

KARNATAKA

# Saras Mk II design after more sorties

## SPECIAL CORRESPONDENT

BENGALURU, FEBRUARY 22, 2019 00:00 IST

UPDATED: FEBRUARY 22, 2019 05:08 IST

The design for an improvised version of Saras MK II will be finalised after more sorties in the Saras PT1N by March. Saras MK II is expected to complete the certification process for both military and civilian use within the next four years.

“The Finance Ministry has given in-principle approval for two prototypes of Saras MK II. In the next four years, the certification process would be completed,” said Jitendra J. Jadhav, director of CSIR-National Aerospace Laboratories, on Thursday. According to him, the new variant of Saras will have an imported Pratt and Whitney engine with an electronic control system. Incidentally, Saras PT1N has more than 70% indigenous content.

“The project is firmly back on track and brings enormous value to the country because of the volume of indigenisation,” said Shekar C. Mande, director-general of the Council of Scientific and Industrial Research and secretary of the Department of Scientific and Industrial Research. He said the improvised design for Saras will have considerable reduction in drag and weight and have unique features such as high-cruise speed, lower fuel consumption, short landing and takeoff distance, low cabin noise, and being operable from high and hot airfields.







# ಏರೋ ಇಂಡಿಯಾ ಪ್ರದರ್ಶನ: ಖಾಸಗಿಯವರೊಂದಿಗೆ ಪುಟ್ಟ ವಿಮಾನಗಳ ಅಭಿವೃದ್ಧಿಗೆ ಎನ್‌ಎಎಲ್ ಯೋಜನೆ

## ಸಣ್ಣ ನಗರಗಳ ಸಂಪರ್ಕಕ್ಕೆ 70 ಸೀಟರ್ ವಿಮಾನ



‘ಸರಸ್’ ವಿಮಾನ ಅಭಿವೃದ್ಧಿಪಡಿಸಿದ ತಂಡ ಮತ್ತು ಪೈಲಟ್‌ಗಳ ಜತೆಯಲ್ಲಿ ವಿಜ್ಞಾನಿ ರೊದ್ದಂ ನರಸಿಂಹ, ಸಿಎಸ್‌ಐಆರ್ ಮಹಾ ನಿರ್ದೇಶಕ ಡಾ.ಶೇಖರ್ ಸಿ. ಮಂಡೆ ಮತ್ತು ಎನ್‌ಎಎಲ್ ನಿರ್ದೇಶಕ ಜಿತೇಂದ್ರ ಜೆ. ಜಾಧವ್ ಇದ್ದರು.

ಪ್ರಜಾವಾಣಿ ವಾರ್ತೆ 22.02.2019

ಬೆಂಗಳೂರು: ದೇಶದ ಸಣ್ಣ ನಗರ ಮತ್ತು ಪಟ್ಟಣಗಳ ಮಧ್ಯೆ ವಿಮಾನ ಯಾನಕ್ಕಾಗಿ ರಾಷ್ಟ್ರೀಯ ವೈಮಾನಿಕ ಪ್ರಯೋಗಾಲಯ (ಎನ್‌ಎಎಲ್) ಮತ್ತು ವೈಜ್ಞಾನಿಕ ಹಾಗೂ ಕೈಗಾರಿಕಾ ಸಂಶೋಧನಾ ಪರಿಷತ್ತು (ಸಿಎಸ್‌ಐಆರ್) ಜಂಟಿಯಾಗಿ 70ರಿಂದ 90 ಆಸನಗಳ ಸಾಮರ್ಥ್ಯದ ಸಣ್ಣ ವಿಮಾನಗಳ ಅಭಿವೃದ್ಧಿಪಡಿಸುವ ಯೋಜನೆ ಕೈಗೆತ್ತಿಕೊಳ್ಳಲಿವೆ.

