

Invitation of Bids

(Bids are invited from Indian Bidders/Vendors/Firms only)

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Aeronautical Development Agency

(Ministry of Defence, Govt. of India)

P.B.No.1718, Vimanapura Post

Bangalore – 560017

Date: 19/05/2021**Invitation of Online Bids for: Design and Fabrication of 1:4.7 scale LCA AF Mk2 Air intake Model for Wind Tunnel Testing as per SOW attached at Annexures I & II.****Tender / RFP Ref. COM/IND/E516/2020-2021/SU Dated 19/05/2021**

1. Online bids are invited for Supply of items / services listed in Part V of this RFP as per **Two Bid System**. The **online bids** (both Techno Commercial & Price Bid) should be uploaded by the bidder before the due date and time. The documents can be downloaded from website <https://defproc.gov.in/nicgep/app>.

For participating in the above tender through e-tendering process, the bidders shall have to get themselves registered at Defence eProcurement Portal <https://defproc.gov.in> and get user ID, password, Class-3 digital signature is mandatory to participate in the e-tendering. The Bidders are required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities as detailed in the website. Bidders / Contractors have to submit online bids on tender documents available on the Defence eProcurement Portal <https://defproc.gov.in>. Bidders shall also attach scanned copies of all the requisite documents i.e Bid Security Declaration in lieu of Earnest Money Deposit and other certificates / documents specified in the tender document.

2. The address and contact numbers for sending documents (viz. Technical Brochure, if any) other than techno-commercial and financial bids being submitted in electronic mode or seeking clarifications regarding this RFP are given below:
 - a) Bids/Queries to be addressed to : **Director [Materials Management]**
 - b) Postal address: Director [Materials Management]
Aeronautical Development Agency,
P.B. No.1718, Vimanapura Post, Bangalore - 560 017
 - c) Name & designation of the contact Officer [Commercial] : Mr. Srinivas V Rao, CCO (MM)
 - d) Name & designation of the contact Officer [Technical]: Mr. Debabrota Koner, Sc/Engr 'G'
 - e) Telephone number(s) of the contact Officer: (Commercial): +91 080 2508 7297/2523 2426
 - f) Telephone number(s) of the contact Officer: (Technical): +91 080 2508 7142
 - g) Fax number(s): +91 080 2523 4541
 - h) e-mail ID of contact Officer : mmeprocure@jetmail.ada.gov.in; konerd@jetmail.ada.gov.in

3. This RFP is divided into **VI** parts as follows:
 - i) **Part I (A)** contains **General Information and Instructions for the Bidders** about the RFP such as the time, online submission and opening of Bids, Validity period of Bids, etc. **Part I (B)** contains Tender Acceptance Letter to be filled by Bidder and uploaded in cover 1.
 - ii) **Part II (A)** contains **Standard Terms and Conditions of RFP**, which will form part of the Contract/Supply Order (herein after referred as the Contract) with the successful Bidder(s).
 - iii) **Part II (B)** contains **Instructions for Online Bid submission**. The terms and conditions of **Part II (A) and Part II (B)** which are to be followed for each RFP issued by ADA are available under Standard Document on Defproc Portal.
 - iv) **Part III** contains **Special Terms and Conditions** applicable to this RFP and which will also form part of the Contract with the successful Bidder(s).
 - v) **Part IV** contains **Vendor Qualification Criteria**.
 - vi) **Part V** contains **Details of the Store(s)/Service(s) Required** e.g. Technical Specifications, Delivery Period, Mode of Delivery, Consignee details etc.
 - vii) **Part VI** contains **Format of Price Bid**. Price bid needs to be filled and uploaded as per Supplied Format only.
4. Bids are invited from Indian Bidders/Vendors/Firms Only.
5. This RFP is being issued with no financial commitment and the Buyer reserves the right to change or vary any part thereof or foreclose the procurement case at any stage without assigning any reason. The Buyer also reserves the right to disqualify any vendor, should it be necessary, at any stage on grounds of National Security.
6. You may contact **The Director (Materials Management)**, Aeronautical Development Agency, P.B. No.1718, Vimanapura Post, Bangalore – 560 017 for any grievance related to bidding condition, bidding process and/or rejection of bid. With regard to bidding condition, this shall be done in writing at least seven days in advance of the stipulated date of submission of bid.

Note :

1. Bidders can download RFP from website at free of cost.
2. In case Bid Security Declaration in lieu of EMD is not received along with “Techno-Commercial bid”, bid of such vendors will summarily be rejected.
3. Bidders are advised to send their bank details for NEFT along with RFP.
4. The following is the bank account details of ADA for reference :

A/c. No. : 10461037271

IFS Code : SBIN0004815

Name : ADA

Bank : State Bank of India, NAL Branch, Bangalore

Yours sincerely,
For Aeronautical Development Agency,

K. Nagaraja
f Director (Materials Management)

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Part I (A) – General Information and Instructions

1. **Pre-bid Conference:** Not Applicable.
2. **Last Date and Time for Online Submission of the Bids:** As Detailed in DEFPROC Portal [IST].

The online Bids (both Techno-Commercial and Price bid, in case of two bids system) should be uploaded by the due date and time. The responsibility to ensure this lies with the Bidder.

3. **Location of the Tender Box: ADA Main Reception** (only for receipt of original documents such as Technical Brochure / catalogues if any, other than techno-commercial and financial bids being submitted in electronic mode).

4. **Manner of Depositing the Bids: Online Submission only**

Bids (both Techno-Commercial and Price bid, in case of two bids system) shall be submitted online only at website: <https://defproc.gov.in/nicgep/app>. Manual bids and bids sent by Post / fax or email will not be considered. Tenderers / Contractors are advised to follow the instructions provided in the “Instructions to the Contractors / Tenderer for the e-submission of the bids online through the Portal for e-procurement at <https://defproc.gov.in/nicgep/app>. [Refer Part I (B) as well]. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document. However, it shall be the sole responsibility of the bidder that the uploaded documents remain legible.

5. **Time and Date for Opening of Online Bids: Bids will be opened online As Detailed in DEFPROC Portal [IST].**

If due to any exigency, the due date for opening of the bids is declared a closed holiday, the bids will be opened on the next working day at the same time or on any other day/time, as intimated by the Buyer.

6. **Place of Opening of the Bids:** Bids will be opened online at ADA, Bangalore. The vendor can see their bid status online after logging through portal with valid DSC.

