



REQUEST FOR INFORMATION (RFI)
FOR
DESIGN, MANUFACTURE, ASSEMBLY, AND CERTIFICATION OF
REAR FUSELAGE ASSEMBLY JIG BY ADOPTING THE METHODOLOGY OF JIG-LESS CONCEPT FOR
FIXED WING FIGHTER AIRCRAFT

Organisation Name	Aircraft Research and Design Centre
Organisation Type	Defence Public Sector Undertaking
Tender Ref .No.	RFI/Tooling/RF Jig/52/007 /19
Tender Title	Request For Information (RFI) for Design, Manufacture, Assembly, Installation and Certification of Rear Fuselage main Assembly Jig in connection with sub-modules by adopting the methodology of jig-less concepts for Fixed Wing Fighter Aircraft
Project Category	Tooling
Sub Category	Main Rear Fuselage Assembly Jig with sub-module jigs in connection with main assembly jig by jig-less methodology
First Announcement Date	18 th January 2019
Last Date for submission	02 nd March , 2019 Up to: 14:00 HRS IST
Opening Date	03 rd March 2019
Sector	Defence Public Sector Undertaking
State	Karnataka, India
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City	Bangalore, Karnataka, India



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1 Aircraft Research and Design Centre, Hindustan Aeronautics Limited, Bangalore, India intends to Design, Develop, Manufacture & Install Qty.01 (one) number Main Rear Fuselage Assembly Jig & Qty.: 04 sub-module jigs in connection with main assembly jig by means of jig-less approach for Fixed Wing Fighter Aircraft along with associated tooling like Drill Bars, Inter Changeability (ICY) Media, working platforms, Lifting / Hoisting beam, Storage stands, Trestle stands, Equipping trolley etc. from Global Vendor.

2 The Request for Information (RFI) consists of two parts as indicated below:

a) Part-I: Incorporates the technical characteristics and features that should be met by the main assembly jig as well as with sub-modular jigs by jig-less methodology

b) Part-II: Methodology of seeking response of Vendor.

3 Part - I: Important Technical Parameters and Additional Inputs:

3.1 The Intended purpose of the Main & sub- modular assembly jig:

The main Rear Fuselage assembly jig with sub-assembly jigs by adopting jig-less approach is intended to be used to build the Rear Fuselage component assembly of the Fixed Wing Fighter Aircraft and able to deliver 24 sets of assemblies/year as per production standard.

3.2 Rear Fuselage Component Assembly details:

The Rear Fuselage component assembly is mainly made up of various modules viz. Engine Bay doors, spine & fin attachment, and brake parachute. The rear fuselage assembly consists of approximately 900 parts, out of which 30% are sheet metal, 40% are machined parts and remaining 30% are made of Carbon Fibre Composites (CFC) (The breakup is indicative). The length of the Rear fuselage assembly is 3300mm with a maximum width of 1800mm approximately. The Rear fuselage assembly consists of 8 stations and the entire assembly of Rear fuselage assembly



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weight 400Kg (Shell weight) approximately. The Rear Fuselage needs to be coupled with Centre fuselage and hence the ICY media are critical. The rear fuselage assembly consists of the following:

- | | |
|-----------------------------|---|
| i. Bulkheads | ix. Spine structure |
| ii. Shear wall LH & RH | x. Hauling attachment |
| iii. Floors LH & RH | xi. Tie beam |
| iv. Engine mounts | xii. Shroud |
| v. Doors | xiii. Trailing edge extension |
| vi. Wing attachment point | xiv. Elevon inboard actuator attachment |
| vii. Covers / Hatches | |
| viii. Fin attachment points | xv. Symmetry points |

(Refer Annexure-A for the tentative diagram and other technical inputs)

Design philosophy is envisaging modular approach to reduce jig cycle time and total assembly time in this Rear fuselage structure its further sub divided into about 4 modules. Number of modules is indicative and will be finalized before start of detail design.

3.3 Tooling philosophy:

Vendor shall indicate the Tooling philosophy followed for achieving the Rear Fuselage assembly jig in connection with sub-assembly jigs including modular design by adopting jig-less approach.

3.4 Government Rules:

Vendor shall confirm that they don't foresee any restriction from their respective Government for exporting the required technology to ARDC HAL and shall also indicate the time frame required for such clearance from their Government, after ARDC HAL select vendor on competitive tender and provide requisite purchase order and end user certificate.



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3.5 Acceptance Criteria:

Vendor shall design the assembly jig considering the Modular jig requirements and jig-less approach to meet Production Standard by using the state of the art technology and Interchangeability (ICY) media to achieve the high accuracy. Also the positional tolerance, datum, external surface contour templates shall be designed to have close tolerances to meet design requirement.

3.6 Tentative delivery schedule:

The overall time frame of Design, Manufacture, Assembly / Erection and Certification with stage wise breakup of the entire project post conclusion of Contract is required to be submitted. It is envisaged to make the assembly jig ready for use within 240 days from signing of the contract. Expected Life of Assembly Jig to be of minimum 25 years.

3.7 Achievements and experience in Assembly jigs with sub-modules by Jig-less Methodology:

Post experience and detailed presentation on similar assembly jigs designed and supplied to the other contemporary Aircraft Industries. Vendor may present their proposed design. Vendor presentation at ARDC HAL is desirable for all RFI participants.

3.8 Agreement

ARDC – HAL is not binding any relationship with the RFI participated vendors, separate global RFQ will be issued.

