

SECOND to NONE

QUARTERLY



THUNDER OVER EUROPE



EXCLUSIVE

'50 Years of Delta Force'

FROM WOODEN SKIS TO WINTER OLYMPICS



GLORY

PAF SHINES IN RIAT



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Message from Air Chief Marshal Mujahid Anwar Khan, NI (M)

The modern world is fast changing and so is the nature of warfare. With emerging technologies, vast improvements are taking place in sensors, weapons and aerospace platforms.

As we modernize and develop new systems, information remains at the heart of the highly complex environment. It is my conviction that knowledge about capabilities, trends and employment concepts is the key to creating awareness. More so, in contemporary conflicts, narratives are vital for moulding opinions and building perceptions, thus entailing a sound platform for credible information and its dissemination. Hence, a publication '**Second to None**' was a necessity.

I am happy that the maiden issue of 'Second to None' is ready. No doubt, this unique and painstaking endeavour is a landmark initiative. With diverse and interesting content, the publication will attract not only aviation enthusiasts but also readers with varied tastes. I am confident it would contribute greatly towards promoting true image of Pakistan, dilating upon national security issues, highlighting new developments and nation-building efforts of Pakistan Air Force, recording the golden moments of PAF and keeping its rich legacy alive. I am sure the magazine will carve a niche for itself both at home and abroad. I appreciate the dedicated efforts of the Editorial Team for bringing out the first issue and wish them continued success in the years ahead.

Editorial Team

Patron-in-Chief

Air Marshal Asim Zaheer, HI (M), TBt

Editor-in-Chief

Air Cdre (R) Muhammad Ali, SI (M)

Editor

S. Khalil

Deputy Editor

Muhammad Khan

Editing Consultant

Talha Ul Huda

Design Head

**Mobin Munir
Fahad Ali**



Contact Us

second2none.paf@gmail.com

051- 950 6551
051- 950 7753

Muhammad Khan
0345 5613 171

Mobin Munir
0313 5454 601

Advertising

051- 950 6551
051- 950 7753

second2none.paf@gmail.com

Letters to Editor

second2none.paf@gmail.com

Website: www.paf.gov.pk

from the Editor-in-Chief



It is with great delight and pride that we bring to you the first ever magazine dedicated to Pakistan Air Force. The title for this publication has been borrowed from the kind words of the founder of this great nation Quaid-e-Azam Muhammad Ali Jinnah. It was during his first visit to the then Royal Pakistan Air Force College, in 1948, where Jinnah said that a country without a strong air force is at the mercy of any aggressor. "Pakistan must build up her air force as quickly as possible. It must be an efficient air force *Second to None*," he called upon the nation.

This edition has been all about bringing to you events and happenings that put the PAF in the forefront. Second to None explores a range of interesting events and developments starting with a reminiscent look back at the 50 golden years the Mirage has been in service, an aircraft that makes up the bulk of jet fighters in the PAF inventory. Besides the latest in space technology, we also pay tribute to the world class aerobatics demonstration team of PAF, the Sherdils. Once more, the PAF crew and its C-130 Hercules was the center of attraction at RIAT, the world's biggest military air show. We also bring to you heartfelt stories from winter sports held in Naltar valley, and a stunning cover image of a climbing PAF Mirage, symbolizing determination and courage in the face of adversity and doing an amazing job, all of which epitomizes the Pakistan Air Force. Impactful current affairs from the nation and from around the world are also covered pragmatically.

The magazine would also encapsulate heroic deeds of fliers, who once ruled the skies, besides acknowledging the valiant courage of the ground crew, who guarded the nation they loved and held allegiance to. Through a series of articles and features, the magazine will also pay homage to top guns of the past who wore silver wings. These warriors victory-rolled, glided and tail-chased at heaven's doors, with God as their protector.

The past several months have been busy, gathering views and opinions of contributors. For all their kind support and cooperation to make this publication a success, the makers of this magazine are grateful. To match the standards of world class international magazines dedicated to the air forces of the world, the editorial team invited submissions from renowned foreign aviation writers and photographers, for our readers to admire. The news stories and features are written by authors who hold expertise in their respective fields and are in line with our literary mission. The high definition images have been provided by the personnel of the Pakistan Air Force, Dte of Media Affairs and foreign contributors with a keen interest in aviation photography. We are thankful to all of them.

Our mission has been to curate contents of the magazine in a way that makes it jump off the shelf. In line with inspiring aviation magazines, our team has used visually appealing design to create material that stands out and is aesthetically memorable. The captions and taglines are simple as well as clever that explain illustrations in an attractive manner.

Contents are neither the official views nor endorsed by the PAF. Information in this magazine is current at the time of publication.

We would also like to thank Air Marshal Aasim Zaheer, the Patron-in-Chief, for his continuous support and valuable guidance in bringing out the first edition of this magazine.

We hope you enjoy and learn from the inspiring stories in this magazine as much as we loved compiling it for our valued readers.

Happy Reading.

Enjoy reading and do give us your feedback

Muhammad Ali

Air Cdre (R) Muhammad Ali, SI(M)
Editor-in-Chief
email: second2none.paf@gmail.com

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A Giant of a Man: Air Marshal Asghar Khan

Air Cdre (R) Muhammad Ali, SI(M)

PAF is lucky to have a leader like Air Marshal Asghar Khan as its founding father; a man of sterling character, great humility, outstanding professionalism and unflinching determination. Through a special feature, the author pays tribute to the late Air Chief who transformed the nascent air force into a force to be reckoned with.

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News Bulletin



Legacy of LEADING FROM THE FRONT *CONTINUES...*

“ *Presenting to you our wings of Freedom and the Guardians of your Skies* ” AIR CHIEF ★★★★★

The fly-past by the Air Chief of Pakistan Air Force on every Parade Day is a service all on its own. Decency, courage, straightforwardness, conservatism, and leadership are words that come to mind. It is the centerpiece of Parade Day celebrations - a performance that commemorates the whole affair. It is also a re-enactment of the first time ever an Air Chief led the formation of aircraft to mark Parade Day celebrations around the world. What a position and privilege to be in. The Air Chief's fly-past brings to mind the evolution of the aircraft and all the people who have ever flown them.



◀ Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, banks sharp right into a high G turn during the fly-past on 23rd March, 2019 (Photo: PAF Archive)



Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, puts thousands of feet of air between his F-16 Block 52 and the ground as he pulls up into a series of vertical rolls during Pakistan Day Parade fly-past - 2019

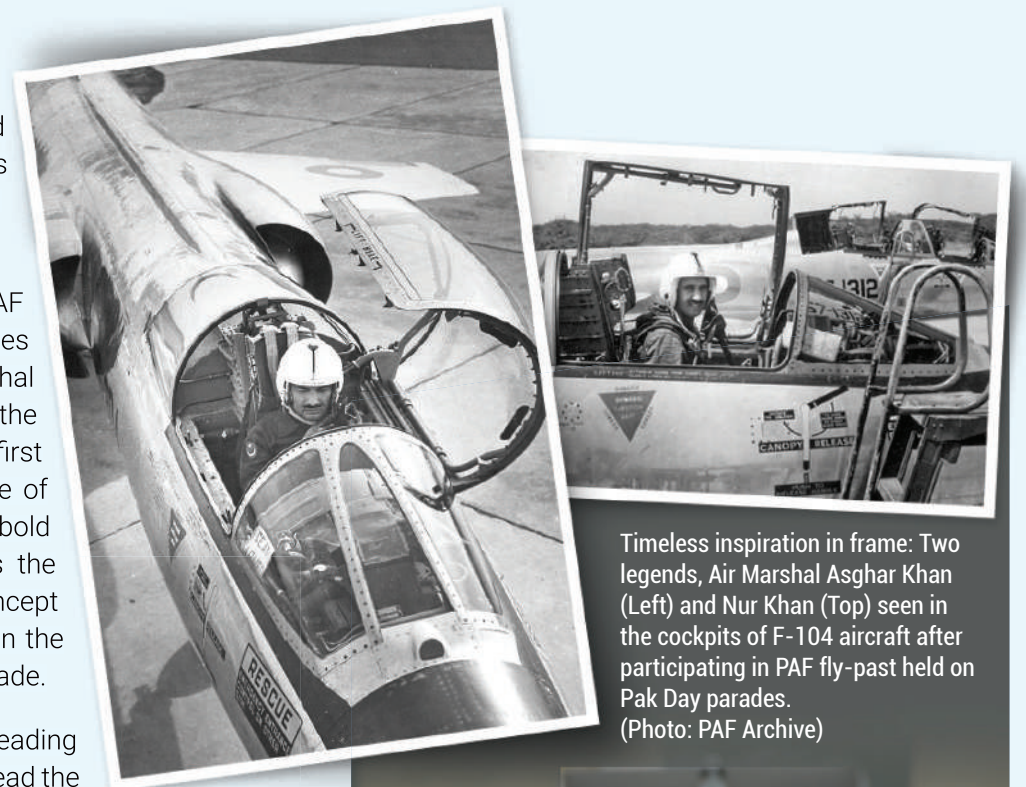


The voice in the loud speakers directs the gaze of the spectators to their right in the sky, the most anticipated moment of the Pakistan Day celebrations, and hush falls. In the midst of the noiseless 30 seconds, eyes discern an intriguing little speck in the far distance, the likes of a fighter jet, racing towards the parade ground seemingly at the speed of sound. As the low murmur of pride runs through the multitude, the Air Chief Marshal Mujahid Anwar Khan, call sign SHAHBAZ ONE, connects his radio telecom from the cockpit with the loud speakers on the ground below. Leading the formation of 20 PAF aircraft from the front, his words drop like boulders "Make no mistake; we will always safeguard Pakistan. Presenting to you our wings of freedom and the guardians of your skies." Flying 500 feet above-ground, SHAHBAZ ONE lets forth the war cry that has aroused fear in the hearts of the enemy,

'Pakistan Zindabad! Pakistan Air Force Paindabad!', and executes the 60 years old tradition of fly-past and salutes the resilient Pakistani nation.

The legacy of leading the fly-past formations of PAF aircraft on Pakistan Day dates back to 1957, when Air Marshal Asghar Khan took over the command of PAF as the first Pakistani Air Chief at the age of 36 years. Being a visionary, bold and dynamic leader, he was the one who introduced the concept of fly-past of a PAF aircraft on the occasion of Pakistan Day Parade.

As he always believed in leading from the front, he decided to lead the first ever formation fly-past himself. During his eight-year command as the Air Chief, he led all the fly-pasts held during that period. To lead the formation, his aircraft of choice was mostly the F-104 Star Fighter. As fast as the present day Fighting Falcon, the aircraft always thrilled the spectators while flying at supersonic speed at low levels.

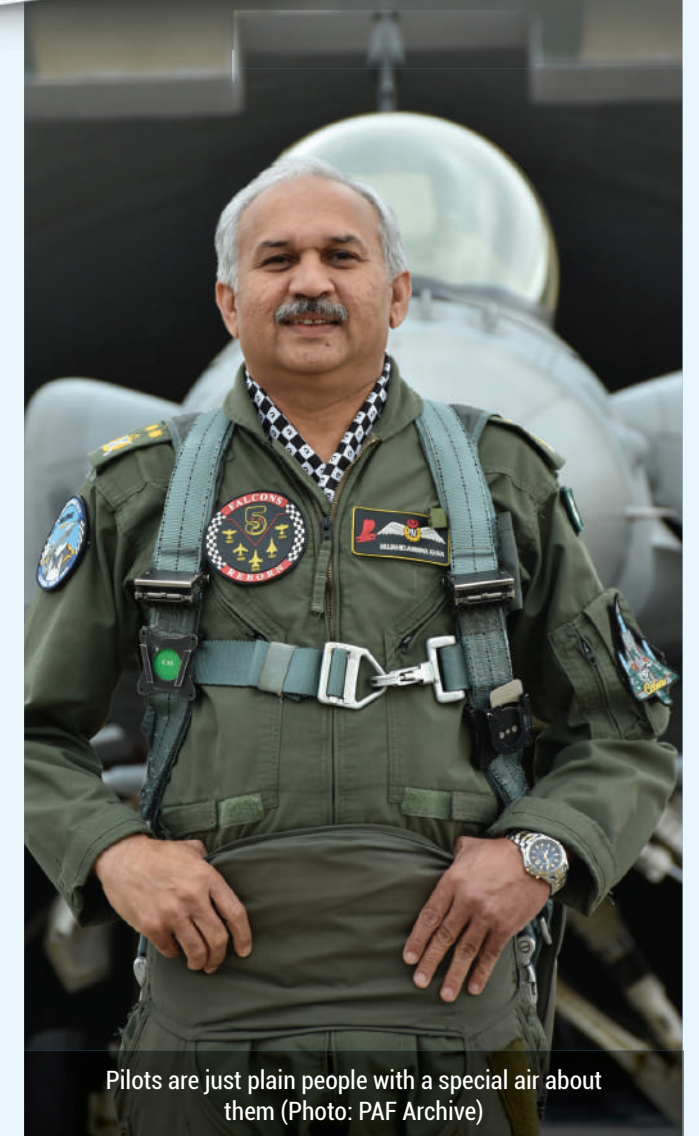


Timeless inspiration in frame: Two legends, Air Marshal Asghar Khan (Left) and Nur Khan (Top) seen in the cockpits of F-104 aircraft after participating in PAF fly-past held on Pak Day parades. (Photo: PAF Archive)



Air Chief pulling up the F-16 over the parade venue is the stuff of dreams. (Photo: Awais Lali)

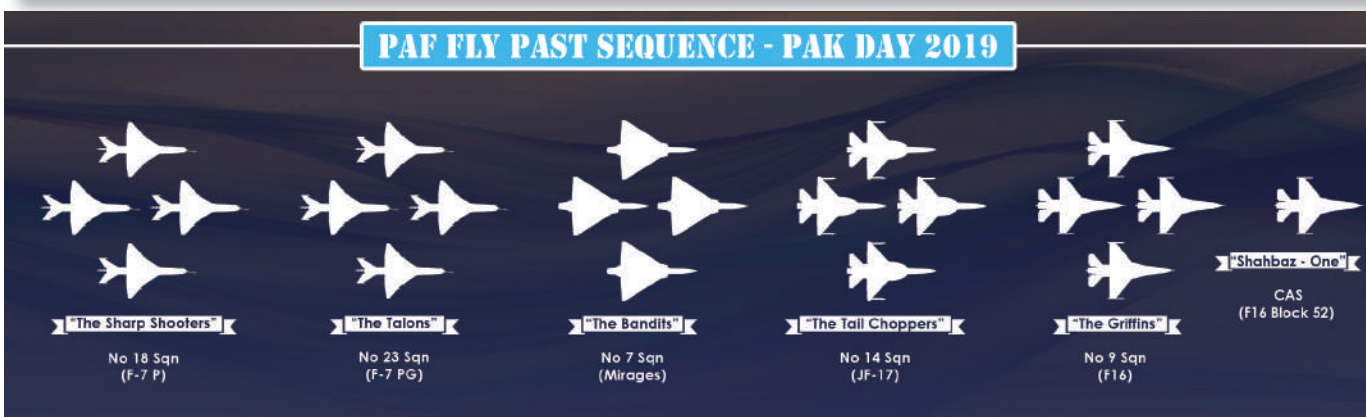
Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, along with combat air and ground crew pose in front of the most potent symbol of air power, the F-16 Block 52 (Photo: Awais Lali)



Pilots are just plain people with a special air about them (Photo: PAF Archive)



- ▲ Heroes don't wear capes, they fly F-16s in the 'Griffins' Sqn
- ▼ PAF Pilots' jobs in the 'Tail Choppers' Sqn is exactly like their childhood dreams



- ▲ 'Bandits' over the parade venue
- ▼ Never leaving a comrade behind, 'The Shooters' follow the 'Bandits'



And there on, the legacy continues till date. It became incumbent on the following Air Chiefs of the Pakistan Air Force to lead the fly-past on Pakistan Day Parade. Over the years, the number of aircraft in the fly-past, type of the aircraft, formation patterns on Pakistan Day Parades kept changing. However, one thing always remained constant; the PAF fly-past has always been led by its Air Chief, a unique honor the senior leadership of PAF is proud of.

On the morning of 23rd March, 2019, Air Chief Mujahid Anwar Khan followed the same run, entering the venue at almost 900 kilometers an hour. With a huge round of applause, spectators watched their Air Chief go off-script, rolling his F-16 Block-52 aircraft 90° right, experiencing eight times the normal force of gravity on his body, instead of replicating the traditional pull-up. Cheers and pride mounted to a new high as SHAHBAZ ONE completed the maximum performance 'High G' 360-degree step turn before



▲ Pride of Pakistan: JF-17 Thunder performing solo aerobatics with a unique combination of speed, manoeuvrability and acceleration (Photo: Awais Lali)
▼ Chinese Aerobatics Team 'Ba Yi' connects audiences with something new and different on Parade Day (Photo: Awais Lali)

pulling up the roaring Falcon. SHABAZ ONE exited the parade venue from precisely in front of the dais. Executing a series of vertical rolls while dispersing flares, it climbed 15000 ft before disappearing into hazy Islamabad skies, leaving spectators ecstatic.

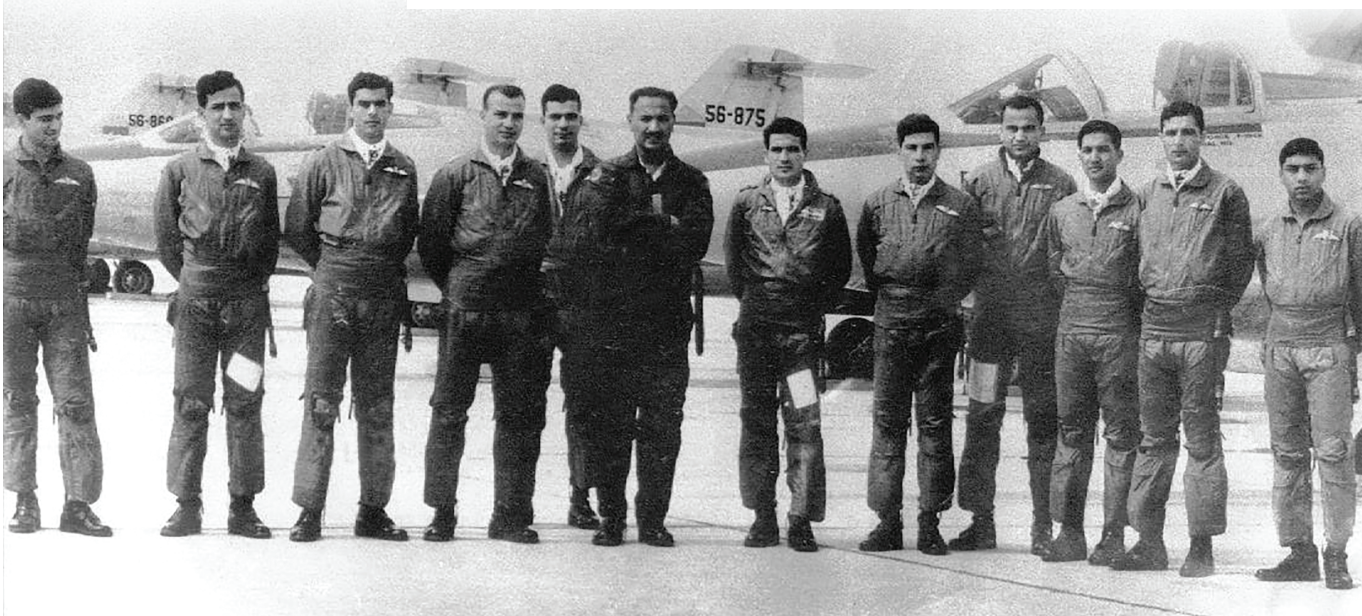
The audience was still in awe of the breathtaking performance of the CAS aircraft, when a few moments later, a formation of four F-16s Block-52 aircraft, flying in a tightly maintained box formation, entered the venue. The formation belonged to No 9 Squadron (call sign: Griffins) of Pakistan Air Force and was led by Air Vice Marshal Irfan Ahmed, Air Officer Commanding Central Air Command, PAF. Following the F-16s, the much-awaited formation of JF-17

Thunder aircraft, the Pride of Pakistan, appeared on the venue. With squadron call sign 'Tail Choppers', the formation was led by Wing Commander Faisal Sajjad of No 14 Squadron. Next to enter the arena was the 'BANDITS' formation of the Mirage aircraft, led by the Squadron Commander Wing Commander Raja Jehanzeb of No 7 Squadron. On their tail, flew past the venue, the formation of F-7PG aircraft under the command of Wing Commander Nabeel. The formation represented the No 23 Squadron which is known by the call sign 'Talons' in PAF. Later, Wing Commander Ikram Ahmed led the formation of four F-7P aircraft from the No 18 Squadron, nicknamed 'Sharp Shooters'. The icing on the cake was a stunning aerobatic display by PAF JF-17,





- ▲ Like dolphins coming out of the water, Six Ship 'Ba Yi' executes a high powered formation climb on Parade Day. (Photo: Awais Lali)
- ▼ Air Marshal Asghar Khan stands with pilots of F-104 Starfighter at PAF Base after participating in PAF fly-past held in 1962



and the world-renowned aerobatics teams BaYi (PLAAF) and the Solo Turk (Turkish Air Force).

First to enter the venue for aerobatics display was the JF-17 Thunder aircraft, with Wing Commander Zeeshan Baryar. The roaring Thunder straight away went into a loop as it entered the display area at high speed. All those in attendance were left spellbound as they watched Wing Commander Zeeshan Baryar push the JF-17 to its limits, in a series of spectacular manoeuvres.

With its thunderous performance and trademark manoeuvres including Thunder Turns, Muscle Climb, Inverted Flying, Aileron Rolls, Alpha Pass and High G 360 turns, JF-17, the pride of the nation, remained the star of the show.

The spectators were delighted to see their own, indigenously manufactured, state-of-the-art modern fighter aircraft, performing extraordinary feats on the historic day.

Moments after the departure of JF-17 thunder, Solo Turk F-16 'Turkey's Pride in the Skies' appeared on the horizon for aerobatics display. Flying the F-16 Block-40 aircraft, Captain Erhan Gunar of Turkish Air Force, enthralled the audience with his jaw-dropping and mesmerizing aerobatic manoeuvres. Spectators, fans and guests of all ages and walks of life watched the show with great admiration. The jet's sharp turns and low flybys were complemented by an equally energetic commentary by Turkish commentators which echoed around the venue. At the end, the audience waved, clapped and chanted 'Pakistan-Turkey friendship Zindabad!'

In the finale, appeared on the venue, the Chinese aerobatics team 'BaYi' in 6-ship formation of J-10 aircraft. Emitting colored smoke, the team performed extraordinary

I can therefore I will: Wg Cdr Zeeshan Baryar, pulling up for a vertical roll (Photo: Awais Lali)



thrilling manoeuvres. With their eyes locked on the J-10s, the audience thoroughly enjoyed the breathtaking aerial display of the team which carried out their maiden appearance in the capital. The spectacular air show concluded with their trademark bomb burst manoeuvre, leaving behind a fascinated audience.

