KERIS TERBANG

ISSUE 17 | JANUARY-MARCH 2024

HIGHLIGHTS

C295MW Introduction to Service

RBAirF Participation at the Royal Wedding

RBAirF Participates in Brunei Darussalam's 40th National Day

Commander RBAirF's Think Piece

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EDITOR IN CHIEF'S REMARKS

السَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللهِ وَبَرَكَاتُهُ
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Welcome to issue 17 of our quarterly Keris Terbang, the first edition for 2024.

Our magazine continues to provide an insight and snapshot of the events and happenings within the RBAirF. As we usher in the new year I would like like to wish everyone a Happy New Year, may we work even harder to strive for all of our goals.

The period between January to March 2024 signifies a historical milestone for our RBAirF. We have completed the procurement and delivery of the first two C295MW which is a significant boost in our operational capabilities Throughout this period we have also participated in the glorious Royal Wedding and the momentous National Day celebration. Additionally, in this edition we have also featured a think piece by our Commander RBAirF, manifesting our goals and aspirations leading to 2035.

We do hope that the 17th edition of Keris Terbang will be an enjoyable and informative read. I would also like to use this opportunity to thank the editorial team and all article writers who have contributed and dedicated their time to the production of this magazine.

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C295MW Introduction to Service

by Lt (U) Qayum

His Majesty receiving the royal salute

His Majesty inspecting the Guard of Honour

A warm sunny day, carried with buzz of anticipation as I joined the audience gathered inside Hangar B, Rimba Air Force Base. That day was not just about unveiling; it marked the new era of Air Transport in Royal Brunei Armed Forces, the unveiling of the Airbus C295MW, a revolutionary turbo prop powered military transport aircraft. The attended crowd and audience reflected the significance of the ceremony as distinguished journalist mingled with Ministry of Defence officials and international delegation from Airbus Defence and Space, Spain.

The previously lively crowd fell into silent as we were preparing for the arrival of His Majesty Sultan Haji Hassanal Bolkiah Mu'izzaddin Waddaulah ibni Al-Marhum Sultan Haji Omar 'Ali Saifuddien Sa'adul Khairi Waddien, Sultan and Yang Di-Pertuan of Brunei Darussalam and His Royal Highness 920 Major (U) Prince 'Abdul Mateen ibni His Majesty Sultan Haji Hassanal Bolkiah Mu'izzaddin Waddaulah to the ceremony.

I can hear the sound of camera shutters as His Majesty stepped out of his vehicle towards the Hangar B. Everybody stood still as the ceremony began with the presentation of the Royal Salute to His Majesty, followed by the inspection of the Guard of Honour which comprised of Airmen of Royal Brunei Air Force.

After witnessing the reveal of the new C295MW aircraft, His Majesty was escorted for a closer look. Stepping up into the aircraft, His Majesty was greeted by Major (U) Adieb, one of the first RBAirF C295MW pilots. With a sense of importance, the pilot delivered a clear and concise briefing, explaining the aircraft's systems and functionalities in detail.

His Majesty in the cockpit of the C295MW

His Majesty with RBAirF personnel

The C295MW

"A LEAP FORWARD IN CAPABILITIES TO TRANSPORT TROOPS AND EQUIPMENT"

Meanwhile, a group awaited behind the new aircraft which consists of delegations from Airbus Defence and Space and members of the project team, stood poised for His Majesty. As His Majesty along with His Royal Highness 920 Major (U) Prince 'Abdul Mateen emerged through the ramp door of the aircraft, introductions and exchanged greetings were made with the team who were behind this significant occasion. You can see their smiles reflecting the shared pride along with a great atmosphere as it was a huge accomplishment for the team and a testament to their collaborative effort that had brought this new chapter in RBAirF's airpower. The ceremony isn't just about revealing the new aircraft but a leap forward in capabilities to transport troops and equipment, surpassing its predecessor's capabilities in both strategic and tactical operations in RBAF.

The ceremony continued as His Majesty, took flight on the aircraft. The engine roars loudly as he smiled and taxied down the runway. His Majesty expertly took control of the C295MW and putting its capabilities to the tests around Brunei Darussalam. His Majesty then executed a smooth landing back on the runway, as His Majesty taxing back to Air Movement Centre (AMC) apron a wave of applause from the crowd could be heard. Stepping out of the aircraft, His Majesty was seen genuinely satisfied with the flight overall. Before leaving the ceremony, His Majesty inquired what would happen if it rained and without hesitation, a voice declared, 'We will fly, rain or shine'. The rest, as they say, is history.

RBAirF Participation

at The Royal Wedding

by Lt (U) Fazrina

In a remarkable convergence of national pride and global recognition, members of the RBAirF recently played essential roles in two significant events this year: the Royal Wedding and the 40th Brunei National Day celebrations. The participation of RBAirF personnel in these two significant events not only showcased its capabilities but also served as a testament to their unwavering loyalty and dedication to the nation they proudly serve.

The Royal Wedding, a grand spectacle that mesmerised audiences worldwide, offered a distinctive opportunity for RBAirF representatives to partake in ceremonial duties. The Royal Wedding Ceremony of His Royal Highness 920 Major (U) Prince 'Abdul Mateen ibni His Majesty Sultan Haji Hassanal Bolkiah Mu'izzaddin Waddaulah and Yang Amat Mulia Pengiran Anak Isteri Dayang Anisha Rosnah binti Adam has become a precious and memorable event for the citizens and RBAirF personnel who were involved in the success of the ceremony.

Commander RBAirF at the Royal Wedding Procession

The RBAirF involvement ranges from various aspects of the Royal Wedding as officers and personnel alike participated through a number of ways demonstrating its commitment and support. Logistics personnel were hard at work in making sure all personnel were equipped with all the necessary items including clothing for the grand occasion, as well as making sure everyone is fed throughout the duration of the celebration.

With regards to personnel, various members from different vocations were all eager to be a part of the wedding through ADC of the Royal Couple, Damong duties, drivers for royal guests and VVIPs as well as for the procession security. In terms of operations, throughout the celebration the RBAirF personnel also maintained its readiness and preparedness through the utilisation of its available assets including Blackhawks and its pilots, drones and jammers and their operators, base defence personnel for aircraft security as well as many other RBAirF professionals all working hand in hand to ensure that the event can proceed smoothly.

Deputy Commander RBAirF getting ready for the procession

RBAirF personnel as a stronghold to ensure public safety

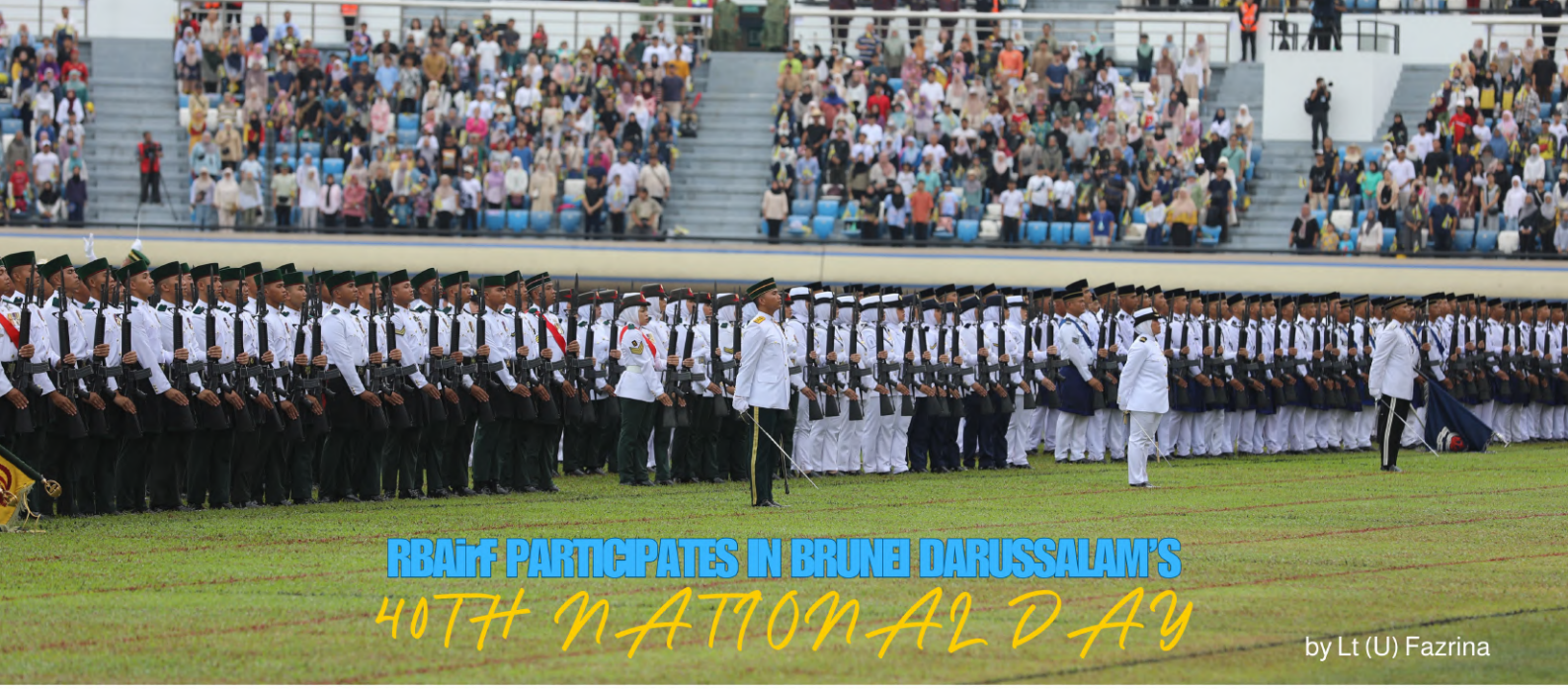
RBAirF personnel as Damong at the Royal Wedding Procession