3.9 Cost

It is requested RFI participated vendors to provided budgetary quote of rough order magnitude covering cost of design, material & manufacturing, installation and certification.



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4 Part-II : Procedure for Response:

Vendor must fill the form as given in **Annexure-B** and provide the following information

4.1 OEM/Authorized OEM /Other organizations

ARDC-HAL invites responses to this RFI only from OEMs /Authorized OEM Vendor /government sponsored export houses (applicable in case of countries where domestic laws do not permit direct export by OEMs). In case of authorized vendor/distributor, a valid authorization certificate covering long term agreement with OEM if any needs to be enclosed. The end user of this Rear Fuselage assembly jig and its modules is ARDC-HAL.

4.2 Financial commitment

This information is being sought with no cost no commitment. ARDC-HAL reserves the right to change or vary any part thereof at any stage. Also ARDC-HAL reserves the right to withdraw at any stage. Vendor to conform for the same.

4.3 Key Technologies

Vendor shall mention key technologies and materials required for design, manufacture, installation and certification of the front fuselage assembly jig by jig-less approach.

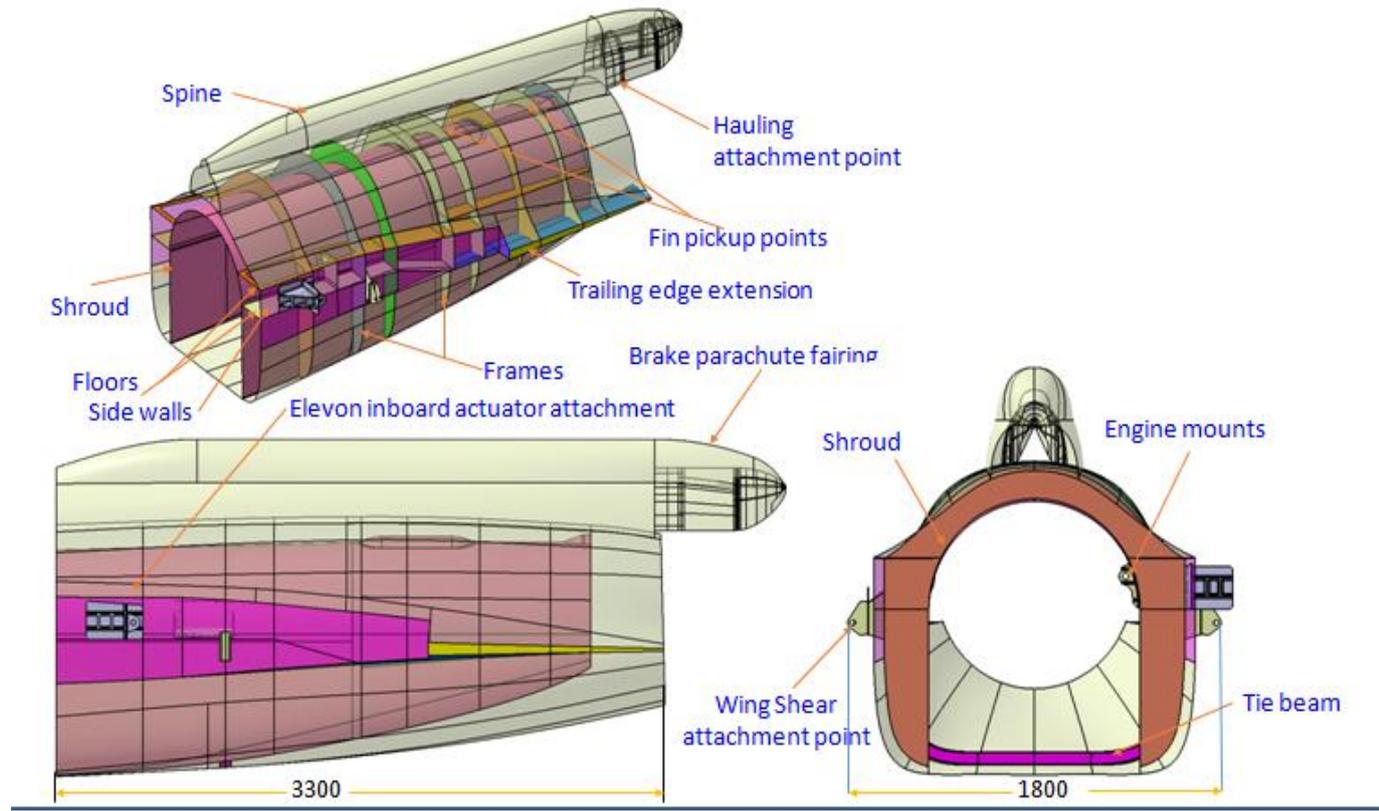
4.4 Previous experience

Vendor shall indicate whether they have supplied similar assembly jigs to any other contemporary Aircraft Industries.

Sd/-
HAL TECHICAL TEAM

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Annexure - A



This should not be reproduced or communicated without written authorization.
All diagrams and details are indicative



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Annexure - B

Information Performa for Vendor

1. Name, address and unique ID (if any) of the vendor:
2. Type of vendor: OEM / Authorised vendor of OEM / Government sponsored export house / others (specify)
3. Contact details:
4. Contact details of Local branch / liaison office / authorised representatives in India if any:
5. Brief description of the organisation:
6. Previous experience & achievements
7. Any other relevant information: