

Government of India
Ministry of Defence



Department of
Defence Production



AERO INDIA
The Runway to a Billion Opportunities

Two fighter jets, likely the Tejas Mk1A, are shown in flight against a sunset sky. One jet is in the foreground, angled towards the left, while the other is further back and to the right, also angled towards the left. The sky transitions from a deep orange near the horizon to a darker blue at the top. The jets are grey with blue accents and have their canopies open.

The Runway to Billion Opportunities

**10TH - 14TH
FEBRUARY 2025**

Air Force Station, Yelahanka,
Bengaluru Karnataka, India



LCA TEJAS



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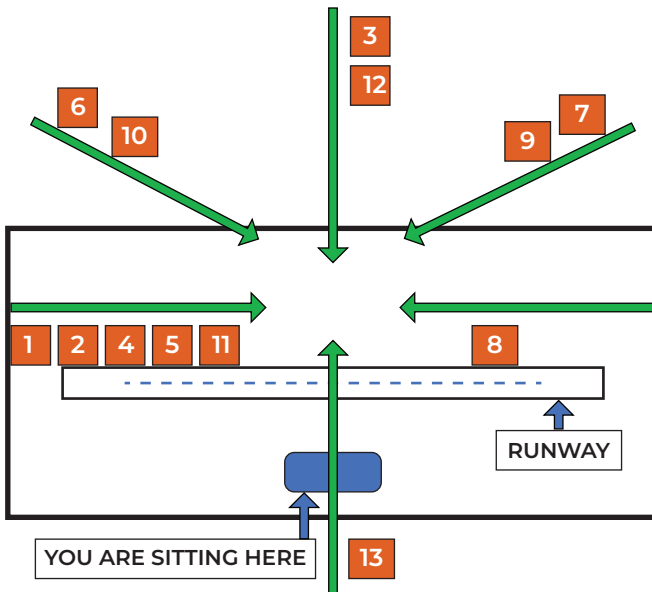
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FLYPAST DISPLAY



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AKASH

A spectacular display of Akash Ganga sky diving team of IAF hosting the tricolors in air. These Bravehearts would be dropped from an An-32 which is indigenously overhauled at Kanpur demonstrating impeccable professionalism. Heads up as they dive into the sky where courage meets the clouds defying gravity and embracing freedom.





DHWAJ

Bearing the Indian Flag in the lead flanked by IAF and Aero India Flag, is the DHWAJ formation of 3 x Mi-17s that will fly past the Dias from Left to Right at 200 ft Above Ground Level (AGL). These helicopters are equipped with indigenous EW suite developed within the nation delivering precision and reliability in every mission.





Tejas

A VIC formation of 3 x LCA Mk-1A will fly past the Dias from 12'o clock right ahead at 700 ft AGL. LCA Mk-1A, the upgrade to the first indigenously developed fighter aircraft is also equipped with the indigenous ASTRA Beyond Visual Range (BVR) missiles.





Bhim

Built for every challenge in the sky is the BHIM formation with 3 indigenously developed Light Utility Helicopters (LUH) of HAL, flying in VIC formation at 200 ft AGL from Left To Right along the runway, adding efforts to 'Atmanirbharata.'





Rakshak

RAKSHAK formation with 3 x Do-228 of Indian Coast Guard will fly now from Left to Right of audience. These aircraft, who derive their formation callsign from their role of safeguarding the vast maritime shorelines of India, is assisted to execute their role with indigenously developed avionics equipment.





Drona

DRONA formation led by 1 x AN-32 flanked by 2 x Do-228 aircraft will fly at 700 ft AGL approaching the Dias diagonally from Left to Right. These aircraft modernized with indigenous avionics systems signifies the spectrum of transport aircraft in IAF. The formation is led by qualified women flying instructor to showcase 'Narishakti'





Yodha

The YODHA formation with 4 x LCA Mk-1A will fly in diamond formation diagonally approaching from right at 700 ft AGL. This highlights the pride, dedication, effort and technology advancements in the field of aviation by India.





Varuna

The VARUNA formation of Indian Navy airborne platforms , led by 1 x P-8i flanked by 2 x MIG 29K and 2 X HAWK Mk 132 will fly in arrow head formation at 700 ft AGL from right to left. Named after the 'Protector of the Seas' these aircraft forms the aerial guardians of our seas.





Saarthi

The SAARTHI formation with 1 x C-130 J and 2 x C-295 transport aircraft of the IAF will fly at 700 ft AGL approaching the Dais from Right to Left. Indigenous production facilities for C-295 within the country is a testimony towards the self-reliance drive.





Arjun

ARJUN formation with 5 x Jaguar Deep Penetration Strike Aircraft would approach the Dias diagonally from Left. The Jaguar aircraft licensed manufactured in India is also equipped with latest indigenously developed smart weapons and avionics systems.



Netra

NETRA formation with Embraer -145 Airborne Early Warning and Controlling (AEW & C) aircraft in lead with 2 x Su 30 MKIs in its flanks will fly past from left to right of the audience at 700 ft AGL. The indigenously developed AEW & C platform stands as a testimony to the technological capability of development and operationalization of complex indigenous airborne avionics equipment.





Shakthi

SHAKTHI formation with 1 x Rafale and 2 X Su 30 MKIs would approach the Dias from 12' o clock at 700 ft AGL. An all women fighter pilots formation on controls, this formation named after the primordial cosmic feminine serves as an inspiration, breaking gender barriers, emphasizing women empowerment and equality and demonstrating the strength, skill and determination of 'Bharatiya Naari Shakthi'.





Trishul

The flypast will be culminated with TRISHUL formation with 3 x Su 30 MKI running in from behind the audience in VIC formation at 700 ft AGL breaking into a 'Trishul' in front of the Dias.



AERIAL DISPLAY INDIAN



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HTT-40 (Hindustan Turbo Trainer-40)

HAL HTT-40 is a state-of-the-art basic trainer aircraft designed and developed by Hindustan Aeronautics Limited (HAL) to meet the Indian Air Force's (IAF) requirements for pilot training. As a robust, cost-effective, and versatile platform, the HTT-40 is used for primary flight training, aerobatics, and instrument flying, ensuring a strong foundation for future fighter and transport pilots.

A standout feature of the HTT-40 is its high level of "indigenisation", aligning with India's "Make in India" and "Atmanirbhar Bharat" initiatives. Over "80% of the aircraft's components", including the airframe, avionics, and landing gear, are domestically designed and manufactured. The HTT-40 features an indigenous glass cockpit with advanced digital displays, a GPS-based navigation system, and a mission computer, all developed by Indian defense agencies and private industries. This showcases India's growing capability in aerospace technology and systems integration.

The HTT-40 is powered by a Honeywell TPE331-12B turboprop engine, but HAL has emphasized the use of indigenous systems wherever possible, including the aircraft's aerodynamic design and structural components. The project has also fostered collaboration with Indian MSMEs (Micro, Small, and Medium Enterprises), creating a robust supply chain and boosting the domestic aerospace ecosystem.

The HTT-40's successful development and induction into the IAF mark a significant milestone in India's quest for self-reliance in defense manufacturing. By prioritizing indigenisation, HAL has not only reduced dependency on foreign imports but also positioned itself as a competitive player in the global trainer aircraft market. The HTT-40 is a testament to India's growing prowess in designing and producing advanced aerospace platforms.





IJT (Intermediate Jet Trainer)

IJT also known as the “HJT-36 Sitara”, is a pivotal project in India's quest for self-reliance in defense aviation. Designed and developed by Hindustan Aeronautics Limited (HAL), the IJT serves as a crucial training platform for pilots transitioning from basic propeller-driven aircraft to advanced jet fighters. It bridges the gap between the HAL Kiran trainer and the high-performance Sukhoi-30 or Tejas fighters, ensuring a seamless progression in pilot training.

