



Government of Rajasthan

DIRECTORATE OF CIVIL AVIATION

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Ref.No.F.1 (18) DCA/2019/4461

Dated 15.10.2019

EXPRESSION OF INTEREST

For

Purchase of a factory new Multi turbofan (Jet) Engine Aeroplane

Government of Rajasthan intends to procure a factory new Multi engine turbofan (Jet) Engine Aeroplane, having 10 executive club seats (excluding flight crew), for its use. This aircraft would mainly be utilized for the carriage of High dignitaries, Sr. officials besides maintenance of law and order, promotion of tourism and various other administrative requirements. Detailed technical and other requirements are available in Qualitative requirements which either may be downloaded from web-site www.sppp.rajasthan.gov.in / www.gad.rajasthan.gov.in or the same may be obtained from this office in person or through e-mail.

Interested manufacturers or their sole authorized selling agents may submit their proposals to the undersigned alongwith complete details of airplane's technical parameters with all relevant informations & brochures in sealed envelopes latest by 1200 hrs on or before 02ND December, 2019. Technically selected manufacturers/sole authorized selling agents would be invited for presentation of their offered product before competent authorities. Government reserves the right to cancel the EOI in full or part at any time.



(Capt. Keshri Singh)

Director

Government of Rajasthan
DIRECTORATE OF CIVIL AVIATION
CIVIL AVIATION DEPARTMENT
JAIPUR AIRPORT, JAIPUR



सत्यमेव जयते

Procurement of New Multi Turbofan (Jet)
Engine Aeroplane for Government of
Rajasthan.

Part I

Qualitative Requirements
Technical Specification

PREPARED BY
CAPT. KESHRI SINGH
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Introduction

The history of aviation has extended over more than two thousand years, from the earliest forms of aviation, kites and attempts at tower jumping to supersonic and hypersonic flight by powered, heavier-than-air jets.

Using a methodological approach and concentrating on the controllability of the aircraft, the Wright brothers built and tested a series of kite and glider designs from 1900 to 1902 before attempting to build a powered design.

Experiments with gliders provided the groundwork for heavier-than-air craft, and by the early-20th century, advances in engine technology and aerodynamics made controlled, powered flight possible for the first time. The modern aeroplane with its characteristic tail was established by 1909 and from then on the history of the aeroplane became tied to the development of more and more powerful engines (like from piston to turboprop to turbojet).

History of Civil Aviation, Govt. of Rajasthan:

1985-86 first Piston engine Aircraft B58P has been inducted in Govt. of Rajasthan. After 3-4 year of operation in 1989- fleet of Govt. of Rajasthan has been upgraded with first turboprop King Air C90A VT-EQN, than after 15 year of operation, as demand of time DCA want to upgrade the fleet with Jet aircraft but due to limited & restriction on state airstrips they upgraded fleet with second advance high performance turboprop Super king Air B-200 VT-RJA.

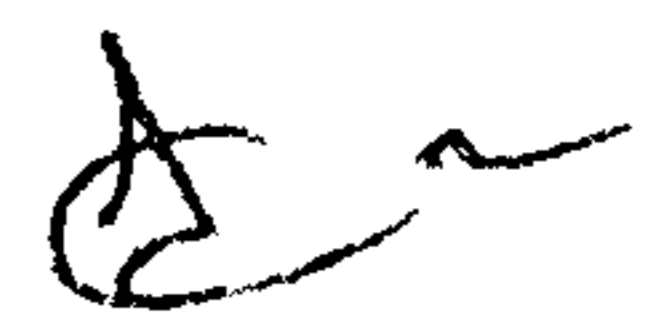
Now after 11 year when many states of India have already replaced/upgraded their turboprop fleet with Turbofan (jet) engine Aeroplane. Turbofan (jet) engine is the most efficient. Also 90% of state airstrips of Rajasthan state are developed & upgraded, which is good enough to cater for midsize jet operation. Directorate of civil aviation is proposing to procure a factory new multi turbofan (Jet) Aeroplane for the "State government of Rajasthan" keeping higher levels comfort, safety & demand of current scenario in mind.