Earlier in the morning, the Air Chief arrived at an operational base to lead the PAF formations participating in Pakistan Day Parade fly-past. On his arrival, the Air Chief was received by the Base Commander and was taken to ADA hut to gear up. Later, the Air Chief attended a briefing about the mission. He also met with the combat air and ground crew at the base and lauded their extraordinary level of devotion and motivation.

These manoeuvres were neither stunts nor daring feats but extreme refinement of basic techniques taught to PAF aviators. At the end of the event, the author went around to gather views of the spectators in the parade grounds. Old and young, all believed that the day belonged to PAF and the incredible aerobatic teams. Fatima Yasir, a student of O-levels, said, "I loved the solo aerobatics display of JF-17 Thunder aircraft, it really is the Pride of Pakistan".

Shahid Khurshid, a university student was in awe after watching the Air Chief in the leading aircraft and scattering his brilliance. "It was a dream come true to see the latest F-16 Block-52 aircraft roaring and performing manoeuvres in front of my eyes".

Similarly, Fawad Ali, a government officer liked the performance of Solo Turk the most. Nauman Khan, an aero-modeler by hobby, loved the series of vertical rolls pulled by the Air Chief's leading F-16 aircraft. While praising the performance of BaYi Chinese aerobatic team, school teacher Fauzia Khalid, said, "The Chinese pilots flew so close and low that they constantly kept us on the edge of our seats."

The rituals of the Pakistan Parade Day draw to a close in steady rhythm after the pilots had shown off their prowess handling F-16s, the JF-17 Thunder, and the BaYi had executed eye-popping manoeuvres, blowing the audiences hair back. But no other amazing feat leaves everyone in the crowd, feeling like a fighter pilot at heart when an Air Chief, leading from the front, relives the heritage fly-past.



Solo Turk takes aerial excitement to new levels during Parade Day commemorations 23rd March, 2019 (Photo: Awais Lali)

PAF's DELTA FORCE

SAFE GUARDING THE AERIAL
FRONTIER FOR 50 GOLDEN YEARS



It may not have received the affection bestowed upon the F-16 from the public, but the Mirage holds a special place in the hearts of fighter pilots. With its incredible forward-looking design and acceleration, it is a work of art in the air. Covering 50 years of stellar performance of the Mirage in PAF, this write-up pays tribute to the jet, its air crew and the professional engineers behind the scenes. Their ingenuity in servicing it evolved the Mirage into an advanced weapon system. As a potent platform in the inventory of Pakistan Air Force, the Mirage continues to dominate the narrative of combat missions against the enemy.

The silhouetted PAF Mirage V PA 3 passes across the setting sun over Karachi coastline.
(Photo: Air Cdre Hamid Faraz)



Air force is the dominant strategic force that enables a country to respond quickly and influence the course of events in times of conflict. Pakistan Air Force (PAF) boasts a fleet of aircraft that can deliver a full complement of air-to-air, air-to-surface precision weapons, and enable the pilots to return home safely.

In that, the distinguished PAF fleet includes one such influencer - of rugged nature and max performance, built for the rigours of war. The Mirage III and V multi-role fighter jet and all of its 16 modified variants are a pilot's aircraft. It can fly at more than twice the speed of sound, one very distinguishing performance feature. As formidable as it is at high speeds, it is just as deadly at 330 knots.

Every fighter pilot in the PAF would fantasize flying the Mirage in its heyday, between 1969 and 1983, until the F-16s came and claimed this dream. However, it continues to enjoy the advantage of a higher Mach number over the F-16 even today.

▲ **A pair of Mirage VEFs breaks off for home base during a routine dusk flying training mission over Thal. The nearest jet is seen fitted with two Durandal penetration bombs. (Photo: Air Cdre Hamid Faraz)**

▼ **Truly inspiring to watch, a Mirage VEF on a routine exercise training mission (Photo: PAF Archive)**



But unlike other fighter planes that aviators not so much as fly but wear when they put the power, manoeuvrability and endurance to the test, Mirage is a challenging airplane to handle. Pilots must respect its performance envelop and the typical flight characteristics emanating from its wing design, especially during take-offs and be equally mindful of its limits when landing. Lift the nose too much and its delta wings will create so much drag that the plane will never get off the ground; come in at higher angles when landing, and the drag significantly disrupts its high-speed approach. Nonetheless, designed around a single engine, its sleek aerodynamic design, firepower and an ability to manipulate speed that will put your stomach at the back of the airplane, makes this beast a lethal adversary.

As strong as a power-lifter and as nimble as a gymnast, the Mirage really does anything a pilot wants. And it has done so for the past 50 years it has

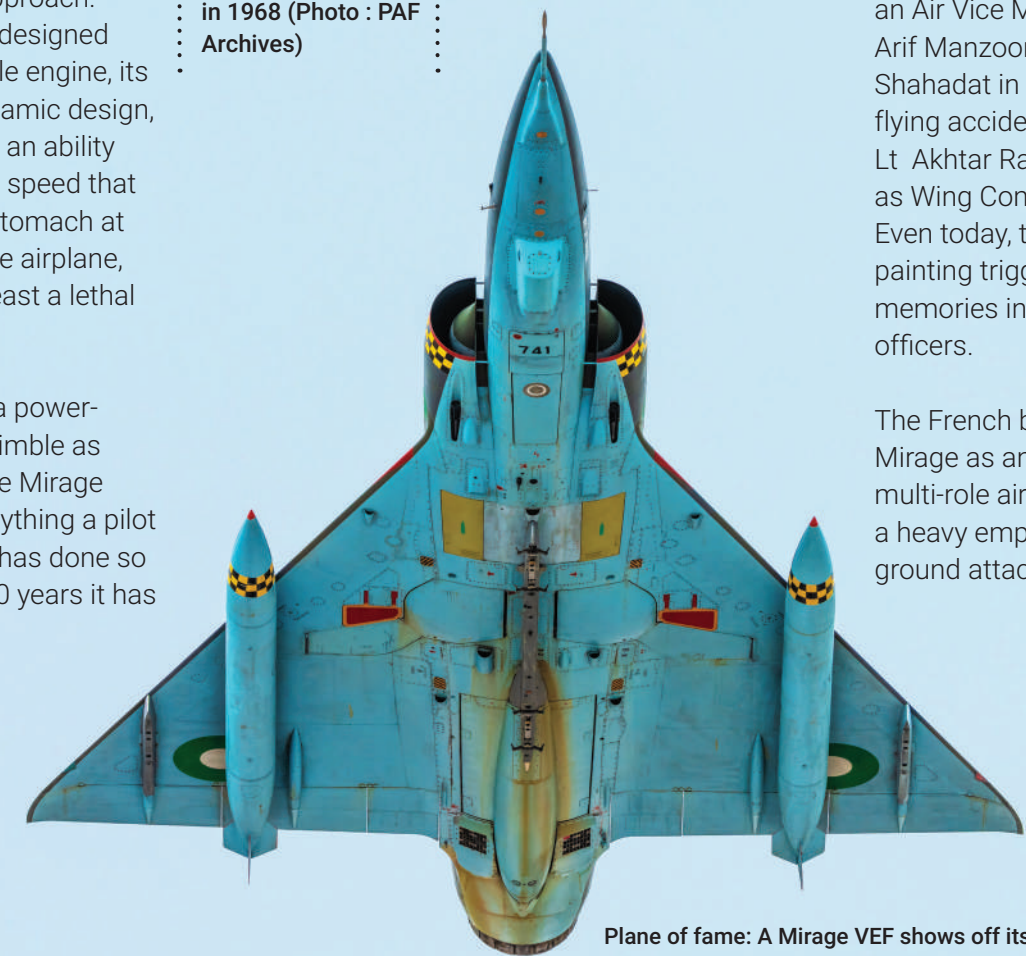


▲ **Legendary Wg Cdr MM Alam, along with other PAF fighter pilots, moments before undertaking the historical ferry flight of first batch of six Mirage aircraft from France to Pakistan in 1968 (Photo : PAF Archives)**

been serving the PAF. Aviation artist for the PAF, Group Captain Syed Masood Akhtar Hussaini, beautifully preserves the day of 8th March, 1968 on canvas when Wing Commander MM Alam led the first batch of six Mirage aircraft into Pakistan's airspace. Flying at his wings were Sq

Ldr Hakimullah (served as Chief of the Air Staff from March 1988 to March 1991), Sqn Ldr Farooq F Khan (served as Chief of the Air Staff, from March 1991 to November 1994), Sqn Ldr Farooq Umar (retired as an Air Vice Marshal), Flt Lt Arif Manzoor (embraced Shahadat in Syria in a flying accident), and Flt Lt Akhtar Rao (retired as Wing Commander). Even today, the nostalgic painting triggers vivid memories in veteran officers.

The French built the Mirage as an all-weather multi-role aircraft with a heavy emphasis on ground attack capability.



Plane of fame: A Mirage VEF shows off its 'Delta' during a low pass (Photo: PAF Archive)

It is a very stable platform for accurate air-to-ground weapon delivery, carrying a very reasonable load. The very first batch of the PAF Mirages came fitted with air-to-air interceptor radars along with the first generation beyond visual range (BVR) missiles.

From an original 24 fighters initially acquired by PAF, the fleet of these hunter killers bloomed to almost 300 over the next four decades.

Serving as linchpin of the PAF's tactical attack capabilities, the Mirage has served with eleven different squadrons of PAF over the years. At present, there are seven Mirage attack squadrons,



the No 15 Squadron 'Cobras' being the largest, comprising some older variants such as the Mirage IIIEP. Whereas the No 7 Squadron 'Bandits' has its Retrofit of Strike Element (ROSE). Based in south are the 'Haiders' of No 8 Sqn which operates Mirage V PA2/3 and are also known by the name of 'Guardians of Pakistani Seas'. The No 25 'Night Strike Eagles' Squadron has the ROSE II upgraded Mirages. The most modern and sophisticated Mirages, capable of using the PAF's H2 and

H4 stand-off weapons (SOW) are the ROSE III, which make up the PAF's newest fighter squadron, 'The Zarrars', from the No 27 Squadron. Former Editor of Air Forces Monthly and prolific aviation photographer, Alan Warnes, described the Mirage airplanes of the PAF as, "The great workhorse. Owing to the ingenuity of expertly trained crew of PAF engineers, it has continued

←
: PAF's veteran
: aviation artist,
: Gp Capt
: Hussaini, depicts
: through his paint
: and brush, the
: arrival of first
: badge of six
: Mirage aircraft
: under the
: leadership of Wg
: Cdr MM Alam,
: over Karachi
: coastline on 8
: March 1968.

A PAF Mirage VEF ROSE III taking off for an exercise training mission . (Photo: Alan Warnes)



Designed for slashing attack and rough manoeuvring, a pair of 'Cobras' getting ready for take-off from an operational PAF Base (Photo: Air Cdre Ali)



PAF MIRAGES SQUADRONS

No 7 Squadron 'Bandits'	Mirage IIIIEA/DP
No 8 Squadron 'Haiders'	Mirage VPA2/3
No 15 Squadron 'Cobras'	Mirage VDA,DR, IIIIRP, VPA, IIIIEP
No 22 Squadron 'Ghazis'	Mirage IIIIEL/ DL/IIIDA
No 25 Squadron 'Night strike 'Eagles''	Mirage VEF, Mirage IIIIDP
No 27 Squadron 'Zarrars'	Mirage VEF, Mirage IIIIDP
CCS	Mirage IIIIEA
Nos 5,9,18 and 20 Squadron have also operated the Mirage.	

to evolve with the needs of modern air warfare.”

How It All Started

Up until the 1960s, the PAF consisted largely of US-built planes, such as the F-104 Starfighters, B-57 Bombers, F-86 Sabres, T-33 Shooting Star, C-130 Hercules and T-37 Tweety Birds. Like the advent of many other aircraft in the PAF, the Mirage was an effect of US sanctions imposed upon Pakistan when it went to war in 1965. Air Marshal Nur Khan, who led the air force through the 1965 war with India, found the entire US fighter aircraft grounded due to a lack of spares. These were precarious times and with no combat aircraft available, Nur Khan set about finding a solution. The PAF

needed a ‘bomb truck’ that could carry several tons of weapons and strike deep into enemy territory, besides an effective air defence capability. The acquisition of the trailblazing Dassault Mirage III nailed the brief.

It was around the time that the leading aircraft of the PAF, the F-104 Starfighter was fading out that the Mirage effectively replaced. The Mirage arrived in the nick of time - with a definite purpose. Pakistan was on the brink of another war. In 1971, the aircraft did well in its strike and air defence roles, given that it was the only night interceptor besides the few Starfighters. Come the end of the Afghan war in 1989, the Americans placed more embargoes and

stopped shipment of the F-16s. In 1992, the PAF decided that it had to live with the inventory it had and focus more on aircraft that were easily available.

The air force took a crucial decision to acquire additional Mirages from the Australian, Belgian, Spanish, Libyan, Lebanese, and French air forces that were either not using them anymore or had little use of them. While many of the acquired planes were made airworthy, some were reduced to spares. Since the Indian air force was modernizing and re-equipping, the PAF had to frame and pursue its own strategy to develop a matching operational capability. That was when Pakistan started to upgrade its



A Mirage IIIBE landing with fully extended shute at an operational base. (Photo: Alan Warnes)



A ‘Cobra’ with its tail painted in markings of 50 years of Mirage service in PAF, takes off from an operational PAF base. (Photo: Awais Lali)

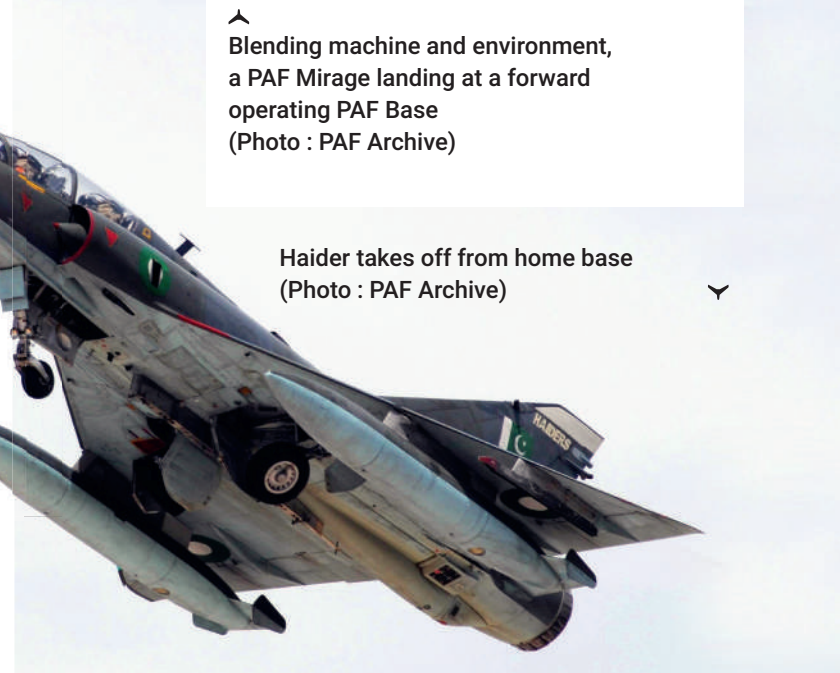
Mirage fleet and thus became one of the largest operators of Mirage III and Mirage V aircraft in the world.

Upgradation of Mirage Fleet

With the upgradation of PAF’s air defence network in the late 70s, Mirage aircraft also received secure radios and Electronic Counter Measure (ECM) equipment. Also added in some Mirages was Infra-Red (IR) based night intercept capability. However, in the early 90s, the constant hazard of US embargoes and the increasing threat of the adversary prompted the PAF to embark upon the programme called the Retrofit of Strike Elements (ROSE). The ROSE programme was primarily an advanced avionics-based capability on Mirage aircraft. The upgrade set the pilot free from distractions and unnecessary workload. While the heads-up display (HUD) projected information in front of the pilot, with



Blending machine and environment, a PAF Mirage landing at a forward operating PAF Base (Photo : PAF Archive)



Haider takes off from home base (Photo : PAF Archive)

MIRAGE KILLS IN 1971 INDO PAK WAR

4th December, 1971, Mirage IIIIEP:

Flt Lt Naeem Atta shot down IAF Canberra B(I)58 with an AIM-9B air-to-air missile.

5th December, 1971, Mirage IIIIEP 67-112 and another unknown aircraft:

Flt Lt Safdar Mahmood & Flying Officer Suhail Hameed were both accredited in a joint kill after shooting down an IAF Hunter F56

6th December, 1971, Mirage IIIIEP 67-102:

Flt Lt Saleemuddin shot down an IAF Su-7



“Highway to the Danger Zone”, sounds better when you watch a Mirage VDD land on the Motorway M1 during Exercise High Mark 2016 (Photo : PAF Archive)



▲
 'All set for take-off': PAF ground crew gives a 'thumbs up' to the pilot before take-off. (Photo: Air Cdre Ali)

PAF MIRAGE VARIANTS

Type	Procured	Production/Delivery	Remarks
Mirage IIIIEP	18	1967	
Mirage IIIIDP	3	1967	Upgraded to ROSE I
Mirage IIIIRP-1	3	1967	
Mirage VPA	28	1970	
Mirage IIIIDP	2	1970	Upgrade to ROSE I
Mirage IIIIRP-2	10	1975	
Mirage VPA2	18	1979	
Mirage VPA3	12	1979	
Mirage VPDA2	2	1979	
Mirage IIIIEA	10	1990	Ex-RAAF; Reduced to spares
Mirage IIIIEA	32	1990	Ex-RAAF; Upgraded to ROSE I
Mirage IIIIDA	8	1990	Ex-RAAF
Mirage VEF	19	1996	Ex-SAGEM; Upgraded to ROSE II
Mirage VEF	14	1996	Ex-SAGEM; Upgraded to ROSE III
Mirage VDF	6	1996	Ex-SAGEM
Mirage IIIIEL	9	2000	Ex-Lebanese AF
Mirage IIIIDL	1	2000	Ex-Lebanese AF
Mirage IIIIEE	12	2003	Ex-Spanish AF; Reduced to spares
Mirage IIIIDE	1	2003	Ex-Spanish AF; Reduced to spares
Mirage VDD/DR	10	2006	Ex-Libyan AF
Mirage VD/DE /DR/DD	40	2006	Ex-Libyan AF; Reduced to spares



the hands-on-throttle and stick (HOTAS) system the pilot did not have to look down to select and operate essential switches, something crucial in the heat of the battle.

In the ROSE I programme, besides a Nav-attack system and HUD, the Mirages, fitted with the Grifo M3 radar, were at an advantage as autonomous interceptors with contemporary capabilities. The upgrade programme in ROSE II, transformed it into a precision attack aircraft with multi-function displays (MFD). The forward-looking infrared (FLIR) under the more advanced ROSE III project, put the fear of God into the enemy - the Mirage could pulverize

targets by delivering weapons accurately even in the darkest of nights. Several Mirages were later equipped with air-to-air refuelling capability as well. All these enhanced features not only made the Mirages more lethal but also made the pilot more efficient in the cockpit.

The reconnaissance variant of the Mirage was also outfitted with a capability to carry the Long Range Aerial Photography Pod (LORAP). This included a real time data-link that could transmit the pictures to the headquarters immediately after landing.

The Mirage 5PA3 was another variant, which came fitted with

the capability to carry and fire the anti-ship Exocet missile to defend our coastline naval fleet against enemy's surface ships; which was a crucial requirement after the 1971 war.

The ROSE programme was a massive activity of upgrading and integrating avionics and weapons, which came handy subsequently in the JF-17 Thunder programme. This extremely valuable and exclusive experience added to the expertise and confidence of PAF's engineering personnel.

Mirages- Notable Instances of Service in PAF

With acquisitions of 16 different variants in subsequent years,



Her graceful curves and self-confident look distinguish her from all other war birds, a 'Bandit' takes off during deployment away from home base (Photo: Air Cdre Hamid Faraz)



A pair of 'Bandits' fly close to Cape Monze lighthouse overlooking the Arabian Sea (Photo: Air Cdre Hamid Faraz)



This is how we roll: A 'Bandit' Mirage IIIIEA pulls up during an exercise training mission in southern Pakistan (Photo: Air Cdre Hamid Faraz)

A pair of 'Haiders' fly past untold wonders of nature, mud volcanoes near Ormara coast. (Photo: Air Cdre Hamid Faraz)



Mirage became a popular choice of the PAF for operational employment. Apart from carrying out bombing and air defence missions during the 1971 war, Mirage went on to perform reconnaissance operations against the enemy. These jets also played an important role in the air operations during Soviets Afghan occupation and for the defence of our nuclear programme in the 80s.

Besides regularly flying reconnaissance missions along the Eastern and Western borders, in the mid-80s, the Reconnaissance Mirages were used to discover and confirm the position of Indian troops that had moved into Siachen.

The reconnaissance Mirages made another significant contribution soon after the Ojhri camp tragedy in 1988. The ground teams used the data from the infrared cameras on the aircraft to identify hotspots after the inferno to complete their fire-fighting operation in a safe and efficient manner.

During the Kargil crisis in 1999, most of the Mirage squadrons were deployed to various forward operating bases (FOBs). Subsequently, following the Parliament bombings in Delhi, like all PAF squadrons, the Mirage units were put on full alert in response to the aggressive posturing by the Indian government. Operation 'Sentinel'

lasted from December 2001 until October 2002, and during these testing times Mirages played a key role in defending the aerial frontiers of Pakistan. Thereafter, in the tension created after the Mumbai bombings, Mirages again provided the vital air defence to thwart any Indian threat.

The 27th February, 2019 face-off against enemy aggression once again proved the jet's combat capability, when a few Mirage 5PA aircraft armed with stand-off bombs demonstrated the country's resolve and capability to defend its sovereignty. In joint exercises with other air



forces, the inclusion of Mirage aircraft, demonstrated the trust and confidence that PAF leadership had in this aircraft, its aircrew and technical crew to operate it successfully in different environments. Even today, these veterans actively participate in Shaheen series of exercises with PLA air force of China.

The Mirage Rebuild Factory: Enhancements

Though primarily for hunting, this thoroughbred has proven flexible and shown availability for ease of maintenance and repairs. These qualities make this aircraft first responder for those needing assistance.

Key to sustained performance is routine maintenance by teams of trained PAF specialists that service this tangible piece of flying history. In the Mirage Rebuild Factory (MRF), trained crew of engineers strip the aircraft down to its smallest elements and then rebuild, with the efficiency of a race car pit crew. Last year the AFP described the techniques

Mirage Rebuild Factory (MRF) in PAC Kamra has played a key role in maintaining the Mirage fleet for more than five decades. A routine view from a jet shop of MRF shows the Mirage aircraft being overhauled by the team of professional technicians. (Photo : PAF Archive)



developed at the colossal MRF, Kamra, reminiscent of – but far more high-tech and lethal than – the improvised methods used to keep classic American cars running on the streets of Havana. The planes take seven weeks to be overhauled and repainted. The MRF has the capacity to overhaul more than a dozen planes a year.