RBAirF personnel as carriers of the customary Royal Regalia during the procession

RBAirF Officer as ADC to the Royal Couple

RBAirF personnel during rehearsal

Group photo of the personnel involved in the procession

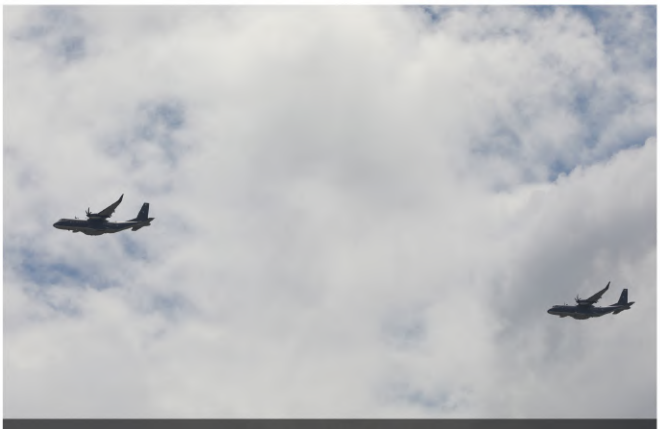


RBAirF PARTICIPATES IN BRUNEI DARUSSALAM'S 40TH NATIONAL DAY

by Lt (U) Fazrina

Following the Royal Wedding, the RBAirF personnel continued to show their dedication during Brunei Darussalam's 40th National Day celebration. On 24 February 2024, more than 25,000 Bruneians from all walks of life gathered for the grand assembly at the Hassanal Bolkiah National Stadium, Berakas to celebrate four decades of progress and unity. This proved a grand spectacle which epitomised the spirit of nationhood, independence and aspirations for national development, in line with the theme "Bersatu Mencapai Cita Negara" or United in Achieving National Aspirations.

The Grand Assembly was graced with the presence of His Majesty Sultan Haji Hassanal Bolkiah Mu'izzaddin Waddaulah ibni Al-Marhum Sultan Haji Omar 'Ali Saifuddien Sa'adul Khairi Waddien, Sultan and Yang Di-Pertuan of Brunei Darussalam and Her Majesty Duli Raja Isteri Pengiran Anak Hajah Saleha binti Al-Marhum Pengiran Pemancha Pengiran Anak Haji Mohamed Alam as well as the Royal Family members.



C295MW during the flypast

Blackhawk S70i formation

The RBAirF embodied patriotism and aspiration at Brunei's 40th National Day celebration through the participation of a total of 140 personnel of RBAirF including in the march past which was led by Major (U) Muhammad Izdihar bin Haji Imran. RBAirF also added to the liveliness of the event by showcasing an aerial performance of parachuting and abseiling from the light towers. The celebration was concluded by First flypast by the newly commissioned aircraft, the C295MW, alongside the Blackhawk S70is which were led by Major (U) Mohamad Adieb bin Abdul Rahman and Captain (U) Mohammed Azhar bin Hj Mohd Mahathir respectively.

The participation of the RBAirF in Brunei's 40th National Day celebration served as a poignant reminder of the vital role played by RBAF in safeguarding the nation's security and sovereignty. Beyond their military duties, RBAF personnel embody the spirit of service and sacrifice, dedicating themselves to the defence and prosperity of its nation and sultanate.

ROYAL BRUNEI AIR FORCE 2035 - FORWARDS AND UPWARDS

A Think Piece by Brig Gen (U) Dato Seri Pahlawan Mohammad Sharif
Commander RBAirF

WHY A THINK PIECE?

Reflecting upon a 31-year career, Alhamdulillah I have been provided with so many opportunities to develop my leadership abilities and to exercise command responsibly. From commanding No.5 Squadron to the Officer Cadet School (OCS); from Programme Manager at the Centre for Science and Technology Research and Development (CSTRAD) to Defence Attaché in Washington D.C.; from Commander Operations Group (COG) to Director Intelligence and as Joint Force Commander (JFC) to Commander Royal Brunei Air Force (RBAirF), it has been an amazing journey. A journey filled with situations that challenged how I would assess, react and decide what actions to take or advice to give.

Situations that made me uncomfortable, that required thinking outside the box and that necessitated due diligence before either suggesting a series of solutions or having to decide the best solution. This journey has also accorded me with the privilege of attending various courses, conferences and exhibitions, travelling to over 25 countries which has helped to develop an ability to view things from a truly different perspective. So, with over 30 years of experience and having been to many places, does it make me the expert or the authority on how the Air Force is going to develop? It most certainly does not! Nonetheless, I feel that I have something of value to share.

Therefore, I have chosen to share my views through this think piece as it is less formal and is not academically intensive. It's a view point on how I see the RBAirF developing and the likely challenges that leaders may face. Challenges that may be similar to the ones I have faced in the past. So not sharing would be a shame, perhaps even selfish or irresponsible. However, this think piece is by no means exhaustive in identifying challenges nor is it the solution.

FORWARDS AND UPWARDS

UNMANNED AERIAL SYSTEMS

As I have eluded to earlier, simple does not mean easy. This think piece aims to simplify the how by explaining the factors or 'forces' needed to ensure the RBAirF is able to move not only forwards by optimising existing capabilities e.g. Unmanned Aerial Systems (UAS) and Air Transport (AT) but also upwards with the introduction of new capabilities e.g. Ground Based Air Defence (GBAD) and fighter aircraft. The 'forces' I will introduce are focused on people and how they are impacted or are able to influence the development of the RBAirF. I have derived these 'forces' with reference to the Principles of Flight (PoF) and used lift vector diagrams to illustrate their interaction.