ಸಾಮಾನ್ಯ ಜನರೂ ಕಡಿಮೆ ವೆಚ್ಚದಲ್ಲಿ ವಿಮಾನಗಳಲ್ಲಿ ಸಂಚರಿಸ ಬೇಕು ಎಂಬ ಉದ್ದೇಶದ ‘ಉಡಾನ್’ ಯೋಜನೆಗೆ ಪೂರಕವಾಗಿ ‘ಪ್ರಾದೇಶಿಕ ಸಾರಿಗೆ ವಿಮಾನ’ (ಆರ್‌ಟಿಎ) ಯೋಜನೆ ಕೈಗೆತ್ತಿಕೊಳ್ಳಲಾಗಿದೆ ಎಂದು ಏರೋ ಇಂಡಿಯಾ ಪ್ರದರ್ಶನದಲ್ಲಿ ಸಿಎಸ್‌ಐಆರ್-ಎನ್‌ಎಎಲ್ ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕ ಜಿತೇಂದ್ರ ಜೆ. ಜಾಧವ್ ಅವರು ‘ಪ್ರಜಾವಾಣಿ’ಗೆ ತಿಳಿಸಿದರು.

‘ಈ ಉದ್ದೇಶಕ್ಕೆ ₹ 6,000 ಕೋಟಿ ಅಗತ್ಯವಿದ್ದು, ಕೇಂದ್ರ ಸರ್ಕಾರಕ್ಕೆ ಪ್ರಸ್ತಾವನೆ ಸಲ್ಲಿಸಿದ್ದು, ಹಸಿರು ನಿಶಾನೆಯೂ ಸಿಕ್ಕಿದೆ. ಈ ಪ್ರಯತ್ನದಲ್ಲಿ ಎಚ್‌ಎಲ್, ಟಾಟಾ ಮತ್ತು ಇತರ ಅಂತರ ರಾಷ್ಟ್ರೀಯ ಪಾಲುದಾರರ ಸಹಭಾಗಿತ್ವವನ್ನೂ ಪಡೆಯಲಾಗುವುದು. ಎನ್‌ಎಲ್ ಈ ಯೋಜನೆಯ ನಾಯಕತ್ವ ಹೊಣೆಗಾರಿಕೆ ನಿಭಾಯಿಸಲಿದೆ’ ಎಂದು ಅವರು ಹೇಳಿದರು.

‘ಇದಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಒಂದೂವರೆ ವರ್ಷದೊಳಗೆ ಸಂಪೂರ್ಣ ಯೋಜನಾ ವರದಿಯನ್ನು ಸಿದ್ಧಪಡಿಸಲಾಗುವುದು. ಏಳು ವರ್ಷಗಳಲ್ಲಿ ವಿಮಾನ ಅಭಿವೃದ್ಧಿ ಕಾರ್ಯಕ್ಕೆ ಚಾಲನೆ ನೀಡಲಾಗುವುದು. ರಷ್ಯಾ, ಯೂರೋಪ್ ಮುಂತಾದ ಕಡೆಗಳಿಂದ ಅಂತರ ರಾಷ್ಟ್ರೀಯ ಪಾಲುದಾರರು ಸಿಗುವ ನಿರೀಕ್ಷೆ ಇದೆ’ ಎಂದು ಜಾಧವ್ ತಿಳಿಸಿದರು.

ಪ್ರಾದೇಶಿಕ ಸಾರಿಗೆ ವಿಮಾನ: ‘ದೇಶ- ವಿದೇಶಗಳಲ್ಲಿ ಪ್ರಾದೇಶಿಕ ಸಾರಿಗೆ ಉದ್ದೇಶದ ವಿಮಾನಗಳಿಗೆ ಉತ್ತಮ ಬೇಡಿಕೆ ಇದ್ದು, ಅದನ್ನು ಪೂರೈಸಲು ಕಾರ್ಯ ಸಾಧ್ಯತೆ ವರದಿ ಸಿದ್ಧಪಡಿಸಿದ್ದೇವೆ. ಅದರ ಪ್ರಕಾರ ಮುಂದಿನ 20 ವರ್ಷಗಳಲ್ಲಿ ದೇಶದಲ್ಲಿ 250 ರಿಂದ 300 ಸಣ್ಣ ವಿಮಾನಗಳಿಗೆ ಬೇಡಿಕೆ ಬರಲಿದೆ’ ಎಂದು ಜಾಧವ್ ತಿಳಿಸಿದರು.