The IJT is a testament to India's growing capabilities in indigenous aerospace design and manufacturing. Over “70% of its components”, including the airframe, avionics, and flight control systems, are domestically sourced. HAL has leveraged its expertise from previous projects, such as the Kiran and Tejas programs, to develop the IJT's advanced systems. The aircraft features an indigenous glass cockpit, integrated navigation systems,

and a digital fly-by-wire system, showcasing India's technological advancements in aviation.

The IJT is powered by a Russian NPO Saturn AL-55I engine, but HAL has been exploring options for indigenisation, including potential collaborations for local engine production. The project has also fostered a robust supply chain within India, involving numerous small and medium enterprises (SMEs) in the aerospace sector.

Despite facing developmental challenges, the IJT program underscores India's commitment to achieving self-sufficiency in defense manufacturing. Its successful induction into the Indian Air Force would not only enhance pilot training capabilities but also position HAL as a competitive player in the global market for military training aircraft, aligning with the “Make in India” and “Atmanirbhar Bharat” initiatives.





HANSA NG

HAL HANSA-NG (Next Generation) is a modern, lightweight, two-seater trainer aircraft designed and developed by National Aeronautical Laboratories (NAL) to cater to the growing demand for pilot training in India. As an upgraded version of the original HANSA-3, the HANSA-NG is a state-of-the-art platform for basic flight training, recreational flying, and glider towing. It is equipped with advanced avionics, a glass cockpit, and a more efficient engine, making it an ideal choice for flying clubs and training institutions.

A key highlight of the HANSA-NG is its emphasis on “indigenisation”, aligning with India’s “Make in India” and “Atmanirbhar Bharat” initiatives. Over “70% of the aircraft’s components”, including the airframe, avionics, and systems, are domestically designed and manufactured. The HANSA-NG features an indigenous glass cockpit with advanced navigation and communication systems, developed in collaboration with Indian defense and private industries. It is powered by the

“Rotax 912 ISC engine”, which, although imported, is integrated with locally developed systems to enhance performance and efficiency.

The HANSA-NG program has also fostered collaboration with Indian MSMEs (Micro, Small, and Medium Enterprises), creating a robust supply chain and boosting the domestic aerospace ecosystem. NAL’s focus on indigenisation has not only reduced dependency on foreign imports but also strengthened India’s capability to design and produce advanced trainer aircraft.

The HANSA-NG represents a significant step forward in India’s pursuit of self-reliance in aviation. By combining modern technology with a high degree of indigenisation, NAL has created a cost-effective, efficient, and versatile training platform that meets both civilian and defense requirements, while showcasing India’s growing expertise in aerospace manufacturing.





Do-228 LRDE Flight Test Bed

“Dornier 228 Test Bed”, developed by Hindustan Aeronautics Limited (HAL) for DRDO, is a specialized aircraft designed to serve as a flying laboratory for testing and validating advanced aerospace systems, sensors, and technologies. Based on the versatile Dornier 228 platform, this test bed plays a crucial role in accelerating the development and certification of indigenous defense and civilian aviation technologies.

A significant aspect of the Dornier 228 Test Bed is its focus on “indigenisation”, reflecting India’s commitment to self-reliance in aerospace under initiatives like “Make in India” and “Atmanirbhar Bharat.” While the Dornier 228 airframe is of German origin, HAL has extensively modified and equipped the aircraft with indigenous systems, including mission computers, avionics, and sensors. The test bed is used to evaluate and validate domestically developed technologies such as radar systems, electronic warfare suites, and communication equipment, showcasing India’s growing expertise in aerospace innovation.

DRDO has also integrated the test bed with indigenous data acquisition and processing systems, enabling real-time analysis of test results. This capability is critical for reducing development timelines and ensuring the reliability of homegrown technologies. The Dornier 228 Test Bed has been instrumental in supporting projects like the “Tejas Light Combat Aircraft (LCA)”, “AEW&C (Airborne Early Warning and Control) systems”, and other DRDO-led initiatives.

By leveraging the Dornier 228 Test Bed, HAL has strengthened India’s ability to design, test, and certify advanced aerospace systems domestically, reducing dependency on foreign testing facilities. This platform exemplifies India’s progress toward achieving self-reliance in defense and aviation technology, while fostering collaboration between HAL, DRDO, and private industries to build a robust aerospace ecosystem.





LCA (Light Combat Aircraft) MK-1A

HAL Tejas LCA Mk 1A is a shining example of India's strides in indigenous aerospace technology and defense self-reliance. Developed by Hindustan Aeronautics Limited (HAL), the Mk 1A is an advanced variant of the Light Combat Aircraft (LCA) Tejas, designed to meet the operational requirements of the Indian Air Force (IAF). It is a lightweight, multi-role fighter jet capable of air superiority, ground attack, and reconnaissance missions, equipped with state-of-the-art avionics, radar, and weapon systems.

A key highlight of the Tejas Mk 1A is its significant level of indigenisation, aligning with India's "Make in India" initiative. Over 50% of the aircraft's components, including its airframe, avionics, and flight control systems, are domestically manufactured. The Mk 1A features an indigenous Active Electronically Scanned Array (AESA) radar, developed by India's Defense

Research and Development Organization (DRDO), which enhances its detection and tracking capabilities. Additionally, the aircraft incorporates locally developed electronic warfare systems, mission computers, and displays, showcasing India's growing expertise in defense technology.

The Mk 1A also integrates foreign-origin systems, such as the GE F404 engine, but HAL is actively working on replacing it with the indigenous Kaveri engine in future variants. The aircraft's production and development have bolstered India's aerospace ecosystem, involving numerous domestic suppliers and creating skilled jobs. With 83 Mk 1A aircraft ordered by the IAF, the program marks a significant step toward reducing India's reliance on foreign defense imports and establishing itself as a global player in aerospace manufacturing.





SUKHOI-30 MKI

Su-30MKI, a cornerstone of the Indian Air Force's (IAF) combat fleet, is a highly advanced, multi-role air superiority fighter aircraft. While the platform is originally of Russian design, Hindustan Aeronautics Limited (HAL) has played a pivotal role in its license production and integration of indigenous systems, making it a symbol of India's growing defense capabilities. The Su-30MKI is renowned for its agility, long-range strike capabilities, and versatility in air-to-air and air-to-ground missions.

A significant aspect of the Su-30MKI program is its integration of "indigenous weapons and systems", reflecting India's push for self-reliance in defense. The aircraft is capable of deploying a range of domestically developed armaments, including the "ASTRA beyond-visual-range (BVR) air-to-air missile", designed by the Defense Research and Development Organization (DRDO). Additionally, the Su-30MKI has been successfully tested with the "Brahmos-A supersonic cruise missile", the world's fastest anti-ship missile, further enhancing its strike

capabilities. Other indigenous smart weapons like Rudram I,II,III long range standoff anti radiation missiles and Gaurav Long range Glide bombs are also planned to be integrated. These integrations demonstrate India's ability to adapt and enhance foreign platforms with homegrown technology.

HAL has also incorporated indigenous electronic warfare systems, radar upgrades, and mission computers into the Su-30MKI, enhancing its operational effectiveness. The aircraft's ability to carry and deploy Indian-made weapons not only reduces dependency on foreign suppliers but also strengthens India's defense industrial base.

The Su-30MKI program exemplifies the synergy between foreign technology and indigenous innovation, aligning with the "Make in India" and "Atmanirbhar Bharat" initiatives. By integrating locally developed weapons and systems, HAL has transformed the Su-30MKI into a potent platform that showcases India's growing prowess in defense technology and self-reliance.





LUH (Light Utility Helicopter)

Light Utility Helicopter (LUH) is a landmark achievement in India's journey toward self-reliance in defense aviation. Designed and developed by Hindustan Aeronautics Limited (HAL), the LUH is a versatile, lightweight helicopter intended to replace the aging Cheetah and Chetak fleets of the Indian Armed Forces. It is optimized for roles such as reconnaissance, troop transport, casualty evacuation, and high-altitude operations, particularly in challenging environments like the Himalayas.