This document is a Qualitative requirement (QR) has been prepared for Procurement of factory new multi turbofan (Jet) Aeroplane for the "State government of Rajasthan". This document has been prepared by Qualified & experienced team (Headed by Chief pilot officer cum Director) consultation/ discussion with Aviation experts & officers of different States Aviation department (who have recently procured Jet or are in process to induct the same), after detail study of safety aspect availability of best proven by keeping Geographical & climatic Condition of State, Current aviation status in mind.

Purpose

Propose to induct most safe, comfortable, reliable, faster and economical aircraft keeping in mind the higher level of safety of VVIP's of Rajasthan state & tourists.

Need of turbofan (Jet) Aeroplane:



- *For Chartered operation.(Domestics & international)*
- *Flexibility: Small jets offer the ability to make Political/business trips that would be impossible when flying on commercial airlines. business jet offer complete control of schedule*
- *Safety: as we are comparing small jets for VVIP, VVIP safety is prime factor. Aircraft should have impeccable safety records.*
- *Efficiency: the biggest time saving of a private jet is the end of unnecessary waiting.*
- *Comfort: Small Private Jet provides enough space.*

PREPARED BY



CAPT. KESHRI SINGH
CHIEF PILOT OFFICER CUM DIRECTOR

QUALITATIVE REQUIREMENTS
AIRCRAFT

PART-1 GENERAL

- A. *The Aeroplane offered should be a factory new multi turbofan engine Aircraft.*
- B. *It should be a product of well established manufacturer with good sales and service hold and network in country and have been experience of not less than 10 years in aircraft manufacturing.*
- C. *Aircraft should be tested for reliability, airworthiness and should have proven operational capability. The type certificate of the proposed turbofan (jet) Aeroplane should be approved/accepted by the country of origin/manufacture and state regulatory authority (FAA, EASA, CAA etc.) - DGCA in India.*
- D. *Type of Aeroplane to be procured should be in service/operation for not less than past 2 years, should be durable and have an excellent flight safety record. Reliability should be adjudged with the operational capabilities. Operational performance & capabilities will be evaluated as per the state's geographical features and Climatic Condition like temperature, humidity, winds etc.*
- E. *Cabin width should be large enough for comfortable club seating and with availability of adequate head and leg room. (Standing cabin, Flat floor with no drop down aisle).*
- F. *Provision for a suitable entry door with emergency exit and ladders/steps.*

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PART-2 OPERATIONS

- A. Aeroplane should be capable to operate in high temperature and dusty environment. (As prevalent in the state of Rajasthan where in summers temperature goes as high as 45-48 degree Celsius. (ISA +27).
- B. Aeroplane should be able to operate from and to state airstrips of average runway lengths of 4500ft (or less) to 5000 ft approx with weight and temperature considerations.
- C. Requirement of ten (10) executive club seating configuration (fully-reclining & swiveling-at least four seats) with pull on tables, excluding crew. Also should have provision of third crew Jump seat.
- D. Should have minimum average cruising speed in range of M.78-M.80 (450Kts) and more.
- E. Should have adequate baggage compartment internal external accessibility with chemical toilet/lavatory and refreshment cabinet facility.
- F. The Aeroplane should have Maximum takeoff weight (MTOW) 16000 kgs and above.
- G. It should be able to operate with minimum safe IFR range of 700 NM with full fuel, maximum take-off weight/payloads.
- H. Aeroplane should be pressurized and capable of operating at FL 350(35000ft) and above.
- I. Aeroplane should be fitted with the Auxiliary power unit (APU) and effective air-conditioning system.
- J. The engines must be fitted with thrust reverser system.
- K. Aeroplane should be equipped and certified for Day & Night VFR/IFR. Should comply with the requirements of VFR and standard instruments/equipment/related accessories conforming for IFR RNP-1 compliant operations in RVSM airspace as mandatory by state authority of manufacturer and in India-DGCA.
- L. Aeroplane should be equipped with the latest and advanced EFIS/glass cockpit with TCAS II, EGPWS, Dual FMS, FGS, FD, Auto-pilot, ELT, Intercom including PA system, Chart/Map data and display capabilities, CVR, DFDR, Dual Mode 'S' Transponder, At least four colored Weather Radar, HF, VHF, cabin entertainment and information system with moving map and display system, DVD/CD player, wireless head sets for each seat and port facility for computer/SATCOM/PNB.
- M. It should have effective Anti-ice system, capable of operations in known icing conditions as per the norms.
- N. Should have Clear windows with shading facility. (sun screen/curtain)
- O. Manufacturer/authorized agent should arrange for pilots training (for minimum one (1) Pilot in command (PIC) and two (2) Second in command (SIC/P2) on priority at free of cost which is acceptable to DGCA, India for the endorsement on type including RVSM use.