‘ಇದೇ ಅವಧಿಯಲ್ಲಿ ಅಂತರ ರಾಷ್ಟ್ರೀಯ ಮಟ್ಟದಲ್ಲಿ 7,000 ಸಣ್ಣ ವಿಮಾನಗಳಿಗೆ ಬೇಡಿಕೆ ಸಿಗಲಿದೆ. ಸೇನಾ ಉಪಕರಣಗಳು ಮತ್ತು ನಾಗರಿಕ ಉದ್ದೇಶದ ಸರಕು ಸಾಗಣೆಗೂ ಈ ವಿಮಾನಗಳು ಬಳಕೆ ಆಗುತ್ತವೆ’ ಎಂದು ಅವರು ಹೇಳಿದರು.

‘ಸರಸ್’ ವಿಮಾನದ ಹಾರಾಟದ ಎರಡನೇ ಪರೀಕ್ಷೆಯೂ ಸಫಲವಾಗಿದೆ. ಇದರ ಕಾರ್ಯ ನಿರ್ವಹಣೆಯ ಕುರಿತು ಪೈಲಟ್‌ಗಳಾದ ವಿಂಗ್ ಕಮಾಂಡರ್ ಯು.ಪಿ.ಸಿಂಗ್, ಪ್ರಭಾಕರನ್, ದಿಲ್ಲಿ ಬಾಬು ಮತ್ತು ಪಣಿಕ್ಕರ್ ಸಕಾರಾತ್ಮಕ ಪ್ರತಿಕ್ರಿಯೆ ವ್ಯಕ್ತಪಡಿಸಿದರು. ಈ ವಿಮಾನದಲ್ಲಿ ಸಾಕಷ್ಟು ಆಧುನಿಕತೆ ಇದ್ದು, ಮುಂದಿನ 20 ವರ್ಷಗಳನ್ನು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಂಡು ಏನಿಯಾನಿಕ್ಸ್ ಮತ್ತು ಇತರ ನಿಯಂತ್ರಣ ವ್ಯವಸ್ಥೆಯನ್ನು ಸೇರಿಸಲಾಗಿದೆ’ ಎಂದು ಯು.ಪಿ.ಸಿಂಗ್ ತಿಳಿಸಿದರು.

## CSIR-NAL banking on Saras

1 min read Fri, 02/02/2019 20:49 Posted in: News/Reports 0 comments

R.Chandrakanth

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The Secretary Department of Scientific and Industrial Research (DSIR), Shekar C. Mande, February 21, visited the CSIR-National Aerospace Laboratories stall at Aero India 2019 and expressed satisfaction at the development of Saras aircraft for military and civilian purposes and also on the regional transport aircraft (RTA) which it has been talking about for quite some time.

Saras which was successfully test flown for the second time last year has been part of the Aero India aerial display. As on date, Saras PT1N has completed the first block of flights and few more flights are expected to take place by March 2019, before the design for improved version of Saras (Mk2) is finalized. The improved version has considerable drag/weight reduction with unique features like high cruise speed, lower fuel consumption, short landing and take-off distance, low cabin noise, operable from high and hot airfield, with pressurized cabin, operable from semi prepared airfield and low acquisition and maintenance cost.

CSIR-NAL has done a study to configure the aircraft from 14 seats to 19 seats, sufficing all regulatory requirements of a light transport aircraft. Final configurations with variable 17-19 seats with minimal or no change in the basic airframe configuration were analysed. With over 70 per cent indigenous content, Saras is expected to be cheaper by 20 to 25 per cent than any imported aircraft in the same category as indigenous systems will be serviced, including spares within the country. NAL said that the aircraft presently available in the international market are of 1970s technology, such as Beechcraft 19000D, Dornier 228, Embraer EMB 110 which have higher fuel consumption, lower speeds, unpressurised cabin and higher operating costs.

Regional Transport Aircraft



# Embraer KC-390: The multi-mission, tactical transport and refuelling aircraft

At the show, the Embraer Defense & Security presents a portfolio of products focusing on the KC-390, which may become an interesting alternative to fulfill Indian Air Force needs feels the manufacturer. The aircraft is capable of performing a multitude of missions such as transport and deployment of cargo and troops, air-to-air refueling (as tanker and as receiver), medical evacuation, search & rescue, aerial firefighting, night and day, all weather, operating from unpaved runways.

The Embraer KC-390 can refuel other airplanes in flight, with the installation of up to three removable internal fuel tanks. The aircraft can also be refuelled in flight, thus providing greater flexibility for longer missions. An advanced self-defence system increases the aircraft survival capability in hostile environments.