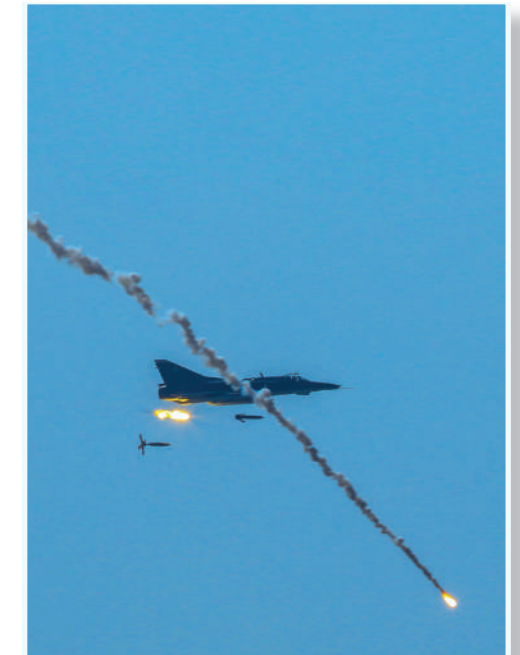
Powered advance in aviation: Mirage IIIIEA takes off from the home base for a exercise training mission. (Photo: Air Cdre Hamid Faraz)

The exact moment the enemy cannot absolutely, positively see tomorrow: A Mirage delivers its arsenal during Fire Power Demo-2015 at Sonminai PAF firing range near Karachi (Photo : PAF Archive)

It has been 22 years since I flew the Mirage, I still believe that when it comes to making an impression, the Mirage is head and shoulders above the rest.

In 1967, Mirage was state-of-the-art in military aviation. When Pakistan Air Force first acquired the Mirage, its collective features were a quantum leap above what existed in its inventory. It could come at low altitudes, defy radar detection at 250 feet, and deliver ordinance at high speeds such as the anti-runway bomb, another exclusive domain of the Delta wing jet.

Looking back at the 50 plus years of the Mirage being such an integral part of the PAF, the majority of veteran Mirage pilots of PAF think that the Mirage would be dearly missed as 70 to 80 percent of our pilots have served and protected the nation with this potent weapon system. It will not be an exaggeration to say that the Mirage will remain a part of the DNA of the PAF, long after the aircraft has been phased out.



Clouds are a pilot's stage: A pair of Mirages awaits Air to Air Refuelling from an IL78 aircraft during exercise training mission (Photo: Air Cdre Hamid Faraz)

THUNDER OVER EUROPE



Seven JF-17 pilots (with Gp Capt Azkaar ul Hussain centre) take time out to pose for the camera during Paris air show 2019.



A PAF JF-17 Thunder during Exercise Anatolian Eagle-2019 at Konya Air Base Turkey



You had me at take-off. Wg Cdr Zeeshan Baryar makes a spectacular lift-off from the Le Bourget runway during Paris Air Show 2019 (All photos, Alan Warnes unless stated)

Pakistan Air Force Thunders are no strangers to Europe. Having made their debut at Farnborough Air show in July 2010, they had subsequently visited Paris Air show (2015), Izmir Air show in Turkey (2011) and Radom Air show in Poland (2018).

The visits to Farnborough and Paris were purely commercial, driven in a bid to market the jet to the many military personnel who frequently visit these events. Those to Izmir and Radom were connected to the 100th anniversaries of both air forces in the countries with which the Pakistan Air Force has close relations. Why Poland, you may ask? History has it that several ex-Polish military personnel, including Air Cdre Wladyslaw Turowicz, helped build the Pakistan Air Force after independence and the end of World War II; the PAF never forgets.

Sending the aircraft so far is testimony to the reliability and the spirit of the PAF personnel who take the aircraft to these events, which can often mean nearly two weeks away from the home base.

Ferrying the aircraft for an air show involves several stops en-route and at least two night-stops, before arriving at the destination. Then, there is the set-up and practice for the flying displays, which the JF-17s usually get involved in. The PAF seems to get into the groove quickly and the personnel make it look easy because deployments are a regular occurrence for them, both inside and outside of Pakistan.



Wg Cdr Zeeshan Baryar and Sqn Ldr Syed Sibtain were the two display pilots at Paris 2019.



No 2 Squadron personnel with the two display pilots after the JF-17 flying display.



However, this year it was a little different for the Thunder force. Two squadrons were sent on two separate deployments for different reasons, simultaneously. After a gap of four years, the PAF opted to send three JF-17s from No 26 Squadron 'Black Spiders' to the Paris Air Show. Along with China National Aero-Technology Import and Export Corporation (CATIC), the PAF was keen to market the JF-17 and its capabilities to the West, and in particular, to the several African and Asian nations that frequent the exhibition. At the same time, five jets were deployed to Konya Air Base in Turkey where the Thunder made its first appearance in a European exercise. It must have put tremendous pressure on PAF's logistical support which needed at least two C-130E Hercules for each deployment but the personnel are well-trained to handle it. In 2015, similar commitments saw six F-16s deploy to Konya and three JF-17s head to Paris.

Now with 12 years of service that has seen the JF-17 amass over 40,000 flying hours, the aircraft is much more mature. With over 100 operational jets encompassing a variety of roles: air defense, air-to-ground and maritime strike, the PAF has substantial confidence not just in the aircraft but its people, as well. On 27th February 2019, during the strikes on India, the Thunder proved its worth and played a key role in the success of PAF's 'Operation Swift Retort'.



JF-17 in the static display, surrounded by missiles and weapons that have been integrated on the jet.



A PAF JF-17 Thunder rolls on its back during Paris Air Show



A fully extended chute breaks the speed of a JF-17, as the pilot lowers the nose wheel on landing

Paris

This year's detachment to Paris Air Show, which took place from 17th to 23rd June was headed by Gp Capt Nauman Ali, a veteran JF-17 pilot and former OC of No 16 Sqn. He was supported by another JF-17 stalwart Gp Capt Azkaar ul Hussnain who flew the aircraft at Zhuhai Airshow in 2010. Both are veteran pilots, unsurprisingly, there is little these two pilots don't know about the jet. The author was fortunate enough to fly in an air-to-air sortie with them, when they were Squadron Leaders serving No 16 Squadron, during Exercise High Mark 2010.

The whole detachment, comprising PAF air and ground crew left Pakistan on 9th June, then headed over to the Arabian Gulf, for a night-stop at Dhahran (Saudi Arabia), before leaving for Tabuk (Saudi Arabia) and a night-stop at Izmir-Cigli (Turkey). Pratica di Mare (Italy) was the next fuel stop before landing at Paris on the 11th. The unit tasked to take the Thunder to Paris, No 2 (Multirole) Squadron stood up just over three years ago, in April 2016. Leading the unit to arguably the world's biggest aerospace show was the responsibility of Wg Cdr Jawad Gilani, the current OC.



The past, present and the future: After a long exercise day, a PAF JF-17 Thunder, sits on the tarmac at the base with a USAF F-15E Strike Eagle in the background

Along with Wg Cdr Zeeshan Baryar and Sqn Ldr Bilal Raza, he led the three JF-17s from Karachi to Paris. The OC told the author, "It all went according to plan with plenty of time to prepare for the air show itself."

In Paris, the two display pilots were the experienced Wg Cdr Zeeshan Baryar and Sqn Ldr Syed Sibtain. They carried out their practice demonstrations on June 13th and 14th and took turns to fly in the air show. Because of safety regulations, the aircraft were not allowed to manoeuvre at less than 1,500ft during the display. While the impressive JF-17 take-off we usually see at the shows was watered-down, Wg Cdr Baryar confided to the author that he reached 8G in the jet during the six-minute display. Baryar and Sibtain have joined an elite group of nine JF-17 pilots that have displayed the aircraft overseas, but Paris marks Baryar's last show, having launched his career at Zhuhai Air Show 2016.

One JF-17 was displayed in the static show surrounded by a plethora of missiles and weapons that have been integrated on the jet. Two JF-17s were used for the flying display (one in Pakistan's national colours and other in standard grey scheme). The green jet had a UAV kill marking on the left side of the cockpit. The drone was detected by radar flying over Panjgur Province on the night of 18th June, 2017 and was subsequently shot down with a PL-5EII, fired by Sqn Ldr Zeeshan Khan. Several such UAVs have suffered a similar fate in the past, after being tracked by the PAF but this was the first time the author had seen such markings on the side of a JF-17.

Airshow appearances outside Pakistan

Wg Cdr Khalid	Zhuhai 2010, Izmir 2011
Sqn Ldr Azkaar	Zhuhai 2010
Wg Cdr Ronald	Izmir 2011, Dubai 2011, Zhuhai 2012, Dubai 2013
Wg Cdr Rashid	Dubai 2011, Zhuhai 2012
Wg Cdr Usman	Paris 2015
Sqn Ldr Yaser	Dubai 2013, Paris 2015, Zhuhai 2016
Sqn Ldr Jawad	Qatar 2016, Saudi Arabia 2016
Sqn Ldr Baryar	Zhuhai 2016, Poland 2018, Zhuhai 2018, Paris 2019
Sqn Ldr Sibtain	Poland 2018, Zhuhai 2018, Paris 2019

The PAF contingent outside the Anatolian Eagle HQ at Konya



Thunder rolls down the tarmac in front of Saudi Tornado during exercise Anatolian Eagle



Konya

After three years of absence, Exercise Anatolian Eagle took place at Konya Air Base from 17th to 28th June and saw the JF-17 making its first appearance at a NATO exercise. Under the command of Gp Capt Ghazi Salahuddin, five JF-17 Thunder aircraft along with combat air and ground crew, technicians and maintenance crew participated in the exercise. No 28 Multirole Sqn 'Phoenix' was tasked with this huge responsibility, coming 14 months after standing up as a fighter squadron on 28th February, 2018. Other than PAF, this year's international Anatolian Eagle 2019 Training Exercise included various air forces from around the world. Azerbaijan Air Force participated with 3 observers, U.S. Air Force with 6 x F-15Es, Italian Air Force with 3 x AMX A-11s, Qatar Air Force with 1 x C-17 and 1 x C-130J, NATO with 1 x E-3A, Royal Jordanian Air Force with 3 x F-16AM/BMs, Turkish Naval Force with 2 x Frigates and 1 Torpedo Boat. Turkish Air Force attended the event with 6 x F4E-2020s of the 111st Squadron, F-16C/D of the 113rd, 132nd, 152nd



and 161st Squadrons, with KC-135R of the 101st Squadron, with E-7T of the 131st Squadron, with CN-235M and AS-532UL of the 135th Squadron and with C-160D "MILKAR-2U" aircraft of the 221st Squadron.

All five Block-1 jets, which have served with a mix of other units, were fitted with three large fuel tanks as they would not be involved in any air combat. But due to the length of the missions and with no air-to-air refuelling system, the extra fuel was a necessity. Working with the Blue Force, they were probably being used as an escort to protect high value assets such as the Turkish Air Force E-7T AEW&C. The exercise was conducted with

an aim to share experiences and tactics between all the participating assets. It strengthened military relationships and developed inter-operability with the participants to increase training level and combat readiness.

The Anatolian Eagle exercise dates back to the late 90s, when it was established as a national air warfare exercise. Following the participation of the Turkish Air Force in Red Flag in 1997, ambitions to enhance inter-operability of the exercise grew. Subsequently, the exercise commenced in June, 2001 at Konya Air Base with participation from the Turkish Air Force, United States Air Force and Israeli Air Force.



A debrief of various training activities during exercise Anatolian Eagle 2019



Their loops, crosses, and formation rolls while painting the largest Pakistani flag over the horizon, is an immersive experience. It wouldn't be Parade Day ceremony or passing out celebrations without the Sherdil streaming green and white smoke down the length of the venue. This article looks back at the glorious history of the team, and what it takes to be a Sherdil.

SHERDILS

Combining all the skills into one sensational finale, the Sherdils most popular manoeuvre, the Bomb Burst, over PAF Academy Asghar Khan on 10th October, 2019 (Title pic by Awais Lali)



“ Stand by for
BOMB BURST...
BOMB BURST...
NOW!”



This is not patriotism talking; the Sherdils know that they are the world beating air force fighter pilots. How do they fly so close and perform manoeuvres with such precision? It is part training and the rest is enormous trust in each other. Flying beautifully and gracefully, and moving like one wing, Sherdils bowl over audiences every time they make their arrowhead formation entrances.

With the call, "Pull up...Pull up...Pull up...Now," begins an aerial performance that has won the hearts of millions across the globe. It has left even more wondering how they execute manoeuvres from the first loop to the last death-defying bomb burst. It is no idle boast that the Sherdils, the aerobatics display team of the Pakistan Air Force, are world renowned.

The team comprises a selected group of instructor pilots from the Advanced Jet Training Squadron of PAF Academy Asghar Khan in Risalpur. Their whole lives are built around flying. The best of the best have choreographed performances in air shows around the world.

History

The idea of formation aerobatics team was carved into reality by an Academy instructor, Sqn Ldr Bahar-Ul-Haq, who was on an exchange tour of RAF College Cranwell Aerobatics Team in 1970's. It was then decided to put up a brief show on graduation



parades at the academy to demonstrate outstanding skills of academy instructors. After several months of practice, Wg Cdr Imtiaz A Bhatti, led a team of four instructor pilots in T-37 aircraft aka 'Tweety Birds', and put up an impressive show, flying wing tip to wing tip, twisting and turning over the skies of the PAF Academy on 17th August, 1972. For over two years, these daredevils performed with the call-sign of its formation leader. It was bestowed the befitting name – The Sherdils – on 19th September, 1974. The team continued to perform up until



Sherdils aerobatic team members with their leader Wg Cdr Irfan at PAF Academy Asghar Khan



Leader of the Nine Ship PAF Sherdils calls for smoke during fly-past over Graduation Day parade at Air Force Academy Asghar Khan 10th October, 2010 (Photo by Awais Lali)

December 1991, when sanctions were imposed on the sale of military equipment to Pakistan. It took five years for the sanctions to be lifted and the Sherdils could blaze into the skies once again.

Aircraft Used

Tweety-Bird served Sherdils for nearly 37 years. During this period, it performed on various national occasions such as Academy Graduation Parades, for visiting heads-of-states, Pakistan Day and Defence Day celebrations. In the late 90s, PAF Academy had inducted the modern K-8P aircraft for jet training; in parallel to old T-37s. With the turn of the century, the idea emerged to trade T-37 with K-8P for the Sherdils' team. After extensive studies on power-margin and throttle in-puts available to the



▲ Sherdils seen in action during 1970s

Sherdils pull up to carve a graceful arc over the air show site during 'Defence Day' at Jinnah Park on 7th September, 2016 (Photo by Hamid Faraz)



formatting flyers as well as better performance capabilities of K-8 jet as an aerobatic platform, the change-over from the old T-37 to K-8 was a logical choice. On 18th November, 2009, the first ever 4-ship K-8 pulled up for a loop in diamond formation to the thrill of the audience with Sqd Ldr Amir Misbah as leader.

From Four to Nine Ship

On 27th March, 2004, a new milestone was achieved when Wg Cdr Tariq Chaudhary, led six aircraft into formation aerobatics instead of four for the first time. The present Sherdil Formation Aerobatics team comprises of nine aircraft, which is being led by Wg Cdr Mohammad Irfan Pattal. The run-ins are executed by all nine out of which three peel-off and the remaining six-ship formation perform the aerobatics sequence.

The Sherdils' Sequence

Driven by the consumption to be the world's best airmen, the manoeuvres executed by the Sherdils rattle even the pros. These sequences are variations of the manoeuvres that every airman learns during his training as a fighter pilot. Their moves are undertakings with no room for errors.

Flying just 500 feet above ground, the sequence starts with the first run-in of the 9-ship formation at over 600 km/h. As the team enters the arena, the leader gives a 'Pull-up' call that audiences hear in real-time thrice before the front 6-ship formation pulls up for a complete loop and the rear 3-ship formation performs a lateral bomb burst manoeuvre.

Moving in prescribed pieces of air space, the 6-ship adjusts for a wing over towards the left side. Just as the audience is catching its breath, two Sherdil pilots appear at high speeds over the site. Throttles pushed into the corner, they cross each other at an accumulated speed of 1,000 km/h above a euphoric crowd. They fly on to perform a high-G turn known as a Carousel, while in the backdrop, keeping tight formation, the 6-ship have completed a parallel loop over the site. When the primary formation makes



Cockpit view of Sherdil team leader during aerobatics over Islamabad on 23rd March 2018 (Photo: PAF Archives)



'Sherdils': All nine ships parked after arrival at Zhuhai China in November 2010 to participate in Zhuhai International Air Show 2010. (Photo: PAF Archives)



It isn't bragging if you can do it. Sherdils roll on their backs over show center on Parade Day commemorations on 23rd March, 2017 (Photo: Hamid Faraz)



Sherdils mix things up right from the start: Aerial display over sea at Karachi during Ideas 2018. (Photo: PAF Archives)



Sherdil No 4 performs 'Twister' around the rest of the formation during Graduation Ceremony held at PAF Academy Asghar Khan on 10th October, 2019 (Photo: Awais Lali)

an exit with a high-G turn to the right side, a Sherdil pilot who had earlier broken off makes an abrupt entrance from the rear at 600 km/h and implements what is known as the 'Tail-slide'. This is complemented by the 6-ship formation that once again enters the scene and carries out the Barrel Roll manoeuvre. As the Barrel Roll is done, Sherdil 8 and 9 enter the fray and dash into the course at 500 feet high. They perform 'Shaheen-Break' in the middle of the air show site. The aerobatics concludes with the final act, the moment audiences sit on the edge of their chairs for. The 6-ship formation enters the arena one last time and pull up to perform possibly the most gutsy move of the show, the Bomb Burst Loop.

Sherdils Performances

Led by Wg Cdr Ali Zaidi, formatting Sherdil twisted and turned over Thal Range for the Fire Power Demonstration on 6th May, 2010, before an excited audience.



From 16th to 21st November, 2010, the Sherdils were tasked to perform at the Zhuhai Air Show, China 2,300 nautical miles (NM) away. The aerobatic formation was led by Sqn Ldr Khalid Matin.

Sherdils participated in the Pakistan Day fly-past over the Presidency, Islamabad, in a 7-ship formation on 23rd March, 2014, led by Wg Cdr Asim Zia. Subsequently, international audiences witnessed the formation aerobatics on Pakistan Day Parades in the years 2015 and 2016.

On 6th September, 2015, Sherdils participated in the Golden Jubilee celebrations of the 1965 war.

The 9-ship formation, led by Wg Cdr Amjad Mehmood, awed the audience gathered at F-9 Park, Islamabad.

On 7th December 2015, Sherdils performed on the occasion of Fire Power Demonstration – 2015, at PAF Air to Ground Firing Range Sonmiani, led by Sqn Ldr Hammad Khurshid. The Sherdils performed flawlessly, in the backdrop of the Arabian Sea, to the delight of national and international dignitaries.

In March 2016, Sherdils flew in their highly responsive K-8 at short notice to the Kingdom of Saudi Arabia, to participate in the culmination ceremony of Exercise Raad-Al-Shamaal. The team led by Sqn Ldr Taimur Nawaz Khan, performed for a gathering of monarchs, political leaders and top military commanders.



Sherdils Colours

Up till 2017 Sherdils' K-8P aircraft were painted in the overall white color scheme with red and blue stripes and a loin (Sherdil logo) painted in red on the vertical stabilizer.

The team Sherdil announced their attractive yet modest new livery at an airshow held on the country's 70th Independence Day celebrations held at Islamabad on August 14.

The fuselage is painted in combination of green and white symbolising the Pakistani flag. A crescent and star in the centre of the belly is integrated into green geometric figure which runs all across the belly, symbolising the Eagle. Looking from underneath, the aircraft appears to be an Eagle carrying the Pakistani Flag piercing through the blue skies. The new paint job has an amazing Pakistani feel and the K-8 look like a blank canvas turned into an art piece on the ground and in the air.

For the upper half of the aircraft, old colour scheme of Red and Blue stripes running all over the white fuselage is kept for a better contrast.

In the beginning, the Sherdils appeared in all red T-37s. However, maintaining the red-painted aircraft without the costly polyurethane coating became a problem. The team reverted to the all-metal finish, with only the nose, wingtips and tail painted day-glow orange. In 1980, with the induction of six ex-USAF T-37s, which were polyurethane-coated all white, 'Sherdil' became a logical choice for a new titillating appearance. The dramatic 'sunburst' paint scheme was adopted, red rays on an all-white background.

Later, the aircraft were again painted red, but with the rays in white, a scheme that is in vogue till 80s. Coloured smoke was used to enhance the aesthetic qualities of the formation; smoke trails give the impression of multi-coloured ribbons twirling in the sky.



Over a span of 47 year, Sherdils have performed on graduation parades, air shows, visits of foreign dignitaries, Defence Day and Pakistan Day parades etc. They have demonstrated with Turkish Air Force F-16 on 7th September, 1997, and with the Red Arrows on 24th November, 1997, in Islamabad. They have had the honour of flying aerobatics on the 100 years of Flight Celebrations held at Al Ain Air show on 14th December, 2003, Dubai air show in 2007, Fire Power Demo 2010-16-19, on the 70th Independence Day, Karachi and also IDEAS 2018, in Karachi.