Marking of Bids: Envelope containing documents such as Technical Brochure, if any, must be clearly marked with Tender Reference No. and Date of opening and addressed to Director (MM), ADA, Bangalore.

7. **Procedure for Submission of Bid:** Bids would be submitted as per standard online e-procurement procedure for Single Bid/Two bid System. The Technical Brochure, if any should be sent in an envelope duly marked with tender reference no. and addressed to Director, on or before “**Bid submission end date and time**”.
8. **Forwarding of Bids:** Bids should be submitted by Bidders online only, under the firm’s memo / letter pad inter alia furnishing details like GSTIN number, Bank address with NEFT Account if applicable, etc. and complete postal and email address of firm’s office failing which the bid would not be considered.
9. **Clarification Regarding Contents of the RFP:** A prospective bidder who requires clarification regarding the contents of the bidding documents shall notify to the Buyer in writing about the clarifications at least 07 (Seven) days prior to the date of opening of the

Bids. Copies of the query and clarifications by the purchaser will be sent to all prospective bidders and would also be posted on the website.

10. **Indian firms need to quote only in Indian Rupees.** Bidders must submit Quotation pertaining to themselves only. An Indian firm can quote in FE on behalf of their OEM only if they are either a 100% subsidiary of the OEM or an Indian Agent of the foreign OEM in accordance with their agency agreement. The firms claiming to be:
 - a) A 100% subsidiary would be required to produce documentary evidence in support of their claim along with their Techno-Commercial bid failing which their bid would be disqualified.
 - b) An Agent of foreign OEM, for submitting the offer on behalf of OEM, would be required to produce a copy of the Agency Agreement with the principals and a copy of registration/enlistment with Ministry of Defence as an Indian Agent, if registered/enlisted, along with the Techno-Commercial bid, failing which the bid would be disqualified. It would be mandatory for an Indian Agent to get registered/enlisted with Ministry of Defence as an Indian Agent of OEM prior to evaluation of their Price bid, failing which their bid also would be disqualified.
11. **Validity of Bids:** The Bids should remain valid for **180 days** from the last date of submission of the Bids.
12. **Modification and Withdrawal of Bids:** If a bidder intends to modify or withdraw his Bid after online submission, it can be done through selection of appropriate option available on the Defproc Portal.
13. **Bid Security Declaration in lieu of EMD:** Bidders may submit a Bid securing declaration accepting that if they withdraw or modify their Bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they may be suspended for the period up to 2 years from being eligible to submit bids for contracts with ADA as per *Annexure-1B*.
14. **Clarification Regarding Contents of the Bids:** During evaluation of the bids, the Buyer may, at his discretion, ask the bidders for clarification(s) on the Bid(s). The request for clarification will be given in writing. No clarification on the initiative of the bidder will be entertained after opening of bid.
15. **Rejection of Bids:** Canvassing by the Bidder in any form, unsolicited letter and post tender correction may invoke summary rejection. Conditional tenders will be rejected. Non-compliance of applicable General Information will disqualify the Bid.
16. **Unwillingness to Quote:** Bidders unwilling to quote in case of limited bidding mode should ensure that intimation to this effect reaches before the due date and time of opening of the Bid, failing which the bidder will be treated as "Default-Bidder". The detail of such Default-Bidder is uploaded in the "Defaulter Vendor Data Base". Once the Bidder/Vendor becomes **three times** default, then such Bidder/Vendor will become **in-eligible** to receive any kind of tender enquiries for a period of **one (1)** year.
17. Bidders are advised to follow the instructions for online bid submission available through the link help for bidders at portal <https://defproc.gov.in/nicgep/app>.

18. Bidder shall not modify the downloaded tender form including downloaded price bid format / template in any manner. In case any tender form / price bid format / template is found to be tampered with / modified in any manner, such bid will be summarily rejected and bid security would be forfeited.
19. Bidders are advised to check the portal <https://defproc.gov.in/nicgep/app> and www.ada.gov.in regularly prior to closing date of submission of tender for any corrigendum, addendum or amendment to the tender document.
20. Bids of debarred/blacklisted firms will not be considered for evaluation.
21. **ADA reserves the right to call for Techno-Commercial negotiations. The Organization should depute competent representative for such discussions / negotiations whenever called for and shall be competent enough to take on the spot decisions.**
22. Documents to be submitted with Techno-commercial Bid:

The following documents are to be furnished by the Bidder in **Cover-1** along with Techno Commercial Bid as per the tender document:

- i. Signed and Scanned copy of appropriate valid company registration certificate or partnership deed (if applicable), experience certificate as required, PAN No. and Tender Acceptance Letter as per Part I (B).
- ii. Signed and scanned copy of previous three years Income-tax/GSTIN/Affidavit of partnership firm. If not applicable, kindly upload a pdf document indicating 'Not Applicable'.
- iii. Scanned copy of Bid Security Declaration in lieu of Earnest Money Deposit.
- iv. Signed and Scanned Copy of legal Agency Agreement/100% Subsidiary Certificate/Registration as an Agent (if applicable). If not applicable, kindly upload a pdf document indicating 'Not Applicable'.
- v. Scanned Copy of Proforma of End User Certificate for Export License (if applicable). If not applicable, kindly upload a pdf document indicating 'Not Applicable'.

Note: The complete technical details such as **Brochures, catalogues and write-ups** if any should also be sent by post/courier in an envelope, addressed to The Director (MM), Aeronautical Development Agency, P.B. No.1718, Vimanapura Post, Bangalore-560 017, positively on or before "**Bid submission end date**".

23. **Price Bid to be uploaded in Cover-2.**

Price bid as per format uploaded in Defence eProcurement Portal by Buyer, Refer Part-VI.

Part I (B) - TENDER ACCEPTANCE LETTER

(To be filled by Bidder and uploaded in Cover-1 i.e. Techno-Commercial Bid)

(To be given on Company Letter Head)

Date:

To,

Sub: Acceptance of Terms & Conditions of Tender.