This multi-mission aircraft is designed to offer the lowest life-cycle cost in its category. The Brazilian Air Force (FAB) and Embraer are jointly developing this multi-mission aircraft and it will be officially delivered to the FAB as

the launch customer in 2019. The new airlift features state-of-the-art systems such as integrated digital cockpit, fly-by-wire control systems with active sidesticks, break-by-wire, OBBIGS, health monitoring, and prediction system. This multi-mission tactical airlift is fast, reliable, rugged and affordable to operate and maintain.

Embraer's KC-390 first prototype has performed its first flight in February 2015 and the aircraft is now in the flight test campaign, which is progressing well as per the company, matching the performance and capability goals predicted. Since the start of the campaign, on 26 October 2015, the KC-390 presented a very high availability, logging an unprecedented flight rate in the programme, with nearly 2,000 flight hours to date.

The milestones reached in 2018 include the Type Certificate from Brazil's Civil Aviation Agency (ANAC), First Production Aircraft complete and flying. Embraer also performed the aerial refueling drogue extension, for high and low speed conditions, initial cargo airdrop and paratroops assessment



KC-390 on static display

in a joint effort with the FAB and the Brazilian Army, using lateral doors and cargo ramp. The programme has covered the full flight envelope of the aircraft reaching cruise speed of Mach .80 and operational ceiling of 36,000 feet. These tests were an important part of the military certification requirements.

Equipped with International Aero Engines V2500 turbofan engines, the latest avionics, a rear ramp, and an advanced cargo handling system, the KC-390 is capable of carrying up to 26 metric tons of

cargo at a maximum speed of 470 knots (870 km/h), with ability to operate in austere environments, including unpaved or damaged runways. The aircraft can carry pallets, helicopters, armoured wheeled vehicles, and troops (80 soldiers or 66 paratroopers).

The Embraer Defense & Security portfolio of products also includes the A-29 Super Tucano, light-attack aircraft and advanced training. The aircraft has been selected by 15 Air Forces, including the United States Air Force (USAF). ■

## CSIR-NAL banking on Saras

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110 which have higher fuel consumption, lower speeds, unpressurised cabin and higher operating costs. Regional Transport Aircraft

CSIR-NAL has carried out studies regarding RTA and said there was need for about 300 aircraft in India over 20 year demand forecast and over 7,000 RTA class in the global market. The suggested model by the High Power Committee is technology development funding by government and equipping/manufacturing in a joint venture or special purpose vehicle mode. The programme is proposed in three phases – project definition, full scale engineering and design phase and establishing production facility to achieve production rate of 36 aircraft per year by private sector. Presently, CSIR-NAL is contemplating on Phase 1. A concept note for initiating Phase 1 and creating SPV with participation from CSIR-NAL, HAL & DRDO-ADA has been submitted to the Ministry of Civil Aviation. ■



formed by the Government of Kerala in 1993. KINFRA aims at developing the essential infrastructure for various industries. KINFRA's thrust has been to facilitate the development of industrial infrastructure in the State, and as such it has successfully completed more than two decades of excellence in this field.

KINFRA has been

been proposed to set up a Defence Park. The first Defence Industrial park in the public sector in India at Palakkad, Kerala as part of the Make in India-Make in Kerala Project. This project is under the Modified Industrial Infrastructure Upgradation Scheme (MIUS).

The proposed project envisages providing complete infrastructure facility for the

has been earmarked. The land is under the possession of KINFRA and is located adjacent to KINFRA SME Park. The industrial units in the cluster will be given shared infrastructure facilities for innovative product development. The project cost including land is ₹231.35 crore. The project is expecting a Central assistance of ₹50 crore.

Tow® HM63 provides outstanding translation of fiber properties in a composite, including superior inter-laminar shear and compression shear strength. Hex-Tow® HM63 is therefore ideal for any high stiffness and strength-critical applications including space, satellites, UAV, commercial aerospace and helicopters.

Resin Transfer Moulding (RTM) is a composite manufacturing process that allows high quality components to be produced with good surface quality

elit, along with the 30-day tack life at room temperature.