PART-3 ENGINEERING

- A. *Engine and other important components should have long TBOs.*
- B. *Should have efficient and reliable product support (Dispatch Reliability). Also availability of genuine spares on AOG basis.*
- C. *Essential ground tools and equipment including special tools should be supplied by the manufacturer along with the aircraft.*
- D. *Warranty and guaranty terms should be adequate as per the aviation norms.*
Warranty:
i. *Company manufactured parts- minimum five years (No hours limit within five years).*
ii. *System and components- minimum five years (no hours limit within five years).*
iii. *Avionics- minimum five years (no hours limit within five years).*
iv. *Engines- minimum five years or 4500 hours (whichever occurs first).*
v. *Exterior paint & interior finish items - two years (no hour limit).*
- E. *Necessary documentation related operations and airworthiness e.g., SBs, flight manuals, avionics manuals, parts catalog, maintenance service manual etc. should be provided initially by the manufacturer. (Mailing list).*
- F. *Should have provision for Engine fire extinguishers.*
- G. *Type of ELT (Emergency Locator Transmitter 406MHz) should be installed as per the requirements of DGCA, India.*
- H. *Company should provide training airframe and engine to at least two AME and level one training for Post holders (accepted by DGCA India) , free of cost on type of Aeroplane at their facility on priority.*

**GENERAL INFORMATION REGARDING SUPPLY, PRODUCT
& CUSTOMER SUPPORT AND TRAINING OF TECHNICAL
PERSONNEL**

S.NO.	GENERAL INFORMATION	RESPONSE
1.	Lead Time for supply of Aeroplane	
2.	Lead time for supply of spares on AOG basis (Days)	
3.	Lead time for supply of other than AOG spares. (Days/Weeks/Months)	
4.	Restriction imposed for modification/inspection by the Regulator of the country of Manufacturer/Regulator of any other country, if any. If Yes, furnish detailed information.	
5.	Details of Product Support available in India. If Yes, enclose the detailed product support capability.	
6.	Engines & Avionics protection plans if any, give details.	
7.	Details of maintenance facilities and level of maintenance that can be carried out in India.	
8.	Number of Aeroplane of the Type operating worldwide (globally) and Type operating in India.	
9.	Number of Pilots (P1& P2(SIC)) and Engineers available in India duly endorsed on the Type.	
11.	<p>a) Details of Endorsement training on Type including RVSM (free of cost at their facility) as acceptable to the DGCA, India for: (i) Pilot-in-Command (P1) - Nos 01 (ii) Second in Pilot (SIC)(P2) - Nos 02</p> <p>Note: (1) P1 subsequent completion of 100 hours as P2 (including ferry flight time from country of origin) with a qualified pilot instructor/examiner (provided by the manufacturer/company and duly approved by the regulatory authority of manufacture/DGCA in India) (2) P1 subsequent completion of minimum ten (10) route check(s) and any additional requirements as required by the FSD of DGCA from release as PIC on the procured turbofan (jet) aeroplane.</p> <p>b) Training arrangements as acceptable by DGCA, India for (i) Aircraft Maintenance Engineer (B1 & B2) -No 02 Level one training for: (i) Quality Manager (QM) - 01 (ii) Continuing Airworthiness Manager (CAM)-01</p> <p>Note: The associated cost of the above detailed training in respect of all, Pilots, Engineer & Technical/CAMO Personnel shall be borne by the preferred Bidder.</p> <p>c) Plans for refresher & recurrent training in future at their facility.</p>	
12.	<p>a) Detail List of Spares required for 24 month/600 hrs of approved Inspection Schedule and their approximate cost. b) Special Tools required for inspection up to 600 Hrs of approved Inspection Schedule and their approximate cost. c) List of ground support/handling equipment, as maybe required for</p>	