RFP / Tender Reference No: _____

Name of Tender/Supply/Work: _____

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the website(s) namely:

as per your advertisement, given in the above mentioned website(s).
2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like annexure(s), schedule(s), etc.), which will form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organizations related to this tender too have also been taken into consideration, while submitting this acceptance letter.
4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s) / corrigendum(s) in its totality / entirety.
5. I / We hereby undertake to respond to the "techno-commercial queries" (if any) which will be communicated by TCEC/ADA to our email id _____ or to our Fax No: _____ within the time limit set by TCEC without fail. I / We hereby agree that failure to respond for queries raised by TCEC within the set time limit will call for rejection of our bid/offer apart from I / We will be treated as "Default-Bidder".
6. I / We do hereby declare that our firm/company has not been blacklisted / debarred by any Govt. Department/Public Sector undertaking.
7. I / We hereby agree that the Terms & Conditions of SO / Contract will be followed without any deviation, in case SO / Contract is placed on us after due procurement process, failing which I / We will be treated as "Default-Bidder". I / We also aware that the detail of such Default-Bidder is being uploaded in the "Defaulter Vendor Data Base". Once the Bidder/Vendor becomes **three times** default, then such Bidder/Vendor will become **in-eligible** to receive any kind of tender enquiries for a period of **one (1) year**.

8. I / We certify that all information furnished by the our firm/company is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy.

Yours faithfully,

(Signature of the Bidder, with Official Seal)

Part II (A) – Standard Terms and Conditions

The Bidder is required to give confirmation of their acceptance of the Standard Terms and Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder as selected by the Buyer. Failure to do so may result in rejection of the Bid submitted by the Bidder.

1. **Effective Date of the Contract:** In case of placement of a supply order, the date of acceptance of the Supply Order would be the effective date. The firm should check the supply order and convey acceptance of the same within seven days of its receipt. If such an acceptance or communication conveying firm's objection to certain parts of the supply order is not received within the stipulated period, the supply order will be deemed to have been fully accepted by the firm. In case a contract is to be signed by both the parties, the Contract shall come into effect on the date of signatures of both the parties on the Contract (Effective Date) or as agreed during negotiations. The performance of the Contract shall commence from the Effective Date of the Contract/Supply Order.
2. **Law:** The Contract shall be considered and made in accordance with the laws of the Republic of India and shall be governed by and interpreted in accordance with the laws of the Republic of India.
3. **Arbitration:** All disputes or differences arising out of or in connection with the Contract shall be settled by bilateral discussions. Any dispute, disagreement or question arising out of or relating to the Contract or relating to product or performance, which cannot be settled amicably, shall be resolved by arbitration in accordance with any one of the following provisions :

Option 3(a) : For Defence PSUs: The case of arbitration shall be referred to the Secretary Defence (R&D) for the appointment of arbitrator(s) and proceedings.

Option 3(b) : For Central Public Sector Enterprises (CPSEs): In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs) and ADA, such disputes of difference shall be taken up by either party for resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRC) as per provisions of Department of Public Enterprises OM No. 4(1)/2013-DPE (GM)/FTS-1835 dated 22-05-2018.

Option 3(c) : Other Bidder may opt any one of the following option :

The case of arbitration may be referred to respective CFA or a person appointed by him who will be sole arbitrator and the proceedings shall be conducted in accordance with procedure of Indian Arbitration and Conciliation Act, 1996 as amended.

OR

The case of arbitration may be referred to International Centre for Alternative Dispute Resolution (ICADR) for the appointment of arbitrator and proceedings shall be conducted in accordance with procedure of Indian Arbitration and Conciliation Act, 1996, as amended.

4. **Penalty for Use of Undue influence:** The Seller undertakes that he has not given, offered or promised to give, directly or indirectly, any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of the Buyer or otherwise in procuring the

Contract or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the Contract or any other contract with the Government of India for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other contract with the Government of India. Any breach of the aforesaid undertaking by the Seller or anyone employed by him or acting on his behalf (whether with or without the knowledge of the Seller) or the commission of any offence by the Seller or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1986 or any other Act enacted for the prevention of corruption shall entitle the Buyer to cancel the contract and all or any other contracts with the Seller and recover from the Seller the amount of any loss arising from such cancellation. A decision of the Buyer or his nominee to the effect that a breach of the undertaking had been committed shall be final and binding on the Seller. Giving or offering of any gift, bribe or inducement or any attempt at any such act on behalf of the Seller towards any officer/employee of the Buyer or to any other person in a position to influence any officer/employee of the Buyer for showing any favour in relation to this or any other contract, shall render the Seller to such liability/ penalty as the Buyer may deem proper, including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the Buyer.

5. **Agents / Agency Commission:** The Seller confirms and declares to the Buyer that the Seller has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries, whether officially or unofficially, to the award of the contract to the Seller; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is established at any time to the satisfaction of the Buyer that the present declaration is in any way incorrect or if at a later stage it is discovered by the Buyer that the Seller has engaged any such individual/firm, and paid or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from entering into any contract with the Government of India for a minimum period of five years. The Buyer will also have a right to consider cancellation of the Contract either wholly or in part, without any entitlement or compensation to the Seller who shall in such an event be liable to refund all payments made by the Buyer in terms of the Contract along with interest at the rate of 2% per annum above Prime Lending Rate of State Bank of India for Indian bidders. The Buyer will also have the right to recover any such amount from any contracts in vogue with the Government of India.

Or

The Seller confirms and declares in the Techno-Commercial bid that they have engaged an agent, individual or firm, for promotion of their product. In such case, following details are to be submitted in the Techno-Commercial bid:

- a) Name of the Agent
- b) Agency Agreement between the seller and the agent giving details of their contractual obligation
- c) PAN Number, name and address of bankers in India and abroad in respect of Indian agent
- d) The nature of services to be rendered by the agent and
- e) Percentage of Commission payable to the agent

6. **Access to Books of Accounts:** In case it is found to the satisfaction of the Buyer that the Bidder/Seller has violated the provisions of Para 4 and/or Para 5 above to obtain the Contract, the Bidder/Seller, on a specific request of the Buyer, shall provide necessary information/ inspection of the relevant financial documents/information/Books of Accounts.
7. **Non-disclosure of Contract Documents:** Except with the written consent of the Buyer/Seller, other party shall not disclose the Contract or any provision, specification, plan, design, pattern, sample or information thereof to any third party.
8. **Withholding of Payment:** In the event of the Seller's failure to submit the Bonds, Guarantees and Documents, supply the stores/goods and conduct trials, installation of equipment, training, etc. as specified in the Contract, the Buyer may, at his discretion, withhold any payment until the completion of the Contract.
9. **Liquidated Damages:** The Buyer may deduct from the Seller, as agreed, liquidated damages at the rate of 0.5% per week/part thereof, of basic cost (excluding taxes and duties on final product) of the delayed stores which the Seller has failed to deliver within the period agreed for delivery in the contract subject to maximum of 10% of the total order value (excluding taxes and duties on final product). In cases where partial delivery does not help in achieving the objective of the contract, LD shall also be levied on the total cost (excluding taxes and duties on final product) of the ordered quantity delivered by the vendor. This will also include the store(s) supplied within the delivery period.
10. **Termination of Contract:** The Buyer shall have the right to terminate the Contract in part or in full in any of the following cases:-
 - i) The store/service is not received/rendered as per the contracted schedule(s) and the same has not been extended by the Buyer.