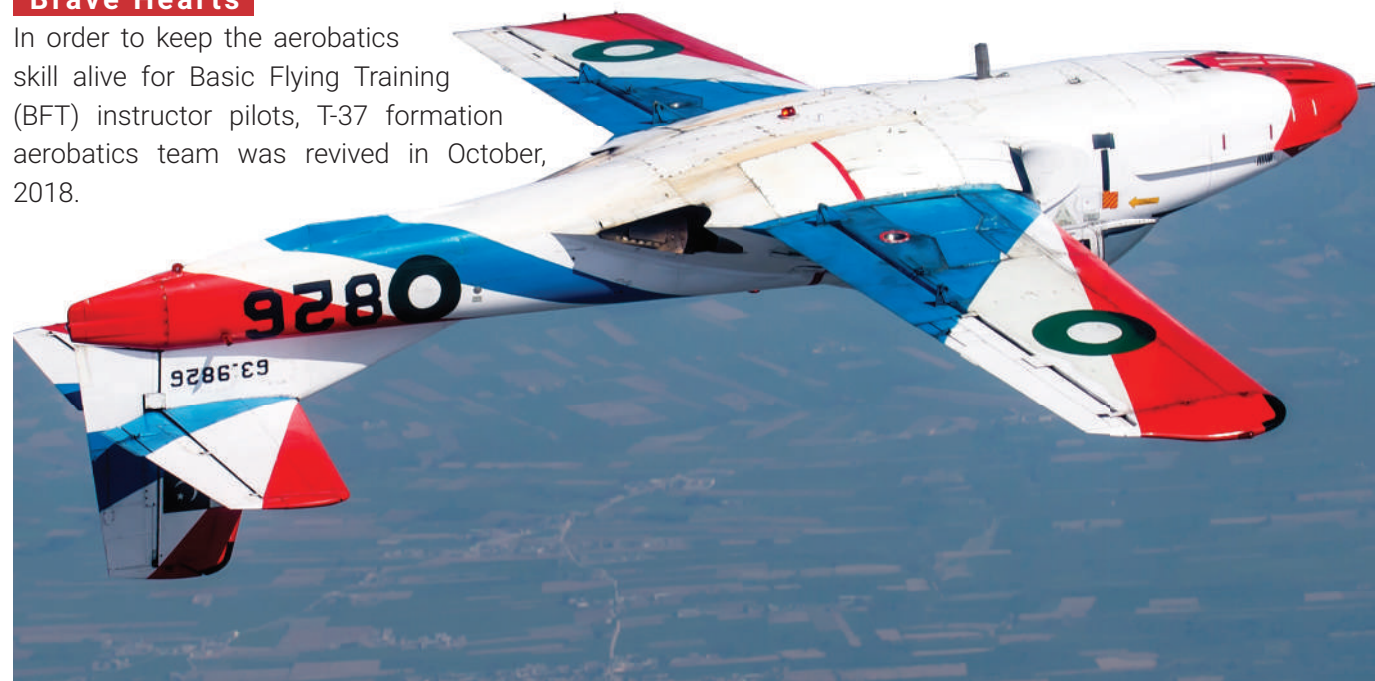
Becoming a Sherdil

Being a Sherdil is no easy task. They possess experience, knowledge and finesse to maintain their thrust to be world's best flyers. It entails what the Sherdils' crew term as 'Wits of a warrior and Guts of a Gladiator.' Candidates must have an impeccable record and at least a thousand flying hours to their name. They must meet stringent criteria before they are inducted. Practicing routines take total dedication of their time.

The training commences in well-planned steps. It is initiated with the basic level of two-ship formation and then moves on to four-ship, six-ship and, finally, to nine-ship formation flying. These training sessions are all conducted at higher altitudes. As the pilots become adept, the altitude is decreased gradually to as low as 500 feet above ground.

Brave Hearts

In order to keep the aerobatics skill alive for Basic Flying Training (BFT) instructor pilots, T-37 formation aerobatics team was revived in October, 2018.



'Bravehearts' perform a break away manoeuvre during graduation ceremony held at PAF Academy Asghar Khan on 10th October 2019 (Photo: Awais Lali)

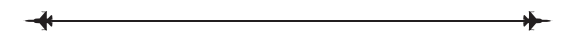
Supplementing the existing Sherdil team, the 'Bravehearts' provide flexibility at selected occasions during formation aerobatics. The Bravehearts comprise four T-37 aircraft, which perform initial run in, pull up for loop, barrel roll, clover leaf and linear bomb burst loop. Integration of Bravehearts in Sherdils' display profile was well appreciated at PAF as well as the national level. However, to further add colour and variety to overall display, a few manoeuvres were added in previous profile, this year. The 'Twister' manoeuvre was added in sequence instead of parallel-loop and steep-turn. The previously inducted 'carousel' (circle of no-joy) manoeuvre was replaced with the more dynamic and appealing 5-6G 360° turn and level inverted pass.



'Bravehearts' over lush green fields of KP while returning to base after a stunning performance during graduation parade held in March 2018 (Photo: Hamid Faraz)



Whether it is the tightness of the graceful diamond roll providing an amazing angle to photograph or the ballet-like precision of the bomb burst, what the Sherdils do is wondrously beautiful. Keep in mind that behind the beauty of each move, the Sherdils are executing perfected combat flying skills. Call it dedication, skill, team work, attention to detail, they all fit. That is why any PAF pilot will tell you, it is a proud privilege to be a 'Sherdil'.





AW139 Seahawk

Any Time Any Where



A much-needed new capability was ushered into service in late March 2019 at a PAF operational Base in south. The day and night maritime Search and Rescue (SAR) role also signaled the arrival of a new helicopter – the Leonardo AW-139, which the PAF refers to as the ‘Seahawk’.

Tasked with standing up this much needed capability is No 84 Combat Support Squadron (CSS) which until recently operated the Mi-17 Hip helicopter. As the squadron commander, Wg Cdr Abid Majid told the author, “Having a day and night maritime SAR capability allows us to support all the fighter aircraft around the clock during maritime operations.”

It was a capability the PAF desperately needed. Day search and rescue over land had never been a problem, with the Alouette III and then Mi-17, but SAR at sea, especially at night, highlighted several issues. Mirage and JF-17 Thunder pilots can operate deep into Arabian Sea, knowing they will be rescued. At night it was particularly difficult because of the lack of sophisticated equipment on the Mi-17s to identify the search area and these new helicopters have extended the SAR coverage.

The PAF’s new mount is already being operated by the Italian military and the UK’s Maritime and Coastguard Agency (MCA). Although the AW-139 is much smaller than the Mi-17 it has been adapted and designed to bring casualties back. The helicopter has space for five seats in the VIP/utility role or three seats with two stretchers.

Parajumpers are an important part of the AW-139 aircrew – without them an injured or ill person cannot be picked up from the sea. They will be lowered down, possibly into harm’s way, to save lives. Introducing the AW-139 into service has been a game changer for the PAF. (All photos, Alan Warnes unless stated)



▲ The AW-139 Seahawk has a Breeze-Eastern hoist on the starboard side, a FLIR under the nose and a Trakker searchlight on the port side

The Trakker searchlight will provide the aircrew with a strong enough light to understand the working conditions ▼



The No 84 CSS helicopters are equipped with some of the latest technologies, including a lightweight FLIR Systems' Ultra Force Forward Looking Infra-Red (FLIR) turret under the nose. A TrakkaCorp TrakkaBeam searchlight system fitted on the lower fuselage of the port side and a Breeze-Eastern hoisted on the starboard side completes the Search and Rescue (SAR) set-up.

Wg Cdr Abid is, not surprisingly, very enthusiastic about the system: "The mission control operator in the rear cabin will use the Ultra Force FLIR for searching land and sea surfaces. At the same time, the system's tracker beam working in conjunction with the EO/IR system can be used for ISR [Intelligence Surveillance and Reconnaissance] missions."

The integrated avionics system inside the cockpit was a treat to watch. The 4-axis Enhanced Flight Director with SAR modes allows the helicopter to

hover, automatically and safely, so the pilot and his crew can concentrate on saving lives. The squadron commander talked very highly of what this would bring to the search and rescue missions. "It's a game changer – one of many that the Sea Hawk brings," he told the author.

With cameras positioned under the fuselage and on the hoist, pilots can follow the activities under the aircraft when the Para Jumpers (PJs) are in action or as the helicopter descends over a stricken vessel or is picking up a downed pilot. "We are also modifying the helicopter's system so we can data-link information and imagery to the ground," the 84 CSS squadron commander said.

The AW-139 can carry 2,600lbs of fuel and burns between 905 to 925lbs per hour, allowing for around three hours of endurance. It is a very popular helicopter – the 1,000th example was handed over to a customer in late September.

No 84 Sqn

Established in 1969 with two HH-43 Huskies, then in 1983 re-equipped with Alouette III helicopters but could only offer basic SAR capability and was very limited at night. In May 2005 it re-equipped with the Mi-17, enhanced for VIP, assault operations and sea flying – but again with the limitations of avionics it didn't fly over the sea.



No 84 CSS' Sea Hawk patch ▲

◀ The helicopter's glass cockpit is a world away from the Mi-17 and Alouette IIIs, that 84 CSS previously operated

The AW-139's avionics include a 4-axis Enhanced Flight Director with SAR modes allowing the helicopter to hover, automatically and safely, so the crew can concentrate on saving lives ▼





Operational Training

A group of PAF pilots initially went to Italy for type rating and later, Leonardo's instructors came to Pakistan in July 2018 to assist with the training in the local terrain. Four pilots, two crew chiefs and a pair of Para Jumpers (PJs) went through the operational training that is now saving lives. On the local training, Wg Cdr Abid said: "Initially we were exposed to day and night operations over land. Then shifted to maritime ops, first at 5-10 miles from the coast line before progressing to the advanced maritime training that took us to 25-30 miles out into the open sea." He continued, "In November 2018, we completed the training, which meant we could perform day and night maritime SAR. After the Italian instructors had departed, we consolidated and enhanced our experiences." As captain and instructor, Wg Cdr Abid along with other 84 CSS members worked up the skills that now means they can offer an around the clock maritime SAR. The unit reached full operational capability in March 2019.

AW-139 Seahawk comes in to land at a PAF Operational Base. ▲

Wg Cdr Abid along with 84 CSS personnel >

The Para Jumper (PJ) role is a new one for the PAF. After a year training as air force commandos at the Special Services Wing (SSW), they spend nine months on a diving course with the Pakistan Navy, and another four months with the Original Equipment Manufacturer (OEM).

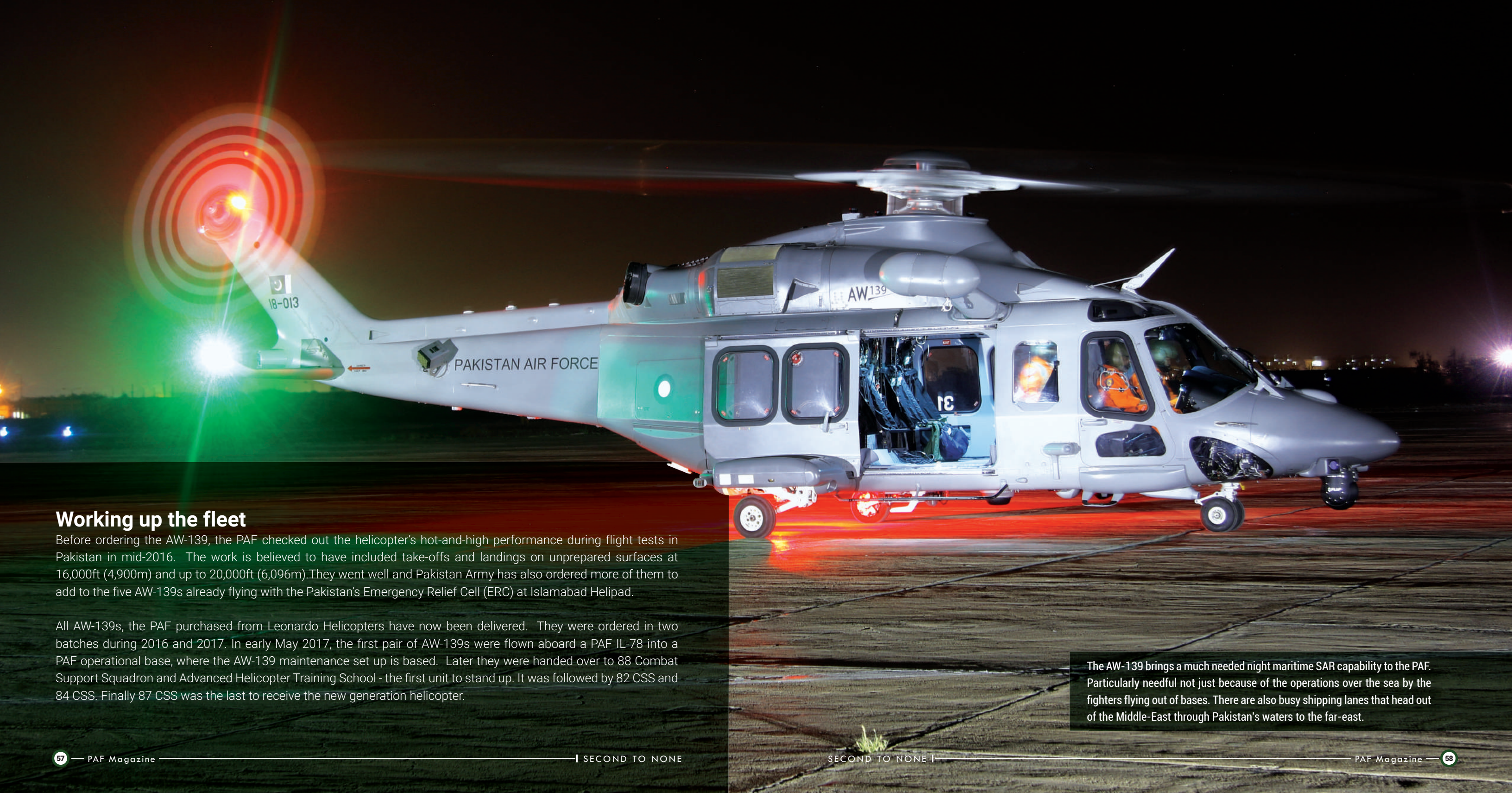
Wg Cdr Abid continues, "We have a Full Flight Simulator (FFS) now being used by the AW-139 Operational Conversion Unit (OCU) to train PAF personnel on night/day maritime SAR ops. We received Night Vision Goggles (NVG) training by the US in 2011 and we flew with Italian instructors – it was the first time we had experienced the NVGs over the sea."

According to Wg Cdr Abid, one hour on the FFS will equal one hour of helicopter flying – around 50-60 hours of flying training will move across to the FFS.



Summing up the AW-139 and what it brings to his unit, the squadron commander said, "It's a step-change from what we were previously operating. It is true that it is more complex to employ, but its search and weather radar, as well as the other new modern avionics and equipment are what the PAF needed."

Simple things that many air forces take for granted, like keying in the co-ordinates of where an aircraft may have gone down, or a stricken vessel is sinking, will aid the recovery to be much quicker – especially at night.



Working up the fleet

Before ordering the AW-139, the PAF checked out the helicopter's hot-and-high performance during flight tests in Pakistan in mid-2016. The work is believed to have included take-offs and landings on unprepared surfaces at 16,000ft (4,900m) and up to 20,000ft (6,096m). They went well and Pakistan Army has also ordered more of them to add to the five AW-139s already flying with the Pakistan's Emergency Relief Cell (ERC) at Islamabad Helipad.

All AW-139s, the PAF purchased from Leonardo Helicopters have now been delivered. They were ordered in two batches during 2016 and 2017. In early May 2017, the first pair of AW-139s were flown aboard a PAF IL-78 into a PAF operational base, where the AW-139 maintenance set up is based. Later they were handed over to 88 Combat Support Squadron and Advanced Helicopter Training School - the first unit to stand up. It was followed by 82 CSS and 84 CSS. Finally 87 CSS was the last to receive the new generation helicopter.

The AW-139 brings a much needed night maritime SAR capability to the PAF. Particularly needful not just because of the operations over the sea by the fighters flying out of bases. There are also busy shipping lanes that head out of the Middle-East through Pakistan's waters to the far-east.

The FATF

IN THE GLOBAL

FINANCIAL ARCHITECTURE:

CHALLENGES AND IMPLICATIONS



A Critical Appraisal of the FATF

There are various structural problems that underpin the FATF as it stands today, and they are important enough to evoke wider public attention as well as the specific notice of key Pakistani stakeholders. Although the FATF is situated in the field of finance, it is more appropriately deemed a political organization, because a sizeable political undercurrent permeates its working and structure. There are six important structural characteristics of the FATF that are discussed as follows:

The first overall question is that of legitimacy. It should be noted that the FATF is not a UN-body or pillar of international institutional arrangements as many stakeholders may think. It is just an inter-ministerial body with the purpose of setting financial standards. The second question is that of its membership, which is voluntary and largely comprised of EU member states; and the FATF's membership is not mandated by a multilateral institutional body.

A third question is that of its regulatory behavior, which

has been carried out in the largely ad-hoc manner. Because new rules are abruptly added to its mandate, even a country that may have been previously compliant (as Pakistan was) can come into its crosshairs at any time. This is another troublesome aspect of the FATF, because its machinery can be subverted to add new recommendations at any time (particularly at its plenaries every trimester) to suit the interests of its key member states. As a fourth point, FATF does not have an accountability mechanism whereby it can report its oversight functions or give countries recourse against its decisions. While Pakistan is reporting its measures to the FATF, the task force itself is very opaque and lacks considerable transparency.

A fifth and crucial point is that the FATF does not enjoy universal acceptance, and even OECD countries such as the United States (specifically, the US Treasury Department) have categorically stated that they do not expect their institutions or territories (such as American Samoa) to adhere to the EU-led standards that dominate the FATF. Therefore, the recommendations towards "high-risk and non-cooperative jurisdictions" are certainly not binding.

Dr. Usman W. Chohan

Director, Economics & National Affairs
Centre for Aerospace & Security Studies (CASS)



Perhaps most troubling of all, India has assumed co-chairmanship of the FATF's Asia-Pacific region, which poses a serious security risk as it allows India to help dictate the sanctions imposed. Recent irresponsible and inaccurate comments by their Defense Minister, Rajnath Singh, suggested that Pakistan "could be blacklisted at any time." While not true, it does reveal how India schemes to weaponize the FATF. Pakistan's response should be broader and more forceful in highlighting this risk of Indian subversion.

Yet these should not be seen as reasons to reject the FATF's ostensible message of financial regulation per se. However, the fact that these issues underpin the workings of the FATF is cause for immediate as well as long-term concern. The aforementioned discussion should point to three conclusions:

- The FATF's own legitimacy has yet not been fully established
- Its stipulated requirements change arbitrarily and abruptly
- Its attitude towards Pakistan reflects the "do-more" rhetorical strategy that the United States has repeatedly employed against Pakistan to mask the shortcomings of others

The fact that India should be using the FATF is incredible given its own horrific record of dark money and shadowy transactions. According to the Association of Chartered Certified Accountants (ACCA), India's shadow economy amounts to 17.22% of GDP, which would equate to 516 billion dollars. In other words, India's shadow economy alone is larger than the entire economy of the UAE, Malaysia, or Denmark. India's shoddy and sweeping attempts to supposedly counter their black economy have included PM Modi's demonetization campaign, which a consensus of economists and the Reserve Bank of India alike have deemed a failure, not just in hurting economic growth, but also in growing the number of



illicit transactions (particularly counterfeit currency to replace the demonetization) by an alarming 480%. With so much dark money slushing around, including for illicit activities and terrorist initiatives, the idea of India taking the chair is absurd.

Taking a step back, we must recognize that, if the powers-that-be truly cared about international money laundering and "dark money," they would most certainly be waging a war against the Cayman Islands, the Bahamas, Vanuatu, Guernsey, Gibraltar, the British Virgin Islands, and Delaware. The FATF has existed since 1989, circa the Soviet withdrawal from Afghanistan, and since then the amount of dark money slushing around the world has exploded in absolute terms as well as relative to the total global money supply. But the greatest centers of non-transparent financial gimmickry and suspect acts are not in Third World nations. They are in fact right at the heart of Western capitalism: in locations such as London, Frankfurt, New York, and Delaware.

In fact, Pakistan has already long imposed strong anti-terror financing laws that are tougher than those stipulated by the FATF, but their implementation has been haphazard and characterized by a reactive stance: whenever India beats the drums on Pakistan's supposed "terror funding". Pakistan has responded by implementing some financial oversight and actions. Pakistan's approach must shift from the reactive to the proactive. The pursuit of better financial regulation and oversight is in Pakistan's inherent interest, and should be seen as part of a series of reforms to be taken to spur more sustainable economic growth in Pakistan over the long-run. Pakistan has always struggled with the problem of a large shadow economy, and erasing that shadow is of supreme national interest, in order to: normalize economic activity, draw tax revenues from it, and have a better grasp of what is occurring within the country.

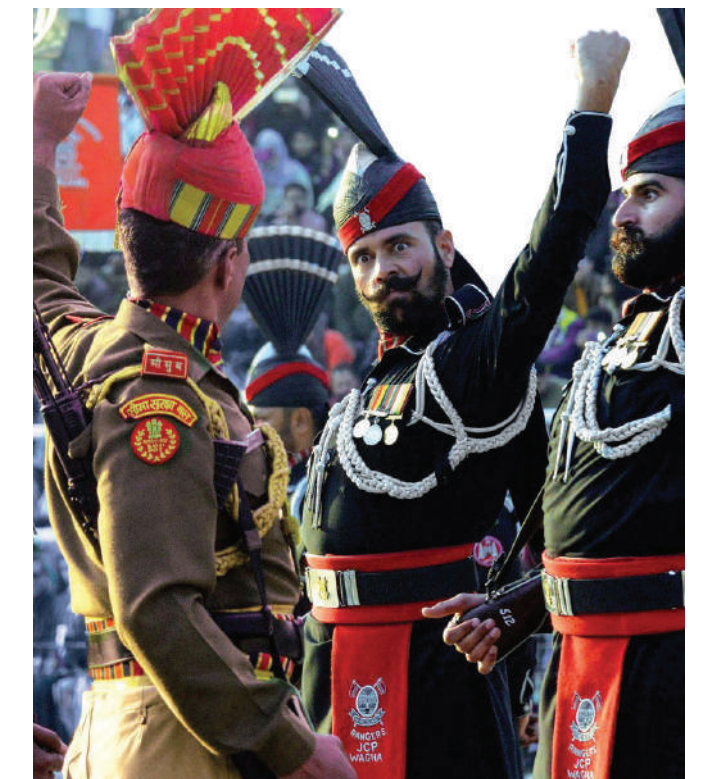
INDIA AND PAKISTAN LOOKING HORNS ON FATF

What is then of pressing concern is noting how being blacklisted by the FATF could impact the lived experience of Pakistanis today.

Implications of the FATF "Black-List"

Despite its questionable legitimacy, partisan behavior, and subjective modus operandi, the FATF could have a significant impact on economic life in Pakistan in both the immediate and long-term. Indeed, there are several important ways in which the FATF can leave a severe dent in Pakistan's economic growth trajectory, as listed below.

The first economic aspect to be affected would be remittance flows, which are the life-blood of the Pakistani economy. The FATF's blacklisting can stifle this essential avenue of foreign exchange that helps to keep the country afloat. A second economic problem that blacklisting would create is in Pakistan's negotiation with the International Monetary Fund (IMF) for an interim lending arrangement to shore up its finances. A third economic problem lies in the inflows of FDI into Pakistan, which have already been falling in the calendar year 2019 despite earlier rises due to CPEC. A fourth problem is that Pakistani banking institutions will come under heavier scrutiny, and may be made the subject of investigations.



A fifth problem pertains to the function of philanthropic organizations (charities), since FATF black-listing would mean that a broad swathe of philanthropic organizations would face legal difficulties (registration etc.), raising funds, and disbursing their proceeds through legal channels, and this would have very socially unequal (anti-poor) consequences for the country.