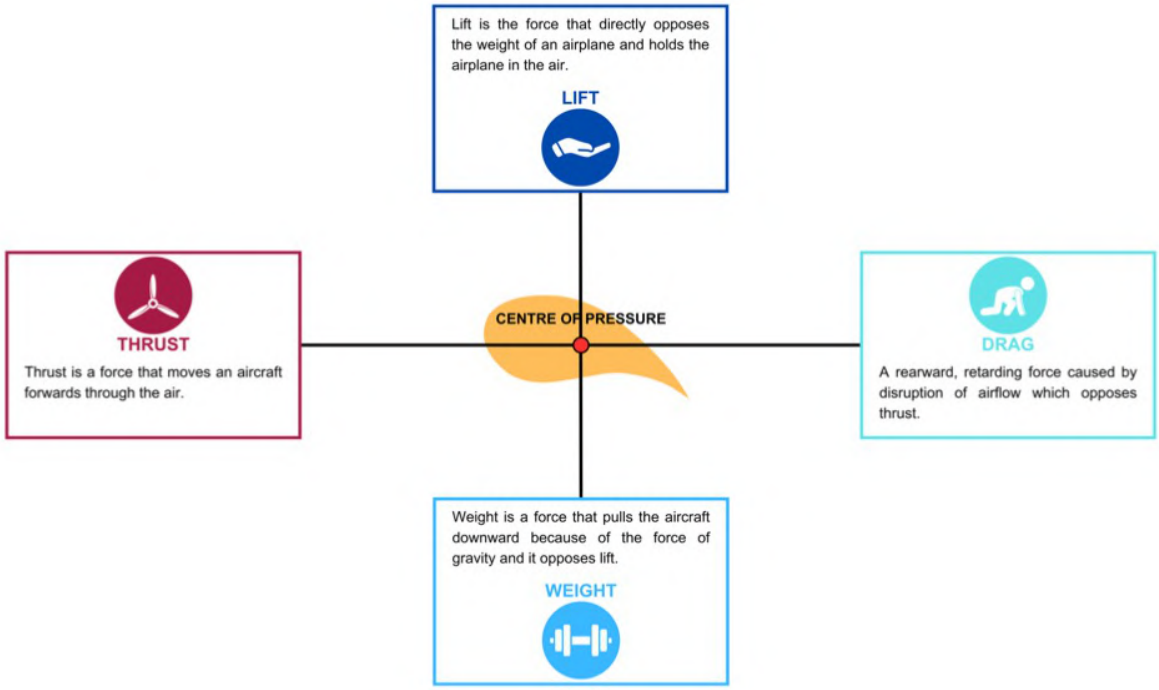
AIR TRANSPORT

The PoF should be understood by all personnel of the RBAirF, albeit in varying degrees, as flying is the core reason for our existence. Using the four main forces acting on an aero foil; lift, weight, thrust and drag, I will attempt to illustrate how it can be related to the RBAirF's development. The forces will be illustrated and a brief explanation given on how they interact with each other.

FIGHTER AIRCRAFT

These forces will subsequently be replaced by; leadership, workload, trust and discipline, and I will explain how I see each of these new 'forces' acting on the RBAirF in its need to continually move forwards and upwards.

PRINCIPLES OF FLIGHT

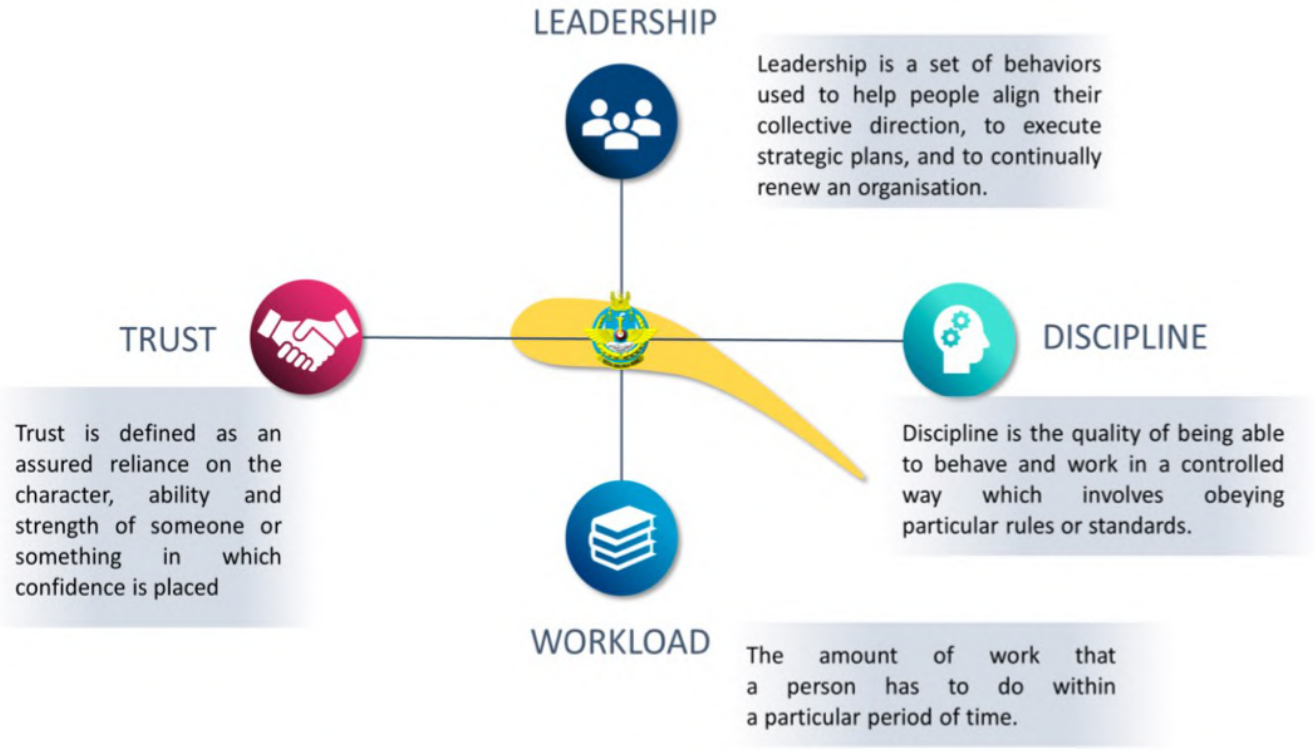


Beginning with a PoF refresher, the four forces acting on the aero foil are defined in Figure 1 above. These forces all act through a centre of pressure where lift must overcome weight for the aircraft to become aloft and where sufficient thrust must overcome drag to move forwards. Out of all of the forces the highest attention is paid to lift, as generating and maintaining sufficient amounts of lift enables flight. Second to lift would be thrust as a vital force which not only enables lift generation but also increases forward speed and rate of climb.

Next is drag where when reduced, helps with forward speed and getting the aircraft to its destination faster and more efficiently. The aerodynamics guru will tell you that there are many types of drag however only parasite drag, aptly named in which I shall explain, and it's sub types; form drag, skin friction drag and interference drag, will be used. I will define them here but will refer to them collectively once the new 'forces' are introduced.

Lastly weight, which is practically a fixed limit to what aircraft are built to (aircraft empty weight) and what they can carry (maximum take-off weight). However, there are ways we can either lighten the load or carry more. All of these forces act through a point called the centre of pressure which is fittingly named when describing the new 'forces' later on.

THE NEW FORCES



As per Figure 2 above, all the forces have been changed to Leadership, Trust, Workload and Discipline, and what I have collectively been calling the new forces. At first glance they seem to be words swapped out merely based on the same letter however this is far from the truth. These words, as per their respective definitions, are what I truly believe are and will continue to affect how the RBAirF develops. Understanding how they interact and optimising the balance of these forces to achieve the desired developmental outcome is essential.

Let me begin by explaining firstly why the centre of pressure has been replaced with the RBAirF logo. This represents a single point of focus, the leadership of the RBAirF, through which all the forces act.

The leadership in this context would be CAF and the RBAirF Board of Executives (BE) and the Air Force Sergeant Major (AFSM) and his Regimental Sergeant Majors (RSMs), where the pressure to ensure the right decisions are made to ensure flight (the RBAirF's operations) remains within safe parameters. The logo also represents the RBAirF as an organisation built upon its core values of Service Above Self, Teamwork and Excellence. These are the values that all personnel must adopt for the RBAirF to move forwards and upwards.

"LEADERSHIP IS THE SUM OF THOSE QUALITIES OF INTELLECT, HUMAN UNDERSTANDING, AND MORAL CHARACTER THAT ENABLES A PERSON TO INSPIRE AND CONTROL A GROUP OF PEOPLE SUCCESSFULLY." – LT GEN JOHN A. LEJEUNE

LIFT TO LEADERSHIP

Replacing lift with leadership seems to be a no-brainer as it is the essential force required to lift up any organisation. It is a force that must inspire and motivate our personnel to achieve goals. Leaders, officers and Senior Non-Commissioned Officers (SNCOs), must however provide clear direction and a sense of purpose in order to elevate the whole team. A strong leader lifts the spirits of the team, enabling them to overcome challenges and achieve greater heights.

For the RBAirF to be uplifted, effective leadership at all levels of Command is essential. The organisation recruits the best candidates to be leaders, provides continuous leadership training and sufficient opportunities to practice leadership. In theory leadership should be the least of our concerns however this is not the case. Failures in leadership have and will continue to occur if the correct attitude is not applied.

As in flying, the correct attitude is essential in ensuring the aircraft remains in controlled flight. The pilot in command is responsible to ensure the correct control inputs are made to prevent the aircraft from departing controlled flight. Similarly, leaders must be determined to maintain the right attitude and have the ability to continually adapt to any situational changes.