Or

The delivery of the store/service is delayed for causes not attributable to Force Majeure for more than 6 months after the scheduled date of delivery and the delivery period has not been extended by the Buyer.
 - ii) The delivery of store/service is delayed due to causes of Force Majeure by more than 6 months provided Force Majeure clause is included in the contract and the delivery period has not been extended by the Buyer.
 - iii) The Seller is declared bankrupt or becomes insolvent.
 - iv) The Buyer has noticed that the Seller has violated the provisions of Para 4 (Use of Undue Influence) and/or Para 5 (Employment of Agent) above to obtain the Contract.
 - v) The Buyer is entitled at their option, to cancel the order or a portion thereof, due to not meeting any of the terms and conditions of the order / delayed execution of the order by the Seller beyond reasonable time as may be considered by the Buyer, without prejudice to the terms and conditions of this order.
 - vi) As per decision of the Arbitration Tribunal.
11. **Notices:** Any notice required or permitted by the Contract shall be written in English language and may be delivered personally or may be sent by FAX or registered pre-paid mail/ airmail, addressed to the last known address of the party to whom it is sent.

12. **Transfer and Sub-letting:** The Seller has no right to give, bargain, sell, assign or sublet or otherwise dispose of the Contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the Contract or any part thereof without written consent of the Buyer.
13. **Use of Patents and other Industrial Property Rights:** The prices stated in the Contract shall be deemed to include all amounts payable for the use of patents, copyrights, registered charges, trademarks and payments for any other Industrial Property Rights. The Seller shall indemnify the Buyer against all claims from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use. The Seller shall be responsible for the completion of the supplies including spares, tools, technical literature and training aggregates irrespective of the fact of infringement of the supplies or any or all the rights mentioned above.
14. **Amendments:** No provision of the Contract shall be changed or modified in any way (including this provision) either in whole or in part except when both the parties are in written agreement for amending the Contract.
15. **Taxes and Duties**
 - i) **In respect of Foreign Bidders:** Not Applicable
 - ii) **In respect of Indigenous Bidders**
 - A) **General**
 - a) If the quoted prices exclude GST / Local Tax or any other Statutory Duties/Taxes, the same must be specifically stated with applicable rates. In the absence of same, it will be presumed that the prices include all such charges and no claim for the same will be entertained.
 - b) If reimbursement of any Duty/Tax is intended as extra over the quoted prices, the Bidder must specifically say so. In the absence of any such stipulation, it will be presumed that the prices quoted are firm and final and no claim on account of such duty/tax will be entertained after the opening of tenders.
 - c) If a Bidder chooses to quote a price inclusive of any duty/tax and does not confirm that duty/tax so included is firm and final, he should clearly indicate the rate of such duty/tax and quantum of such duty/tax included in the price. Failure to do so may result in ignoring any request for change of duty/tax at a later date due to any reason whatsoever.
 - d) Any addition to duty/tax and change in any duty/tax upward/downward as a result of any statutory variation in duty/tax taking place within contract terms shall be allowed to the extent of actual quantum of such variation of duty/tax paid by the supplier. Similarly, in case of downward revision in any duty/tax, the actual quantum of reduction of such duty/tax shall be reimbursed to the Buyer by the Seller. All such adjustments shall include all reliefs, exemptions, rebates, concession etc., if any, obtained by the Seller.
 - e) TDS as per Income Tax Rules and GST Rules will be deducted and a certificate to that effect will be issued by the Buyer/ Buyer's paying authority. GST TDS as applicable would also be deducted.

B) Customs Duty

- ADA is a public funded research institution and has been exempted from the payment of Customs Duty, as per the description of stores and conditions thereon, under Customs Notification No.51/96 as amended on HSS basis. Hence, all manufacturers are requested to forward their offer directly without involving any Agents, Representative and Distributors, etc. Only direct offers addressed to ADA can be considered to avail the duty benefit granted by Government of India, Ministry of Defence. Custom Duty (approx. 5.5% including cess) which will be paid by the Supplier shall be reimbursed by ADA on production of requisite documents. Supplier is responsible to clear the material at their cost from Customs Authority based on the Duty Exemption Certificate provided by ADA and forward a copy of Bill of Entry confirming utilization of the Certificate, at the time of Delivery.
- The successful bidder would be issued a Customs Duty Exemption Certificate (CDEC) under the said notification at the time of import clearance for the goods being imported against the Contract. Bidder would be required to submit a copy of their order to principal along with principal's acceptance and proforma invoice at least four weeks in advance from the expected date of arrival of goods to this office for issuance of CDEC.
- Bidders may note that CDEC would be issued ONLY in favour of beneficiary of the Contract.

C) Goods and Service Tax

- **ADA is a public funded research institution and has been exempted concession for the payment of**
 - i) Integrated Goods and Service Tax (IGST) in excess of 5% as per the description of goods and conditions thereon, under Notification No.47/2017 – Integrated Tax (Rate) dated 14th November 2017 as amended.**

OR
 - ii) Central Goods and Service Tax (CGST) in excess of 2.5% as per the description of goods and conditions thereon, under Notification No.45/2017 – Central Tax (Rate) dated 14th November 2017 as amended.**

AND
 - iii) Karnataka Goods and Service Tax (SGST) in excess of 2.5% as per the description of goods and conditions thereon, under Notification No.45/2017 (No.FD 48 CSL 2017, Bengaluru) dated 14th November 2017 as amended.**
- The successful bidder would be issued with Concessional GST Certificate(s) by this office under the applicable notification(s) as decided during tender negotiation. Supplier has to collect the GST concessional certificate from the buyer before raising Invoice. (Proforma Invoice to be submitted 15 days in advance with relevant notification details and in prescribed format).
- Bidders may note that Concession GST Certificate would be issued ONLY in favour of beneficiary of the SO/Contract.
- Unless otherwise specifically agreed to in terms of the Contract, the Buyer shall not be liable for any claim on account of fresh imposition and/or increase of GST on raw materials and/or components used directly in the manufacture of the contracted stores taking place during the pendency of the contract.

