

**Hindustan Aeronautics Limited
Avionics Division
Korwa ,Amethi (UP)**

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REF: HAL/AD/KORWA/DESIGN/2019

DATE: Aug 2019

Expression of Interest (EOI)

DUE DATE: 30th Sept 2019 @ 17:00 Hrs IST.

**INVITATION FOR EXPRESSION OF INTEREST (Eoi)
FOR
DESIGN & DEVELOPMENT OF AUTO STABILISER SYSTEM
FOR
JAGUAR AIRCRAFT**

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1. INTRODUCTION / BACKGROUND:

- HAL Avionics Division Korwa Amethi (UP) is engaged in manufacturing and Repair overhaul of Avionics Systems such as Inertial Navigation Systems, Autostabiliser, Head of Display, Laser Range System , Flight Data recorder etc for various aircrafts.
- HAL Avionics Division Korwa has been manufacturing and repairing Autostabiliser System for Indian Jaguar aircraft under license manufacturing. This System remains part of various up gradation DARIN – I to II & III program for Jaguar aircraft. There is need to focus on technology up gradation of Autostabiliser system to obviate obsolescence issue and ensure better maintainability

2. OBJECTIVE

- The objective of this Expression of Interest (Eoi) is to seek responses from eligible Indian industries and to shortlist potential industry partners which could participate in Design& Development and Manufacture of latest technology Autostabiliser system mainly consists of two Computers (Pitch & Yaw Computer and Roll Computer) and Gyro unit with Selector switches.

3. SCOPE OF PROJECT

- Autostabiliser System is employed during weapon delivery, instrument approaches and high speed runs at low altitude of aircraft. The Autostabiliser system mainly consists of two Computers i.e. Auto Computer (Pitch & Yaw Computer) and Roll Computer & these Computers along with a Gyro unit and Selector switches work in conjunction with the electro-hydraulic controls for actuators.

Following are the sub assemblies of existing Autostabiliser System

(i) Pitch/Yaw Auto Computer

(Pitch & Yaw Auto Computer has 04 Nos electronic Modules (Output Module, Divider Module , Power supply module & Manometric Module) , 02 No Subminiature rate Gyro and 01 No Assembly Toroidal)

(ii) Roll Computer

(The Roll Computer has 03 electronic Modules (Power supply module, Roll Computing Module, Manometric Module) and 01 No Assembly Toroidal.)

(iii) Pitch/Yaw Selector Switch

(iv) Roll Selector Switch

(v) Roll Rate Sensor.

- Complete Autostabiliser system will have to be developed by vendor as a set to perform same function being performed by existing Autostabiliser System by using latest technology & Sensors.
- All electrical and mechanical interfaces at aircraft (LRU) level of Autostabiliser system will be kept identical.
- Development of Autostabiliser system will involve the following development activities:
 - (a) All the functions of following sub assemblies to be performed by the developed Autostabiliser system.
 - a. Pitch/Yaw Auto Computer
 - b. Roll Computer
 - c. Pitch/Yaw Selector Switch
 - d. Roll Selector Switch
 - e. Roll Rate Sensor.

Above activities includes Design and Development of Sensors system equivalent to functions of Gyro unit ,Selector switches & Roll rate sensor.

- (b) Development of associated Test Rig for testing and repairing of developed Autostabiliser system & its approval from RDAQA..
- (c) Qualification Testing as per agreed QTP with RCMA.
- (d) Certification from CEMILAC / DGAQA as per DDPMAS Vol I & II.
- (e) Design Documents (Hardware & Software) submission.

4. DEVELOPMENT PLAN & SCHEDULE:

- It is proposed to develop Four (04) sets of Autostabiliser System using latest technology & latest sensor systems.
 - I. Two sets for System integration and Qualification Testing
 - II. Two sets for Flight Trials
- The proposed development & qualification of the Autostabiliser Modules is estimated to take 24 Months from Go-ahead. Quarterly Development Milestones are to be achieved by vendor.
- The development of Autostabiliser system should be done by using latest technology & latest sensor systems . Technology should be able to cater the obsolescence for next 20 years.
- The Autostbliser System must match in form, fit and function with dimensions and weight not exceeding that of existing Autostbliser system. However, form & fit requirement may be waived, if used technology /design may result in low cost, high reliability and low weight as compared to the existing unit/system. The installation of the system on the aircraft will remain same.