What the RBAirF needs is tenacious leaders that have an unwavering determination to achieve the goal, are persistent in challenging situations and when faced with failure have the grit to keep going. Our leaders must also promote tenacity in its airmen and airwomen, which should be a blend of determination, persistence and grit to ensure the mission is achieved safely and effectively.

DRAG TO DISCIPLINE

As earlier mentioned, I would only use parasite drag which I believe is aptly named as it literally sucks away additional fuel. Discipline is just that, it is something that is continuously being attacked by a parasite and unless we are aware of it and take necessary actions, our fuel that gives us energy to move forward is reduced. However, when replacing it with discipline it is not directly interchangeable as an increase in drag means an increase in disciplinary violations and vice versa. Consequently, it equates to an increase in disciplinary issues which creates an opposing force to the organisation moving forward. I shall attempt to relate the three types of parasite drag in the subsequent paragraphs.

Firstly, form drag which is relatable to the need for conformity to the fixed mold of a military organisation where those who are unable to conform to the disciplinary norms create unwanted drag. Nonetheless we know that the aero foil's form is not fixed when, for example, flaps are extended for take-off and landing. This change in form is necessary to enable safe flight operations. This is potentially what makes RBAirF's view on the form of discipline different, where the 'Sir Yes Sir!' or 'hurry-up and wait' mentality for example, does not sit well with the Air Force. We are encouraged to question in order to break the chain of events that may lead to a flying incident and we can't hurry-up and wait, as we will run out of fuel.

Nevertheless, what is the same is the discipline required to ensure a polished turn-out whether that of personal tidiness or that of the work place. This is similar to skin friction drag which is created by the airflow travelling over the surface of the aero foil and increases exponentially with an increase in speed. One of the key ways to reduce this is by ensuring surface uniformity i.e. standardised and that it is polished i.e. of a high standard.

Interference drag, as its name implies, is produced when the shape of the aircraft structure itself interferes with the airflow increasing drag. Fairings and other devices help to reduce the effects of this drag. Relating this to the RBAirF, we have the necessary 'devices' i.e. policies, orders and procedures to reduce disciplinary infringements. Ensuring they are always in place is essential for the 'devices' to be effective.

I have clearly spent more time on discipline as I believe it to be something that will hold back the rate at which the RBAirF can move forwards. It can be inferred that with an increase in disciplinary issues, there would be a need to increase trust to keep pushing the forward. This is the hard truth, RBAirF leaders must continue to look into ways and means to minimise the effects of disciplinary issues. If not then we will struggle to move forwards and will not be able to move upwards.

THRUST TO TRUST

"MISSION COMMAND — AND OUR SUCCESS IN FUTURE CRISIS OR CONFLICT — IS GROUNDED IN CLEAR COMMUNICATION OF INTENT, SHARED UNDERSTANDING, TRUST AND EMPOWERMENT". – GENERAL CQ BROWN

Why trust? Well trust is defined as an assured reliance on the character, ability and strength of someone or something in which confidence is placed. If we relate that to thrust, we need that assured reliance from the power plant that sufficient thrust will be produced when required. As aviators we must have the confidence that the maintainers have done everything they can to ensure power will be available on demand. It is about trusting both the equipment and the people in order to achieve the mission.

In the military, mission command is commonly understood as empowering subordinates with the responsibility to accurately judge, make timely decisions and take effective action to achieve mission success. This level of empowerment can only be applied once sufficient trust is built through the chain of command. From the top down, we must encourage mission command, whilst from the bottom up, pro-active efforts must be made to earn the necessary level of trust. In the unforgiving aviation environment, where zero error is the target, how much decentralised mission command is allowed becomes a command dilemma.

As CAF, I believe empowerment instils a sense of responsibility, promotes efficiency and inevitably frees up additional capacity for more strategic thinking which will undoubtedly drive the RBAirF forwards and upwards. However, this must be increased gradually as measures, such as policies, orders and procedures, need to be in place to manage risk and potential progress retarding errors. I'm glad that the organisational structure enables mission command through the Group Commanders and the Chief of Staff and the soon to be established Training Group. As this structure begins to mature, the understanding of mission command must be made clear that it is not an authority to ignore the commander's intent or carry out any unauthorised tasks or take unnecessary risk. Nonetheless, I'm confident with a professional and disciplined approach, effective mission command will become a common practise in the RBAirF.

WEIGHT TO WORKLOAD

The words weight and workload are often synonymous where a person feels they carry additional weight when workload is increased. Preventing this weight from weighing down the RBAirF, the workload across the whole organisation must be managed effectively. Skilled leaders manage this weight by assigning tasks strategically, ensuring a manageable workload for each person whilst promoting teamwork. As with aircraft, there are limits to what load it can carry over what distances. Similarly, people have limits to what load they can carry and leaders must ensure these limits are not exceeded.

To manage workload, we must first understand it starting with a definition of workload management that I have come across which strikes a chord. It is defined as a strategic approach to planning, estimating, and tracking the work that enables you to balance workload demands for individuals and groups across the organisation and meet the schedule commitments made to customers. I find this definition very relevant to what officers should be doing as a matter of common practise.

In the RBAirF I would encourage leaders to focus on efficiency and ensure equitable distribution of the workload. Utilise SOPs and templates to reduce time and effort spent on routine tasks. Ensure we communicate the intent clearly and manage output expectations. Officers and SNCOs must allocate the time to confirm your subordinates understand the intent, are able to meet the output standards and within the designated timeframe. Failure to do this wastes time and effort leading to limited progress and leads to a demotivated team.

Exercising good leadership and applying sound management skills will lighten the workload. This will subsequently free up capacity to focus on the important stuff to include; achieving IOC and FOC on existing capabilities, planning for new capabilities and developing our people to meet the demands of the future operating environment.

"MOST OF US SPEND TOO MUCH TIME ON WHAT IS URGENT, AND NOT ENOUGH TIME ON WHAT IS IMPORTANT." - STEVEN COVEY

CONCLUSION

This think piece aims to share my point of view which comes from a relatively diverse experience. Undoubtedly not everyone will have had the same opportunities as I have had. However, you will all have had different opportunities and developed in your own way and therefore I would hope that you too will share your thoughts. Sharing our thoughts, lessons learnt and best practices will certainly benefit the leaders who will eventually replace us.

Over the past few years, it has become more apparent that the RBAirF needs to be lifted higher and propelled forwards faster in order to achieve its mission as an organisation. This has meant we have been working hard towards ensuring optimum availability of the S70i fleet to meet the growing demands placed upon it. This is being done whilst progress is being made towards achieving FOC for the UAS and concurrent intensive efforts in preparation for the introduction into service of the Airbus C295MW transport aircraft. Additionally, we are busy with the impending contract award of the long awaited BO105 replacement, the progress of the GBAD programme and studying future fighter capability. Progress on all of these operational capabilities can only be possible with the commitment and dedication of the RBAirF's highly professional airmen and airwomen.

As leaders, we are responsible for the progress of the organisation and must understand the way the forces interrelate to achieve 'controlled flight'. Workload challenges and disciplinary issues must be overcome by exercising tenacious leadership and encouraging trust amongst our personnel. The better we understand the environment we operate in, the challenges we face and how we can overcome them, the greater the progress we can make. Ultimately it is leadership that will determine how well the RBAirF will develop. It is the one force we invest in extensively to ensure our personnel are able to lead effectively.

As my time as CAF will eventually come to an end, the quote below makes me wonder if I have done enough to lay the groundwork for the RBAirF to shine. Nevertheless, what I do know is that the RBAirF is a team of very professional people who always give their best to achieve the pre-determined goals. This team will need to be empowered to make decisions and be willing to put the needs of the organisation ahead of their own. I'm confident this team will indeed move the RBAirF forwards and upwards in achieving the development goals set out to 2035.

"Ultimately, leadership is not about glorious crowning acts. It's about keeping your team focused on a goal and motivated to do their best to achieve it, especially when the stakes are high and the consequences really matter. It is about laying the groundwork for others' success, and then standing back and letting them shine". - Chris Hadfield

TENTERA UDARA DIRAJA BRUNEI
TUDB 503

Sujud Syukur was performed by the C295MW aircrew, as a gesture to Allah Subhanahu Wata'ala for a safe six-day long range transit journey from the manufacturing factory in Seville, Spain beginning on 18 January 2024.