- Bidders are advised to specifically mention the rate of GST payable in spite of issuance of concessional GST Certificate to facilitate correct evaluation of quotes. In the absence of such explicit declaration regarding % of tax rate, it would be deemed that quoted prices include applicable GST.

D) Local Taxes

- Normally, materials to be supplied to Government Departments against Government Contracts are exempted from levy of Town Duty, Terminal Tax and other levies of local bodies. The local Town/Municipal Body regulations at times, however, provide for such exemption only on production of such exemption certificate from any authorised officer. Seller should ensure that stores ordered against contracts placed by this office are exempted from levy of Town Duty, Terminal Tax or other local taxes and duties. Wherever required, firm should obtain the exemption certificate from the Buyer, to avoid payment of such local taxes or duties.
 - In case where the Municipality or other local body insists upon payment of these duties or taxes, the same should be paid by the Seller to avoid delay in supplies and possible demurrage charges. After the issue of exemption certificate by the Buyer, the Seller may get the reimbursement from the local authority. In case of any difficulty, the receipt obtained for such payment should be forwarded to the Buyer without delay together with a copy of the relevant act or by-laws/notifications of the Municipality of the local body concerned to enable this office to take up the case for refund with the concerned bodies if admissible under the said acts or rules.
16. **Denial Clause:** Denial clause informs Seller that the Buyer reserves the right to admit additional payment due to upward revision of statutory levies beyond the original delivery schedule in case Seller fails to deliver the goods as per schedule. Variations in the rates of statutory levies within the original delivery schedule will be allowed if taxes are explicitly mentioned in the contract/supply order and delivery has not been made till the revision of the statutory levies. Buyer reserves the right not to reimburse the enhancement of cost due to increase in statutory levies beyond the original delivery period of the supply order/contract even if such extension is granted without imposition of LD.
17. **Undertaking from the Bidders:** The Bidder/Firm/Company will submit an undertaking that in the past, they have never been banned/debarred for doing business dealings with Ministry of Defence / Govt. of India / any other Govt. organization and that there is no enquiry going on by CBI / ED / any other Govt. agency against them.
18. **Purchase Preference Policy:**
Make in India: This RFP complies with Public Procurement (Preference to Make in India), order 2017 by Department of Industrial Policy and Promotion, Ministry of Commerce and Industry Government of India issued vide letter No. P-45021/2/2017- B.E-II dated 15-June-2017 and as amended (for updated details please refer to www.dipp.gov.in).
19. **Purchase preference to Micro and Small Enterprises (MSEs):** Not Applicable
20. **Documents to be Furnished for Claiming Payment**
- i) **Indigenous Sellers:** The payment of bills will be made on submission of the following documents (wherever applicable) by the Seller to the Buyer:
- a) Original Ink-signed/Digitally Signed/Electronically Signed/System generated Invoice
 - b) Performance Security

- c) Inspection and Acceptance Certificate duly certified by Project Co-ordinator
- d) Details for electronic payment as per ECS Mandate Form viz. Bank name, Branch name and address, Account Number, IFS Code, MICR Number, duly certified by your banker
- e) Self certification from the seller that the GST received under the contract would be deposited to the concerned taxation authority
- f) Any other document / certificate that may be provided for in the Contract.

ii) **Foreign Sellers:** Not Applicable

21. Franking Clause:

- i) **In Case of Acceptance of Store(s):** “The fact that the goods have been inspected after the delivery period and passed by the Inspecting Officer will not have the effect of keeping the contract alive. The goods are being passed without prejudice to the rights of the Buyer under the terms and conditions of the Contract”.
- ii) **In Case of Rejection of Store(s):** “The fact that the goods have been inspected after the delivery period and rejected by the Inspecting Officer will not bind the Buyer in any manner. The goods are being rejected without prejudice to the rights of the Buyer under the terms and conditions of the contract.”

22. Claims:

- i) The quantity claims for deficiency of quantity and/ or the quality claims for defects or deficiencies in quality noticed during the inspection shall be presented within 45 days of completion of inspection.
- ii) The Seller shall collect the defective or rejected goods from the location nominated by the Buyer and deliver the repaired or replaced goods at the same location, within mutually agreed period, under Seller’s arrangement without any financial implication on the Buyer.

23. Liability Clause:

- a. Any damage caused to the property or suffered by the personnel of Buyer during the execution of Contract shall remain the liability of the Buyer. Such liability shall be fixed on Seller in case of grossly negligent act or omission on the part of Seller.
- b. This provision is limited to the relations between the Parties. It is without prejudice to the rights and actions to which the victims of damage, or any Social Security Organizations could prevail themselves legally.
- c. Either party would provide reasonable assistance to resolve the claim of other Party to mitigate loss or damage.
- d. Neither, the Seller shall be liable to the Buyer, nor shall the Buyer be liable to the Seller for any immaterial, punitive, indirect, special, incidental, or consequential loss or damage. This will hold good irrespective of whether such liability is based or claimed to be based on any breach of a Party’s obligation under the Contract, or any negligent act or omission of a Party, its employees, servants, appointed representatives, sub-contractor or professional consultants, or such liability arises otherwise out of or in connection with the Contract.
- e. The Buyer shall not be liable for any compensation in any manner to the Seller for whatsoever reason.

f. The Seller shall be liable to the Buyer for any compensation in any manner for whatsoever reasons for a sum not exceeding value of the Contract.