A sixth problem is that Pakistani individuals will face even harsher barriers when engaging in overseas transactions. A seventh problem is that domestic inflation will rise due to a reduction in cross-border and international financial transactions caused by higher restrictions. In the calendar year 2019, it has been observed that inflation is rising considerably and the purchasing power of the common man has declined significantly. FATF blacklisting would make this even worse. When taken together, it should be evident that the FATF's blacklisting risk is severe by any measure, and also that the FATF represents an instrument of economic violence against Pakistan.

Countries seeking to weaken Pakistan need not spark a military confrontation, when the FATF can do their dirty work just as viciously. While 2019 has demonstrated

that Pakistanis have both the will and the means to defend their country against overt violence (such as in the tensions with India during February-March), the subliminal violence of an economic noose still hangs over the country's head, and the FATF is an adversary in that battlefield of bank balances.

Conclusion

Pakistan cannot ignore the FATF. It is a member of that task force, and it is evident that withdrawal from the FATF would send a terrible signal to the international community. Whether Pakistan should have joined the FATF in the first place is another matter altogether. In hindsight, perhaps it shouldn't have. At the same time, the principle of fighting terrorist financing and anti-money laundering, or even at a broader level: of closing the shadow economy, is laudable, and one that Pakistan must pursue in any case, at its own behest.

While several governments have made partial approaches towards solving this problem, resource constraints have been immense in a country where the vast majority of people point their finger at the government and yet do not pay any tax to bolster it. The lackadaisical attitude towards undocumented, shadowed economic life amongst a largely illiterate population cannot persist in the 21st century, and since Pakistanis have not managed to address this problem themselves, the world (for its own good) is solving that problem for Pakistan, by choking it off.

Pakistan must now manoeuvre adeptly to appease the international community so as to remain a part of it. The following are a brief set of recommendations in that regard.

- **Public awareness on the impact of informal economy:** The public should recognize that its constant anti-tax attitude and lax tolerance for the shadow economy is the basis for the current challenges that beset the country.
- **From proactive to reactive:** Pakistan should not wait for the United States or India to raise a hue-and-cry about terrorist financing or money-laundering in the country, and then take reactive piecemeal measures. Instead, a comprehensive effort to translate the measures highlighted by the FATF (and even more so by national legislation)

should be undertaken. Economic exclusion is a priority-worry for the country, and current limited resources assigned to this effort are unjustifiably low.

- **Signaling its commitment:** Taking steps to implement our own national laws must be undertaken immediately, as this will signal our commitment to the international community that we wish to remain a part of it and respect the need for closing the shadow economy and curtailing illicit financing. Those steps need not be specified here because they are categorically stated in our relevant national laws.
- **Greater pressure on the FATF stakeholders:** Writing formal letters does not seem to be a sufficient means of persuading our economic adversaries. A concerted effort to lay pressure, through diplomatic channels, through the media, and through high office must be engaged with. But above all, our primary institutions dealing with these issues must engage in a tougher pressure-strategy, as well as a public relations effort, to show the activities they are undertaking –this applies most to the State Bank of Pakistan (SBP) and the Securities and Exchange Commission of Pakistan (SECP).

- **Capacity building of our team:** Our engagement with the FATF is by nature one of negotiation, which is why Pakistan requires strong negotiation team(s) to present the country's case effectively. The teams working on the FATF must therefore comprise highly qualified and trained experts, and special training should be given to them to prepare for the challenge ahead.

A concerted national effort must be undertaken to grapple with both the economic violence as perpetrated by the larger stakeholders of the FATF, as well as the bigger problem of a haphazard approach that Pakistanis have taken towards addressing the ramshackle nature of an informal economy.



History of FATF's sanctions on Pakistan

- **June 2008** Pakistan classified as high-risk and non-cooperative
- **February 2012** Pakistan classified as a high-risk and non-cooperative country, not committed to an action plan.
- **June 2013** Pakistan classified as a country that has not made sufficient progress in addressing the deficiencies or has not committed to an action plan.
- **February 2015** Pakistan classified as one of the countries that are no longer subject to the FATF's monitoring process under its on-going global AML/CFT compliance process.
- **Current Status** As of 24th October, 2019 Pakistan is on the Grey list of FATF.



India's No 'NO FIRST USE' Nuclear Doctrine

India's nuclear doctrine of 2003 contained several inconsistencies that have been further compounded by statements made by senior members of the Nuclear Command Authority (NCA), signaling a possible shift in India's 'No First Use' (NFU) posture. These statements could be intended to dissuade Pakistan from contemplating the early use of nuclear weapons and create space for a conventional conflict. However, the ambiguity created by India's senior leadership on India's NFU commitment is likely to compel Pakistan to take

remedial measures and ensure the credibility of its deterrence posture, which could end up into a renewed arms competition between the two regional adversaries.

India professes that China, not Pakistan, is its principal adversary but the bulk of its military deployments and doctrinal postulations – both conventional as well as nuclear – remain Pakistan-specific. Statements by the Indian leadership threatening

Pakistan with a nuclear 'First Strike', while maintaining a 'No First Use' (NFU) commitment towards China could be aimed to achieve 'escalation dominance' over the former and maintain a posture of 'assured retaliation' towards the latter. India nevertheless does not have the potential to maintain two different postures against the two adversaries with asymmetric military potential thus further complicating the regional deterrence matrix.



India's Nuclear Doctrine

India released its draft nuclear doctrine (DND) in 1999, within a year of becoming an overt nuclear weapon state. Subsequently, the draft was modified and released as an official nuclear policy on 4th January, 2003. India's doctrine contained several inconsistencies that became more evident with the increase in India's nuclear capabilities that are difficult to categorize as 'minimum'.

Main elements of India's Nuclear Doctrine 2003 include:

- Building and maintaining a credible minimum deterrent
- A posture of No First Use - nuclear weapons will only be used in retaliation against a nuclear attack on Indian Territory or on Indian forces anywhere
- Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage
- In the event of a major attack against India or on Indian forces anywhere, through biological or chemical weapons, India will retain the option of retaliating with nuclear weapons

The Inherent Inconsistencies in India's 2003 Nuclear Doctrine

Credible Minimum Deterrence? India maintains that it will continue to follow a policy of Credible Minimum Deterrence (CMD) without specifying, who the intended deterree is – whether China or Pakistan? India professes that China remains its principal adversary, but bulk of its military deployments and doctrinal developments remain Pakistan-

specific. If India claims developing a 'credible' deterrence posture against China, it cannot remain 'minimum' against Pakistan; and likewise, a 'minimum' posture against Pakistan will not be 'credible' against China.

To deal with this 'minimum-credible' paradox, accentuated by two different dyadic deterrence relationships (India-China and India-Pakistan), India could possibly consider 'decoupling' of its nuclear strategy. This could enable it to justify the ongoing nuclear build-up against the 'projected' threat (China) while providing options to pursue more aggressive strategies against its 'principal' adversary

(Pakistan). Theoretically, it may help address some of the grey areas that continue to undermine the credibility of India's nuclear posture but is likely to further complicate operational challenges for managing nuclear deterrence against two different nuclear weapon states.

India's military modernization, which include amongst other things the development and operationalizing of its nuclear triad and 'continuous at sea nuclear deterrent' (CASD) potential would increase its reach beyond the Indian Ocean. It is also building inter-continental ballistic missiles (ICBMs), multiple independently targetable re-entry vehicles





(MIRVs), and anti-ballistic missile systems (ABMs). All these developments combined together far exceed India's requirement of a 'minimum' deterrence and cannot be justified under the rubric of CMD posture.

India's No-NFU Posture

India's Nuclear Doctrine 2003 states: "NWs [Nuclear Weapons] will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere," but this was made conditional and the option of retaliating with nuclear weapons, even if attacked by biological or chemical weapons was also retained. This effectively nullified the NFU commitment that India continues to officially propagate actively as one of the central tenets of its nuclear use policy.

Some recent statements by senior decision makers indicate that India could possibly contemplate the option of a 'First Strike' against Pakistan, which would be in contrast to India's NFU commitment. There

is also a possibility that the use of these two strategic constructs - 'First Strike' and 'First Use' that have different connotations, could be due to lack of clarity as several senior members of the NCA have used these terms interchangeably.

'First Use' is commonly understood an effort to warn the adversary about the consequences of the failure to retreat from aggressive posturing and is generally limited in scope. If used in self-defense, this could be considered as legitimate. 'First Strike', on the other hand, would aim to destroy adversary's capacity to retaliate by launching a pre-emptive counterforce strike. The force required to achieve this objective may be massive and would thus fall under the purview of aggression, and is therefore considered unambiguously illegal.

In a peculiar South Asian environment even a limited counter-force first strike by one may be construed as massive by the other, thus adding pressures on the national leadership to skip intermediate rungs of escalation ladder and resort to the exchange of strategic weapons. Notwithstanding these inherent dangers, several high-ranking Indian officials, including the former Strategic Forces Commander-in-Chief Lt Gen B S Nagal, former Defence Minister Manohar Parrikar, and former National Security Advisor Shivshankar Menon, and more recently the incumbent Defense Minister Rajnath Singh, have all indicated that India might be on its path



to modify the NFU commitment.

In his book, Shivshankar Menon also hinted that India could contemplate a preemptive nuclear strike even against the 'threat of use' by the adversary. This is not only in contrast to India's NFU pledge, but could also be destabilizing, especially once India does not have the means to verifiably conclude when the adversary would be preparing to actually launch its nuclear weapons.

India's notion of a counterforce first strike may be different from the classical definition of 'First Strike', i.e. a bolt-from-the-blue attack. Notwithstanding

the nomenclature and rationale provided by the Indian officials, it seems India may be drifting away from its long-held position of NFU, in favor of a counterforce preemptive first strike.

For India to build its potential to launch first strike against Pakistan, it would need significant increase in its nuclear weapons, besides building requisite ISR (intelligence, surveillance and reconnaissance) capabilities. Without these capabilities, ambiguous statements on the NFU commitment would further erode the credibility of India's deterrence posture.

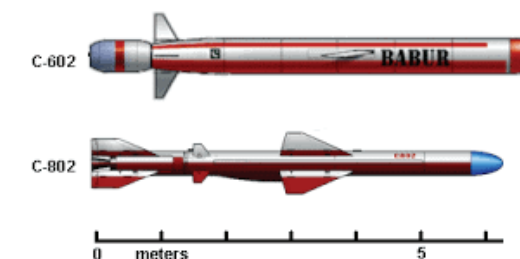
Implications for Regional Stability

Nuclear doctrines are not fixed and could change depending upon the nature of the evolving threat and technological achievements. This nevertheless would be considered as rationale and credible, only if the strategic constructs developed provide clarity of the intent and are compatible with the existing nuclear potential. In India's case - both seems to be lacking.

India is building overall military potential including its nuclear capability, primarily to emerge as a potential global power with no 'existential' threat to its security. This is reflected in the ongoing developments that are not in consonance with its 'perceived' threat against China or against the 'actual' adversary Pakistan. India formally maintains an NFU posture, to project itself as a responsible nuclear weapon state while developing options for a 'First Strike' or 'First Use' against Pakistan.

Despite enjoying significant conventional military advantage, India finds it difficult to exploit space for a conventional military conflict with Pakistan. Its limited war-fighting doctrine of Cold Start, which was introduced in 2004, has been rendered obsolete after the introduction of short-range ballistic missiles (SRBMs) by Pakistan. To overcome this hurdle, India resorted to a land-based surgical strike in 2016, and emboldened by lack of response from the Pakistani side, India launched an aerial surgical strike in February 2019 against Pakistan and claimed killing more than 300 terrorists. These claims could not be later validated, but in the bargain Pakistan Air Force managed to launch a riposte and shot two of the Indian aircraft.

India now again finds itself out of credible options to deal with the Pakistan challenge. Rajnath Singh's statement on the possibility of India giving up on its NFU posture could therefore be aimed at dissuading Pakistan from contemplating the early use of nuclear weapons in a future crisis, while opening a space for a limited conventional conflict. Notwithstanding the nuclear grandstanding, India does not have the potential to launch a decapitating 'First Strike' against Pakistan. It also does not have the requisite ISR (Intelligence, Surveillance, Reconnaissance) capabilities to identify Pakistan's storage sites. Even with the world's third largest nuclear



inventory at its disposal, a counterforce first strike would not be able to guarantee that India's major cities would be spared from the destruction caused by Pakistan's response.

India and Pakistan are now established nuclear powers with credible nuclear deterrence that makes the possibility of an all-out war unthinkable. Indian decision makers' penchant to indulge in a behavior of nuclearism would only erode the credibility of India's deterrence posture, while adding compulsions for its principal adversary Pakistan to take corrective measures and ensure the credibility of its deterrence posture, thus keeping the region in a state of perpetual instability.



NATIONAL SPACE LEGISLATION: A NECESSITY FOR Pakistan

The launch of Sputnik 1 by the Soviet Union in 1957 is often taken as the first milestone in the history of outer space activities. The initial space exploration was driven by a "Space Race" between the Soviet Union and the United States, two contesting super powers during the Cold War era. During the space race, even before the first satellite was propelled into space, the leadership of these countries had foreseen that the capability to remotely observe military activities around the world from space would be a plus over the adversary. Additionally, the satellites offered armed forces the potential for upgraded communications, navigation, timing, weather observation, and position location. Consequently, both the US and Soviet governments started investing heavily in their military space programs and developed their communication, global positioning, earth observation, intelligence and reconnaissance satellites. Since the dawn of the 21st century, governments realized that observing Earth from space could also provide significant benefits not only to the military forces but also to the general public.

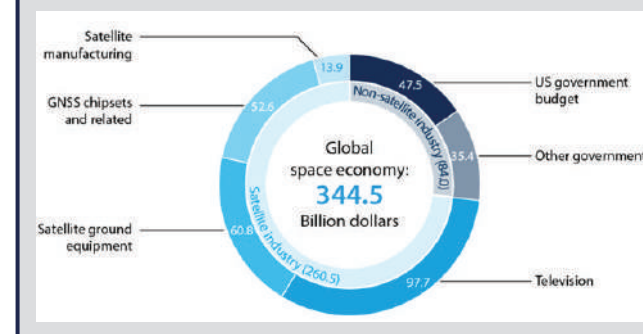
The rapid digitization and advancements in science and technology uncovered various civilian uses of satellites such as weather forecasting, observation of land to gather imagery for crop forecasting, resource management, personal navigation, geology, air-traffic control, maritime navigation and the control of information-transfer networks. Currently, space has transformed life on Earth completely by offering service to fulfill human needs. As a result, various nations started their space program to fulfill their civil and military needs. These nations are making the best use of space technology and its applications to achieve "Sustainable Development Goals (SDGs)" set by the United Nations to enhance human development.¹

Anticipating the potential in space industry, the private sector also started investing in various space services. The space services being provided by private space sector, generating huge revenue, are telecommunication, navigation, and space travel. The private commercial

space activities have flourished even without any financial support by the governments.

With the passage of time, due to the increase in human dependence on space services, the magnitude of space activities has also increased. According to the data provided by the United Nations Office for Outer Space Affairs (UNOOSA), in 2019, 4,987² satellites are revolving around Earth in Space, out of which 848 satellites are registered as having commercial users, 540 with government users and 422 with military users.³ The global space economy has also expanded steadily during recent years, with global space ventures amounting at \$344.5 billion USD in 2019.⁴

Figure 1: Global Space Economy⁵



space activities have flourished even without any financial support by the governments.

The extensive use of space for various state-sponsored and commercial activities brought to the forefront serious legal and policy level challenges warranting stringent measures to control and regulate these activities. This realization led to the formulation of legal framework for regulating space activities known as "International Space Law". This framework is primarily based on the 1967 Outer Space Treaty and four successive United Nations treaties. The International Space Law aims at ensuring safety and sustainability of space activities, tackling the problem of space debris, and binding the states to bear responsibilities of all governmental and non-governmental activities conducted from their territory. The space law also prohibits the weaponization of space, especially the deployment of weapons of mass destruction in space and on celestial bodies, and also limits military

activities in space. It also regulates the use of nuclear power sources in space activities.

Since these treaties were concluded at a time when governments were the leading actors in space and commercial space ventures were in their embryonic phase, the issues related to the governing of private and commercial space activities were not addressed in International Space Law. In order to fulfill their national obligations, most of the space-faring nations have formulated their National Space Policies and enacted their national space laws to govern the space activities being conducted from their soil. This enables them to accrue the maximum benefits of the thriving space industry besides safeguarding their national interests.

Pakistan which was the tenth country in the world and fourth in Asia to venture into space, still has neither a "national space policy" nor a "national space legislation", which perhaps are the two biggest impediments in its progress in this sector.

This paper aims to highlight the need of space legislation for Pakistan to fulfill its obligations imposed by International Space Law and to pursue its national interest. It also discusses the implications of not having national space legislation.

Space Law and its Constituents

United Nations Office for Outer Space Activities (UNOOSA) defines space law as, "The rules, principles, and standards of international law appearing in the five international treaties and five sets of principles administering outer space which have been developed under the auspices of the United Nations." These five international treaties are legally binding in nature, while the other five sets of principles are non-binding to the state parties. The treaties set obligations on States to bear international responsibility for their national space activities and are briefly discussed in the following paragraphs:

Outer Space Treaty 1967

The Outer Space Treaty is the first and most significant treaty of International Space Law, as it sets the precedent for further multilateral space legislation and prohibits weapons of mass destruction (WMD) in outer



space. This treaty imposes responsibility on states to bear international obligations for their national space undertakings through enacting national space legislation, and other accepted norms of behavior. Other responsibilities mentioned in this treaty are:

- States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner
- States shall be responsible for national space activities whether carried out by governmental or non-governmental entities
- States shall be liable for damage caused by their space objects
- States shall avoid harmful contamination of space and celestial bodies.

Rescue Agreement 1967

As per the agreement "States shall take all possible steps to rescue and assist astronauts in distress and promptly return them to the launching State and that States shall, upon request, provide assistance to launching States in recovering space objects that return to Earth outside the territory of the Launching State."⁹

Liability Convention 1971

According to this convention, a launching State shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft, and liable for damage due to its faults in space. The Convention also provides for procedures for the settlement of claims for damages.¹⁰

Convention on Registration of Objects Launched into Outer Space 1975



Being a signatory of this convention, a state bears the responsibility to make a registry that will register the information of every object launched into space.¹¹ The information

includes, "name of launching State, an appropriate designator of the space object or its registration number, date and territory or location of the launch, basic orbital parameters".¹²

Moreover, article 4 of this agreement states, "Each state of registry may, from time to time, provide the Secretary-General of the United Nations with additional information concerning a space object carried on its registry. Each State of registry shall notify the Secretary-General of the United Nations to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in earth orbit."¹³

Moon Agreement 1979

The agreement states, "The Moon and its natural resources are the common heritage of mankind and that an international regime should be established to govern the exploitation of such resources when such exploitation is about to become feasible."¹⁴

Non-Binding Space Principles

In addition to the five above mentioned agreements, five sets of non-legally binding principles have also been adopted by the United Nations General Assembly, namely: the Declaration of Legal Principles on Outer Space, the International Broadcasting Principles, the Remote Sensing Principles, Nuclear Power Sources Principles, and Declaration on International Cooperation. Additionally, the United Nations has also promulgated some guidelines related to Debris Mitigation and Safety Framework for Nuclear Power Source. Realizing both the importance of nuclear power sources and their hazardous nature, the United Nations General Assembly approved some recommendations for the Committee on the Peaceful Uses of Outer Space (UNCOPUOS) "to formally consider the technical aspects of and safety measures relating to the use of nuclear power sources in outer space."¹⁵

After considering those recommendations, "Principles Relevant to the Use of Nuclear Power Sources in Outer Space (NPS Principles)" were affirmed by the General Assembly in 1992. Following these principles, the member states will inform Secretary-General about the safety arrangements and assessments taken before



Figure 2: Countries that already have National Space Laws¹⁸

sending the nuclear-powered satellite into space.¹⁶

These international space legal instruments together with relevant United Nations General Assembly resolutions constitute (international) space law.

National Legislation

To meet the obligations imposed by the above-mentioned international space law, most of the space-faring nations have enacted their space legislations. These act as a mechanism to implement international obligations of states at the national level and to make sure that private, commercial, and non-governmental entities conducting space activities, act in accordance with International Space Law. Apart from implementing international space laws, various space-faring nations have enacted their national legal and regulatory frameworks to oversee their commercial space activities. Depending upon their peculiar needs and priorities, states have adopted different approaches while formulating their national space legislations. According to UNOOSA's database, 25 countries including United States, Argentina, Canada, Australia, Austria, Russia, and China have their national space laws.¹⁷

Pakistan's Space Program

Pakistan started its space journey back in 1961 when a Space Sciences Research Wing of the Pakistan Atomic Energy Commission named Space and Upper Atmosphere Research Commission (SUPARCO) was instituted through a presidential ordinance.¹⁹ In 1962, with the launching of Rehbar-I, Pakistan became the

tenth country in the world and the fourth country in Asia to conduct the launching of a two-staged rocket.²⁰

SUPARCO has been endeavoring to develop its own totally indigenous satellite, since the late 80s. As a result, two experimental satellites, Badr-1²¹ and Badr-B²² were developed, albeit with partial success.

Conversely, until now, not a single operational satellite has

been indigenously developed. Currently, there are 03 operational satellites (namely, PAKSAT-1R²³, MM-1²⁴, and PRSS-1²⁵), all developed/procured and launched from foreign agencies. The fourth experimental satellite PAKTES-1²⁶, for test and evaluation purposes, has been mostly developed and integrated in Pakistan; but its payload has been procured from a foreign source.

In 2011, the National Space Program 2040²⁷, also known as Vision 2040, was approved. The program includes the replacement of Pakistan's existing satellites with five geostationary equatorial orbits (GEO) satellites and six low earth orbit (LEO) satellites. The satellites under this program will provide communication and remote sensing services, and will be launched from China's the Xichang Satellite Launch Centre.²⁸



A brief analysis of Pakistan's space program reveals that despite making an early start, Pakistan has lagged behind in space technology, space sciences, and space applications. It lacks requisite capabilities in indigenous development of satellites, launch systems, and ground stations.

It has limited number of space professionals and skilled manpower which is crucial for a thriving and self-sustaining space program. It has not been able to capitalize on the commercial gains offered by space-related technology and its applications. Most importantly, it has been unable to build its capacity to make the profitable use of space-related applications, for its socio-economic growths.