Understanding Occupational Dermatitis: Causes, Symptoms, and Prevention

by Lt (U) Qawiemah

Occupational dermatitis, a prevalent occupational skin disorder, affects millions of workers worldwide. It encompasses various inflammatory skin conditions triggered by exposure to hazardous substances in the workplace. From mild irritations to severe allergic reactions, this condition not only impacts physical health but also affects work performance and quality of life. This article delves into the intricacies of occupational dermatitis, shedding light on its causes, symptoms, and preventive measures.

What is it?

Occupational dermatitis manifests in different forms, including irritant contact dermatitis (ICD) and allergic contact dermatitis (ACD). ICD occurs due to direct contact with irritating substances, while ACD results from an immune response to allergens. These reactions often occur on the hands, forearms, face, and other exposed areas.

Causes:

Chemical Exposure

Contact with chemicals like solvents, detergents, acids, and alkalis is a primary cause of occupational dermatitis. These substances can strip away the skin's natural protective barrier, leading to irritation or allergic reactions.

Biological Agents

Certain professions expose individuals to biological agents like plants, fungi, bacteria, and animals, which can trigger allergic reactions in susceptible individuals.

Commonly used chemicals used in aircraft maintenance

Symptoms:

Redness and Swelling: Affected skin may appear red, inflamed, and swollen, indicating an inflammatory response to irritants or allergens.

Dryness and Cracking: The skin may become dry, rough, and cracked, leading to pain and susceptibility to infections.

Itching and Burning: Itching and burning sensations are typical symptoms of dermatitis, causing discomfort and distress to affected individuals.

Blistering and Weeping: In severe cases, dermatitis can cause blisters, oozing, and crusting of the skin, increasing the risk of secondary infections

Prevention:

Risk Assessment: Conducting thorough risk assessments to identify hazardous substances, processes, and environmental factors that may contribute to dermatitis.

Engineering Controls: Implementing engineering controls such as ventilation systems, enclosed processes, and automated equipment to minimize exposure to harmful substances.

Personal Protective Equipment (PPE): Providing workers with appropriate PPE, including gloves, goggles, aprons, and respirators, to shield them from chemical and physical hazards

Skin Protection: Encouraging frequent hand washing with mild soap and water, followed by moisturizing creams or barrier creams to maintain skin hydration and integrity.

Occupational dermatitis remains a significant occupational health challenge, impacting workers across various industries. By understanding its causes, recognizing early symptoms, and implementing preventive strategies, employers and employees can effectively minimize the risk of dermatitis and create safer work environments. Prioritizing occupational health and safety not only protects workers' well-being but also enhances productivity and fosters a culture of wellness in the workplace. Through collaborative efforts and continuous improvement, we can strive towards a future where occupational dermatitis is no longer a prevalent concern

"The prevalence of occupational contact dermatitis is estimated to be between 6.7% and 10.6% and can lead to missed work and job loss"

- National Library of Medicine

BREAKING NEWS

Air Power

SPECIAL EDITION

THE BATTLE OF BRITAIN

by Maj (U) Alli Farid

In the annals of military history, few chapters stand as pivotal as the Battle of Britain. This aerial campaign, waged over the skies of England during the summer and autumn of 1940, was a watershed moment in World War II. At its heart lay a struggle for air superiority between the Royal Air Force (RAF) of Britain and the Luftwaffe, the German air force. This clash of titans marked the first major military confrontation fought entirely by air forces, showcasing the transformative power of air warfare. Here, we delve into the intricacies of air power and its decisive influence on the outcome of the Battle of Britain

The stage was set in the summer of 1940, as Nazi Germany, under the command of Adolf Hitler, sought to invade and conquer Britain, the last bastion standing against its dominance in Europe. The Luftwaffe, boasting numerical superiority and battle-hardened pilots, was tasked with neutralising the RAF and clearing the skies to pave the way for a seaborne invasion, codenamed Operation Sea Lion. However, what ensued was a contest of endurance, resilience, and innovation that would shape the course of the war.

The RAF Spitfires in a formation

The Messerschmitt Bf 110

Air power emerged as the linchpin of strategic planning on both sides. For the Luftwaffe, achieving air superiority was not merely a tactical objective but a prelude to invasion. To this end, they employed a combination of bombers, fighters, and reconnaissance aircraft, aiming to cripple British air defences, disrupt industrial production, and demoralise the civilian population through relentless aerial bombardment. In contrast, the RAF, led by Air Chief Marshal Sir Hugh Dowding, adopted a strategy of defence in depth, leveraging radar technology, effective command and control systems, and the bravery of its pilots to repel the Luftwaffe onslaught.

Central to the RAF's defensive posture was the innovative use of radar. The Chain Home radar network provided early warning of incoming enemy aircraft, enabling RAF Fighter Command to scramble its fighters and intercept the Luftwaffe formations before they reached their targets. This early detection capability gave the RAF a critical advantage, allowing them to conserve precious resources and dictate the terms of engagement. Moreover, the decentralised command structure implemented by Dowding ensured rapid decision-making and flexibility in response to evolving threats, a key factor in withstanding the sustained aerial assault.

1940 * BRITAIN * WWII

The RAF Spitfires on a mission sortie

The Dornier Do 17 bomber flying over Britain

The backbone of RAF Fighter Command was the Supermarine Spitfire and the Hawker Hurricane, formidable aircraft that epitomised British engineering prowess. These fighters, though outnumbered by their German counterparts, proved to be more than a match in terms of speed, manoeuvrability, and firepower. Piloted by airmen from across the British Commonwealth and beyond, these iconic planes became synonymous with the indomitable spirit of defiance that characterised the Battle of Britain. Their heroic exploits in the skies above southern England, often outnumbered but never outfought, captured the imagination of the world and bolstered civilian morale during the darkest days of the war.

As the battle raged on, the Luftwaffe shifted its focus from targeting RAF airfields to conducting terror bombing raids on British cities, a strategy intended to break the will of the civilian population and force the British government to sue for peace. The Blitz, as it came to be known, inflicted widespread destruction and loss of life, testing the resilience of the British people like never before. Yet, despite the devastation wrought by the bombing raids, the resolve of the RAF and the civilian population remained unbroken.

The turning point of the Battle of Britain came in September 1940, as the Luftwaffe intensified its attacks in a desperate bid to deliver a knockout blow. On September 15th, now commemorated as Battle of Britain Day, the RAF inflicted heavy losses on the Luftwaffe, shooting down over 60 enemy aircraft while sustaining minimal casualties.

The failure to achieve air superiority forced Hitler to postpone Operation Sea Lion indefinitely, effectively signaling the abandonment of his plans to invade Britain. The RAF had emerged victorious, securing a strategic triumph that would alter the course of the war in favor of the Allies.

The legacy of the Battle of Britain extends far beyond its immediate military significance. It was a testament to the power of innovation, leadership, and perseverance in the face of adversity. The lessons learned from this pivotal conflict would shape the evolution of air power doctrine for generations to come, influencing tactics, technology, and strategic thinking in future conflicts. Moreover, the spirit of solidarity and sacrifice demonstrated by the men and women who fought in the skies and on the ground would serve as a beacon of hope and inspiration for future generations.

In conclusion, the Battle of Britain stands as a defining moment in the history of air power. It was a contest of wills that showcased the transformative potential of air warfare and underscored the importance of strategic planning, innovation, and resolve in the face of overwhelming odds. The victory of the RAF over the Luftwaffe was not merely a military triumph but a symbol of defiance against tyranny and oppression. As we reflect on the legacy of the Battle of Britain, we are reminded of the enduring power of courage, camaraderie, and commitment in the pursuit of freedom and justice.

Ensuring Safe Skies: Understanding Airworthiness and its Vital Role in Aviation

by Lt (U) Tengku Izzat

In the vast and dynamic realm of aviation, safety stands as the paramount concern. Every aircraft that takes to the skies must adhere to stringent standards and regulations to ensure the safety of passengers, crew, and cargo. At the core of these standards lies the concept of airworthiness. Defined as the measure of an aircraft suitability for safe flight, airworthiness encompasses a comprehensive set of criteria that governs every aspect of an aircraft's design, construction, maintenance, and operation. In this article, we delve into the intricacies of airworthiness, exploring its significance, regulatory framework, and the processes involved in maintaining it to guarantee safe skies for all.