HexPly M56 is available with woven carbon, UD carbon tape, woven glass and Metallic mesh reinforcements and is suitable for hand lay-up, Automated Tape Laying (ATL) and Automated Fiber Placement (AFP) processing. The standard cure temperature is 180°C and an alternative 135°C cure cycle is possible, with potential for reduced tooling costs and composite repair applications.



## “SARAS PT1N has successfully completed 1st block of flights and it will participate in Aero India”

CSIR-NAL has developed two major technologies like flight control software & composite technologies for Tejas as a part of 4<sup>th</sup> generation fighter. CSIR-NAL is involved in structural design, flight simulator, stealth studies for AMCA project, says **JITENDRA J JADHAV**, Director of CSIR-NAL.

**What is the progress of the Saras aircraft and will it be displayed at Aero India 2019?**

SARAS PT1N has successfully completed 1<sup>st</sup> block of flights and it will participate in Aero India.

**What are the key milestones for the project in 2019?**

Freezing of design configuration of production version of SARAS, aerodynamic studies and sizing of components for production version.

**Please elaborate on CSIR-NAL's**

**role in the Tejas programme and upcoming AMCA project?**

LCA is 4<sup>th</sup> generation fighter. CSIR-NAL has developed two major technologies like flight control software & composite technologies for Tejas as a part of 4<sup>th</sup> generation fighter. CSIR-NAL is involved in structural design, flight simulator, stealth studies for AMCA project.

**Will CSIR-NAL continue to make primary air-frame components of Tejas like fin, rudder, wing Spars and fairings, centre fuselage and main landing**

**gear components or will these technology be transferred to the private sector for the Tejas Mk1A programme?**

CSIR-NAL has already identified Tata Advanced Materials Ltd as a production partner and TAML has produced so far 17 ship sets for supplied to HAL.

**What is the next-gen carbon fibre and composite material technology that CSIR-NAL is working on?**

CSIR-NAL has completed certification of aerospace grade carbon fibre and working of

intermediate modulus carbon fibre. In addition to this CSIR-NAL is working on High temp composites, Light weight alloys, special coatings & stealth materials.

**How is the technical collaboration agreement with BEL for Electronic Target System (ETS) progressing?**

It is progressing very well, I understand that BEL has received few enquiries and it may get materialised soon.

**How are deliveries of the Drishti-visibility measuring system-**

**progressing and what are the key challenges overcome by CSIR-NAL in developing this technology?**

DRISHTI so far we have supplied more than 100 nos and we are now looking for production partner to take over for future orders.

**How is the HansaNG two-seater light aircraft project progressing?**

NAL has completed the design freeze of HNSA-NG. HANSA with glass cockpit will be participating in Aero India 2019.



# Million Dollar Export order by ELISRA / ELBIT to Alpha Design Technologies



Bezahel Machlis, President & CEO, ELBIT SYSTEMS Ltd. Israel, handed over the first export order worth Million Dollars and which is expected to grow to Millions of Dollars in the next 4-5 years to Col. H.S.Shankar, VSM (Retd) Chairman & Managing Director, Alpha Design Technologies at Aero India.

Bezahel Machlis said that ELBIT have chosen Alpha Design as their Technology & Production Partner for manufacturing of New Generation of Jammer Power Amplifiers needed by ELBIT's Elisra to meet worldwide requirements. This will later meet Indian needs also. He said that ELBIT is fully committed to "MAKE IN INDIA" program of Government of India and will ensure that large export orders also accrue to Indian Manufacturers.

Col.Shankar said that it was a pleasure for Alpha to work with ELBIT in this high Technology area and it will cement the close relationship between Alpha & ELBIT and India & Israel.

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ಯಕೋವ್ಲೆವ್  
ಏರೋಬಾಟಿಕ್ ತಂಡದ  
ಪ್ರದರ್ಶನ.