Though there are a number of reasons attributed to Pakistan's below par performance in the space sector. Absence of national space policy and national space legislation have greatly inhibited its progress in this sector. Despite being a State Party to most of the UN space treaties and agreements, Pakistan neither has national space legislation to fulfill its international obligations nor any legal framework to regulate various developmental and commercial space-related activities. This is primarily due to the fact that the constitution of Pakistan does not address space as such, and SUPARCO lacks constitutional and legal mandate to regulate and control national space activities and to implement space policies.²⁹

Implications of not having National Space Law

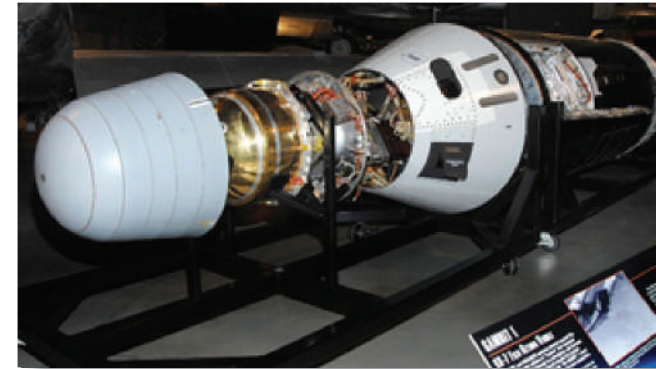
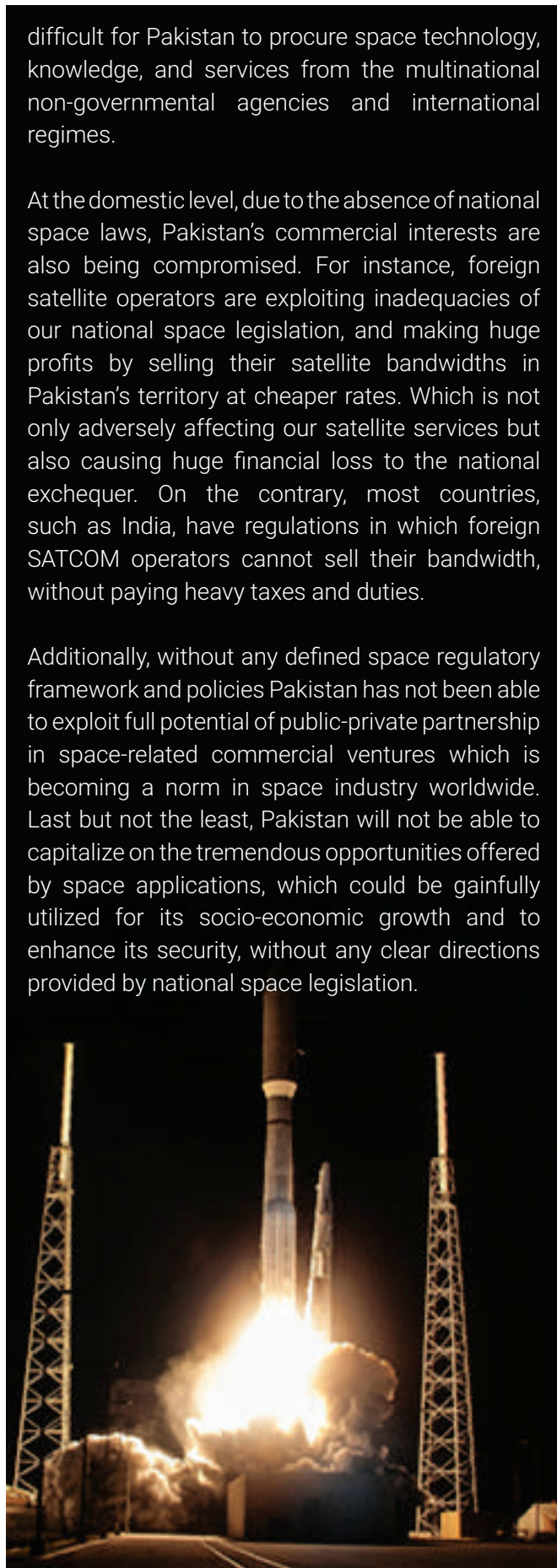
As an emerging space-faring nation, Pakistan will face serious consequences both internationally and domestically, if it does not pursue national space law-making to address its legal incapacities in space sector and to follow international space law. Internationally, the developed space faring nations will endeavor to maintain their control over space by making their laws rigorous with the passage of time, which could then be selectively used to deny technology, knowledge, and services to the space developing nations, like Pakistan, who are still struggling with the formulation of national space policy and space laws. Since Pakistan is a State Party to most of the UN space-related treaties and agreements, though non-binding, its non-compliance with the obligations set by these treaties may create difficulties in procurement of satellite design, manufacturing, and launch facilities from other states.

It will also result in marginalization of Pakistan on the international level in space domain and its future space cooperation with other space faring nations, on both bilateral and multilateral levels, will be undermined. Likewise, without a legal regulatory framework, it will

difficult for Pakistan to procure space technology, knowledge, and services from the multinational non-governmental agencies and international regimes.

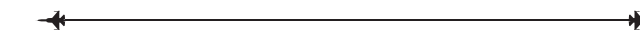
At the domestic level, due to the absence of national space laws, Pakistan's commercial interests are also being compromised. For instance, foreign satellite operators are exploiting inadequacies of our national space legislation, and making huge profits by selling their satellite bandwidths in Pakistan's territory at cheaper rates. Which is not only adversely affecting our satellite services but also causing huge financial loss to the national exchequer. On the contrary, most countries, such as India, have regulations in which foreign SATCOM operators cannot sell their bandwidth, without paying heavy taxes and duties.

Additionally, without any defined space regulatory framework and policies Pakistan has not been able to exploit full potential of public-private partnership in space-related commercial ventures which is becoming a norm in space industry worldwide. Last but not the least, Pakistan will not be able to capitalize on the tremendous opportunities offered by space applications, which could be gainfully utilized for its socio-economic growth and to enhance its security, without any clear directions provided by national space legislation.



Conclusion

Space technology and its applications have rapidly advanced in the last six decades and have emerged as a critical resource for developing nations. These have impacted every facet of human life. Not only are space related systems playing a vital role in sustainable human development but they have also become integral to military capability and power potential of a nation. Considering the rapid growth in space-related activities and their diverse civil and military applications UN has enacted several binding and non-binding treaties and principles to better regulate these activities. To make effective use of space and to safeguard their national interests, most space faring nations have formulated their own national space laws and national space policies. Pakistan, despite having an early start in this domain, has neither a national space policy nor national space laws. To keep pace with the advancement in this vital sector and to exploit its true potentials for its socio-economic progress as well as security, one of the steps Pakistan must take is to enact its national space legislation and formulate its space policy. This is also essential to meet its international obligations and to avoid marginalization in space domain.



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A PAF C-130 Hercules from No 6 ATS Sqn tilts left for aviation photographers of RIAT Air Show, 2016 over RAF Base Fairford (Photo: Sky Van team)

WINGS OF GLORY

Every July, Royal Air Force (RAF) Fairford, airbase hosts one of the largest military air shows in the world. Air forces from around the world convene for the Royal International Air Tattoo to show off more than 250 massive cargo planes, air refueling aircraft, fighter and attack jets as well as vintage war birds. It is a three-day event, with thousands in attendance. Pakistan Air Force has been continually part of it since 2006, winning awards for the best serviced, best maintained aircraft and best livery competitions. One PAF pilot explains best, what the RIAT is all about starting from preparations, through the two days arduous journey half way around the world to Fairford, England and how the PAF C-130 aircraft and its crews have become favourites at this one of a kind air show.

Wing Commander Nisar Nabi has airlifted personnel and taken over sized-cargo to places only the C-130 Hercules can get into. But not even 6,000 flying hours and experience had prepared him for his next mission - a photo session 7,000 feet high.

"It is difficult if you have not flown in formation before. It's even harder when you have to fly roughly two car lengths apart from the other aircraft that is one fourth of the size of the mighty Hercules," Wing Commander Nisar Nabi, who is Officer Commanding of No 6 ATS Sqn PAF, said thinking about the Royal International Air Tattoo (RIAT) show-2018.

It's all hands on deck. The plane and everyone on board performing at peak capacity, Nisar Nabi makes constant adjustments, trying to avoid turbulence created by the tiny sky-van, a propeller plane with world class aviation photographers on board. The C-130 has to draw close but not too close. Wearing harnesses and parachutes for extra safety, cameramen lean out of the sky-van, clamouring to capture the intricacy of the hand painted tattoos on the tail and nose tip of the Hercules.

Several tense minutes pass as the two planes dance in synchrony. These moments are more demanding than the eight hours flight from Turkey to the rendezvous point with the sky-van at Fairford, England. A minute late and the PAF would have been thrown back in queue of some 200 other aircraft waiting for their photo shoot or miss it completely.

Nisar Nabi prevents the mega Hercules from being thrown off course by the air currents. His eyes are focused on the dual propeller aircraft carrying the photographers. He later stated that flying the Hercules at its slowest speed to match the top speed of the sky-van would have been less challenging had the formatting aircraft been the same.

"Whether it was moving equipment or delivering troops to combat zones, the C-130 was designed for



A PAF C-130 (Civil Version L382B) takes off from RAF Base Fairford after participating in RIAT Air Show 2006 (Photo: RIAT crew)

war. It is a huge plane with a 132 feet wing span. A 30° turn is as sharp as an F-16 rolling 90 degree. Fly less than 120 knots speed, the plane becomes heavy on the controls, unresponsive and this behemoth can stall," Nisar Nabi explained.

Some twenty feet apart, he holds the position for 15 minutes. After the photographers had had their fill, the PAF crew broke off with a sharp 45° turn. Gently, the crew eases the C-130 on the misty runway of Royal Air Force Base Fairford. They join some 250 aircraft that had landed to compete in RIAT show.

Thousands of enthusiasts gather at RIAT, light-headed with excitement and awe, to see hundreds of iconic aircraft glisten in the afternoon sun. Crews from all over the world beam and crowds are bedazzled by the colours of the tattooed aero-planes. Looking back on the day and how the PAF C-130 performed in the RAF air tattoo show, one wonders if any of the spectators would have been able to imagine what all had gone into that brilliant execution.

The Winning team from No 6 ATS Sqn along with the organiser of RIAT-2006 at Fairford (Photo: PAF Archive)



PAF in RIAT

In 2006, Pakistan participated in RIAT for the first time, when the Air Tattoo's theme was Rapid Global Effect. The team was led by Wg Cdr Haseeb Gul, the then OC of No 6 Air Transport Support (ATS) Sqn. As a gesture of appreciation for allied countries and their air forces in their aid in dealing with the earthquake disaster of 2005, PAF covered its Hercules C-130 with beautifully painted murals of the humanitarian efforts undertaken after the earthquake. The display and crew were well-received and the team won multiple awards. These awards included winning the Concours d' Elegance competition, the Page Aerospace Trophy as well as the BAE Systems' Trophy for winning the Spirit of the Meet competition. The crew was also presented with an engraved bowl for the Best Livery of the year's air show. The aircraft tail No 144 (which is the civil version of C-130 Hercules with a nomenclature of L38-2B) of No 6 ATS Sqn remained the centre of attraction for the aviation enthusiasts at Fairford. It was the only vintage aircraft still in service that has not given up the will to fly.

After 2006, PAF did not participate in RIAT for a over decade due to its operational commitments back home. However, in 2016, PAF took part in RIAT with a theme of 'Inspiring Innovations'. For this year also, PAF decided to send its vintage, one of its kind civilian version aircraft bearing tail No 144 with its tail painted in the theme of 'Operation Zarb-e-Azb' (Pakistan's successful COIN ops). Once again the aircraft and its charming crew under the command of Wg Cdr Taimur Hussain of No 6 Sqn stole the show at Fairford. A large crowd stormed the aircraft to see its colourful livery. This year, the squadron did something new to attract enthusiasts of all ages. The crew opened the doors of their Hercules for a tour of tours. The entire cargo compartment of the Hercules was transformed into a tableau of history, culture and experience. Portraits and framed photographs showcased the history of Pakistan and the PAF. Songs and documentaries depicting diverse Pakistani cultures ran on multiple LCD screens. Adding depth to this scene was the unique experience curated by PAF crew offering the visitors with Pakistan's world renowned mangoes.

Participating in RIAT is a timebound feat. Every aircraft and crew are scheduled to arrive on the site on a pre-determined time with almost no room for error. The aircraft must make its entry in the very short time slot that has been allotted to it. This entails that the aircraft has to maintain a very strict schedule which must proceed like clockwork that ends in making the timeslot allotted to them. Not every aircraft makes the time slot and achieving the time frame is considered a feat in its own. PAF has an immaculate record in this exercise. The honor can be attributed to the airtight preplanning and the minute readiness of the crew which allows them to improvise to solve any issues that may arise. Overall, PAF has been an auspicious participant in the airshow, winning the hearts of thousands of participants, promoting the national culture and proving their resolve.



The Short SC7 Sky Van 3200 that carries world class aviation photographers to conduct aerial photography of participating aircraft during RIAT (Photo: Flickr.com)



The warm glow of the sun makes the PAF C-130, wearing PAF colour and National Flag, a beautiful scene at the RIAT 2006 (Photo: PAF Archive)

The crew introduced another activity in 2016, to bring out the fun and excitement and give children the best time of their lives. To achieve this mission, the airmen of the PAF Hercules, strapped children into para-trooping gear and dropped open the cargo door. The jubilant participants jumped safely landed onto an airbag below and parents captured those precious moments with cameras and video devices. The 'Mock Para-trooping' was a lesson of courage and a thrill of a lifetime for the children, all the while giving the crew a moral boost in return. By the end of the day, the PAF was awarded with trophy of 'Concours d' Elegance' for the immaculate presentation of C-130 Hercules and its crew.



PAF's participating team of RIAT 2016 (Photo: PAF Archive)

RIAT 2016 CREW	
Wg Cdr Teymoor	WO Waseem
Sqn Ldr Nareed	AWO Asif
Sqn Ldr Cheema	AWO Farid
Sqn Ldr Faisal	Chf Tech Tufail
Gp Capt Ali	Chf Tech Dolab
Sqn Ldr Anjum	Chf Tech Naseeb
Flt Lt Waseem	Chf Tech Farman
Flt Lt Road	Snr Tech Rizwan
CWO Kashif	Snr Tech Kashif

PAF joined RIAT in 2017 again, with the tilted theme '21st Century Partnerships'. This time the honour of participation was given to No 21 Sqn (another Air Transport Sqn based at Karachi). The Hercules, Tail No 153, wore the inspiring caption 'Peace Together'



and a dove to go with the theme of the competition, '21st Century Partnerships'. That year, Squadron Commander, Wg Cdr Ali Ansar, of 21 Sqn, with a team of selected few, flew to Fairford. The year 2017, was no different. Adding to this appeal were the merchandise on display and the giveaways. Visitors waited in a mile-long queue to get their 'Remove Before Flight' key chains, PAF stick-on patches, printed mugs and much more.



Painted in Zarb-e-Azb theme, the PAF C-130 remained the centre of attraction for the aviation enthusiasts during RIAT 2016 (Photo: PAF Archive)

A 'mock para trooping' fun activity for children in full swing during RIAT 2016 (Photo: PAF Archive)



Also, the crew welcomed their guests on board in traditional Pakistani dresses.

In 2018, the PAF accepted the invitation to participate in RIAT in late May. Squadron Commander of No 6 ATS Sqn, Wg Cdr Nisar Nabi, had less than two months to prepare his crew and ready his aircraft.

The first challenge was to prepare for the air show in less than two months' and the other was to prepare for the theme for that year: "100 Years of the RAF". It was also a coincidence that the very same year, No 6 ATS Sqn celebrated its 75th anniversary, making it one of the oldest squadrons. Keeping in mind the two similar historical events of both the air forces, and after putting in substantial time and effort, the vision began to take form.



Long Queues on the participating PAF C-130s were a regular feature during the RIAT airshows over the years (Photo: PAF Archive)



PAF Hercules from No 21 Sqn being photographed by Sky van on arrival at Fairford in 2017 (Photo: Sky Van crew)



It was decided to merge the two important events into one symbolic theme. This was done brilliantly by juxtaposing the union jack insignia and the Pakistan flag on the tail of the Hercules, along with airplanes, which remained in service with the squadron starting from 1942. For the first time, the nose of the Hercules was also tattooed with Pakistani flag and squadron emblem onto the sides of the fuselage.

For four days at RIAT, enthusiasts would line up and wait to climb into the Pakistan Air Force Hercules, eager to catch a glimpse from the inside. Hard work paid off when PAF won the runners up trophy in the Concours d' Elegance competition.



Winning Team of RIAT 2018, pose for a photograph with the Contingent Commander, Wg Cdr Nisar Nabi (Photo: PAF Archive)

A panoramic view of RIAT-2018 with Italian aerobatics team performing in the background (Photo: PAF Archive)

A School boy taking keen interest in a PAF's historical painting during RIAT 2019 (Photo: PAF Archive)



In 2019, the theme for RIAT was 'Air & Space: Inspiring the next generation air force'. The theme gave an opportunity to PAF to project its contributions, made over the years, in the field of space, research & technology and indigenization. The tail of the Hercules was tattooed with PAF's aspiring future vision: 'The Project AZM'.

This year, the airmen transformed the cargo compartment of the Hercules into an art gallery, with an exhibition by acclaimed aviation artist Gp Capt Syed Masood Hussaini (Retd). Visitors were tickled to have the artist amidst them and liked his vintage clean artistic style with which he preserved PAF warbirds on canvas. They admired the wonderful use of colour, detail and creativity, to create an excitement for flight.

Every year, PAF is one of the few teams at the aerial extravaganza that allows visitors to climb aboard their plane for a rare and multi-sensory experience. For children as well as those who are obsessed with flying machines, the atmosphere conveys in some measure the spirit of those who serve in the air force.

At RIAT, the PAF only takes part in the static show category, and is one of the foremost attractions. Year after year, event-goers particularly swarm to the PAF display. Something significant entails while brushing shoulders with some



TROPHIES WON OVER THE YEARS			
Years	Theme	Aircraft	Trophies Won
2006	Rapid Global Effect	C-130 (L38-2B) Tail No 144	Concours d'Elegance trophy Spirit of the Meet trophy Best Livery of the year's Airshow trophy
2016	Inspiring Innovations'	C-130 (L38-2B) Tail No 144	Concours d'Elegance trophy
2018	RAF's Centenary Celebrations	C-130 Tail No 178	Runners Up Concours d'Elegance trophy



Air Chief Marshal Mujahid Anwar Khan, Chief of the Airstaff along with the PAF team during RIAT -2019 (Photo: PAF Archive)

of the aviation elites in Pakistan Air Force. Visitors learn about other things too. They take away a 360° holistic experience, dedication and passion of the men who serve their nation with pride, valour, and commitment. It's an immersive experience engaging the visitors on every level through sights and sounds, and conversations with men who live and breathe air force. In one instance, a boy approached the crew to share a heart-warming anecdote with them. The previous year, his father had taken a photo with the C-130, but because he was too unwell to attend this year, he had sent his son with a photo from the previous show to convey his admiration for the aircraft and the PAF air crew. Their warm disposition and friendly demeanour leave a lasting impression on many and probably even make them feel like they can sprout wings and fly.



Night light shines on the PAF C-130, resting on tarmac after rounding off exciting three days at RIAT Air Show 2019 (Photo: PAF Archive)

FROM **WOODEN**
SKIS
 TO **WINTER**
OLYMPICS
& BEYOND
WSFP ATTAINING NEW HEIGHTS



Some 15,000 feet above sea level, the slopes of Naltar Valley offer acres of ski-able terrain where merchants of speed challenge themselves. Making the best of these variables, the Winter Sports Federation of Pakistan alongside the PAF has transformed the verticals of Naltar Valley into competition grounds for world famous events.





With some of the highest peaks above 8,000 meters in the world that pierce into the horizon, Pakistan offers thousands of meters of vertiginous verticals that mountaineers, trekkers and skiers dream about.

At the confluence of the Karakorum and the Hindukush mountain ranges in northern Pakistan surrounded by hundred percent nature and total quietness, Naltar Valley has plenty of credentials to stand out among the world's many ski resorts.

Some 15,000 feet (4,500 meters) above sea level and 40 kilometers from Gilgit city, slopes of Naltar Valley offers acres of



ski-able terrain where merchants of speed, both men and women challenge themselves. Making the best of these and so many more variables, the Winter Sports Federation of Pakistan has transformed the verticals of Naltar Valley into competition grounds for alpine and Nordic style skiing, world famous events such as Slalom and Giant Slalom, with plans to host the world's highest mountain marathon.

"One thing that was instantly obvious to us with Naltar Valley, was just how good it looks. Just spending a minute or two appreciating the scenery and noticing all the finer details is the perfect way to let your heart rate settle before pushing the



Young PAF officers during a routine Ski training session at Naltar Ski slope in winters of 1961 (Photo: PAF Archive)

limits of gravity on skis," Jan Jakubco in Slovakia Ski Team said when he described the winter races in Naltar as one of the best he had ever participated in.

It was here in Naltar valley that another locked door swung open and the sport of skiing took root in Pakistan for the first time. Soon after the partition of India in 1947, the Pakistan Air Force senior leadership decided to establish a mountain training school for its air crew in the idealistic valley of Naltar. In 1958, a young air force officer Flt Lt Shah Khan, was tasked to setup a snow survival school for the personnel of PAF. The visionary Shah Khan, included the sport of alpine skiing in the snow survival curriculum and then set about developing the ski slopes and installing the ski lifts.

Two other men who helped Shah Khan develop the ski facility were Sergeant Iftikhar Hussain and Warrant Officer Chohan. The first lift was installed in 1962 in Naltar. Soon a newly developed slope was buzzing with activity as the officers and men started getting their ski training under the meticulous eye of Flt Lt Shah Khan.

It was not long before the locals from Naltar valley who had been using improvised wooden skis since old times flocked to the slope to witness the new sport with modern ski equipment. Pakistan Air Force welcomed the curious locals, equipped them with modern gear and soon they were training alongside the



Flt Lt Shah Khan seen during a practise Ski training session at Naltar Ski slope in winters of 1961 (Photo: PAF Archive)

Amateur ski enthusiasts during a practise Ski training session at Naltar Ski slope in winters of 2019 (Photo: PAF Archive)





Rise and Glide: Two Olympians Muhammad Abbass and Abdul Karim seen in action on Naltar slopes (Photo: PAF Archive)

air force personnel. As the sport of skiing progressed and more people were trained, inter-base competitions and championships between different civil and military organizations became a regular feature.

From such humble beginnings, today Pakistan is home to four operational ski setups that may not be known for their glitz yet, but there is no questioning the ski challenges of their surrounding mountains. The ski resorts in Naltar and Malam Jabba, both have state of the art skiing facilities. The ski slopes at the Pakistan Air Force base in Kalabagh close to the famous hill station of Nathia Gali, and a mountain warfare school run by the Pakistan army are simple training facilities mostly used to teach and groom budding skiers.

In the valley of Naltar, the 1.5 km main slope has been christened as the Shah Khan ski slope. With a slope angle of 35° and a 500-meters plus vertical drop, it is a descent to be reckoned with. Fit for the unique Super G competitions, the Shah Khan slope is carefully maintained and groomed by the latest snow pressing machines to match the standards of the International Ski Federation (FIS) up to the year 2025. Besides the tow lift that can pull 100 skiers up the slope, there is also a ski lift that transports athletes all the way up to the top of the mountain in just 13 minutes, with safety as top most priority. With these new upgrades in the last four to five years, Naltar's ski slopes, managed by Ski Federation of Pakistan has all the amenities that are essential for the skiers to ski safely and enjoyably.



