit) – Includes Vacuformed Cockpit Canopy
Pavla	PAVS72063	T-28 Trojan Seats	Resin (For Heller Kit)
Pavla	PAVV72078	T-28 Trojan Cockpit Canopy	Vacuformed (For Heller Kit)
Quickboost	QB72-174	T-28 Trojan Engine	Resin
Rob Taurus	RBT72003	T-28 Trojan Cockpit Canopy	Vacuformed (For Heller Kit)
Whirlybird	WBA72133	T-28 Trojan Rocket Pods	Resin (For All Kits)
Whirlybird	WBA72140	T-28 Trojan Pylons	Resin (For All Kits)
LF Models	C72172	T-28 Trojan Over Vietnam	Includes decals for two VNAF T-28 Trojans operated by the 2 nd Fighter Squadron and 516 th Fighter Squadron in the overall Light Grey colour scheme.
Peewit	PEE72201	T-28 Mask Set	Kabuki Tape Style (For Heller Kit)

LF Models | No. C48106 | 1:48





The North American Rockwell T-28 Trojan—in Miniature

By Mark Attrill

1:48 Scale – Roden

Make	Reference #	Item	Notes
Roden	ROD441	North American T-28B Trojan	
Roden	ROD450	North American T-28D Trojan	
Roden	ROD452	North American T-28C Trojan	
Aires	AIRE4576	T-28B/C Trojan Cockpit Detail Set	Resin/Photoetched
Aires	AIRE4592	T-28B/C/D Trojan Wheel Set	Resin - Includes masking set
Aires	AIRE4584	T-28 Trojan Wheel Well Detail Set	Resin
Aires	AIRE4607	T-28D Trojan Cockpit Detail Set	Resin/Photoetched
Armoury	ARAW48301	T-28B/C/D Trojan Wheel Set	Resin
D-Mold	DM48043	T-28 Trojan Corrected Cowling	Resin
Eduard BIG	EBIG4983	T-28 Trojan Detail Set (BIG)	Includes Interior/Exterior Sets, Surface Panel Set,
Eduard	ED48740	T-28 Trojan Surface Panel Set	Self Adhesive
Eduard	ED49601	T-28 Trojan Interior/Exterior Set	Self Adhesive - Discontinued
Eduard	EDFE601	T-28 Trojan Interior Set - Zoom	Includes key Interior parts of Set ED49601 - Dis-
Pavla	PAVC48025	T-28 Trojan Cockpit Detail Set	Resin/Photoetched
Pavla	PAVC48043	T-28 Trojan Crew Seats w/seatbelts	Resin
Quickboost	QB48-459	T-28B/C/D Engine	Resin
Quickboost	QB48-472	T-28B/C Air Brake Set	Resin
Quickboost	QB48-482	T-28 Trojan Crew Seats w/seatbelts	Resin
Quickboost	QB48-492	T-28B/C/D Stores Pylon Set	Resin
Quickboost	QB48-513	T-28B/C/D Control Column Set	Resin
Quickboost	QB48-523	T-28B/C/D Exhaust Set	Resin
SAC	SAC48174	T-28 Trojan Undercarriage Set	White Metal
AOA Decals	AOA48-005	Trainers No More – Trojans At War	Includes decals for three VNAF T-28B/C Trojans (2 nd /516 th Fighter Squadron) and two VNAF marked T-28B Trojans operated by the 1 st Air Commando Squadron, in the Light Grey/White colour scheme, all featuring variations in national or unit markings.
LF Models	C48106	T-28B Trojans over Vietnam	Includes decals for two VNAF T-28B/C Trojans (2 nd /516 th Fighter Squadron) in the Light Grey/White colour scheme, featuring variations in na-
Eduard	EDEX355	T-28B/C/D Trojan Mask Set	(For Roden Kit)
Montex	MXSM48359	T-28B/C/D Trojan Mask Set	Vinyl Type (For Roden Kit)
New Ware	NWAM623	T-28B/C/D Trojan Mask Set - Basic	(For Roden Kit)
New Ware	NWAM624	T-28B/C/D Trojan Mask Set - Expert	(For Roden Kit)
Aerobonus	QAB48-082	T-28 Trojan Crew w/seats	Resin