A defining feature of the LUH is its high degree of "indigenisation", reflecting India's commitment to the "Make in India" and "Atmanirbhar Bharat" initiatives. Over "60% of the helicopter's components", including the airframe, rotors, and avionics, are domestically designed and manufactured. The LUH is powered by the "Shakti engine", co-developed by HAL and France's Safran, which is also used in the Dhruv Advanced Light Helicopter (ALH). This engine provides the LUH with

exceptional performance in high-altitude conditions, a critical requirement for Indian operations.

The LUH incorporates indigenous systems such as a glass cockpit, integrated navigation systems, and advanced communication equipment, showcasing India's growing expertise in aerospace technology. HAL has also established a robust supply chain involving Indian MSMEs (Micro, Small, and Medium Enterprises), fostering a vibrant ecosystem for defense manufacturing.

The LUH program not only addresses the operational needs of the Indian Armed Forces but also positions HAL as a competitive player in the global light helicopter market. By achieving significant indigenisation, the LUH underscores India's capability to design, develop, and manufacture cutting-edge aerospace platforms, reducing dependency on foreign imports and strengthening the nation's defense industrial base.





SKAT

The Surya Kiran Aerobatic Team (SKAT) is the premier aerobatic display team of the Indian Air Force (IAF), renowned for its breathtaking aerial performances and precision flying. Established in 1996, the team operates the British-built Hawk Mk 132 advanced jet trainers, painted in a striking white, orange, and blue livery that represents the colors of the Indian flag. The name "Surya Kiran" translates to "Sun Rays," symbolizing the team's mission to illuminate the skies with their skill and artistry.

Composed of highly experienced pilots and ground crew, SKAT performs complex maneuvers, including formation flying, loops, rolls, and crossovers, often at high speeds and low altitudes. Their displays showcase the agility of the Hawk aircraft and the exceptional training and coordination of

the IAF. The team has performed at numerous national and international air shows, including the Republic Day celebrations in India and events abroad, earning global acclaim for their precision and professionalism.

SKAT not only serves as a symbol of national pride but also demonstrates the IAF's operational capabilities and commitment to excellence. Their performances inspire young aviators and instill a sense of patriotism among spectators. Despite a temporary disbandment in 2011 due to operational requirements, the team was revived in 2015, continuing its legacy of thrilling audiences and representing India's aviation prowess on the world stage. The Surya Kiran Aerobatic Team remains a shining example of teamwork, discipline, and aerial artistry.



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KC-135

"KC-135 Stratotanker", a cornerstone of the United States Air Force's (USAF) aerial refueling fleet, is a military adaptation of the Boeing 707 airframe designed to extend the range, endurance, and operational flexibility of combat aircraft. Since its introduction in the 1950s, the KC-135 has played a vital role in global military operations, providing critical mid-air refueling support to fighter jets, bombers, transport aircraft, and reconnaissance platforms. With a capacity to carry over "90,000 kilograms of fuel", the KC-135 can transfer fuel at a rate of up to "1,100 gallons per minute", ensuring mission success for a wide range of aircraft.

The KC-135 is equipped with a "flying boom refueling system", operated by a dedicated boom operator, and can also be fitted with hose-and-drogue systems to support probe-equipped aircraft. Its versatility and reliability have made it an indispensable asset for power projection, enabling long-range missions and rapid

deployment of air forces worldwide. The aircraft has undergone numerous upgrades over the decades, including modernized avionics, engines, and communication systems, ensuring its relevance in contemporary operations.

For "Aero India", the KC-135 Stratotanker would serve as a testament to the critical role of aerial refueling in modern airpower. Its participation would highlight the importance of logistics and sustainment in extending the reach and effectiveness of combat aircraft, offering valuable insights for India's growing aerial refueling capabilities. As India seeks to enhance its strategic reach and operational flexibility, the KC-135 could inspire discussions on advanced refueling technologies and potential collaborations.

The KC-135's proven track record and enduring legacy make it a symbol of the vital support systems that underpin modern air forces, showcasing the synergy between logistics and combat power at events like Aero India.





Bomber-1 B

The “B-1B Lancer”, a supersonic strategic bomber developed by Rockwell International (now part of Boeing), is a cornerstone of long-range, high-speed strike capabilities for the United States Air Force (USAF). Known for its distinctive variable-sweep wing design, the B-1B combines high-speed performance, heavy payload capacity, and advanced avionics to deliver unparalleled precision and flexibility in both conventional and nuclear missions. With a top speed of Mach 1.25 and a range of over 11,000 kilometers, the B-1B can rapidly deploy and strike targets across vast distances, making it a critical asset for global power projection.

The B-1B’s massive payload capacity of up to “34,000 kilograms” allows it to carry a diverse array of weapons, including precision-guided munitions, cruise missiles, and conventional bombs. Its advanced radar and electronic warfare systems enable it to penetrate heavily defended airspace and deliver precision strikes with minimal risk. The aircraft’s

ability to perform at both high and low altitudes, coupled with its stealthy design features, enhances its survivability in contested environments.

For “Aero India”, the B-1B Lancer would serve as a powerful symbol of strategic airpower and technological innovation. Its participation would highlight the importance of long-range strike capabilities and the integration of advanced avionics and weapons systems in modern military aviation. While India does not operate the B-1B, its presence at Aero India could foster discussions on strategic defense partnerships, technology sharing, and the future of heavy bomber capabilities in the Indo-Pacific region.

The B-1B’s combination of speed, range, and payload makes it a formidable platform for showcasing the future of strategic aviation, offering valuable insights for India’s defense modernization efforts and its pursuit of self-reliance in aerospace technology.





SUKHOI-57

Su-57 Felon, developed by Russia's Sukhoi Design Bureau, is a fifth-generation stealth multirole fighter aircraft designed to dominate the skies with its advanced stealth capabilities, supermaneuverability, and cutting-edge avionics. As Russia's first operational stealth fighter, the Su-57 combines supersonic cruising speeds, advanced sensor integration, and a formidable arsenal of weapons to excel in both air-to-air and air-to-ground missions. Its sleek, aerodynamic design and internal weapons bays reduce radar cross-section, enhancing its survivability in contested environments.

The Su-57 is equipped with advanced systems such as the "N036 Byka radar", which features multiple arrays for 360-degree situational awareness, and the "Irbis-E infrared search and track (IRST) system", enabling it to detect and engage targets without relying on radar. Its "AL-41F1 engines" provide thrust vectoring, granting the aircraft exceptional agility and maneuverability, a hallmark of Russian fighter design. The Su-57 can carry a wide range of weapons,

including air-to-air missiles, precision-guided munitions, and hypersonic missiles, making it a versatile platform for modern warfare.

For "Aero India", the Su-57 represents a showcase of cutting-edge aerospace technology and Russia's prowess in stealth and combat aviation. Its participation would highlight the growing importance of fifth-generation fighters in modern air forces and provide an opportunity for India to explore potential collaborations or technology transfers. Although India withdrew from the joint FGFA (Fifth Generation Fighter Aircraft) program with Russia, the Su-57's presence at Aero India could reignite discussions on future partnerships, aligning with India's "Make in India" and "Atmanirbhar Bharat" initiatives.

The Su-57's advanced capabilities and stealth features make it a compelling platform for demonstrating the future of air combat, offering valuable insights for India's defense modernization and indigenous fighter development programs.





F-35

"F-35 Lightning II", developed by Lockheed Martin, is a fifth-generation multi-role stealth fighter aircraft that represents the pinnacle of modern aviation technology. Designed to dominate the skies with its advanced stealth capabilities, cutting-edge avionics, and superior sensor fusion, the F-35 is a game-changer in aerial combat. It comes in three variants: F-35A (conventional takeoff and landing), F-35B (short takeoff and vertical landing), and F-35C (carrier-based) - making it adaptable to diverse operational requirements across air forces, navies, and marines worldwide.