**GENERAL INFORMATION REGARDING SUPPLY, PRODUCT
& CUSTOMER SUPPORT AND TRAINING OF TECHNICAL
PERSONNEL**

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12.	<p>a) Detail List of Spares required for 24 month/600 hrs of approved Inspection Schedule and their approximate cost. b) Special Tools required for inspection up to 600 Hrs of approved Inspection Schedule and their approximate cost. c) List of ground support/handling equipment, as maybe required for</p>	

VARIOUS INFORMATION-TURBOFANS AEROPLANE

AEROPLANE INFORMATION		
S.NO.	PARAMETERS	REMARKS
1.	Manufacturer	
2.	Aeroplane Model	
ENGINE INFORMATION		
1.	Manufacturer	
2.	Engine Type/Model	
3.	Engine Power (Thrust/Shp)	
4.	Engine TBO	
5.	Engine Modification (if any)	
6.	One Engine out performance	
AVIONICS INFORMATION		
1.	Manufacturer	
2.	Avionics Package (Make and Model)	
3.	Type & details of Auto pilots with Number of Axis coupled with FD/FMS	
AEROPLANE PERFORMANCE INFORMATION		
1.	Wings Span (Feet) and Wing Loading Specifications	
2.	Air Speed Limits, range M.78-M.80 (Minimum 450 Knots)	
(a)	Claimed Range (Nautical Miles) No Reserve	
(b)	Minimum Range (Nautical Miles) with Reserve	
(c)	Range with Maximum Passengers & Baggage. (Nautical Miles)	
3.	Maximum All Up Weight (Pounds/Kgs)	
(a)	Maximum Takeoff Weight (Pounds/Kgs)	
(b)	Maximum Landing Weight (Pounds/Kgs)	
(c)	Zero Fuel Weight (Pounds/Kgs)	
(d)	Maximum Fuel Capacity (Pounds/Kgs)	
(e)	Typical Basic Operating weight (Pounds/Kgs)	
(f)	Payload with Maximum Fuel (Pounds/Kgs)	
(g)	Disposable Load (Pounds/Kgs)	
4.	Maximum Passenger with full fuel	
5.	Service Ceiling Limit (feet)-Maximum certified and single engine.	
6.	Passenger Cabin Length/Width/Height Maximum (Feet)	
7.	Typical Take off/Landing distance at MTOW - (ISA+25°)	
	Typical Take off/Landing distance at MTOW - (ISA + 27°)	
8.	Seating Capacity fully reclining & swiveling. (10 Pax + 2 crew)	
9.	Rate of climb with all engines and single Engine	
10.	Emergency Equipment List	
11.	List of optional Equipments (if Any)	
12.	Aircraft should be capable to operate in high temperature and dusty environment (as prevalent in the state of Rajasthan where in summers temperature goes as high as 45-48 degree Celsius, ISA+27 (Yes/No)	
13.	Aeroplane should be able to operate from and to state Airstrips	

	of runways length of as low as 4500 feet (or less) - 5000 feet approx with weight and temperature consideration.	
14	Should have adequate baggage compartment* (*shall be access from cabin also) with chemical toilet/lavatory and refreshment cabinet facility. (Baggage Compartment Dimension. (In Cubic feet).	
15	Aeroplane should be pressurized and capable of operating (with twin engine) at FL 350(35000ft) and above.(yes/No).	
16	The engine must be fitted with thrust reverser system.	
17	Should be fitted with Winglets (Yes/No).	
18	Should have effective Anti ice system capable of operations in known icing conditions as per the norms. (Yes/No).	
19	Should have clear window with shading facility- Sun Screen/Curtain (Yes/No).	
20	Should have glass cockpit. (Yes/No).	
21	Provision of Engine fire extinguishers (Yes/No).	
CERTIFIATION INFORMATION		
1.	Type Certificate Approval Status Aeroplane (attach).	
2.	Type Certificate Approval Status Engine (attach).	
3.	Additional STCs Approval, if any.	
4.	Acceptance status of DGCA, India for Type certificate STC of Aeroplane.(if any).	
5.	Approval of aircraft Manufacture's Training Facilities for Pilots and Engineers by DGCA, India. (Y/N) If yes, attach relevant approval	