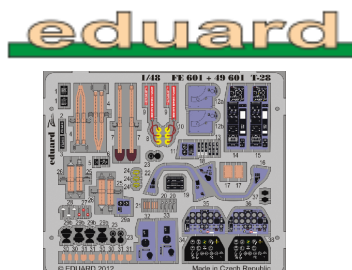
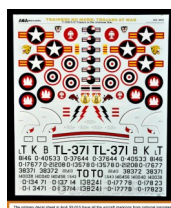
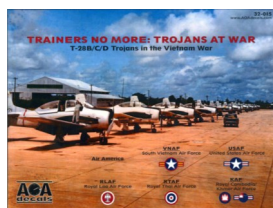
The North American Rockwell T-28 Trojan—in Miniature

By Mark Attrill

1:32 Scale – Kitty Hawk

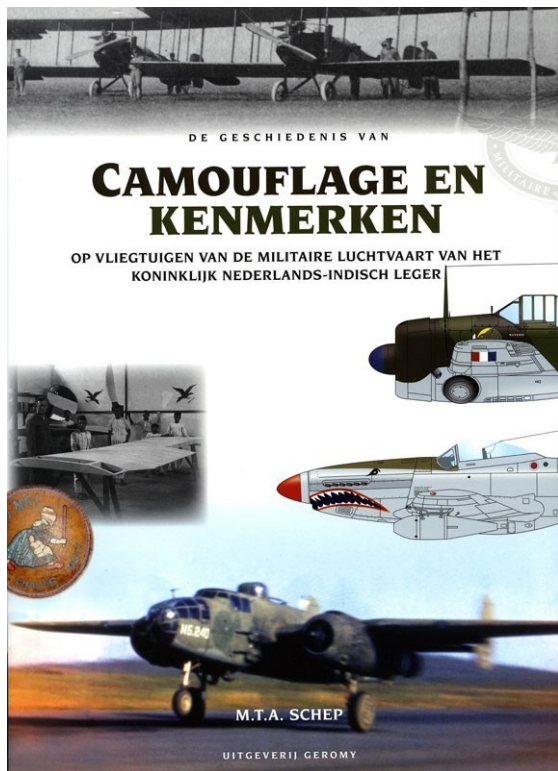
Kittyhawk	KH32014	North American T-28B/D Trojan	
Kittyhawk	KH32015	North American T-28C Trojan	
Aires	AIRE2213	T-28B/C Air Brake Set	Resin
Aires	AIRE2214	T-28B Trojan Cockpit Detail Set	Resin/Photoetched – Trainer Version
Aires	AIRE2215	T-28 Trojan Wheel Well Detail Set	Resin
Aires	AIRE2217	T-28B Trojan Cockpit Detail Set	Resin/Photoetched
Aires	AIRE2219	T-28C Trojan Cockpit Detail Set	Resin/Photoetched
Eduard BIG	EBIG3369	T-28B Trojan Detail Set (BIG)	Includes Interior/Exterior Sets, Surface Panel Set, Cockpit masks and Remove Before Flight Tags
Eduard BIG	EBIG3389	T-28C Trojan Detail Set (BIG)	Includes Interior/Exterior Sets, Surface Panel Set, Cockpit masks and Remove Before Flight Tags
Eduard	ED32390	T-28B/D Trojan Wheel Well Set	Photoetched
Eduard	ED32391	T-28B/D Trojan Exterior Set	Photoetched (For KH32014)
Eduard	ED32421	T-28C Trojan Exterior Set	Photoetched (For KH32015)
Eduard	ED32422	T-28C Trojan Wheel Well Set	Photoetched
Eduard	ED32876	T-28B/D Trojan Interior Set	Photoetched (For KH32014)
Eduard	ED32877	T-28 Trojan Seat Belts	
Eduard	ED32924	T-28C Trojan Interior Set	Photoetched (For KH32015)
Eduard	ED33159	T-28B/D Trojan Interior Set	
Eduard	ED33189	T-28C Trojan Interior Set	
G-Factor	GF32042	T-28 Trojan Landing Gear Set	White Metal
Quickboost	QB32-188	T-28B/D Propeller A	Resin
Quickboost	QB32-189	T-28B/C/D Exhaust Set	Resin
Quickboost	QB32-190	T-28C Propeller B	Resin – Square Tip Paddle Type
SAC	SAC32105	T-28 Trojan Landing Gear Set	White Metal