24. **Risk and Expense Purchase:** In case the vendor fails to honor the contractual obligations within the stipulated delivery period and as amended, Buyer may procure the said contracted goods/services through a fresh Service Order/contract and the defaulting vendor has to bear the excess cost incurred, if any.
25. **INCOTERMS for Delivery and Transportation (for Foreign Bidders only):** Not Applicable.
26. **Procedure for Cost Comparison:** The basis for comparison of cost in different situations would be as follows:
- a) The financial bids of the qualified bidders will be compared on the basis of price quoted in the price bid format of the RFP/Bid document.
 - b) If the competition is only among Indian bidders, the financial comparison should be considered on the basis of FOR prices at destination, i.e., all inclusive cost viz. basic price plus taxes, freight, insurance etc. payable by the ADA after availing various benefits of exemptions from taxes/duties as applicable to ADA.
 - c) **Adopting Discounted Cash Flow (DCF) method:** Not Applicable
 - d) **Net Present Value (NPV):** Not Applicable
 - e) **Discount rate to be used:** Not Applicable
 - f) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected accordingly.
 - g) If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.
 - h) The best acceptable bid will be considered further for placement of the Contract after price negotiation as decided by the Buyer.
28. **Guidelines for Submission of Bank Guarantees:**
- a) Bank Guarantees should be submitted by Bidders/Vendor in the specified format (as per *Annexure IA*). Bidders should comply with prevailing formats and guidelines of ADA with respect to BGs at the time of issue of BGs.
 - b) All Bank Guarantees should be submitted to ADA directly by the Issuing Bank under Registered Post (A.D.) / Speed Post / Courier.
 - c) Bank Guarantee shall be free from all typographical error / deletions / inclusions, riders etc., and requires to be authenticated by Bank's signatory with official seal.
 - d) The name, designation and code numbers of the Bank officer / officers signing the BGs should be incorporated under the signature(s) of the officials signing the BGs along with the complete postal address and email ID.

NOTE: Bank Guarantee should be issued from a Scheduled Commercial Bank in India. All charges connected with issue/extension on BG shall be borne by bidders/vendors.

- 29. Confidentiality and Title to the information:** The Vendor shall note that any information received by them from ADA shall be treated with utmost confidence and the provisions of the Official Secrets Act shall be applicable. The Vendor needs to execute Confidentiality Agreement as per ADA's format (**As per Annexure 1C**). The information, drawings, slips and draft papers as may be given by ADA should not be forwarded, discussed or parted to any other individual company without prior approval from ADA and the same should be returned to ADA after completion of the project. This requirement is neither to be published nor used for any promotional activities unless there is written permission for the same.
- 30. Jurisdiction:** The Courts of Bangalore only shall have jurisdiction to deal with and decide on any legal matter whatsoever, arising out of this order.

Part II (B) – Instructions for Online Bid Submission

1. The bidders are required to submit soft copies of their bids electronically on the defproc Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the defproc Portal, prepare their bids in accordance with the requirements and submitting their bids online on the defproc Portal.
2. More information useful for submitting online bids on the defproc Portal may be obtained at <https://defproc.gov.in/nicgep/app>.

REGISTRATION

1. Bidders are required to enroll on the e-procurement module of the defproc Portal (<https://defproc.gov.in/nicgep/app>) by clicking on the link "**Online bidder Enrolment**" on the defproc portal which is free of charge.
2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the defproc Portal.
4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate issued by any Certifying Authority recognized by CCA India (e.g. Sify, nCode, eMudhra etc), with their profile.
5. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC to others which may lead to misuse.
6. Bidders then logs in to the site through the secured log-in by entering their user ID, password and password of the DSC e-Token.

SEARCHING FOR TENDER DOCUMENTS

1. There are various search options built in the defproc Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the defproc Portal.
2. Once the bidders have selected the tenders they are interested in, they may download the documents. These tenders can be moved to the respective 'My tenders' folder. This would enable the defproc Portal to intimate the bidders through SMS / E-mail in case there is any corrigendum issued to the tender document.
3. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents- including the names and contents of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF / JPG formats. Bid documents may be scanned with 100 dpi in black and white option which helps in reducing size of the scanned document. However it shall be the sole responsibility of the bidder that the uploaded documents remain legible.
4. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid , a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders . Bidders can use "My space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This lead to reduction in the time required for bid submission process.

SUBMISSION OF BIDS

1. Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3. Bidder should prepare the Bid Security Declaration in lieu of EMD as per the instructions specified in the tender document.
4. Bidders are requested to note that they should necessarily submit their Price bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the unprotected cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be tampered by the bidder, the bid will be rejected.
5. Bidders are requested to note that they should necessarily submit their Price bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the unprotected cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the

filename. If the BoQ file is found to be tampered by the bidder, the bid will be rejected.

6. The server time (which is displayed on the bidder's dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids, etc. The bidders should follow plus time during bid submission.
7. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers / bid openers public keys.
8. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
9. Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
10. The bid summary has to be printed and kept as an acknowledgement of the submission of the bid.

ASSISTANCE TO BIDDERS

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority or the relevant contact person indicated in the tender.
2. Any queries relating to the process of online bid submission or queries relating to defproc Portal in general may be directed to the 24x7 defproc Portal Helpdesk.

Part III – Special Terms and Conditions

The Bidder is required to give confirmation of their acceptance of Special Terms and Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder as selected by the Buyer. Failure to do so may result in rejection of Bid submitted by the Bidder.

1. **Apportionment of Quantity:** Not Applicable

2. **Performance Security:**

i) **Indigenous Bidder:** The Seller may be required to furnish a Performance Security in the form of Bank Guarantee, from any of the Commercial Banks, in favour of Aeronautical Development Agency, Bangalore, for a sum equal to **3%** of the Contract value (including taxes and duties) within **21 days** from the date of the Order valid upto 60 days beyond the warranty period. The specimen of BG is attached at **Annexure-1A**. Bank Guarantee is to be issued through SFMS by Applicant's Bank to ADA's Bank details as indicated below :

Name : ADA; A/c No. :10461037271; IFSC Code : SBIN0004815

Bank : State Bank of India, NAL Branch, Bangalore

Note : While submitting the Bank Guarantee, Vendor should ensure that Bank Details such as Name of the Bank, Branch Name, Fax Number, Contact Person, E-mail ID, etc. shall be sent along with the Bank Guarantee.

The Performance Security will be forfeited by the Buyer, in case the conditions regarding adherence to delivery schedule and/or other provisions of the contract are not fulfilled by the Seller.

ii) **Foreign Bidder:** Not Applicable

3. **Option Clause:** Not Applicable

4. **Repeat Order Clause:** Not Applicable

5. **Tolerance Clause:** Not Applicable

6. **Purchase Preference Clause:** Not Applicable.

7. **Transfer of Technology (ToT):** Not Applicable.

8. **Permissible Time Frame for Submission of Bills:** To claim payment (part or full), the Seller shall submit the bill(s) along with the relevant documents within 30 days from the completion of the activity/supply and acceptance.