M Abbas in his maiden appearance at Winter Olympics held at Vancouver Canada in 2010 (Photo: PAF Archive)



Adventure is what you make it. A young king of the hill on wooden skies slides down the slopes (Photo: PAF Archive)



It's all down hill on the slopes of Malamjabba 2019 (Photo: PAF Archive)

The ski set up in Naltar is also home to a snow survival school where search and rescue techniques and snow survival courses are regularly conducted for the personnel of Pakistan Air Force.

In the early 1990s, the Pakistan Tourism Development Corporation (PTDC) with assistance from the Austrian government built the first civilian ski resort of international eminence at Malam Jabba in Swat Valley, known for its scenery and glorious powder. The resort provided a unique opportunity to the general public to learn skiing.

The resort also boasts a high-end ski slope, which gives skiers one of the most playful and intense downhill experiences. A ski lift caters to the needs of ski enthusiasts and general tourists in the winter season.

The Ski Federation of Pakistan (renamed as Winter Sports Federation in 2018), which was formed in 1990 under the patronage of Pakistan Air Force to promote and develop the sport of skiing was soon affiliated with the International Ski Federation. The Winter Sports Federation known for hosting the first national skiing championship 1991, as it will again this season, works as an umbrella organization for a plethora of civil and military ski associations across the country.

The Sadia Khan National Ski Cup is an epic testing ground for aspiring women skiers to polish their skills for speed events every year. This championship is held



A white powder specialist from the Turkish Ski team balances himself on a sharp turn during CAS International Karakoram Alpine Ski Cup 2019

in the memory of Sadia Khan (1977-2002), a young and budding ski star who died in an unfortunate car accident.

To watch the next wave come through and get on to the global stage, the Winter Sports Federation is keen to encourage and promote female participation. It has trained many female skiers who have competed in national and international skiing championships at home and abroad. As a sport, skiing has a lot of passion around it that is evident from the success of the Wali sisters who have competed and won gold and silver medals in national and international events.

“Every year I get to see new faces in the national championships and the Sadia Khan Ski Cup. A lot of people have started taking interest and the sport of skiing is evolving rapidly,” said one of the country’s top ranking skier Ifra Wali.

With the development of the outstanding and varied

terrain at the ski resort in Naltar and keen efforts from Winter Sports Federation of Pakistan, to train and groom skiers of international ranking a new chapter opened up in the progression of skiing in the country. Pakistan entered the arena of international skiing when Muhammad Abbas, a native of Naltar Village qualified and participated in the Winter Olympics Games held in Vancouver Canada in the year 2010.

To get to this point, Abbas, born and raised in a modest home in the village of Naltar, grew up slip sliding on his homemade skis carved out of wood. As a kid, he used to watch the skiers on the slopes of Naltar and harbored dreams of becoming a skiing hero one day. From then on he has spent most of his years on skis.

Turning his hobby into a dream job has been a privilege for another top skier, also hailing from Naltar. Specialist down-hiller Abdul Karim, participated in the Sochi winter Olympic games in Russia in 2014, the Asian Winter Games in Japan in 2017, and has won many gold and silver medals in national championships.

Ski Season 2019

Over the years, the international ski event has evolved to fulfill the bigger vision. Today it provides the ultimate winter festival experience.

January 2019, brought more action packed fun. This means that several dozen athletes and enthusiasts once again ascended on Naltar to take part in the annual snow sport and mountain cultural celebrations.

Some 40 skiers from 13 countries such as Greece, Afghanistan, Turkey, Ukraine, Hong Kong, United Kingdom, Bosnia and Herzegovina, Belgium, Morocco, Kyrgyzstan, Azerbaijan, and Tajikistan including Pakistan, plunged down the run as they competed in the slalom and giant slalom categories of the FIS races. The days carried in their lap some breathtaking performances, full of intensity and excitement.

On the 35 degree slope, extended to 1.5 kilometers and with a 500 meters plus drop, fit to hold super G races, a combination of world-class ski and snowboard competitions were held. This year, the Winter Sports Federation of Pakistan had planned an elaborate calendar of events. These exhilarating monster-energy moments included Saadia Khan competition, Children Ski Cup, and Inter Varsity Ski Championships for men and women besides speed skating, free skating and Curling competitions. For the first time in Pakistan, the Federation introduced Figure Skating. Eleven Year old, Mallak, first Pakistani figure skater, showcased elegant and swift moves in the rink, surprising the audience with her performance.

The Winter Sports Federation is also planning biathlon and free skiing competitions next year to attract more extreme athletes to the slopes of Naltar.

Later in February, Pakistan's two time winter Olympian, Mohammad Karim's gold medals in both Slalom and Giant Slalom events helped the PAF clinch the 12th Chairman Joint Chiefs of Staff Committee Ski Championship trophy at Malam Jabba Ski Resort, Swat. He was in supreme form in both runs of these categories leaving behind his rivals with huge margin.

His village mate and former Olympian Mohammad Abbas won the silver medal in Slalom event. Mir Nawaz of GB Scouts also had a fabulous day securing silver medal in the Giant Slalom and a bronze in Slalom races, earning his team a second place on the podium.

It was the first time that the national winter sports were hosted at Malam Jabba. Skiers from various Ski associations of the country participated in the championship in temperatures below freezing point. A large number of spectators and ski lovers from all over the country came to witness the thrilling atmosphere.



We do it on the slopes: A group of foreign athletes during CAS International Karakoram Alpine Ski Cup-2019 (Photo: PAF Archive)



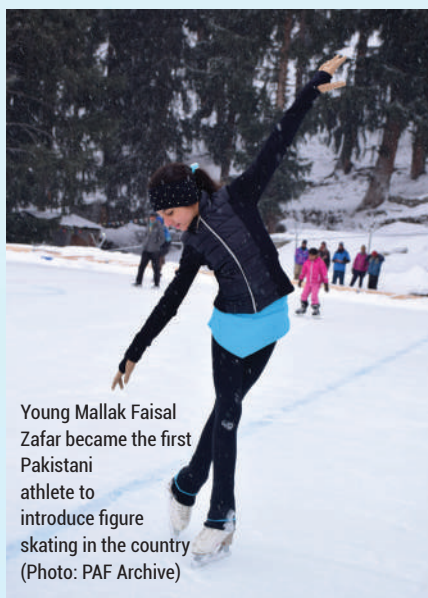
An international Skier kicks up snow after crossing the finish line at CAS International Karakoram Alpine Ski Cup-2019 (Photo: PAF Archive)

An interesting rivalry unfolded during the second international skiing championship held in Malam Jabba in March 2017, where 32 athletes took part in nine different competitions. Organized by the Ski Federation of Pakistan and facilitated by the FIS, this championship was a pinnacle event for skiers in the country. This international skiing championship where alpine skiing, Slalom and Giant Slalom were organized was a turning point for the sport of skiing in Pakistan.

Festivities engulfed the closing ceremony for the international skiing championship 2017, that was held in Islamabad.

Preparing to set world record of hosting the highest mountain marathon in the near future, grass skiing, ice hockey competitions, snow tubing and toboggan races besides many more events, the Winter Sports Federation of Pakistan promises rapid developments in the sport of skiing in Pakistan on multiple fronts. One of the major steps in this regard is the exploration of the glacier that lies in the lap of Naltar mountain. When it become operational, skiers would be able to practice in the summer seasons.

The mountains of the great Karakoram Range are still rising and so is the sport of skiing. The story of skiing that started with the vision of Shah Khan is still being written in gold letters on the ski slopes of Pakistan.



Young Mallak Faisal Zafar became the first Pakistani athlete to introduce figure skating in the country (Photo: PAF Archive)



It's unprecedented until it happens for the first time. The cool sport of ice hockey comes to Pakistan (Photo: PAF Archive)

"I would say that future of skiing has begun here in Pakistan," said Arif Khan member of Indian held Kashmir Ski Team.

Tania from Ukraine ski team was grateful to the Pakistan Ski Federation for the opportunity to improve her world ranking.

"This was a learning experience as much it was competition. It was a chance to learn a lot from international skiers," said Fatima Sohail of Pakistan Women Ski team.

Air Marshal Asghar Khan

Giant of a Man!



"PAF is fortunate to have a man like Air Marshal Asghar Khan as its founding father. This is the story of man with sterling character, humility, outstanding professionalism, and unflinching determination who transformed the nascent air force into a formidable force to be reckoned with."





Wg Cdr Asghar Khan (extreme left), First Commandant of Royal Pakistan Airforce (RPAF) College Risalpur, receiving the father of nation, Quaid-e-Azam Muhammad Ali Jinnah and Mohtarma Fatima Jinnah during the maiden visit of Quaid to RPAF College on 13 April 1948

In 2014, I was tasked by the then Chief of the Air Staff, Air Chief Marshal Tahir Rafique Butt to make a tribute documentary about retired Air Marshal Asghar Khan. I felt honored to have been given an opportunity to meet with someone who not only contributed towards military excellence, but also served for the cause of pacifism, peace, and human rights in the country after his retirement. Instead of approaching him directly, I set about preparing for the interview by speaking to people who had served with him, or knew him otherwise. The one thing that came up throughout these meetings was Asghar Khan's non-indulgence in self-praise and reticence about interviews that glorified him. I was told that he's a man of few words who believed in action rather than speech. Armed with this insight, I called his residence and spoke to Begum Asghar Khan. She was warm, cordial, and cautioned me about this kind of

interview not being a norm for Asghar Khan.

I vividly remember, it was a cold November morning when I turned up along with camera crew, half an hour before the appointed time, careful not to be late. I was ushered in, and the Begum Asghar Khan asked us if we would like some refreshments while we waited for the exact time of the meeting. At 1000 hrs sharp, we followed her into a study where the 90-year-old sat, ruddy in complexion, not a hair out of place. After the pleasantries had been exchanged, he asked me about my work and wondered why I would spend time on this when I could be utilizing it on something more productive. He surmised that since there wasn't really much to tell, we should wrap up the interview in 15 minutes. I looked down at my meticulously prepared questionnaire, and wondered how I could finish my planned interview in such a short period. Nonetheless, I asked the camera crew to begin rolling. Seven and a half minutes into the interview, he brought my attention to

the time elapsed and I knew that my questions had to be precise, and few. So far, he had tossed cold water at me. He had brushed off compliments, praises – from being the first Royal Indian Air Force officer to pilot the first fighter jet Gloster Meteor, to being the first and youngest Air Chief of air force in the military, to his contributions towards the excellence of PAF operations. "Anyone in my position would have done what I did. There was nothing extraordinary about me, and I deserve no praise," he asserted. For the remainder of the time, every feat I asked him about, every stance that he took, he matter-of-factly responded that anyone in his stead would have done the same. I asked him if there was something he would like to say to the youth of PAF, the young boys; he said that they should do everything for Pakistan. If they are fighter pilots, they should love their profession, love flying, they should spend most of their time in their cockpits, and even those engaged otherwise, the priority for them should always be Pakistan.

Once the camera stopped rolling, I requested access to his library, his photos – the archive. As a true gentleman, he told me that he will get back to me once he has conferred with the Begum Sahiba. I was asked back on a Sunday morning to an admirable library in the house. The albums were housed here, long and well organized. There was an impressive collection of books, some written by the Air Marshal himself. Armed with a scanner, I stayed for the two allotted hours, curating the precious years of history in that room which enabled me to educate myself about the great leader, who truly was a Giant of a Man!

Early Days

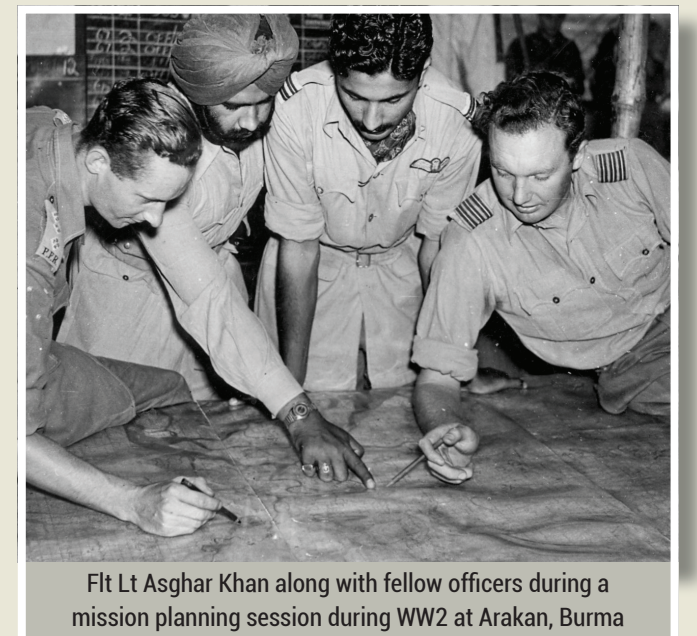
Mohammad Asghar Khan was born to a military family on the 17th of January 1921. Brig Rahmatullah Khan, the father of Asghar Khan served in the Jammu and Kashmir Rifles of the British Indian Army and took part in WW2 in East Africa. Asghar Khan was the second amongst eleven children. His elder brother, Brig Aslam Khan, was a famous officer of Pakistan Army who earned his reputation as the "Legend of Baltistan" after his participation in first war with India in 1947-48.

Asghar Khan joined Aitchison College for his earlier education and was later enrolled in the Prince of Wales's Royal Indian Military College, Dehra Dun in 1933. He secured his matriculation in 1939. He appeared in the selection exam for Indian Military



Flt Lt Asghar Khan, Flt Cdr of No 9 Sqn along with sqn pilots

Young Flying Officer Asghar Khan along with fellow officers during early days



Flt Lt Asghar Khan along with fellow officers during a mission planning session during WW2 at Arakan, Burma



Gp Capt Asghar Khan during an inspection of an operational airbase

Wg Cdr Asghar Khan (centre) along with fellow officers at an operational base

← Arrival to Pakistan: Sqn Ldr Asghar Khan addressing the under command officers and men at RPAF College Risalpur

Allan Perry-Keene to have Asghar Khan and his family evacuated to Pakistan in the Air Chief's plane. Perry-Keene obliged. It was later found that the train Asghar Khan and his family were supposed to travel by to Pakistan from Ambala was ambushed by rioters and all the passengers were massacred.

Ascent to the Top:

After Asghar Khan moved to Pakistan, he was promoted to the rank of Wing Commander and given charge of Royal Pakistan Air Force College in Risalpur. In 1948, Asghar Khan greeted the founder of Pakistan and Governor-General Muhammad Ali Jinnah when he visited for a passing-out parade. Asghar Khan and all present were deeply moved and influenced by Muhammad Ali Jinnah's speech wherein he thundered

the timeless words "A nation without an air force is at the mercy of any aggressor ... second to none." Impressed heavily by the Father of the nation, Asghar Khan took this advice to heart and went on to accomplish great feats which helped PAF, as well as the nation, to stand staunchly on its feet.

When he was done with his tenure at Risalpur, he was handed over the command of the Fighter Bomber Wing and subsequently, the No. 1 group of PAF in February 1949. In 1950, Asghar Khan became the Director General of the Air Operations (DGAO). After a successful five-year run, he was appointed as the Assistant Chief of the Air Staff in the Air Headquarters, in 1955.



Flt Lt Asghar Khan (2nd from right) along with pilots of No 9 sqn during WWII days

Academy. Only twelve candidates from entire sub-content passed the difficult test that year, out of them Asghar Khan was one. Initially, he wanted to join the RIAF, but the recruitment was put on temporary hold at that time. Instead of wasting time, he joined the army and was commissioned as a Second Lieutenant in the 9 Royal Deccan Horse. However, he had not forgotten his dreams to soar in the open skies. With the advent of the Second World War, the RIAF started recruiting pilots once more and Asghar Khan was seconded to the Air Force on 22 December, 1940.

The training he undertook for the Air force started with a short stint in Walton, Lahore, followed by a three-month course in the Elementary Flying Training School in Hyderabad Decan. The first plane he mastered was the Tiger Moth, followed by the Hawker Audax, both bi-planes used by the RIAF.

Asghar Khan was first posted in Peshawar and then, in Waziristan. In 1944, he assumed the command of his unit as Flight Commander and led the aerial missions

of the famous No 9 Squadron in Arakan, Burma. He actively participated in the Burma Campaign (1944-1945), directing and commanding aerial operations against the Japanese forces in World War 2. After the Second World War came to its end, Asghar Khan travelled to the UK to enroll in the RAF Staff College in Bracknell, from where he undertook a staff course. On returning from UK, he was appointed as the Chief Flying Instructor at the Advanced Flying Training School at Ambala. When the subcontinent was partitioned, he was still stationed at Ambala as chief flight instructor. As fate would have it, his replacement, Wing Commander Nair, asked the RPAF's first air chief, Air Vice Marshal

Asghar Khan was the first Royal Indian Air Force officer to pilot the Gloster Meteor, the only existing jet of the era. He accomplished the feat while attending the Fighter Leaders' Course in the United Kingdom.



Assuming the Role of Commander-in-Chief

On July 23, 1957, Asghar Khan was promoted to the rank of Air Vice Marshal, thus becoming first native Air Force commander-in-chief at the age of 36. To-date, he has been the youngest to hold that rank. With the vision of the Quaid in mind, Air Marshal Asghar Khan embarked upon a comprehensive strategy to modernise PAF by inducting state-of-the-art aircraft of that time and developing modern infrastructure.

Air Marshal Asghar Khan was a resolute commander and a visionary leader who believed in leading from the front. Being the visionary, he knew the requirements of a potent air force and started to induct modern weapon systems into PAF. There were new developments everywhere. New air bases were being established; the first air defence radar was installed at Badin, and PAF was rapidly setting up its own advanced flying and technical training institutions. New generations



Above:
Air Marshal Asghar Khan (centre) along with PAF personnel at PAF Base Sargodha

Left:
Air Vice Marshal Asghar Khan addressing the PAF personnel after taking over command of PAF at PAF Base Masroor on 23rd Jul 1957



All Lined Up:

Outgoing Commander-in-Chief, Air Vice Marshal Arthur McDonald and Air Vice Marshal Asghar Khan inspecting the static display of PAF aircraft during change of command ceremony

of post-independence youth were gaining skills and confidence under their Pakistani squadron and wing leaders. The visionary leadership of Air Marshal Asghar Khan transformed PAF into a modern air force with the induction of new jet fighters, bombers, trainers, transport aircraft, and helicopters. The old fighter squadrons were gradually re-equipped with jet aircraft and many new ones were established. Under the first Pakistani Commander-in-Chief, the modernisation was extended to PAF's organization and consolidation into a purposefully designed force that could meet new challenges.

In 1945, Sukarno of Indonesia approached Asghar Khan, and invited him to join their fight against the Dutch colonizers. As Asghar Khan contemplated the offer, he decided to seek guidance from none other than the Quaid. Jinnah convinced him that a nascent air force would need an officer and gentleman like him when Pakistan become a reality. Asghar Khan obliged.

Air Marshal Asghar Khan began a continuing quest for professionalism in all air and ground units and gradually replaced the WW-II styles of command and leadership. He chalked out a comprehensive training program for the pilots of PAF and their training abroad. The engineering, logistic, and administrative officers under a new concept were leading the PAF technicians into delivering unprecedented serviceability rates and efficient management of all resources.

During his command, PAF inducted a wide spectrum of aircraft from USA, which included state-of-the-art F-86 Sabres, T-33 Jet Trainers, T-37 Tweety Birds, B-57 Bombers, formidable F-104 Star Fighters, and ubiquitous C-130 Hercules aircraft. Air Marshal Asghar Khan also launched the fighter training programs and combat courses to train fighter pilots in modern air warfare. He had clearly visualized and laid down the operational doctrine for the nation's air arm and all its personnel were trained and judged against the highest adoptable professional standards. The gazette report

published by the Govt of Pakistan in 1958 highly appreciated the performance of PAF under the able leadership of Air Marshal Asghar Khan. The report revealed that during 1957-8, PAF had the lowest accident rate ever. The report stated "The fact that

the service could undertake such a large conversion/induction program with a simultaneous reduction in overall accidents speaks well of the success of PAF" PAF also emerged as an inspiration in the global arena, as the Common Wealth's youngest player.



Air Marshal Asghar Khan, President of PIA, meeting Shah of Iran during his visit to Pakistan



Air Marshal Asghar Khan, President of PIA, along with Zhou Enlai, Premier of China and other Chinese officials during visit to China

Retired senior officer concede that Asghar Khan went out of his way to elicit a whole range of opinions before taking a decision, but once that decision was made, he would not tolerate any ifs and buts about its implementation. He made no secret of his willingness to ruffle a few feathers by superseding some officers if that became unavoidable in doing the right thing.

Asghar Khan's contributions to PAF are incomparable and too many to quantify. However, some of his revolutionary contributions to the institutions are as follows:

- ➔ Establishment of Fighter Leaders' School (Later CSS) in June 1958.
- ➔ Introduction of Monthly Air Staff Presentations in July 1958.
- ➔ Establishment of PAF Air Staff College at Karachi in January 1959.
- ➔ Introduction of Sabre fleet in 1957.
- ➔ Formation of Inspectorate team at AHQ in January 1959.
- ➔ Establishment of PAF's first maintenance unit at Drigh Road in January 1959.
- ➔ Installation of first high-powered radar in Badin in November 1959.
- ➔ Induction of B-57 Aircraft into fleet of PAF in November 1959.
- ➔ Establishment of Ski and Survival School at Kalabagh, Nathiagali in 1960
- ➔ Formation of SOC (North) at Sakesar in July 1960
- ➔ Induction of Star Fighter F-104 in March 1961
- ➔ Establishment of new bases at Sargodha and Samungli
- ➔ Formation of No 31, 33, 34 and 35 Wings in PAF
- ➔ Introductions of GCA system in PAF in 1961
- ➔ Formation of Airfield Construction Squadrons in January 1962
- ➔ Establishment of School of Physical Fitness and PAF first Printing Press.
- ➔ Induction of T-33 and T-37 trainer aircraft in February 1962.
- ➔ Introduction of the Concept of Inter-Squadron Armament Competition and Annual Flight Safety Trophy.
- ➔ Establishment of No 3 (Transport Conversion School) No. 7, 8, 16, 17, 18, 19, 20, 23, 24 Squadrons.
- ➔ Induction of C-130 Hercules into the fleet of PAF in March 1963.
- ➔ Establishment of No 32 Wing in July 1964.
- ➔ Establishment of College of Aeronautical Engineering in March 1965.
- ➔ Establishment of PAF Model School (later renamed to Fazaia) in April 1965.

One such example was the memorable formation of sixteen F-86 Fighters which performed a loop during an aerial display for King Zahir Shah of Afghanistan in 1958 during his visit to Pakistan. Asghar Khan also formed the Ski and Snow Survival School at Kalabagh in 1960.