Understanding Airworthiness

Airworthiness is not a static condition; rather, it is a dynamic state that evolves throughout an aircraft's lifecycle. It encompasses several key components, including structural integrity, propulsion systems, avionics, and operational procedures. Each of these elements must meet exacting standards set forth by aviation authorities to ensure that the aircraft is fit for flight under normal and foreseeable operating conditions.

1 STRUCTURAL INTEGRITY

The structural integrity of an aircraft is perhaps its most fundamental aspect of airworthiness. It refers to the strength, durability, and reliability of the aircraft's airframe, wings, control surfaces, and other critical components. Structural integrity is evaluated through rigorous testing, analysis, and inspection to detect any signs of wear, corrosion, or fatigue that could compromise safety.

2 PROPULSION SYSTEM

The engines and propulsion systems of an aircraft must meet stringent performance and reliability standards to ensure safe and efficient flight operations.. Regular maintenance, testing, and monitoring are essential to identify and address any issues that may arise, such as engine malfunctions or power loss.

3 AVIONICS

Avionics, which encompass the electronic systems and instruments onboard an aircraft, play a crucial role in ensuring safe and navigable flight. These systems include communication, navigation, and surveillance equipment, as well as flight management systems and autopilot capabilities. Avionics must undergo rigorous testing and certification

4 OPERATIONAL PROCEDURES

Airworthiness extends beyond the aircraft itself to encompass the operational procedures followed by pilots, maintenance personnel, and air traffic controllers. Standard operating procedures (SOPs), checklists, and protocols are established to ensure that all personnel adhere to best practices and safety guidelines during pre-flight, in-flight, and post-flight operations.

REGULATORY FRAMEWORK

The regulation of airworthiness is overseen by national aviation authorities, such as the Federal Aviation Administration (FAA) in the United States, the European Union Aviation Safety Agency (EASA) in Europe, and the Civil Aviation Authority (CAA) in the United Kingdom. These authorities establish and enforce airworthiness standards through a combination of regulations, directives, and advisory materials.

01

CERTIFICATION PROCESS

Before an aircraft can be deemed airworthy, it must undergo a rigorous certification process administered by the relevant aviation authority. This process involves extensive testing, analysis, and documentation to demonstrate compliance with applicable airworthiness standards. Depending on the type of aircraft and its intended use, certification may involve multiple phases, including design approval, production certification, and type certification.

02

CONTINUED AIRWORTHINESS

Once an aircraft has been certified, it is subject to ongoing monitoring and oversight to ensure continued airworthiness throughout its operational life. This includes regular inspections, maintenance checks, and the implementation of airworthiness directives (ADs) issued by the aviation authority in response to safety concerns or emerging issues.

03

TYPE CERTIFICATION VS SUPPLEMENTAL TYPE CERTIFICATION (STC)

Type certification is the process by which an entire aircraft design is approved as meeting airworthiness standards. In contrast, supplemental type certification (STC) is a process by which modifications or additions to an existing aircraft design are approved. Both processes require rigorous testing and documentation to demonstrate compliance with applicable regulations.

MAINTENANCE AND INSPECTION

Central to maintaining airworthiness is a robust maintenance and inspection program designed to detect and rectify any issues that may compromise safety. This involves a combination of scheduled maintenance tasks, routine inspections, and unscheduled repairs as needed. Key aspects of maintenance and inspection include:

01

SCHEDULED MAINTENANCE

Aircraft manufacturers and aviation authorities prescribe specific maintenance intervals and tasks based on factors such as flight hours, calendar time, and operating conditions. Scheduled maintenance tasks range from routine inspections and lubrication to component replacements and system overhauls.

02

AIRWORTHINESS DIRECTIVES (ADS)

ADs are issued by aviation authorities to address safety concerns or emerging issues that affect the airworthiness of specific aircraft models or components. Compliance with ADs is mandatory and may involve inspections, modifications, or other corrective actions to ensure continued airworthiness.

03

AIRCRAFT INSPECTION

In addition to scheduled maintenance, aircraft undergo regular inspections to assess their overall condition and identify any signs of wear, damage, or defects. These inspections may include pre-flight checks, line maintenance inspections, and more comprehensive checks performed at designated intervals.

Airworthiness is the cornerstone of aviation safety, encompassing the myriad factors that contribute to the safe operation of aircraft. From structural integrity to operational procedures, every aspect of airworthiness is carefully regulated and monitored to ensure the highest standards of safety and reliability.

By adhering to strict certification requirements, implementing robust maintenance programs, and staying vigilant to emerging safety concerns, aviation authorities and industry stakeholders work tirelessly to uphold airworthiness and safeguard the lives of those who travel by air. In an ever-evolving aviation landscape, the commitment to airworthiness remains unwavering, ensuring that the skies remain safe for generations to come.

F-35 Inaugural Visit To RBAirF

by Lt (U) Nabil

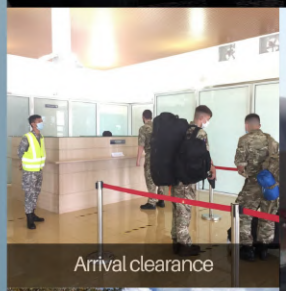
On the 1st of March 2024, the RBAirF was fortunate to have received a visit from two F-35s from the 356th Expeditionary Fighter Squadron, Eielson Air Force Base, Alaska. It was the first time that such aircraft have landed on Brunei's soil and is a memorable milestone for the RBAirF. The visit coincides with the presence of the Pacific Air Forces Unit which was in Brunei to promote working relationships with RBAirF.

The Commander RBAirF as well as other officers and members of RBAirF also took the opportunity to take a closer look at the highly sophisticated and technologically advanced aircraft whilst interacting with the F-35 crew and maintenance team.

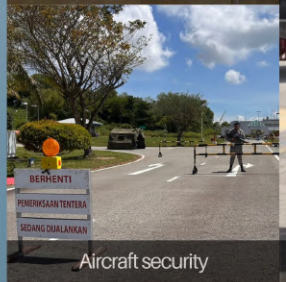
Additionally, the Commander RBAirF received a courtesy call from the Principal Deputy Assistant Secretary of Defence, Jedediah P. Royal and Major General Mark Weber, Air National Guard Assistant to the Commander of Pacific Air Forces who were currently in Brunei to meet with senior Bruneian officials.

In preparation for the landing, the RBAirF conducted a number of initiatives including the provision of support for engineering and maintenance needs, the clearances at the Air Movement Centre (AMC) as well as the aircraft security operation conducted by personnel from the Base Defence Squadron of RBAirF.

Commander RBAirF during the Courtesy Call



Arrival clearance



Aircraft security

Commander RBAirF taking a closer look at the F-35

THE F-35 - A BRIEF BACKGROUND

The F-35 Lightning II, developed by Lockheed Martin, is a cutting-edge multirole fighter jet designed to dominate in air-to-air and air-to-ground combat scenarios. This fifth-generation aircraft embodies stealth, advanced sensors, and unparalleled situational awareness, making it a formidable asset for modern air forces.

The F-35 comes in three variants: the F-35A, F-35B, and F-35C. The F-35A is the conventional takeoff and landing (CTOL) version used by the U.S. Air Force and allied nations. The F-35B, utilised by the U.S. Marine Corps, features short takeoff and vertical landing (STOVL) capabilities, enabling it to operate from short runways and amphibious assault ships. The F-35C, tailored for the U.S. Navy, is designed for catapult launches and arrested recoveries on aircraft carriers.

One of the F-35's most significant advantages is its stealth technology, which reduces its radar cross-section, making it difficult to detect and track. This is achieved through advanced materials, design features, and radar-absorbing coatings. The aircraft's stealth capabilities are complemented by its sophisticated avionics suite, including the Distributed Aperture System (DAS) and the Electro-Optical Targeting System (EOTS), which provide pilots with a 360-degree view of the battlefield and enhance targeting precision. The F-35's versatility is further enhanced by its ability to carry a diverse array of weapons, ranging from air-to-air missiles to precision-guided bombs. Its internal weapons bays maintain stealth, while external hardpoints allow for greater payloads when stealth is less of a priority. The aircraft's Pratt & Whitney F135 engine delivers unmatched speed and agility, crucial for both dogfighting and evading threats.