At the heart of the F-35 is its "sensor fusion technology", which integrates data from its advanced radar, electro-optical targeting system, and distributed aperture system into a single, real-time operational picture for the pilot. This capability, combined with its low-observable stealth design, allows the F-35 to penetrate heavily defended airspace and conduct precision strikes with unparalleled effectiveness. The aircraft is powered by the Pratt & Whitney F135 engine, delivering

exceptional thrust and maneuverability.

For "Aero India", the F-35 serves as a symbol of cutting-edge aerospace innovation and international collaboration. Its participation would highlight the latest advancements in stealth, sensor integration, and networked warfare, offering valuable insights for India's aerospace and defense sectors. While India is not currently an F-35 operator, the aircraft's presence at Aero India could spark discussions on future partnerships, technology transfers, and joint development opportunities, aligning with India's "Make in India" and "Atmanirbhar Bharat" initiatives.

The F-35's advanced capabilities and global operational success make it a centerpiece of modern airpower, showcasing the future of combat aviation at events like Aero India. Its inclusion would underscore the importance of stealth, connectivity, and multi-role versatility in next-generation fighter aircraft.



STATIC DISPLAY



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INDIAN AIR FORCE





C130-J Hercules

C130-J Hercules is the standard against which tactical transport aircraft world over are measured. Versatility, reliability and ruggedness makes it the military transport choice of more than 60 nations.

Indian Air Force C-130J-30 is a special operations version of Hercules aircraft. Equipped with highly integrated and sophisticated avionics, multi-functional LCD displays, integrated Head up Display (HUD), moving map displays and Electro-Optical Infra-Red Pod allows the aircraft to perform precision low level flying, air drops on NVGs (Night vision goggles) and base defence in a security threat scenario.

The aircraft can be reconfigured for various types of cargo such as palletized equipment, floor-loaded materials, airdrop platforms, container delivery system and stretchers for aero medical

evacuation. Within a decade since its induction into IAF in 2011, the platform has proven its capability in multiple operations and missions. The aircraft has been the backbone of all integrated joint training with Special Forces of the three services. From landing at the highest airfield in the world at DBO to expressway in Purvanchal and ALGs in North East, IAF C130-J has proven its capability in special operations.

The aircraft has been the preferred choice of the nation in operations like Op Megh Rahat (floods in Kashmir), Op Maitri (Earthquake relief in Nepal), Op Devi Shakti (evacuation of Indian Diaspora from Afghanistan), Op Sanjeevani (COVID relief), Op Dost (the current earthquake relief Ops in Turkey) and many more. Through these missions, the C130-J has been able to project the Indian Strategic reach well beyond the Indian borders.





Rafale

Rafale is a twin engine, Canard Delta wing, and multi-role fighter aircraft designed and built by Dassault Aviation. It is equipped with a wide range of weapons which includes long range BVR Air to Air missiles (Mica & Meteor) and precision guided ammunition for ground strike. The Rafale is intended to perform air supremacy, air interdiction, aerial reconnaissance, ground support and in-depth precision strike missions. The Rafale is referred to as an "Omni-role" Aircraft.

The Rafale, with its "omni-role" capabilities is the right answer to modern warfare as it fully complies with the requirements to carry out wide range of roles with the smallest number of aircrafts. The Aircraft is capable of air-to-air refuelling and is suitable for all weather operations.

Due to its versatility, its adaptability and its ability to meet all mission requirements, Rafale is the "poster child" transformational fighter which provides a way forward to IAF in an ever changing strategic and geo-political environment.

It is of moderate size, yet extremely powerful, superbly agile and very discrete aircraft which not only integrates the largest and most modern range of sensors, it also multiplies their efficiency with a technological breakthrough, "multi-sensor data fusion".





Jaguar Darin III

The Jaguar is a Deep Penetration Strike Aircraft of the IAF. It is a single seat, high wing, land-based monoplane designed for tactical support role. It is powered by two Rolls Royce Turbomeca ADOUR Mk.811 axial flow low bypass turbofan engines with reheat.

The Display, Attack, Ranging and Inertial Navigation System (DARIN III) is the latest avionics upgrade of the aircraft. The DARIN III includes glass cockpit with two Multi-Function Displays, Engine Flight Instrumentation System (EFIS) display, Head-Up Display (HUD) and Hand-on-Throttle and Stick (HOTAS) functionality.

The aircraft is equipped with advanced Inertial Navigation System, a Multi-mode Pulse Doppler Radar, Laser Designation Pod (LDP) and Autopilot system for navigation and attack. The weapon suite includes a 30 mm ADEN guns, rockets, various bombs of different calibre including the Laser Guided Bomb. It can also carry smart weapons like the Smart Anti-Airfield Weapon (SAAW) and New Generation Close Combat Missile (NGCCM). The aircraft has air-to-air refuelling capability and a maximum range of 1900 km.





C-295

The IAF C-295 is a cutting-edge transport aircraft that embodies India's growing capabilities in aerospace indigenisation. This aircraft, built under a strategic partnership with Airbus, is poised to play a vital role in modernising the Indian Air Force's fleet of transport aircraft. At Aero India 2025, the C-295 is expected to capture the attention of defense enthusiasts and professionals with its unique blend of global collaboration and indigenised features.

The aircraft is designed for both tactical and strategic operations, capable of performing a variety of missions such as troop transport, humanitarian aid, and aerial surveillance. Its versatility is supported by advanced avionics, efficient engines, and a robust airframe, allowing it to operate in diverse conditions, including short and semi-prepared airstrips. The C-295's ability to carry heavy payloads, coupled with its operational

flexibility, makes it an ideal fit for India's vast and varied geographical landscape.

A key highlight of the program is the emphasis on indigenisation. In line with India's "Make in India" initiative, the C-295 will be assembled in India with a substantial amount of components being sourced locally. This collaboration not only enhances India's self-reliance in defense manufacturing but also strengthens the domestic aerospace sector. Through partnerships with local suppliers and the transfer of technology, the C-295 program will foster innovation and skill development in India, with the eventual goal of producing these aircraft for both the Indian Air Force and export markets.

The C-295's induction represents a significant leap in India's defense capabilities and underscores the nation's commitment to technological self-sufficiency.





Embraer-145 V (NETRA)

The first Indigenous AEW&C (Airborne Early warning and Control) developed by CABS & DRDO is mounted on Embraer 145 platform. It is also referred to 'NETRA' AEW&C. The role of the IF team using NETRA is to command and control the fighting elements in the air domain utilizing the prowess of the indigenous mission systems which provides unique features of quick deployment, minimal manpower and cost-effective operations.

The team had its first taste of operational experience during the heightened alert state post the "Balakot-strike" wherein it tirelessly flew numerous missions towards the General Hostile Area Surveillance.

The IAF team holds the distinction of undertaking first ever Air-to-Air Refuelling (AAR) by any transport aircraft in the IAF. It also holds a world record of being the first Embraer transport aircraft to undertake Air to Air Refuelling anywhere in the world.

NETRA system is in true sense an "Incredible Eye in the Sky" which derives its combat capability from multiple sensors mounted on an agile platform. This makes it an indomitable network centric platform and provides significant force enhancing capability to the IAF, thus making the Squadron truly "Skanda i.e., Lord of War".



INDIAN COAST GUARD





DO-228 (ICG version)

The Do-228 is a versatile and robust 19-seat configuration twin-turboprop aircraft, its maritime variant is designed to meet a broad spectrum of operational needs. With a maximum take-off weight of 6400 kg and a commendable cruise speed of 370 km/h, it stands as a reliable and capable asset in various demanding environments. Powered by two Honeywell TPE 331-5 engines, each delivering 715 SHP, and complemented by either four-blade metallic or five-blade composite propellers, the aircraft showcases superior performance. Its remarkable rate of climb of 8.75 meters per second ensures swift ascents, while its service ceiling of 4572 meters (15,000 feet) guarantees reliable operation at significant altitudes.