# ಏರ್ ಶೋನಲ್ಲಿ ಸಾರಸ್ ಆಕರ್ಷಣೆ

ಎರಡನೇ ದಿನವೂ  
ಯುದ್ಧ  
ವಿಮಾನಗಳ  
ಹಾರಾಟದ  
ಕಸರತ್ತು

ಬಿಸಿಲನ್ನೂ ಲೆಕ್ಕಿಸದೆ  
ನೆರೆದಿದ್ದ ಜನರು

■ **ವಿಕ ಸುದ್ದಿಲೋಕ** ಬೆಂಗಳೂರು

ಮೊದಲ ಬಾರಿಗೆ ಸ್ವದೇಶಿ ನಿರ್ಮಿತ ಸಾರಸ್ ಯುದ್ಧವಿಮಾನದ ಸಾಮರ್ಥ್ಯ ಪ್ರದರ್ಶನ, ರಹಸ್ಯ ಕಾರ್ಯಾಚರಣೆ ನಡೆಸುವ ಡ್ರೋನ್‌ಗಳ ಸೆಣಸಾಟ, ವೈಮಾನಿಕ ಕ್ಷೇತ್ರದ ಕಂಪನಿಗಳು ಹಾಗೂ ಉದ್ಯಮಿಗಳ ನಡುವೆ ಚರ್ಚೆ ಮೊದಲಾದವುಗಳಿಗೆ ಎರಡನೇ ದಿನದ ಏರೋ ಇಂಡಿಯಾ ಶೋ ವೇದಿಕೆ ಕಲ್ಪಿಸಿತು. ಯಲಹಂಕ ವಾಯುನೆಲೆಯಲ್ಲಿ ಎರಡನೇ ದಿನ ನಡೆದ ಶೋಗೆ ಸಾವಿರಾರು ಜನರು ಆಗಮಿಸಿದ್ದರು.

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## ತೇಜಸ್‌ನಲ್ಲಿ ಭೂಸೇನಾ ಮುಖ್ಯಸ್ಥರ ಹಾರಾಟ

ಭೂ ಸೇನಾ ಮುಖ್ಯಸ್ಥ ಬಿಪಿನ್ ರಾಮತ್ ತೇಜಸ್‌ನ ಕಾಕ್‌ಪಿಟ್‌ನಲ್ಲಿ ಕುಳಿತು ಪ್ರಯಾಣ ಮಾಡಿದರು. ಪೈಲಟ್‌ನೊಂದಿಗೆ ಕುಳಿತ ರಾಮತ್



ಅವರು ಸುಮಾರು ಒಂದು ಗಂಟೆ ಪ್ರಯಾಣದ ಅನುಭವ ಪಡೆದರು. ನಂತರ ಸುದ್ದಿಗಾರರೊಂದಿಗೆ ಮಾತನಾಡಿದ ಅವರು, “ತೇಜಸ್ ನೇರ್ಪಡೆಯಿಂದ ವಾಯುಸೇನೆಯ ಬಲ

ಹೆಚ್ಚಾಗಲಿದೆ. ಇದರ ರಾಡಾರ್ ಆಧುನಿಕ ತಂತ್ರಜ್ಞಾನ ಹೊಂದಿದ್ದು, ಶತ್ರುಗಳ ಮೇಲೆ ತೀವ್ರವಾದ ದಾಳಿ ನಡೆಸುವ ಸಾಮರ್ಥ್ಯ ಹೊಂದಿದೆ,” ಎಂದರು. “ಲಘು ಹೆಲಿಕಾಪ್ಟರ್‌ಗಳನ್ನು ಭೂಸೇನೆಯಾಗಿ ಖರೀದಿಸಲು ಚಿಂತನೆ ನಡೆಸಲಾಗಿದೆ,” ಎಂದು ಮಾಹಿತಿ ನೀಡಿದರು.





# ಸಾರಸ್ ಪಿಟಿ1ಎನ್ ಸಾಮರ್ಥ್ಯ ಪ್ರದರ್ಶನ

ಸ್ವದೇಶಿ ನಿರ್ಮಿತ ಪ್ರಥಮ ನಾಗರಿಕ ವಿಮಾನ

ಬೆಂಗಳೂರು: ರಾಷ್ಟ್ರೀಯ ಅಂತರಿಕ್ಷಯಾನ ಪ್ರಯೋಗಾಲಯ (ಎನ್‌ಎಎಲ್) ವಿನ್ಯಾಸಗೊಳಿಸಿರುವ ಅತ್ಯಾಧುನಿಕ ಸಾರಸ್ ಪಿಟಿ1ಎನ್ ಲಘು ನಾಗರಿಕ ವಿಮಾನವು ಪ್ರಥಮ ಬಾರಿಗೆ ಏರೋ ಇಂಡಿಯಾದಲ್ಲಿ ಹಾರಾಟ ನಡೆಸಿತು.