Despite its technological prowess, the F-35 program has faced criticism for its high costs and development delays. However, proponents argue that its capabilities justify the investment, as it ensures air superiority in increasingly contested environments. As more units are produced and delivered to partner nations, the F-35 is set to become a cornerstone of global air defence for decades to come, representing a leap forward in military aviation technology.

“The F-35 is one of the most advanced fifth generation fighters in the world today”

The Electric Revolution:

Powering Towards a Sustainable Future with Electric Vehicles

Environmentally Friendly And Energy Saving

by Lt (U) Nadzirah

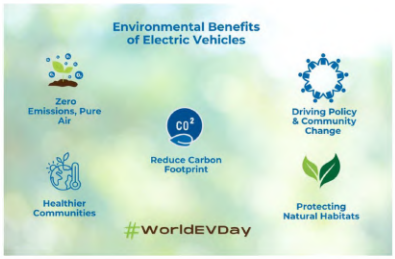
As climate change dominates global discourse, the automobile industry is shifting towards electric vehicles (EVs). Driven by technological advancements, government incentives, and growing environmental consciousness, EVs are poised to revolutionise transportation. This overview explores the environmental benefits, technological innovations, consumer trends, and challenges in the EV market, highlighting their potential to drive a sustainable automotive revolution.

THE RISE OF ELECTRIC VEHICLES

In an era where climate change is at the forefront of global concerns, the automobile industry is undergoing a profound transformation, with electric vehicles (EVs) emerging as the leading force for change. With advancements in technology, government incentives, and increasing environmental consciousness among consumers, electric vehicles are poised to revolutionise the way we think about transportation.

ENVIRONMENTAL BENEFITS

One of the primary driving forces behind the adoption of electric vehicles is their environmental sustainability. Unlike traditional internal combustion engine vehicles, EVs produce zero tailpipe emissions, reducing air pollution and greenhouse gas emissions. By transitioning to electric vehicles, we can mitigate the harmful effects of climate change and improve air quality, especially in urban areas where pollution levels are often highest.



TECHNOLOGICAL ADVANCEMENTS

Advancements in battery technology have been instrumental in the widespread adoption of electric vehicles. Lithium-ion batteries, which power most modern EVs, have become increasingly efficient and affordable, allowing for longer driving ranges and faster charging times. Additionally, innovations in regenerative braking, lightweight materials, and aerodynamics have further improved the performance and efficiency of electric vehicles, making them more competitive with their gasoline counterparts.

CONSUMER ADOPTION AND AWARENESS

As consumers become more environmentally conscious and fuel prices continue to fluctuate, the demand for electric vehicles is steadily increasing. Automakers are responding to this shift in consumer preferences by expanding their electric vehicle offerings and investing in marketing campaigns to raise awareness about the benefits of EVs. Additionally, the growing availability of electric vehicle charging stations, along with improvements in battery technology and driving range, are alleviating range anxiety and making electric vehicles a viable option for more drivers.

CHALLENGES AND OPPORTUNITIES

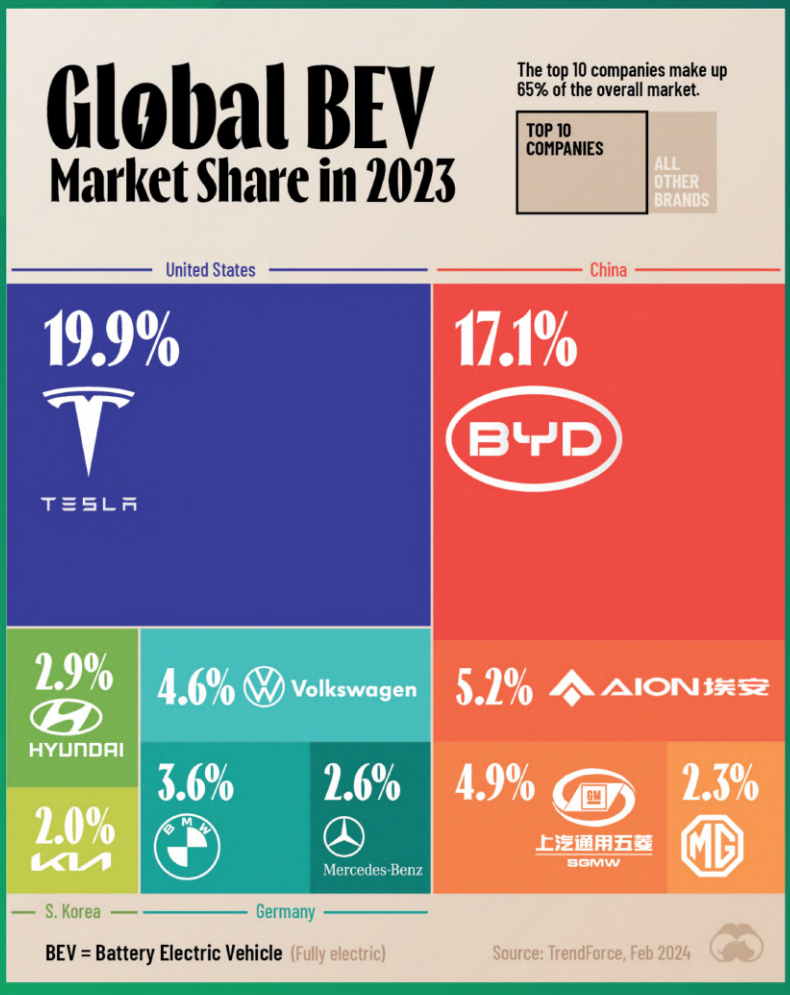
Despite the rapid growth of the electric vehicle market, several challenges remain. Range anxiety, limited charging infrastructure, and higher upfront costs are among the primary barriers to widespread adoption of EVs. However, these challenges also present opportunities for innovation and growth within the electric vehicle industry. With continued investment in research and development, improvements in battery technology, and expansion of charging infrastructure, electric vehicles have the potential to become the dominant form of transportation in the near future.

THE FUTURE OF ELECTRIC VEHICLES

The future of electric vehicles is bright, with industry experts predicting exponential growth in the coming years. As technology continues to advance and economies of scale drive down costs, electric vehicles will become increasingly affordable and accessible to consumers worldwide. Additionally, the electrification of other modes of transportation, such as buses, trucks, and even aircraft, holds promise for further reducing carbon emissions and creating a more sustainable future.

CONCLUSION

Electric vehicles are not just a fad but a fundamental shift in the way we think about transportation. With their environmental benefits, technological advancements, government support, and growing consumer acceptance, electric vehicles are poised to revolutionise the automotive industry and pave the way towards a greener, more sustainable future. By embracing electric vehicles, we can reduce our dependence on fossil fuels, mitigate the effects of climate change, and create a cleaner, healthier planet for future generations. The electric revolution has begun, and the future looks brighter than ever.

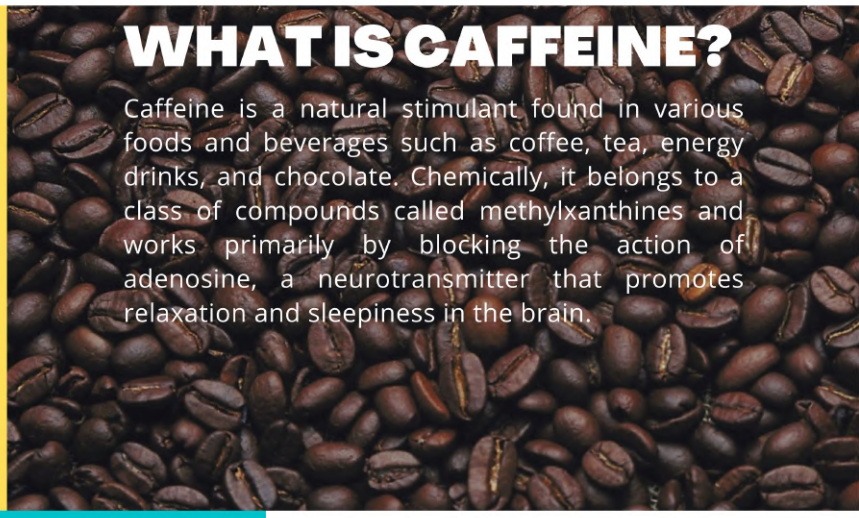


THE ROLE OF CAFFEINE IN PERFORMANCE ENHANCEMENT

by Lt (U) Sheikh

INTRODUCTION

In the quest for optimising physical performance, athletes and fitness enthusiasts often explore various supplements and strategies. Among these, caffeine stands out as one of the most widely studied and utilised ergogenic aids. Whether you're a dedicated gym-goer, a competitive athlete, or someone simply striving to get the most out of your workouts, understanding the effects of caffeine on exercise performance is crucial.