9. **Payment Terms**

a) **For Indigenous Seller:** The payment will be made as per the following terms, on production of the requisite documents:

Milestone Description	Payment Terms
Advance	15% of the Contract value shall be paid against submission of Advance Bank Guarantee for equivalent value valid upto delivery and acceptance + 60 days grace period

PDR	25% of the Contract value shall be paid on completion of PDR duly certified by the Technical Committee and approved by Competent Authority
CDR	25% of the Contract value shall be paid on completion of CDR duly certified by the Technical Committee and approved by Competent Authority
Acceptance and Delivery of the Model	25% of the Contract value shall be paid on Acceptance and Delivery of the Model duly certified by the Technical Committee and approved by Competent Authority
Delivery of all Design Documents	10% of the Contract value shall be paid on Delivery and acceptance of all Design documents duly certified by the Technical Committee and approved by Competent Authority

b) **For Foreign Seller:** Not Applicable

10. **Advance Payments:** Applicable.

11. **Part Supply and Pro rata payment:** Applicable.

12. **Mode of Payment**

a) **For Indigenous Sellers:** It will be mandatory for the Bidders to indicate their bank account numbers and other relevant e-payment details to facilitate payments through ECS / NEFT. If payment to vendor is being made for the first time, vendor is advised to provide their ECS details in Original duly attested by their Bankers.

b) **For Foreign Sellers:** Not Applicable

13. **Exchange Rate Variation (ERV) Clause:** Not Applicable

14. **Buy-Back:** Not Applicable

15. **Export License:** Not Applicable.

16. **Free Issue of Material (FIM):** Not Applicable

17. **Terms of Delivery**

- **For Indigenous Bidder:** The delivery of goods shall be FOR (ADA-Stores-Bangalore) basis.
- **For Foreign Bidder:** Not Applicable

18. **Packing and Marking Instructions:**

a) The Seller shall provide packing and preservation of the equipment and spares/goods contracted so as to ensure their safety against damage in the conditions of land, sea and air transportation, transshipment, storage and weather hazards during transportation, subject to proper cargo handling. The Seller shall ensure that the stores are packed in containers, which are made sufficiently strong. The packing cases should have provisions for lifting by crane/fork lift truck. Tags with proper marking shall be fastened to the special equipment, which cannot be packed.

- b) The packing of the equipment and spares/goods shall conform to the requirements of specifications and standards in force in the territory of the Seller's country.
- c) A label in English shall be pasted on the carton indicating the under mentioned details of the item contained in the carton. The cartons shall then be packed in packing cases as required.
- i) Part Number :
 - ii) Nomenclature :
 - iii) Contract annex number :
 - iv) Annex serial number :
 - v) Quantity contracted :
- d) One copy of the packing list in English shall be inserted in each cargo package, and the full set of the packing lists shall be placed in Case No.1 painted in a yellow colour.
- e) The Seller shall mark each package with indelible paint in English language as follows:-
- i) Contract No. _____
 - ii) Consignee _____
 - iii) Port / airport of destination _____
 - iv) Ultimate consignee _____
 - v) Package No. _____
 - vi) Gross/net weight _____
 - vii) Overall dimensions/volume _____
 - viii) The Seller's marking _____
- f) If necessary, each package shall be marked with warning inscriptions: <Top>, <Do not turn over>, category of cargo etc.
- g) Should any special equipment be returned to the Seller by the Buyer, the latter shall provide normal packing, which protects the equipment and spares/goods from damage or deterioration during transportation by land, air or sea. In such case the Buyer shall finalize the marking with the Seller.
- h) Any other special specific packing requirement to be specified clearly depending upon nature of the stores.

19. **Inspection Instructions:** As per SOW

20. **Warranty:** Not Applicable

21. **Product Support:** Not Applicable

22. **Annual Maintenance Contract (AMC) Clause:** Not Applicable

23. **Price Variation (PV) Clause:** Not Applicable

24. **Intellectual Property Rights (IPR):** Not applicable.

25. **Minimum Order Quantity:** Not Applicable
26. **Pre-Integrity Pact Clause:** Not Applicable
27. **Independent External Monitors (IEM):** Not Applicable
28. **Evaluation and Acceptance Criteria of Bids:** The bid will be considered and selected based on instructions contained in Part I and Part II of the RFP for further evaluation of bids as per sequence given below:
- i) **Techno-Commercial Bid Evaluation:** Bids will be evaluated based on vendor qualification requirement as per Part IV of RFP, if applicable, and bids of the qualified bidders will be considered for further evaluation as mentioned in Part V of the RFP.
- The bidders hereby agrees to respond to the “techno-commercial queries” sent by TCEC (if any) via e-mail / Fax (as provided by Bidder) within the time limit, failing which the Bidder’s offer will be rejected summarily without any further communication.
- ii) **Price Bid Evaluation:** The Price bid of those bidders whose Techno-Commercial bid has been accepted will be opened and comparative statement will be prepared. The best acceptable bid will be decided upon the lowest price quoted by the particular Bidder as per the BoQ. The ultimate cost to ADA would be the deciding factor for ranking of Bids. ADA reserves the right to call the lowest acceptable bidder for techno-commercial negotiations, if the cost indicated is beyond the budgeted estimate. **The basis for evaluation of Price bid will be LOT WISE.**
29. **Fall Clause:** Not Applicable
30. **Force Majeure Clause:**
- i) Neither party shall bear responsibility for the complete or partial non-performance of any of its obligations, if the non-performance results from such Force Majeure circumstances as Flood, Fire, Earth Quake and other acts of God as well as War, Military operations, blockade, Acts or Actions of State Authorities or any other circumstances beyond the parties control that have arisen after the conclusion of the present contract.
- ii) In such circumstances the time stipulated for the performance of an obligation under the Contract is extended correspondingly for the period of time commensurate with actions or circumstances and their consequences.
- iii) The party for which it becomes impossible to meet obligations under the Contract due to Force Majeure conditions, is to notify in written form to the other party of the beginning and cessation of the above circumstances immediately, but in any case not later than 10 (Ten) days from their commencement.
- iv) Certificate of Chamber of Commerce (Commerce and Industry) or other competent authority or organization of the respective country shall be considered as sufficient proof of commencement and cessation of the above circumstances.
- v) If the impossibility of complete or partial performance of an obligation lasts for more than 6 (six) months, either party hereto reserves the right to terminate the Contract totally or partially upon giving prior written notice of 30 (thirty) days to the other party of the intention to terminate without any liability other than reimbursement on the terms provided in the agreement for the goods received.