## ಸಾರಸ್ ವೈಶಿಷ್ಟ್ಯ

- ಏರ್‌ಟ್ಯಾಕ್ಸಿ, ಆಂಬುಲೆನ್ಸ್, ವಿಐಪಿ ಸಾರಿಗೆ ಸೇವೆಗೆ ಬಳಕೆ
- ಸೇನೆಯಲ್ಲೂ ಬಳಸ ಬಹುದಾದ ವಿಮಾನ
- ಅಮದು ಮಾಡಿಕೊಳ್ಳುವುದಕ್ಕಿಂತ ಕಡಿಮೆ ದರ

ಉಡಾನ್

ಯೋಜನೆಗೆ

ಪೂರಕವಾಗಿ ಸಿದ್ಧಗೊಂಡಿರುವ 14 ಆಸನ ಸಾಮರ್ಥ್ಯದ ಈ ವಿಮಾನವು ರಕ್ಷಣೆ ಹಾಗೂ ನಾಗರಿಕ ವಿಮಾನಯಾನ ಎರಡರಲ್ಲಿಯೂ ಮಹತ್ವದ ಪಾತ್ರ ನಿರ್ವಹಿಸಲಿದೆ ಎಂದು ಸಿಎಸ್‌ಐಆರ್-ಎನ್‌ಎಎಲ್‌ನ ಪ್ರಧಾನ ನಿರ್ದೇಶಕ ಡಾ. ಶೇಖರ್ ಸಿ. ಮಂಡೆ ಗುರುವಾರ ಸುದ್ದಿಗೋಷ್ಠಿಯಲ್ಲಿ ತಿಳಿಸಿದರು.

ಎಲ್‌ಸಿಎ-ತೇಜಸ್

ವಿನ್ಯಾಸ

ದಲ್ಲಿಯೂ ಪ್ರಮುಖ ಪಾತ್ರವನ್ನು ಎನ್‌ಎಎಲ್ ನಿರ್ವಹಿಸಿದ್ದು, ವಿಮಾನಯಾನ ಕ್ಷೇತ್ರದಲ್ಲಿನ ಸಂಶೋಧನೆ ಮತ್ತು ಕೊಡುಗೆಗಳು ಮುಂದುವರಿಯಲಿವೆ ಎಂದು ಹೇಳಿದರು. 17-19 ಆಸನಗಳ ಸಾಮರ್ಥ್ಯದ ಸಾರಸ್ ಕೂಡ

ಅಭಿವೃದ್ಧಿಪಡಿಸಲಾಗುತ್ತಿದ್ದು, ಮೊದಲ ಬಾರಿಗೆ ಏರೋ ಇಂಡಿಯಾದಲ್ಲಿ ಯಶಸ್ವಿಯಾಗಿ ಹಾರಾಟ ನಡೆಸಿರುವುದು ಖುಷಿ ನೀಡಿದೆ ಎಂದು ಹೇಳಿದರು.

ಹನ್ನಾದಿಂದ ನವಯುಗ: ಹನ್ನಾ ನ್ಯೂ ಜನರೇಶನ್ ವಿಮಾನವನ್ನು ಎನ್‌ಎಎಲ್ ಸಿದ್ಧಪಡಿಸುತ್ತಿದ್ದು, ಸೆಪ್ಟೆಂಬರ್ ವೇಳೆಗೆ ಪರೀಕ್ಷಾರ್ಥ ಹಾರಾಟ ನಡೆಸುವ ನಿರೀಕ್ಷೆಯಿದೆ. 2020ರ ವೇಳೆಗೆ ಈ ವಿಮಾನಕ್ಕೆ ಡಿಜಿಸಿಎ ಪ್ರಮಾಣಪತ್ರ ಪಡೆಯುವ ಗುರಿ ಹೊಂದಲಾಗಿದೆ. ಪೈಲಟ್‌ಗಳ ತರಬೇತಿಯಲ್ಲಿಯೂ ಹನ್ನಾ ಪ್ರಮುಖ ಪಾತ್ರ ನಿರ್ವಹಿಸಲಿದೆ ಎಂದು ಶೇಖರ್ ಸಿ. ಮಂಡೆ ಹೇಳಿದರು.