WHAT IS CAFFEINE?

Caffeine is a natural stimulant found in various foods and beverages such as coffee, tea, energy drinks, and chocolate. Chemically, it belongs to a class of compounds called methylxanthines and works primarily by blocking the action of adenosine, a neurotransmitter that promotes relaxation and sleepiness in the brain.

ADENOSINE RECEPTOR BLOCKADE

Caffeine stimulates the release of neurotransmitters such as dopamine and norepinephrine, leading to increased arousal, improved focus, and enhanced cognitive function.

CENTRAL NERVOUS SYSTEM STIMULATION

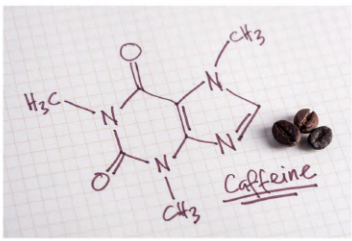
Caffeine stimulates the release of neurotransmitters such as dopamine and norepinephrine, leading to increased arousal, improved focus, and enhanced cognitive function.

ENHANCED MUSCLE CONTRACTION

Caffeine may also directly affect muscle cells, leading to increased calcium release and enhanced muscle contractions, potentially improving strength and power output.

MECHANISM OF ACTION

Upon consumption, caffeine is rapidly absorbed into the bloodstream and reaches peak levels within 30 to 60 minutes. Once in the body, it exerts its effects through several mechanisms.



THE BENEFITS OF CAFFEINE FOR EXERCISE PERFORMANCE

Numerous studies have demonstrated the performance-enhancing effects of caffeine across various types of physical activities, including endurance exercise, strength training, and high-intensity interval training (HIIT). Some key benefits include:

INCREASED ENDURANCE

Spending time with people you care about will give you a feeling of happiness

IMPROVED POWER AND STRENGTH

Caffeine supplementation has been linked to greater muscle force production, faster contraction velocity, and increased power output, which can translate to improvements in strength-based activities like weightlifting and sprinting.

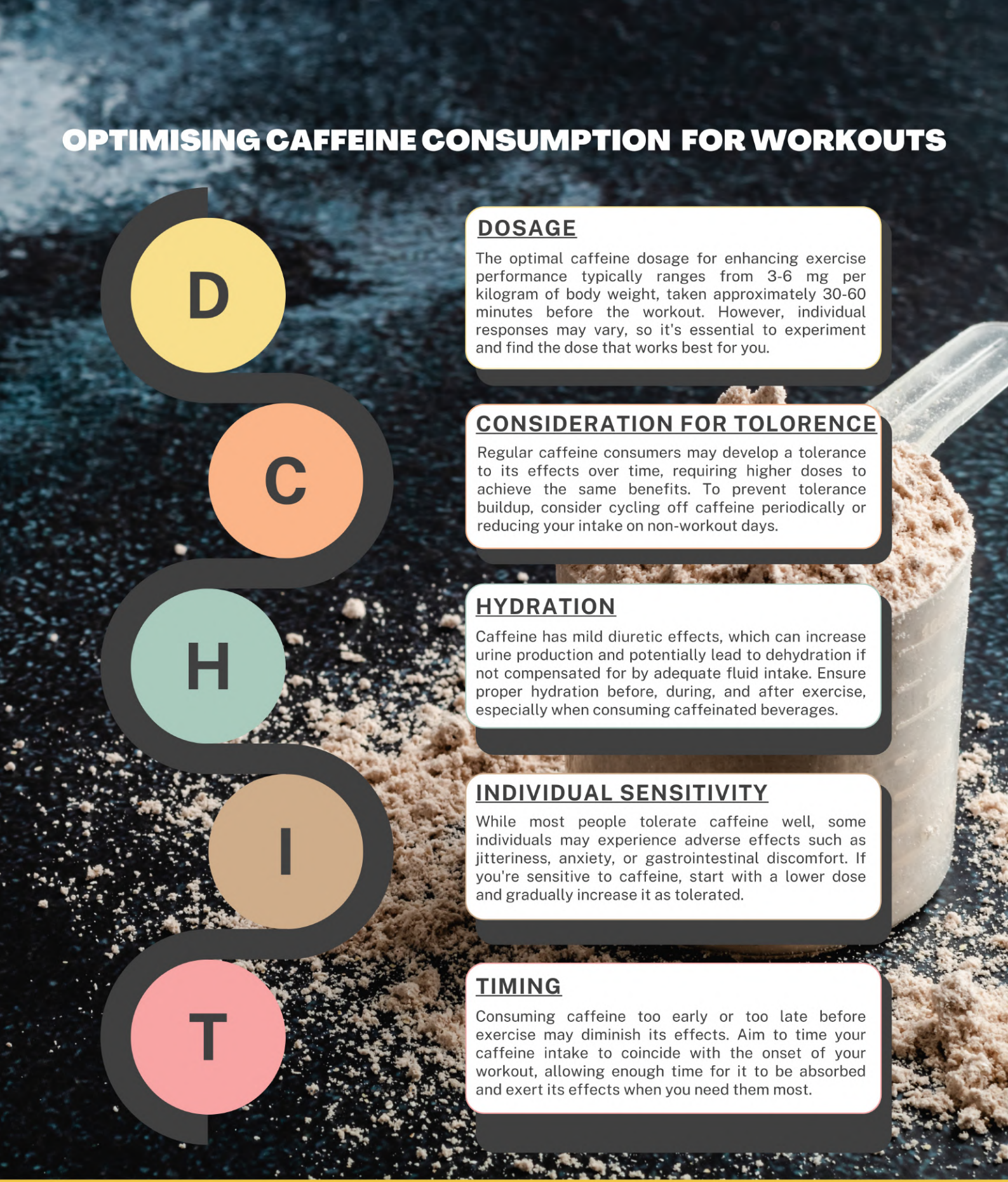
ENHANCED FOCUS AND ALERTNESS

Caffeine has been shown to increase metabolic rate and fat oxidation, making it a popular ingredient in many weight loss supplements. When combined with regular exercise, caffeine may amplify the calorie-burning effects of physical activity.

ACCELERATED FAT LOSS

Beyond its physical effects, caffeine enhances cognitive function, including attention, reaction time, and perception of effort, which can be particularly beneficial during challenging workouts or competitions.

OPTIMISING CAFFEINE CONSUMPTION FOR WORKOUTS



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DOSAGE

The optimal caffeine dosage for enhancing exercise performance typically ranges from 3-6 mg per kilogram of body weight, taken approximately 30-60 minutes before the workout. However, individual responses may vary, so it's essential to experiment and find the dose that works best for you.

CONSIDERATION FOR TOLORENCE

Regular caffeine consumers may develop a tolerance to its effects over time, requiring higher doses to achieve the same benefits. To prevent tolerance buildup, consider cycling off caffeine periodically or reducing your intake on non-workout days.

HYDRATION

Caffeine has mild diuretic effects, which can increase urine production and potentially lead to dehydration if not compensated for by adequate fluid intake. Ensure proper hydration before, during, and after exercise, especially when consuming caffeinated beverages.

INDIVIDUAL SENSITIVITY

While most people tolerate caffeine well, some individuals may experience adverse effects such as jitteriness, anxiety, or gastrointestinal discomfort. If you're sensitive to caffeine, start with a lower dose and gradually increase it as tolerated.

TIMING

Consuming caffeine too early or too late before exercise may diminish its effects. Aim to time your caffeine intake to coincide with the onset of your workout, allowing enough time for it to be absorbed and exert its effects when you need them most.

Incorporating caffeine into your pre-workout routine can be a valuable strategy for enhancing exercise performance and maximising the benefits of your workouts. Whether you're aiming to boost endurance, strength, or focus, caffeine offers a natural and effective way to optimise your training regimen. By understanding its mechanisms of action and following evidence-based guidelines for consumption, you can harness the power of caffeine to take your workouts to the next level. Remember to listen to your body, experiment with different strategies, and consult with a healthcare professional if you have any concerns about caffeine consumption or its interactions with other medications or supplements. With the right approach, caffeine can be a valuable tool in your fitness arsenal, helping you achieve your goals and unleash your full potential in the gym and beyond.