A key attribute of the Do-228 is its exceptional short take-off and landing (STOL) capability, allowing it to operate even from semi-prepared airfields—making it ideal for missions in remote and challenging terrains.

The Do-228 is equipped with cutting-edge avionics and a state-of-the-art glass cockpit, which significantly enhances both operational efficiency and pilot precision. The Integrated Standby Instrument System (ISIS) provides an added layer of redundancy, ensuring system reliability in

critical moments. In addition, the aircraft is designed to support a wide range of wing-mounted payloads, further amplifying its multifunctional capabilities.

The aircraft's diverse roles include maritime surveillance, pollution detection and response, troop transport, aerial surveying, search and rescue, airport navigation calibration, cargo and logistics support, air ambulance services, and even armament deployment with gun pods. It also plays an invaluable part in humanitarian assistance and disaster response (HADR) operations and serves to assist fishermen at sea, proving its adaptability across various fields.

In terms of indigenous technological prowess, the Do-228 is equipped with an Indigenous Mission Management System (MMS) and Data Link System, reflecting a significant leap in self-reliance. With 75 indigenous components developed by Hindustan Aeronautics Limited (HAL), the aircraft boasts an impressive indigenous content exceeding 60%. This not only highlights the aircraft's technological sophistication but also reinforces its strategic importance and self-sufficiency.



INDIAN NAVY (IN)





MiG 29K

MiG 29K is a twin engine, multi-role, aircraft carrier borne fighter aircraft. That aircraft has a high thrust-to-weight ratio and has excellent low speed handling characteristics. The aircraft is a STOBAR aircraft which stands for Short Take off but Arrested Recovery. To optimise the limited space on flight deck, the aircraft has foldable wings which reduces the wingspan from 11.99 mtr to 7.74 mtr.

The MiG 29K is equipped with state-of-the-art air interception radar with an azimuth coverage of +85 degrees and a wide range of weapons including beyond visual range missiles, anti-ship missiles and stand-off precision attack missiles. The MiG 29K has a total of eight hard points on its wings, making it capable to carry a vast mix of weapons based on mission requirements. With its weapon arsenal, the MiG 29K is capable of performing fleet air defence for the Indian Navy fleet at sea, air supremacy, air interdiction, anti-ship strikes and in

depth precision strike missions.

The MiG 29K is equipped with three MFDs in cockpit and has a sophisticated 4 channel digital fly-by-wire which provides redundancy. The aircraft is capable of air-to-air buddy refueling both by day and night adding additional flexibility and reach to the fighters getting airborne from the aircraft carriers. Inducted in 2010, the MiG 29K operates from INS Vikramaditya and INS Vikrant.

The MiG 29K is undergoing weapon package upgrade in association with HAL and other Indian aviation industry partners. The aircraft has been integrated with precision strike weapons like Rampage and Laser Guided Bombs, which is on display at Aero India for the first time. The other weapon upgrade programmes in progress include integration of indigenously developed weapons like the Astra Mk I/ Mk II, SAT SAAW and Naval Anti-Ship Missile-Medium Range.





KM-31 (KAMOV-31)

KM-31 is the only ship-borne Air Early Warning (AEW) Helicopter of the Indian Navy. The Helicopter was inducted into the Indian Navy in March 2003 and is of Russian origin. The helicopter is powered with two TV3 117VMAR turbo shaft engines. The uniqueness of the helicopter is the contra-rotating main rotor blades and no tail rotor. The Helicopter is an all-weather aircraft with state-of-the-art avionics and the latest tactical datalink systems. The crew composition for the helicopter is one Pilot and one Air Ops officer.

The helicopter operates from Talwar/ Teg/ Tushil class of ships and is also integrated with both the Aircraft Carriers of the Indian Navy. The Helicopter can carry out varied missions such as Air/ Surface Surveillance, Strike Homing, proving Over

the Horizon Targeting Data, ESM probes, Airborne rendezvous control, Assisting Lost Aircraft and providing interception vectors to fighters. The KM-31 is fitted with a retractable airborne surveillance radar E801E, which is capable of detecting incoming aerial threats (fighters, maritime reconnaissance aircraft and sea skimming missiles) at extended ranges.

The helicopter is an integral part of the Air Defence of the Fleet-at-Sea and provides real-time targeting data to the operations room of surface combatants through tactical data link. The helicopter is fitted with an indigenous ESM system 'Sarang'. For maintaining a 24-hour constant vigilance over the skies and enhancing the air surveillance bubble of the Indian Navy, the KM-31 is also known as 'Eyes of the Fleet'.





MH-60R

MH-60R is a twin engine, multi-role, all-weather aircraft with fully integrated glass cockpit. It features fully articulated blades, with tips swept back, to enhance performance during hover and high-speed flight. The tail rotor is canted at 20 degrees to improve lift during hover. The aircraft is equipped with an automatic fly-by-wire stabilator and dual redundant flight controls. MH-60R has a foldable tail pylon and main rotor blades which reduces the overall footprint on the ships.

The aircraft is fitted with a Multi-Mode Radar, Forward Looking Infrared Camera (FLIR), a Multi-Spectral Targeting system, an Integrated Self Defence System with chaffs & flares, Sonobuoy Launch System and a Dipping Sonar. It is equipped with a wide range of weapons including the Mk

54 Torpedo, Hellfire Missile, Advanced Precision Kill Weapon System (APKWS), Cabin Mounted Gun and Mk 11 Depth Charges. The sensors and weapons complement allow the aircraft to undertake roles such as Anti Surface Warfare (ASW), Surface Warfare (SuW), Electronic warfare, Search and Rescue (SAR) and Vertical replenishment.

The aircraft is IFR compliant and has an NVG compatible cockpit and cabin. The aircraft is also capable of Helicopter In-Flight Refuelling System (HIFR) which enhances the endurance of these aircraft and allow them to operate at increased ranges while undertaking missions at sea. Inducted in Sep 22, the MH-60R aircraft are currently based at INAS 334, INS Garuda at Kochi.





Sea King 42B/C Helicopters

The Sea King 42B and 42C helicopters, integral to the Indian Navy's rotary-wing fleet, are iconic platforms that have played a pivotal role in safeguarding the nation's maritime interests for over four decades. These multi-role helicopters, manufactured by Augusta Westland, symbolise versatility, endurance, and technological sophistication. The aircraft can undertake a plethora of missions and is rightly called as the 'Flying Frigates'.

The Sea King helicopters, classified as Medium Lift Multi-Role Helicopters (MRH), are renowned for their diverse operational roles, which include anti-submarine warfare (ASW), anti-surface warfare (ASuW), long range search and rescue (SAR), electronic warfare (EW), maritime reconnaissance, and logistics support. The helicopter is powered with two Rolls Royce Gnome H 1400-IT engines. The 42B variant, is optimised for ASW, ASV and the 42C

variant, tailored for Low intensity maritime operations and special operations in conjunction with marine c o m m a n d o s .

The Sea King helicopters carry a formidable arsenal, tailored to their roles. Key weapons and payloads include Anti-Ship Missiles, Light Weight torpedoes and Depth charges, which are essential for neutralising surface and sub-surface threats. Additionally, the 42C variant's ability to carry troops and equipment enhances their versatility in logistics and humanitarian missions.

The Sea King fleet has significantly contributed to the indigenous development of naval weaponry. By serving as test beds for India's anti-ship missiles and torpedoes, they have played a crucial role in advancing the Navy's strategic and tactical capabilities.



HINDUSTAN AERONAUTICS LIMITED (HAL)





LCA (Light Combat Aircraft) Mk 1 A

Tejas MK1A is a 4th generation combat fighter aircraft. It is a single engine, single seater fighter with advanced sensor and swing role weapons to take on the adversary in all types of air combat and long-range precision strike missions. The aircraft also has a two-seater variant, which is capable of undertaking full spectrum of combat and training tasks.

The key state of the art technologies includes quadruplex Fly-by-wire flight control system that allow the aircraft to be statically unstable which provides high manoeuvrability. This provides intuitive and carefree handling for the pilots. The aircraft structure is made of advanced composite materials, which reduces its weight and increases aircraft performance. Data link provides seamless transfer of tactical data and silent engagement of the adversary.

The aircraft cockpit has minimalistic switches and aesthetically operable buttons. The glass cockpit has Smart Multifunction Displays (SMD) that display

easily interpretable and operationally relevant information to the pilot. The cockpit ergonomics along with good outside visibility provides seamless transition to pilots between outside and inside cockpit views for effective battle supremacy.

Most of the systems in the aircraft are microprocessor based that provide automated functions, even for utility systems such as brakes, hydraulics, fuel and cockpit air-conditioning. The power plant is the Full Authority Digital Engine Control (FADEC) GE F404-IN20 engine, which produces up to 66 kN thrust in tropical conditions.

Modern sensors include AESA Radar, Digital RWR and Jammer, Data link which complement highly manoeuvrable and long-range weapons such as ASRAAM, ASTRA and Guided Bombs. With Air-Air Refuelling capability, Tejas MK1A operates at extended ranges and manifests as an omnipresent and dominant multi-role fighter.





LCA (NAVY)

The primary objective of the LCA Navy Mk 1 programme is to design and develop a naval variant of Light Combat Aircraft capable of operating from Aircraft Carriers. The scope of the Programme includes the development of two twin seater Trainers (NP1 and NP5), a single seat Fighter (NP2), a Structural Test Specimen (STS) and development of Shore Based Test Facility (SBTF) replicating an aircraft carrier.

The two aircraft developed are Technology demonstrators for aircraft carrier compatibility and weapon

integration. The first LCA Navy prototype (NP1) had its maiden flight on 27 Apr 2012. The second prototype, the fighter version (NP2) had its maiden flight on 07 Feb 2015. Presently both aircraft are undergoing extensive flight testing for Carrier compatibility. The aircraft to-date has successfully demonstrated arrested recovery and ski-jump launches from both Indian Navy carriers - INS Vikramaditya and INS Vikrant in 2020 and 2023 respectively.





HTT40 (Hindustan Turbo Trainer-40)

Designed and developed by HAL ARDC, the HTT 40 is to be inducted into the IAF as a basic trainer aircraft. The ab-initio trainer is designed to meet the primary training requirements of the Indian Defence Services. This fully aerobatic tandem seat turbo trainer has a glass cockpit with multifunction displays for improved situational awareness.

It is equipped with a zero-zero ejection seat for pilot safety and provides air-conditioning from the ground itself enhancing pilot comfort. Built around a proven turbo prop engine, this aircraft is designed to have good low speed handling qualities that add to training effectiveness. The aircraft is capable of running changeover of crew and hot refuelling to boost the utilization rate. The aircraft is certified to FAR 23 standards. It will be used for Basic Flying Training with

sortie profiles that include aerobatics, navigation, formation flying, night flying, instrument flying etc.

The aircraft is powered by TPE 331-12 engine which enable the aircraft to accelerate quickly and operate with increased reliability and flexibility. The fuel-efficient engine affords greater range and endurance allowing the aircraft to undertake a wide variety of training missions. The aircraft will be used by the services for basic or first stage training of cadets, before, they move on to advanced training on jet engine powered aircraft like HAL HJT-16 KIRAN.

With a well-matched airframe and engine, the HTT 40 provides a maximum speed of 300 Kt and a range of 1000 km. It is capable of operating from short runways and from high altitude airfields located at an elevation of up to 5000 ft.





HJT (Hindustan Jet Trainer) 36-IJT

The HJT -36 is designed and developed by HAL ARDC also known as (Intermediate Jet) Trainer as a replacement of the HJT 16 KIRAN basic jet trainer of the IAF. The jet trainer is designed to meet the primary jet training requirements of the Indian defence services and is available for friendly foreign countries. This fully aerobatic, tandem seat jet trainer has a fully air-conditioned glass cockpit with modern avionics and zero-zero ejection seat.

This aircraft has good low speed handling qualities, departure resistance and will provide effective training to pilots graduating to more advanced Fighter aircraft. This aircraft will be certified to MIL STD as per ASQR of the IAF. It will be

used for advanced aerobatics, Instrument Flying, Navigation, Night Flying, Close Formation and Weapon Training. The aircraft is also capable of undertaking operational roles such as the role of CSFO during hostilities.

The aircraft is powered by AL-55 Russian Jet Engine. This is a FADEC engine providing of care-free handling throughout the flight envelope and also has auto relight capability. The engine has low SFC giving the aircraft adequate range and endurance for all its roles. The HJT-36 will be used by the IAF for second stage of flying training before the pilots graduate to advanced high performance aircraft.





LUH (Light Utility Helicopter)

The expertise, experience and confidence gained during the development of ALH and LCH enabled HAL to take up design & development of 3 Ton, Single engine Light Utility Helicopter (LUH) to meet the operational requirements of Indian Army and Indian Air Force. The LUH Project was launched in 2009 with total ab-initio design of Helicopter Systems and Structure. This indigenous helicopter is capable of carrying out all Utility roles with capacity of carrying 6 Passengers and 2 Flight Crew.

Extensive flight testing has been carried out on LUH under stringent operating conditions at Sea level, Hot weather, Cold weather, Hot & High altitude conditions proving its mettle for meeting specified design, certification and user requirements.

The helicopter is capable of flying at 220 kmph; service ceiling of 6.5 km and a range of 350 km with 500 kg payload. LUH comes with the hinge less main rotor system ensuring high agility and manoeuvrability of the helicopter. It is fitted with State of the art Avionics suite with fully integrated Smart Multi-Functional Displays and

indigenously developed application software, and FADEC controlled engine. It also has night flying capability. Based on extensive flight testing carried out towards fulfilling Users & certification requirements, Initial Operational Clearance (IOC) of Basic LUH has been issued by Centre for Military Airworthiness and Certification (CEMILAC).

This helicopter has been developed as a replacement for the Indian Armed Forces' aging Chetak and Cheetah fleet. Due to its innovative design, LUH has a spacious cabin space and is much roomier than the Chetaks/Cheetahs though belonging to the same weight class. The first prototype was flown in September 2016.

This versatile helicopter can be effectively used in a variety of civil and military roles for transportation of personnel and materials, casualty evacuation, search and rescue operations, aerial survey and patrolling, carriage of underslung loads, observation and inspection flights, off-shore operations and training of pilots.





LCH (Light Combat Helicopter)-Prachand

Post Kargil war, the necessity for a dedicated, indigenous Combat Helicopter was felt by Indian Air Force resulting in launching of design & development of Light Combat Helicopter (LCH) by HAL in 2006.

LCH Prachand is an Indian multi-role, light attack helicopter designed and manufactured by HAL. Its flight ceiling is highest among all attack helicopters in the world. With the advent of LCH, HAL has put India on the global map of few elite nations having the capability and professionalism to design and develop dedicated combat helicopters.

The first LCH prototype performed its maiden flight in 2010. During the course of tests, LCH gained the distinction of being the first attack helicopter to land in

Siachen, having repeatedly landed at several high-altitude helipads, some of them being as high as 13,600 to 15,800ft.

In 2021, Prime Minister Narendra Modi, formally handed over the LCH to IAF, clearing the way for full scale induction. The LCH was formally inducted into the IAF and was officially named 'Prachand' in year 2022.

LCH is armed with array of weapons. It has a chin-mounted gun, 70 mm rockets, 20mm turret gun, HSLD bombs, air to air and air to ground missiles in its deadly arsenal have the ability to inflict precise and potent firepower to the enemy. Combined with electro optical pod, EW suite and flare and chaff dispensers, this combat helicopter can rival the best in the world.





MISCELLANEOUS



F-16

F-16 Fighting Falcon is a single-engine multi-role fighter aircraft originally developed by General Dynamics for the United States Air Force. It is highly manoeuvrable and has proven itself in air-to-air combat and air-to-surface attack. It provides a relatively low-cost, high performance weapon system and due to its design as an air superiority day fighter, it evolved into a successful all-weather multi-role aircraft.

The Fighting Falcon's key features include a frameless bubble canopy for good visibility, side-mounted control stick to ease control while manoeuvring & an ejection seat reclined 30 degrees from vertical to reduce the effect of G-forces on the pilot, and the first use of a relaxed static stability/fly-by-wire flight control system that helps to make it an agile aircraft. The lightweight of the fuselage is achieved without reducing its strength. With a full load of internal fuel, the F-16 can withstand up to nine times the force of gravity.

In an air combat role, the F-16's manoeuvrability and combat radius (distance it can fly to enter air combat, stay, fight and return) exceed that of all potential threat fighter aircraft.

An all-weather capability allows it to accurately deliver ordnance during non-visual bombing conditions. US Air Force F-16 multirole fighters were deployed to the Persian Gulf in 1991 in support of Operation Desert Storm, where more sorties were flown with them than with any other aircraft. These fighters were used to attack airfields, military production facilities, Scud missile sites and a variety of other targets.

During Operation Allied Force, U.S. Air Force F-16 multi-role fighters flew a variety of missions to include suppression of enemy air defence, offensive counter air, defensive counter air, close air support and forward air controller missions. Mission results were outstanding as these fighters destroyed radar sites, vehicles, tanks and buildings.





F-35

The Lockheed Martin F-35 Lightning II is a single-seat, single-Engine, all weather stealth multi-role combat aircraft that is intended to perform both air-superiority and strike missions. It is also loaded with electronic warfare and Intelligence, surveillance, and reconnaissance capabilities. The Lightning II is capable of Cruising at supersonic speeds.

F-35 multi-role fighter can perform air defence missions, close air support and tactical bombing. It can carry up to two air-to-air missiles or two air to ground weapons in its internal weapon bay. F-35 fighter is compatible with AIM-120 AMRAAM, AIM-132 ASRAAM, JDAM, JSOW, Brimstone, WCMD, MBDA Meteor, and some other missiles. Additional missiles, bombs or fuel tanks can be attached to external hard point. Wing tip pylons can also carry AIM-9X Sidewinder short-range air-to-air missiles. Its key systems include a multi-function Active

Electrically-Scanned Array (AESA) that combines radar, electronic warfare and communications functions and a conformal array imaging infrared sensor. Data from the various sensors is fused on the pilot's advanced helmet-mounted Display system. This multi-role fighter has an In-flight refuelling capability. It has 3 variants as below:

- F-35A is a conventional take-off and landing aircraft. It is a land-based model for the US Air Force. It is the smallest and lightest version of the F-35.
- F-35B is a short take-off and vertical landing aircraft. This model was originally developed for the US Marine Corps, Royal Air force and Royal Navy.
- F-35C is a carrier-based aircraft. It is the Navy's variant, which features a large wing and control surfaces (fin & elevator) than the other variants.





A330

The A330 MRTT (Multi Role Tanker Transport) is the tanker of choice chosen by 15 nations including Australia, France, South Korea, Singapore, Saudi Arabia and the United Arab Emirates. The aircraft is based on the civil A330 airliner and is equipped with state-of-the-art operational and proven enhanced vision system, AAR refueling boom and AAR under-wing pod systems. It also integrates the ability to transport large numbers of troops and cargo with the speed, range and comfort of an airliner. Versatile interior configurations ranging from seating up to 300 passengers to complex VIP customisations. Flexible MedEvac cabin arrangements with layouts for up to 40 stretchers, 20 medical staff seats and 100 passengers are offered. For relief operations, medical care can thus be provided simultaneously with the transport of troops and cargo.





A400M

The A400M is a four-engine turboprop military airlifter that combines the ability to fly to strategic distances carrying loads too heavy or too large for medium airlifters, with the ability to land and deliver those loads on tactical short and unpaved airstrips. The A400M can carry heavy and outsize loads, such as heavy armoured vehicles, helicopters or specialised civil engineering equipment, and fly them at high cruise speeds over long distances in the same way as a jet-engine strategic airlifter and it is able to deploy goods via aerial delivery. With up to 51 tonnes of internal fuel, the A400M is a tactical tanker, too. It can be fitted with two pods to refuel fighters & helicopters.



SU-57



Perspective multifunctional fifth-generation fighter. Su-57E is a multifunctional fifth-generation frontline aircraft designated to perform a wide range of combat missions against air, ground and sea targets. The aircraft can be operated 24/7, in all weather conditions, in active jamming environment.

The fighter is equipped with the most advanced avionics suite, armament and self-defense complexes. Advanced intelligent support of the pilot and high level of automation ensures effective piloting of the aircraft and execution of the whole range of combat tasks with one pilot.





C-390 MILLENNIUM (EMBRAER)

C-390 Millennium (Embraer) is the new generation military multi-mission airlift aircraft that brings unrivalled mobility, airfield operation flexibility and the highest safety levels at low operational costs and on a Single and unique modern platform.

Some of the strong aspects of the C-390 Millennium are unrivalled mobility in its class, rugged design, higher flexibility, state-of-the-art proven technology and easier maintenance.

Another important characteristic is that the aircraft can perform a variety of missions, such as cargo and troop transport, cargo and paratroopers airdrop, aerial refuelling. In this sense the aircraft is a true force multiplier for any nation.





VICARAN – NEXT-GEN ISR UAV

Vicaran is a state-of-the-art Large Aspect Wing UAV engineered for Intelligence, Surveillance, and Reconnaissance (ISR) missions in complex Indian defence environments. Designed for high endurance and superior aerial coverage, Vicaran is the ultimate force multiplier for real-time battlefield awareness, border surveillance, and strategic reconnaissance.

Key Features

- Long-Endurance Flight – Optimized aerodynamic design and lightweight carbon composite structure ensure extended operational hours.
- High-Resolution ISR Payloads – Equipped with advanced EO/IR cameras, SAR, and SIGINT capabilities for multi-domain intelligence gathering.
- Stealth and Low Radar Cross Section (RCS) – Engineered for low observability, making it ideal for covert operations.
- Autonomous and Semi-Autonomous Operation – AI-enabled mission control with real-time decision-making capabilities.
- Secure Data Transmission – Encrypted communication links ensuring reliable and secure data transfer.
- Modular Payload Integration –

Customizable sensor configurations for specific mission requirements.

Technical Specifications

- Wingspan: Large aspect ratio optimized for endurance
- Max Take-off Weight (MTOW): Classified
- Operational Altitude: 25,000+ feet
- Endurance: Over 20 hours
- Cruise Speed: 120-150 km/h
- Payload Capacity: Multi-sensor integration up to 50 kg
- Communication Range: SATCOM and LOS connectivity

Mission Capabilities

- Border Surveillance & Reconnaissance – Real-time intelligence gathering for border security and counter-infiltration.
- Battlefield Awareness – Persistent ISR for tactical operations and high-altitude monitoring.
- Maritime Surveillance – Coastal and naval monitoring to detect unauthorized vessel movements.
- Counter-Insurgency Operations – Covert ISR for anti-terror and strategic monitoring.
- Disaster Management & Search & Rescue – Rapid deployment for real-time damage assessment and SAR missions





HANSA-3(NG)

HANSA-3 is India's first all-composite light two-seat airplane designed and developed indigenously by CSIR-National Aerospace Laboratories, ideally suited for ab-initio flying training, sport, and hobby flying. Certified by the Directorate General of Civil Aviation under JAR-VLA in the year 2000.