AOA Decals	AOA32-015	Trainers No More – Trojans At War	Includes decals for three VNAF T-28B/C Trojans (2 nd /516 th Fighter Squadron) and two VNAF marked T-28B Trojans operated by the 1 st Air Commando Squadron, in the Light Grey/White colour scheme, all featuring variations in national or unit markings.
Eduard	EDJX192	T-28B/D Trojan Mask Set	(For Kitty Hawk Kit)
Eduard	EDJX212	T-28C Trojan Mask Set	(For Kitty Hawk Kit)
Aerobonus	QAB32-133	T-28 Trojan Crew w/seats	Resin





CAMOUFLAGE EN KENMERKEN (Camouflage and Markings of the Royal Dutch East Indies Army Aviation) Reviewed by Joop Gelauf



This book on the military aircraft of the Royal Dutch East Indies Army (written by AAA member, Max Schep) will take you in 464 pages, 650 photographs and 200 illustrations into the colourful history of the 36th anniversary of the only completely independent colonial flight department in Asia and indeed the world!

It will give you a special insight into the colonial pioneers in, for example, their yellow Glen L. Martin hydroplanes, and illustrates the necessary colour shades of Khaki and peacetime yellow/blue through to the war colours of the Second World War. On the return of the Dutch to their East Indies colonies in 1945, the white ex-Japanese RAPWI fleet formed the basis of an air force, followed by legendary types such as the C-47, P-51, P-40 and B-25 and eventually leading to their transfer to the Republic of Indonesia in 1950. Attention is also paid to the consequences of the capitulation by means of the airworthy aircraft captured by Japan; the deployment of aircraft destined for Australia by the USAFIA and RAAF; and the establishment and deployment of the RNMFS and the Dutch East Indies squadrons.

The colour designations listed are connected to the Federal Standard system and reference is made to available model building paints for demanding model builders.

The book consists of 2 parts:

Part 1 starts with the introduction of the region and its aircraft, and deals with subjects such as their characteristics, systems of registration and different recognition marks.

Part 2 provides images of the different painting techniques used during these time periods, and also the use of camouflage and Olive Drab on the various types of aircraft. Also well documented is the transfer of the air assets to the new Indonesian Republic's air arm—the AURI. Every type of aircraft that was

used is mentioned and illustrated with pictures wherever possible. In the final part of the book there are artists' impressions of most of the types of aircraft mentioned throughout the book.

You will also find a fine selection of very rare photos from different, sometimes private, collections. For the non-readers of Dutch, it features a comprehensive English summary and bilingual photo-captions.

Conclusion? This is a "must have" reference for all those interested in the history of a little-known independent colonial air arm and also for modellers looking for information about unusual types, air forces, colour schemes and markings.

For more information, and to order by mail, visit the website of the publisher: www.Geromybv.nl

Joop Gelauf

New Members

Welcome to Kendrick Lee, Jun Wei Lai, Jeremy Lau, Eric Phan, Lian Tey, Alex Ho and David Hoe from **Singapore**; Faraz Anwar from **Denmark**; Dongjia Zhang from **China**; Richard Brodie and Brian Ross from **Australia**; Ran Yahalom from **Israel**; Alessandro Parmigiani and Marco Toniolo from **Italy**;

Matt Jenkins from **Taiwan**; Mustafa Aziz from **Abu Dhabi**; Ghayas Ghani and Omar Tipu from **Pakistan**; Leonard Petrus from **Namibia**; Scion Hossain from **Bangladesh**; Marcelo Torrente from **Argentina**; Antonio Segovia from **Chile**; Dmitry Shevchuk from **Latvia**; Craig Parsons from **USA**;

Michael Immler from **Germany**; Alexander Sidharta from **Indonesia**;

Mike Davey, Ibrar Majeed and Joe Warner Cherrie from **UK**.

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