5. FUTURE BUSINESS POTENTIAL :

- Once the prototype is successfully developed and certified from CEMILAC after successful flight trials, the developed Autostabiliser system may be procured on proprietary basis from the Vendor for use in Jaguar fleet DARIN I/II/III. The Approximate quantity will be around 100 Nos during production phase.

6. INFORMATION AND INSTRUCTIONS FOR VENDORS:

- Vendor, with proven expertise in design, development & manufacture of Avionics/Navigation Systems for similar types of items are requested to participate in the Eol.
- Vendor may visit HAL Avionics Division Korwa Amethi (UP) for understanding the requirements with prior intimation and permission. Existing Autostabiliser

system and its testing procedures etc may be demonstrated to vendor , if required.

- The vendor may respond individually or in partnership as per their area of expertise. In case vendor wants to participate in collaboration with foreign vendor, it shall be able to demonstrate its technical expertise in design & development of similar systems in the field of Avionics System/Navigation Systems.. In addition, the manufacturing unit shall be located in India.
- Vendor should design and develop the system based on Technical Specifications of Autostbliser System, provided by HAL Avionics Division Korwa Amethi (UP). Vendor may collect the additional technical information during Design & Development by examining the existing Autostabliser system.
- All environmental tests as detailed in finalised Technical specification/QTP shall be carried out by vendor at his own cost. Tentative tests are Compass Interference, Radio Interference, Supply Variation, Temp. Variation, Acceleration, CATH, Altitude, Water Proofness, Transient Voltage, Corrosion test, Salt and Fungus Growth.
- HAL Avionics Division Korwa will bear the cost of System integration and Flight trials.
- Details of similar projects (if any) completed by vendor including contact addresses of the existing customers should be provided (necessary documentary proof shall be provided).
- Vendor should define quantitatively amount of import if to be used in development and indigenous content . Indigenous content should not be less than 40%.
- The vendor should provide details of manufacturing facilities, details of current capabilities (technical expertise) related to design, manufacture, certification, maintenance and supply of the proposed system.
- The prospective vendor should provide brief on Quality Management System (QMS)being followed at their works/facility. AS9100 rev D is preferable QMS to be followed by interested vendor.
- Warranty of at least two years is required for the proposed system/its major items after certification from CEMILAC.
- The Scope of Project for design & development are only tentative in nature and are subject to change and may be considered only as advance information for market exploration. HAL will freeze the technical scope based on response to this EoI at the time of issuing RFP (Request for Proposal) at HAL's discretion.

- Compliance and requisite details against each requirement should be provided by the vendor in EoI response.
- The potential vendor can propose suitable and proven solution to meet HAL's EoI requirements.
- This document is not intended to form the basis of any decision to purchase/finalize contract and it does not constitute an offer or invitation or solicitation of an offer to purchase.
- Based on the evaluation of EOI proposals received, HAL will finalize Technical Specification of Autostabiliser System and float Request for Proposal (RFP) at HAL's discretion.

7. SUBMISSION OF RESPONSE TO EOI

- The EOI project proposal (*including Technical & Budgetary price proposal*) document duly completed and signed should be sent to:

**Additional General Manager (Design),
Hindustan Aeronautics Limited,
Avionics Division
Korwa , Amethi (U.P.) – 227412, INDIA**

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dharmendra.kumar2@hal-india.co.in

- As a advance copy email may be sent to above email IDs and later on Hard copy of EoI response may be sent to above address with mention of EOI reference on envelope.
- The due date for submission of EOI proposal is **30thSept 2019 @ 17:00 Hrs IST.**

Thanking you.

Yours faithfully,
For Hindustan Aeronautics Limited,

**(Suneel Kumar Srivastava)
Addl. General Manager (Design)**