CSIR-NAL initiated a program to improve the HANSA-3 aircraft to current standards & to meet INDIA's immediate requirement of trainer aircraft for flying training. The improved HANSA-3 aircraft, with the commercial name HANSA-3(NG), offers a digital display (glass cockpit) system and is powered by an advanced fuel-efficient Rotax 912 iSc3 Sports engine, bubble canopy with a cabin width of 43 inches. It is equipped with electrically operated flaps to meet the user's requirements. It offers

excellent aircraft performance with a higher range of 620 nm, 7 hrs endurance, and a max cruise speed of 98 KCAS. Hansa-3(NG) aircraft had a successful maiden flight on 3rd September 2021. Ground & flight testing, including the sea-level trials and the engine-relight test towards certification under DAY & NIGHT VFR operations, are completed. The DGCA has approved all modification leaflets. The aircraft Type Certificate Data Sheet (TCDS) approval from MoCA, Govt. of India, by February 2023

CSIR-NAL has received Letters of Intent (LoI) for 114+ Hansa-3(NG) aircraft from various flying clubs across the country. There is a keen interest by industries for production partnership expected to select the production industry partner in February/March 2025.





H125

The H125 is a member of Airbus' Ecureuil family, which has accumulated 38 million flight hours worldwide. As the world's best-selling single-engine helicopter, the H125 outclasses all other existing helicopters in its category on performance, versatility, lower maintenance and lower acquisition costs, while also excelling in high-and-hot and extreme environments.

Tata and Airbus Helicopters have partnered to establish the industrial setup for producing the H125 "Made-in-India" helicopter in India. Under this collaboration, Tata and Airbus Helicopters will become the first companies in the private sector to start manufacturing helicopters in India under the 'Atmanirbhar Bharat' vision of the Government of India.

The industrial setup in India will include the Final Assembly Line for the H125. Apart from the Final Assembly Line, the local establishment will include facilities for Ground Tests, Flight Tests and the Delivery Center to handover the H125 to customers.

The deliveries of the "Made-in-India" H125 are expected to commence in 2026.

The H125 produced in India will catalyse the use of helicopters for passenger and goods transportation, remote areas and last-mile connectivity in the country thus reinforcing the Government of India's vision for 'Ude Desh ka Aam Naagrik' (UDAN). It will spawn helicopter usage in public services segments such as helicopter-based emergency medical services (HEMS), disaster management, law enforcement and aerial works thus bringing the benefits of helicopters to the 'aam admi' (common man) of India and contribute to India's growth.

As part of the 'Made in India, for India and the World' strategy of Airbus Helicopters, the H125 FAL in India will not only cater to India but will also export to neighbouring countries such as Nepal, Bhutan, Bangladesh, Sri Lanka and Maldives.





Flexrotor

The Flexrotor is a Group 2 small tactical vertical take-off and landing (VTOL) unmanned aircraft system (UAS). It has a maximum take-off weight of 25 kg (55 lbs) and is designed for Intelligence, Surveillance, and Reconnaissance (ISR) missions for more than 12-14 hours in a typical operational configuration.

It can integrate different types of payloads, including an electro-optical system and advanced sensors to suit customers' unique mission needs. With the ability to autonomously launch and recover from either land or at sea requiring only a 3.7 by 3.7 m (12 by 12 ft.) area, the Flexrotor is ideal for expeditionary missions requiring minimal footprint.

Specification:

- MAX. LAUNCH WEIGHT (ISA / SL): 25 kilos
- Take-off requirement: 3.7 X 3.7 Metres
- Mission duration: 12-14 Hours

Flexrotor delivers long endurance and high space weight and power (SWaP), enabling the expeditionary UAS to operate a wide array of sensors and

capabilities. It can operate from confined land areas and from ships without flight decks, and its expeditionary capability makes it easy to transport and to go from stowed to airborne in less than 14 minutes.

Missions include:

- ISTAR
- Maritime warfare (signal Intelligence, electronic warfare, communications relay)
- Search and rescue
- Parapublic (firefighting, humanitarian missions, border security)
- Civil applications (precision agriculture, geo mapping, wildlife observation & marine science)

Dimension: Length: 2 m, Rotor diameter: 2.2 m, Maximum launch weight (ISA, SL): 25 kg, Wingspan: 3 m

Performance: Maximum payload :8 kg, Dash speed: 140 km/h, Endurance: Up to 32 hours & Hover ceiling at max weight with legs closed: 1300 m

Characteristics: Propulsion- Engine 28 cc 2 stroke



Flying Display Director Team



Air Commodore Debanjan Mandal VM

He was commissioned in to Fighter stream of IAF currently posted as Chief Test Pilot at Aircraft and Systems Testing Establishment. He is Qualified Flying instructor and an Experimental Test Pilot. He has wide test flying experience at ASTE and National Flight Test Centre on 34 different type of platforms varying from prototypes, trainers, fighters and transport aircrafts. He was instrumental in development and prototype testing of indigenous LCA Mk IA aircraft.



Gp Capt Falguni Laha Roy VM

He is a fighter pilot hailing from Calcutta presently posted as Officer Commanding, Flight Test Squadron at Aircraft and System Testing Establishment. He is an Experimental Test Pilot. He has flown over 15 different type of aircraft and has over 2500 hrs of flying experience.



Wg Cdr Rishi Sagar

He was commissioned in to Navigation stream of IAF currently posted at Aircraft and System Testing Establishment. He belongs to Nainital. He has over 3500 hrs of flying experience. He had the rare privilege of conquering the highest peaks of all 7 different continents.

Flying Display Director Team



Wg Cdr Sandeep Singh Hooda

He hails from Rohtak and is a fighter pilot presently holding appointment as Senior Test Pilot (Fixed Wing), Flight Test Squadron at Aircraft and Systems Testing Establishment. He is a CAT 'A' qualified flying instructor and Experimental Test Pilot. He has flown over 15 different types of aircraft and has 2200 hrs of flying experience.



Wg Cdr Sahil Sarin

He is a fighter pilot hailing from Dehradun, presently posted at Aircraft and Systems testing Establishment. He is an Experimental Test Pilot. He has flown over 15 different type of aircraft and has over 2100 hrs of flying experience.



Wg Cdr AG Krishnan

Belonging to Ernakulam, this fighter pilot is presently posted at Aircraft and System Testing Establishment. He is a Qualified Flying Instructor and Experimental Test Pilot. He has flown over 15 different type of aircraft and has over 2100 hrs of flying experience.

Flying Display Director Team



Wg Cdr Rajnish Rai

Hailing from Lucknow, he is commissioned in to fighter stream of IAF and presently posted at Aircraft and System Testing Establishment. He is a Qualified Flying Instructor and Experimental Test Pilot. He has flown over 14 different type of aircraft and has over 2000 hrs of flying experience.



Sqn Ldr Amit Chhikkara

He is a fighter pilot from Sonipat, presently posted at Aircraft and System Testing Establishment. He is a Qualified Flying Instructor and Experimental Test Pilot. He has flown over 14 different type of aircraft and has over 1800 hrs of flying experience.



Sqn Ldr Aseem Saxena

He is commissioned into fighter stream and hails from Saharanpur, presently posted at Aircraft and System Testing Establishment. He is an Experimental Test Pilot. He has flown over 14 different type of aircraft and has over 1800 hrs of flying experience.



Sqn Ldr K Vivek Kumar

Belongs to Hyderabad, he is a fighter pilot presently posted at Aircraft and System Testing Establishment. He is a Qualified Flying Instructor and Experimental Test Pilot. He has flown over 14 different type of aircraft and has over 1800 hrs of flying experience.



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