Air Marshal Asghar Khan retired from service on the 23rd July, 1965 leaving behind an incomparable legacy.

After Retirement from PAF

After retiring from the PAF, Asghar Khan was appointed as the President of PIA. During his tenure, PIA implemented high standards of aviation safety and was able to achieve lowest aircraft accident rates. Net profits also soared in his tenure and PIA became a respected competitor in the global air travel business. In addition, Asghar Khan briefly served as the Director-General of the Civil Aviation Authority (CAA). He eventually retired from both his positions in 1968.

It was apparent to all that Asghar Khan had a staunch moral sense. In this spirit, he was a part of multiple political and resistance after his retirement. He fought for what he believed was right, in the face of all odds.



Just another day in office: Air Marshal Asghar Khan getting ready to lead the PAF fly-past on Pak Day on 23rd March 1962



As an Author

Asghar Khan has numerous books to his name. These books have been read widely and accepted as essential reading for any individual interested in delving deeper into state affairs. They remain as relevant today as when they were written.

The Legacy of the Legend

In 1946, Asghar Khan married Amina Shamsie with whom he found marital bliss and would go on to have four children, two daughters and two sons. His eldest son Omar, like his father, was a deeply ambitious and

Air Marshal Asghar Khan along with Queen Elizabeth during a guard of honour ceremony held in the honour of her majesty on arrival to Pakistan in Feb 1961

persistent man. He graduated from Cambridge University and went on to become a cabinet minister. Unfortunately, he died at a young age. Asghar Khan's younger son, Ali Asghar, is a skilled architect by profession who graduated from British Architects, UK. Presently, he is pursuing his career as a politician. Both his daughters are happily married.

The father of PAF passed away at ninety-seven years of age in January 2018 in Islamabad. His funeral was attended by the President of Pakistan, high-ranking officers from armed forces and other government institutions at Nur Khan Air Base. The burial was undertaken his native village Nawanshehr, Abbotabad with full military honors, where a fly-past of K-8 and T-37s from PAF Academy also took place. A year before his demise, PAF Academy was renamed as PAF Academy Asghar Khan, a great honor which he truly deserved.

PAF is fortunate to have a man like Air Marshal Asghar Khan as its founding father. A man of sterling character, humility, outstanding

ASGHAR KHAN'S NOTABLE BOOKS

- **Pakistan at the Cross Roads.**
- **The First Round, Indo-Pakistan War 1965.**
- **Generals in Politics.**
- **The Lighter side of the Power Game.**
- **We've Learnt Nothing from History.**
- **Sada-i-Hosh.**
- **My Political Struggle.**
- **Cheray Nahin Nizam ko Badlo.**

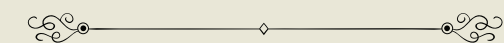


Air Marshal Asghar Khan inspecting a guard of honour during an official visit abroad



Air Marshal Asghar Khan leaves for eternal abode

professionalism, and unflinching determination who transformed the nascent air force into a formidable force to be reckoned with. He truly made the PAF, 'Second to None' as envisioned by great Quaid decades ago. The entire PAF owes him profusely for the countless contributions he made for this great service; owing to his great achievements, he would truly be regarded as the 'Father of Pakistan Air Force' for the times to come.



1

**PAF WAR VETERAN
WG CDR TARIQ HABIB
LAID TO REST**

13th FEBRUARY, 2019: War veteran (Retd) Tariq Habib was laid to rest with military honour. He passed away after prolonged illness. Tariq Habib was a recipient of Sitara-i-Jurrat, especially for his roles in the 1965 and 1971 Indo-Pak wars.



Air Chief Marshal Mujahid Anwar Khan, Chief of the Air staff, Pakistan Air Force has expressed sorrow on the sad demise of the great war veteran. While paying rich tributes to the war veteran, the Air Chief acknowledged the heroic deeds performed by the deceased during both the Indo-Pak wars. The Air Chief further added that he was an exceptional fighter pilot and a patriotic Pakistani whose services for the motherland would be remembered for times to come.

3



"THE ENTIRE NATION IS PROUD OF PAF WHICH DID EXCEPTIONALLY WELL IN SAFEGUARDING THE SOVEREIGNTY OF OUR COUNTRY": AIR CHIEF

4th March 2019: Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, PAF visited Forward Operating Air Bases of Pakistan Air Force, today. The Air Chief met the combat & ground crew, air defence and engineering personnel, security troops and civilian staff deployed at the bases. Interacting with the personnel, he lauded the high level of motivation and sound professionalism displayed by PAF personnel during recent air operations against the enemy. He said, "We bow our heads in complete humility and express our gratitude to Almighty Allah for giving us strength to come up to the expectations of our resilient nation." He further said, "The entire nation is proud of PAF which did exceptionally well in safeguarding the sovereignty of our country in the recent conflict with the enemy." Cautioning the personnel, he further said, "The challenges are not over yet and we should keep our guards up and always be ready to respond to any aggression from the adversary."



**PAF FIGHTER AIRCRAFT
ESCORT THE SAUDI CROWN PRINCE**

17th February, 2019: The crown Prince of Saudi Arabia received a glorious welcome as the royal aircraft entered the Pakistani Airspace. Formations of JF-17 Thunder and F-16 Falcons of Pakistan Air Force escorted His Royal Highness crown Prince Muhammad Bin Salman, who arrived in Pakistan on a two-day official visit today. The PAF aircraft received the Royal aircraft as it entered the Pakistani Airspace and escorted it till its landing at PAF Base Nur Khan. It is PAF's unique tradition of welcoming the visiting heads of states/ governments of the brotherly countries whenever they are on their official visits to Pakistan.

2

4

**PAF TEST FIRES INDIGENOUSLY DEVELOPED
EXTENDED RANGE SMART WEAPON FROM JF-17
THUNDER AIRCRAFT**

12th March, 2019: Pakistan Air Force successfully test fired an indigenously developed extended range smart weapon from JF-17 multi-role fighter aircraft, today. Developed, integrated and qualified solely through indigenous efforts of Pakistani scientists and engineers, the weapons systems underscores another major achievement. The successful trial has provided JF-17 Thunder a very potent and assured day/night capability to engage variety of targets with pinpoint accuracy. Lauding the efforts of Pakistani scientists and engineers, Air Chief Marshal, Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force congratulated the PAF personnel on the achievement of this monumental indigenous capability. He further added that Pakistan is a peace loving nation but if subjected to aggression by adversary, the nation would respond with full force.



(Photo: PAF Archive)

**5 PAF CARRIES OUT
ROAD RUNWAY
OPERATIONS**



18th March, 2019: PAF fighter aircraft carried out off-runway operations by operating from multiple locations along motorways and highways, today. After landing, PAF fighter aircraft were refuelled and re-armed. The exercise was conducted to demonstrate the capability of PAF in being able to sustain high tempo air operations. Mr Murad Saeed, Federal Minister for Communications, along with senior civil and military officials, was present at the occasion.

GRADUATION CEREMONY HELD AT PAF ACADEMY, ASGHAR KHAN

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11th April, 2019: The graduation ceremony of 141 GD (P), 87 Engineering Course, 97 AD, 22 A&SD, 07 Nav & 06 Log courses was held at PAF Academy, Asghar Khan today. General Hasan Küçükakyüz, Commander Turkish Air Force was the chief guest of the ceremony. Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force was also present at the occasion.

A total of 101 Aviation Cadets including 02 Libyan Air Force Cadets graduated at the occasion. The chief guest awarded branch insignias to the graduating officers and also gave away trophies to the distinction holders. The chief guest awarded Quaid-e-Azam Banner to No 4 Squadron, the new Champion Squadron of the Academy.

In College of Flying Training, Chief of the Air Staff Trophy for best performance in flying training was clinched by Aviation Cadet Muhammad Ijlal Zaffer, while Chairman Joint Chiefs of Staff Committee Trophy for best performance in General Service Training was won by Aviation Cadet Talha Iftikhar. The coveted Sword of Honour for overall best performance in College of Flying Training was awarded to Aviation Cadet Muhammad Faisal Shafqat. Aviation Cadet Hassnain Shahzad won the trophy for overall best performance in 22 A&SD course. Trophy for Overall Best Performance in Air Defence Course was awarded to Aviation Cadet Syed Fahad Hussain, while Aviation Cadet Faheem Abbas was awarded Trophy for Overall Best Performance in Navigation.

In College of Aeronautical Engineering, Chief of the Air Staff Trophy for best performance in Engineering and coveted Sword of Honour for Overall Best Performance in College of Aeronautical Engineering was awarded to Aviation Cadet Hammas Bin Shahab.

The ceremony was followed by a thrilling performance by a formation of 04 T-37s from Basic Flying Training Wing, "The Bravehearts". The PAF Academy Aerobatics team "Sherdils" also displayed an exhilarating aerial display on the occasion.



AIR CHIEF LAYS FOUNDATION STONE OF PAF AIRMEN ACADEMY

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15th April, 2019: Chief of Air Staff, Air Chief Marshal Mujahid Anwar Khan laid the foundation stone of the PAF Airmen Academy at the air force base Korangi Creek. At the simple ceremony held to mark the historic event, the Air Chief also unveiled the plaque of the new institution.



Speaking at the occasion, the Air Chief said that PAF has always focused on imparting quality training to airmen, who are considered to be the backbone of PAF human resource. He further said that the existing airmen training model needed revamping to make it at par with PAF Academy Asghar Khan, which is a premier training institution of officers' cadre. He added that in this centralized institution, airmen of various trades and expertise would be trained in technical and non-technical disciplines under one umbrella. He reiterated his resolve of making it a reputed institution which would also offer quality training to airmen from friendly air forces. High ranking civil and defence forces officers and a large number of PAF personnel attended the ceremony.

WSFP INAUGURATES WINTER SPORTS SCHOOLS AT CHITRAL AND SWAT VALLEY

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23rd April, 2019: To hone the talent of local athletes, Winter Sports Federation Pakistan inaugurated two winter sports training schools at Madaklasht (Chitral) and Malam Jabba (Swat). Air Marshal Aasim Zaheer Vice Chief of the Air Staff, who is also President Winter Sports Federation of Pakistan was the chief guest at the ceremonies.

A similar school was also inaugurated at Arungkel (AJK) by WSFP on 14th April, 2019, thus making a total of five winter sports schools in northern parts of Pakistan. These schools have been established to promote ice and snow sports in the country.



PAK-CHINA JOINT INTERNATIONAL AIR EXERCISE 'SHAHEEN-VIII' STARTS

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26th August, 2019: The Joint International Air Exercise "Shaheen-VIII" between Pakistan Air Force and People's Liberation Army Air Force (PLAAF), China, started at a Chinese air force base today. The contingent of PAF, comprising combat Pilots, Air Defence Controllers and technical ground crew along with fighter jets, including F-7s, JF-17s, Mirages and K-8 participated in this significant exercise. The exercise helped enhance close relations between the two countries in general and developed mechanisms for interoperability of both Air Forces in particular.



Pakistan Air Force emphasizes the combat training of its air and ground crew and regularly undertakes air exercises with air forces of friendly countries. "Shaheen-VIII", is the 8th in the series of Joint Air Exercises with PLAAF, which is conducted each year in both countries on an alternate basis. PLAAF contingent participated in "Shaheen-VII", which was conducted in Pakistan last year.

Pakistan and China enjoy very close relations spanning over six decades. The strategic partnership has manifested itself in the form of China-Pakistan Economic Corridor (CPEC), infrastructure development and routine joint military exercises.

PAKISTANI ATHLETES DOMINATE IN KHUNJARAB HIGHEST ALTITUDE ROAD MARATHON

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21st September, 2019: Pakistani athletes clinched all positions in Khunjarab Highest Altitude Road Marathon. It was a historic moment in Pakistan, as 154 ecstatic long-distance runners from across the world, ran on the descending Karakoram Highway. Starting from the magnificent Khunjarab Top to Sust, a small town in the majestic pass, this highest ever marathon took place at an elevation of 4693 meter above sea-level. It featured a unique blend of young and old, local and foreign, male and female long-distance runners, sweating it out on the 8th wonder of the world.

In the 50km race, Muhammad Siyar from Pak Army clinched the 1st position and Aslam Khan from GB Scouts was the runner-up. Third on the podium was Muhammad Iqbal. In the 42 km race, Army Athletics Team dominated the race and bagged the first three coveted positions. Umair Haider secured 1st position, Muhammad Faheem and Sohail Tanveer won the second and third spots. In the 21 Km race, Mirza Aslam Baig remained first; whereas, Abdul Muheet and Musawwar ur Rehman won the second and third positions respectively.

PAF joined hands with an international marathon travel company, 'Z Adventures' and Serena Hotels to showcase the real beauty of Pakistan to the world. A Total of 154 athletes including 39 international runners from 17 countries participated in the race, which was held in three categories i.e Ultra marathon (50 km), marathon (42 km) and half-marathon (21km). Hafiz Hafeez ur Rehman, Chief Minister Gilgit-Baltistan and Air Marshal Aasim Zaheer, President Winter Sports Federation of Pakistan were also present on the occasion.



INDIGENOUSLY OVERHAULED JF-17 AIRCRAFT ROLLS-OUT FROM AIRCRAFT REBUILD FACTORY KAMRA

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26th September, 2019: Pakistan Aeronautical Complex, (PAC) Kamra achieved another historic milestone of JF-17 aircraft overhaul facility. To mark this momentous occasion, a roll-out ceremony was held at Aircraft Rebuild Factory Kamra, today. Out of the first four JF-17 aircraft, two were overhauled in China; whereas, the other two were indigenously overhauled in ARF Kamra. Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force was the Chief Guest of the roll-out ceremony.

Speaking on the occasion, the Air Chief said, "We are living in a technology-intensive world, where self-reliance and indigenization are key to effectively addressing modern challenges. PAF has been relentlessly pursuing these goals and has achieved remarkable capability". He further said that JF-17 overhaul is indeed a significant achievement, which could not have been accomplished without the dedication and hard work put in by the officers and technicians of Aircraft Rebuild Factory. He also appreciated the continuous support of Chinese Aviation Industries including the top management of AVIC, CATIC, CAIC and CADI in our journey towards self-reliance.

Air Marshal Ahmer Shehzad, Chairman PAC, Mr Yang Ying, President of China National Aero-technology Import and Export Corporation (CATIC), Mr Wang Wel, Vice President Aviation Industry Corporation of China (AVIC), Mr Zhan Jianping, President China Aviation Industry Corporation (CAIC) along with other senior civil and defence officials were present on the occasion.



PAF DEMONSTRATES FIREPOWER CAPABILITY AT SONMIANI FIRING RANGE

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06th NOVEMBER, 2019: Sonmiani firing range reverberated with the echoes of sophisticated bombs and aircraft bullets as Pakistan Air Force demonstrated its firepower capability. President Dr Arif Alvi was the chief guest at the occasion. On his arrival at the venue, he was received by Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force. Governor Sindh Mr Imran Ismail, Chairman Joint Chiefs of Staff Committee General Zubair Mahmood Hayat and high ranking civil & defence officials witnessed the demonstration. Air Marshal Haseeb Paracha, Deputy Chief of the Air Staff (Operations), in his inaugural address, briefed the audience about the recently concluded PAF Inter-Squadron Armament Competition and significance of Firepower Demonstration.

Speaking at the occasion, the Air Chief said, "The changing dynamics in the region call for greater focus on operational preparedness. Today's firepower demo is sequel to our consistent efforts for war readiness". He added that the entire nation takes pride in Pakistan Air Force and reposes trust in its potential for national defence. He believed that PAF is fully prepared and capable to overcome any challenge and keep the enemy at bay.

Addressing at the occasion, the President said that today's event not only represents the enormous potential of PAF's frontline fleet but also indicates the unparalleled professionalism, incomparable skill and matchless teamwork of our brave air warriors. He further said, "Pakistan wishes to maintain peaceful relations with other nations, especially our neighbours. Yet, we are not oblivious to safeguarding our national interests and sovereignty". He added, "I am confident that the Armed Forces of Pakistan are ever-ready to face any internal or external challenge. The entire world witnessed our response to India's violation of Pakistan's air space in February, 2019, when PAF once again proved its mettle in the air battle over Kashmir and re-established deterrence". Highlighting the Kashmir situation, the President said that Pakistan will always stand by the people of Kashmir in their just struggle for self-determination.

The firepower demonstration started with a low-level sonic boom by two Mirages flying over the range at supersonic speed. It was followed by formation fly-past of frontline PAF fighter aircraft including F-16 Block 52, F-16, JF-17 Thunder, Mirage, F-7PG & F-7P aircraft. Immediately afterwards, PAF's 'Eyes in the Skies' SAAB-Erieye and Karakoram Eagle aircraft flew past the venue, dispensing flares.



14TH SECURITY WARFARE & ADVANCED COMBAT TACTICS COURSE HELD AT PAF BASE, KALLAR KAHAR

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08th November, 2019: The Badge Award Ceremony of 14th Security Warfare and Advanced Combat Tactics Course was held at PAF Base Kallar Kahar. Air Marshal Aasim Zaheer, Vice Chief of the Air Staff, Pakistan Air Force was the chief guest at the occasion.

A total of 321 PAF personnel including 23 officers completed their rigorous training conducted by the Special Services Wing of Pakistan Air Force. An important feature was the participation of 04 lady officers in the course, where they underwent a strenuous and demanding drill alongside their male comrades. The chief guest awarded badges and trophies to the personnel who successfully completed this arduous course. Flight Lieutenant Ansar Ali clinched the trophy for Overall Best Performance in the course; while Flight Lieutenant Sehrish Shahnawaz was awarded a trophy for best performance among lady officers. Best Firer Trophy was awarded to Corporal Technician Shahid.



Army Chief visits PAF's Mushaf Base, takes part in combat action simulation mission

2nd December, 2019: Chief of Army Staff, General Qamar Javed Bajwa visited Pakistan Air Force Base Mushaf.

The army chief was received by Chief of Air Staff, Air Chief Marshal Mujahid Anwar Khan.

The COAS was taken to one of the squadrons where he was flown in an F-16, while the air chief flew in another F-16. Both aircraft proceeded to maneuver for a combat action simulation mission.

After the mission, General Bajwa interacted with fighter pilots of the squadron. The army chief commended the professionalism and dedication of the PAF and thanked the force for its unmatched services to the nation. He also acknowledged the air chief for his visionary leadership. Air Chief Marshal Mujahid Anwar thanked the COAS for visiting the base.

Both heads of the forces underlined the need for continued and enhanced interaction between the services in training and operations



PAF JF-17 THUNDERS PARTICIPATE IN FLY PAST ON THE NATIONAL DAY OF QATAR

18th December, 2019: It was a momentous occasion when three PAF JF-17 Thunder aircraft presented spectacular fly past in Qatar on the eve of National Day of the brotherly country.

Spectators cheered as the JF 17 aircraft, built to overcome the prior generation of fighters, appear on the horizon. The Emir of Qatar Tamim bin Hamad Al Thani and his father Hamad bin Khalifa Al Thani (former Emir of Qatar) were joined by thousands of citizens and residents to witness the Qatar National Day parade.

All branches of Qatar's Military and Civil Defence including Emiri Forces, Air Force, Army, different police wings participated in the Parade. PAF contingent comprising pilots and ground crew specially arrived at Doha to participate in the Qatar National Day Celebrations

Air Marshal Zafar Ahmed Chaudhry, passes away

18th December, 2019: Pakistan Air Force bid farewell to its former Air Chief, Air Marshal Zafar Ahmed Chaudhry, who passed away after prolong illness. Air Marshal Zafar Chaudhry was the 8th Air Chief, who served the PAF from 3rd March, 1972 to 15th April, 1974.

Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force, condoled with the family and described his passing away as a sad loss.



THE INAUGURATION CEREMONY OF AEROSPACE & AVIATION CAMPUS HELD

20th December, 2019: The inauguration ceremony of Air University Aerospace & Aviation Campus was held at Aviation City Kamra. Mr. Shafqat Mahmood, Federal Minister for Education and Professional Training was the chief guest at the occasion. Air Chief Marshal Mujahid Anwar Khan, Chief of the Air Staff, Pakistan Air Force was also present at the occasion.



Lauding the heroic deeds of PAF, the Chief Guest said that PAF is the pride of our nation and has not only served and defended the nation with great valor but also significantly contributed in nation building through its excellent educational institutes and training centers. He also appreciated the earnest efforts of PAF leadership in establishing a state-of-the-art Aviation & Aerospace Campus in district Attock and hoped that this mega project would play a pivotal role in uplift of the area and progress of the country.

Highlighting the significance of Aerospace & Aviation Campus, the Air Chief said that establishment of this campus in close proximity of Aviation Research Innovation & Development (AVRID), Aviation Design Institute (AVDI) and a Comprehensive Certification Agency has transformed it into a National Aerospace Science & Technology Park. This strategic initiative would play a pivotal role in providing desired impetus to our self reliance programmes and promotion of research and development in the field of aviation. Earlier, the Chief Guest unveiled the plaque of Air University Aerospace & Aviation Campus.

FIRST BATCH OF DUAL SEAT JF 17 AIRCRAFT ROLLS OUT

27th December, 2019: Pakistan Aeronautical Complex, Kamra achieved yet another remarkable milestone by developing twin seat JF-17 fighter jets in a record time of five months. A ceremony was held at PAC Kamra, to witness the first batch of 08 dual seat JF-17 aircraft roll out from the Aircraft Manufacturing Factory Kamra. Chief of the Air Staff, Pakistan Air Force, Air Chief Marshal Mujahid Anwar Khan, was the Chief Guest at the occasion. He was joined by Ambassador of the People's Republic of China, Yao Jing, and Executive Vice President, Aviation Industries of China (AVIC), Hao Zhaoping, as guests of honour. Chairman PAC, Kamra, Air Marshal Ahmer Shehzad, welcomed his guests as he highlighted the salient features of the project.

Pakistan Aeronautical Complex (PAC) and the China National Aero-Technology Import & Export Corporation (CATIC) also signed an agreement for co-production of Chinese commercial aircraft. Highlighting the time tested friendship between China and Pakistan, Chinese Ambassador Yao Jing, said the JF-17 is a testimony of Sino-Pak friendship and mutual cooperation.

In his remarks, Air Chief Mujahid Anwar Khan congratulated PAC and CATIC on successful accomplishment of 2019 production target and completing first 08 dual-seat JF-17 aircraft in record time of five months. He believed that serial production of dual-seat variant is a landmark development for JF-17 program and a manifestation of everlasting friendship between both friendly countries.



"JF-17 Thunder is the backbone of PAF, which has been battle proven during operation Swift Retort," he said proudly. Later in the day, the Muhjahid Anwar Khan also inaugurated JF-17 Dual-Seat Integration facility at Avionics Production Factory, Kamra. The facility will enable PAF to integrate avionics and weapon systems of choice with JF-17 aircraft. The new advances provide the much needed self reliance and operational flexibility that PAF has been endeavouring for.

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