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MUST HAVE FEATURES - NEW TWIN TURBOFAN AEROPLANE

S/N	REQUIREMENT	LIMITS	
1	TWO TURBOFAN/ TURBINE ENGINE	MANDATORY	
2	MTOW	16000KG and above	
3	SEATING CAPACITY	10 EXCLUDING CREW+ 3 RD CREW JUMP SEAT	CLUB SEATING, STANDING CABIN, FLAT FLOOR WITH NO DROP DOWN AISLE.
4	APU	MANDATORY	
5	PRESSURIZED / EFFECTIVE A.C/ AIR- CONDITIONED	MANDATORY	
6	TAKE-OFF & LANDING CAPABILITY	AVERAGE RUNWAY LENGTH OF 4500FEET (or less)-5000 FEET.	
7	CRUISING (AVERAGE) SPEED	In the range of 0.78M-0.80M (450Kts) and above	
8	SERVICE CEILING	FL 350 OR ABOVE	
9	FULL GLASS COCKPIT	MANDATORY	
10	INBUILT STAIRS IN BAGGAGE COMPARTMENT	MANDATORY	
11	ENGINE	A. ENGINE FIRE DETECTION AND EXTINGUISHING SYSTEM. B. THRUST REVERSER SYSTEM. C. ANTI-ICING DEVICE/PROTECTION SYSTEM	
12	INSTRUMENTS	FULLY GLASS COCKPIT (EFIS).	
13	AVIONICS	A. ADC, ALTIMETRY/AUTO PILOT, FD, ALTITUDE ALERTING AND REPORTING SYSTEM B. RVSM COMPLIANT C. ESIS AND OTHER STANDBY SYSTEM (IF ANY) D. CVR CAPABLE OF RECORDING MIN 2 HRS E. DFDR F. DME G. STANDARD NAVIGATIONAL EQUIPMENTS. H. EGPWS I. FMS J. ELT (406 MHZ) K. DUAL FMS- MNPS/RNPI	

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		COMPLIANT L. MODE S TRANSPONDER-2 QTY. M. TCAS II WITH CHAIN 7.1 N. VHF COMMUNICATION & NAVIGATION -2 QTYEACH. O. HF P. FOUR COLOURED WEATHER RADAR Q. FGS R. GPS/IRS S. RADIO ALTIMETER T. INTERCOM AND PA SYSTEM	
14	INTERIOR	A. CLUB SEATING CONFIGURATION. B. AT LEAST FOUR SEATS SHOULD BE SWIVELLING AND FULLY RECLINING STANDING CABIN WITH FLAT FLOOR NO DROP DOWN AISLE. C. AIR-CONDITIONING SYSTEM. D. CLEAR WINDOWS WITH SHADING FACILITY. (SUN SCREEN/CURTAIN) E. CABIN INFORMATION ENTERTAINMENT SYSTEM WITH MOVING MAP DISPLAY. (SKY MAP) F. PORT FOR LAPTOP/COMPUTERS AND SATCOM. G. CHEMICAL TOILET/LAVATORY	
15	EXTERIOR	PAINT SCHEME TO BE CUSTOMIZED WITH INDIAN FLAG AND RAJASTHAN GOVERNMENT LOGO.	

NOTE 1 :- In case of more than one product, please use another Annexure

NOTE 2 :- (Y/N) Means 'Yes' or 'No'

NOTE 3 :- Each page of Annexure-POA shall be duly signed and stamped.

Authorized Signatory