Important Notes:	
1)	Compliance for the Terms & Conditions mentioned in above Part-II(A) & Part-III is mandatory without which the offer will not be considered.
2)	Bidders are requested to sign all pages of Part-II(A) & Part-III along with company stamp (at the bottom of pages) and submit the same along with their quotation (along with Techno-Commercial bid in case of Two Bid System)

PART IV- Vendor Qualification Criteria

The broad criteria for qualification of bidders should be in the following terms:

- a) The bidder should be registered in India. GST Registration Number and its validity should be indicated. Documentary evidences should be submitted/attached to the Bid Proposal documents.
- b) The Bidder must have PAN/TAN for Income Tax Department and the same may be quoted.
- c) Bidder shall have previous experience in executing similar type of work. The Bidder has to provide details of experience.
- d) The Bidder should have positive net worth for each of the last 3 years. The bidder should submit copies of audited Balance Sheet & P/L Accounts for the last 3 years.
- e) The technical bid should contain supporting documents to prove all claims of the company. Company's expertise needs to be highlighted and submitted to ADA to facilitate assessment of capabilities of company towards meeting the requirements by the Technical Evaluation Committee.
- f) Also refer Annexure-II (A) of SOW.

Part V –Details of Stores/Services Required

1. **Schedule of Requirements:** List of items / services required are as follows :

Sl. No.	Description	Qty	Units
1	Design and Fabrication of 1:4.7 scale LCA AF Mk2 Air intake model for Wind Tunnel Testing	1	No

2. Deliverables: As per Clause 4.2 of SOW.
3. Inspection: As per Clause 4.1 of SOW.
4. Other Terms & Conditions: As per SOW.
5. Bidders are required to furnish clause by clause compliance of specifications bringing out clearly the deviations from specification, if any. Bidders are advised to submit compliance statement for the i) **Technical** and ii) **Techno-commercial parameters separately** in the following format along with the Techno-Commercial Bid:

Para of RFP specifications (item-wise)	Specifications of item offered	Compliance to RFP specifications – whether Yes / No	Remarks (In case of non-compliance, deviation from RFP to be specified in unambiguous terms. In case of compliance, catalogue/brochure reference, if available, to be indicated)

6. Vendors to upload the SOW in entirety and provide compliance without fail.

SUMMARY OF ADA's COMMERCIAL TERMS AND CONDITIONS

Sl. No.	Terms	Description	Confirmation of Bidders to ADA Terms	Remarks
1.	Bid Security Declaration in lieu of EMD	As per Clause 13 of Part-I(A) General Information and Instructions	Yes/No	
2.	Currency of payment	INR	Yes/No	
3.	Delivery Period (including Installation Testing & Acceptance)	As per Clause 7 of Details of Stores/Services Required.	Yes/No	
4.	Customs Duty	As per Clause 15 of Part-II(A) (Standard Terms and Conditions)	Yes/No	
5.	Payment Terms	As per Clause 9 of Part-III (Special Terms and Conditions)	Yes/No	
6.	GST	Concessional GST @ 5%	Yes/No	
7.	Performance Security (Mandatory)	03% of the order value (including taxes & duties) in the form of Bank Guarantee	Yes/No	

		valid till 60 days beyond acceptance should be submitted within 21 days of date of PO.		
8.	Installation & Acceptance	At NAL, Bangalore	Yes/No	
9.	Liquidated Damages (LD)	As per Clause 9 of Part-II(A) (Standard Terms and Conditions)	Yes/No	
10.	Ordering Information	(Indicate Name and Address of Firm on whom the Order is to be placed)		
11.	Validity of quote	As per Clause 11 of Part-I (A) General Information and Instructions	Yes/No	
12.	Warranty Period	As per Clause 20 of Part-III (Special Terms and Conditions)	Yes/No	

Note: In case of non-compliance, deviation from RFP to be specified in unambiguous terms. In case of non-compliance, Bidder's Terms will be subjected to further review and may be accepted if the objective of the procurement is met in all aspects including meeting the delivery period as well as the interest of state is protected.

For Commercially-Off-The-Shelf (COTS) items, it is mandatory to enclose catalogue/ technical brochure to support the claims of compliance.

7. **Delivery Period:** Expected Delivery Period for supply of items/rendering services would be **07 months including acceptance** from the Effective Date of the Contract. In case the Effective Date of Delivery happens to be a holiday, then the items need to be delivered on the prior working day. Please note that the Contract can be cancelled unilaterally by the Buyer in case items are not received within the contracted delivery period. Extension of contracted delivery period with/ without LD clause will be at the sole discretion of the Buyer.

8. **Consignee details:**

- Name : Chief Commercial Officer [Stores]
- Address : Aeronautical Development Agency,
P.B.No.1718, Vimanapura Post,
Bangalore - 560017
- Contact details : 080 2508 7030

Part VI – Price Bid Format

1. **Price Bid Format:** The Price Bid format as per online BoQ form is to be filled by the bidder.

Note:

1. **Any quotation received with cost included in Technical Bid would be liable for rejection.**

Annexure – 1A

Annexure to Order No.COM/IND/___/___/2020-2021 dated _____

Format of Bank Guarantee for Performance Security

(To be issued by any Scheduled Commercial Bank on non-judicial stamp paper as applicable)

GUARANTEE No.....

Date:.....

To:

Aeronautical Development Agency
Min. of Defence, Govt. of India
P.B. No. 1718, Vimanapura post,
Bangalore – 560 017, India

Dear Sirs,

Sub : Your PO No. COM/IND/___/___/2020-2021 dated _____

1. You have placed a PO vide Number as given above with (hereinafter referred to as the Supplier) for the Supply of (hereinafter referred to as Products) for the price and on the terms and conditions contained in the said PO.
2. In accordance with the terms of the said PO, you have agreed on the Supplier furnishing you with an acceptable Bank Guarantee for Rs..... (Rupees), being ___% (... percent) of the total PO Value (including taxes and duties) valid from the effective date of the PO till completion of contract in fulfillment of the obligations under the said PO. For this purpose, you have agreed to accept our guarantee.
3. In consideration thereof, we hereby at the request of the Supplier, expressly, irrevocably and unconditionally undertake and guarantee to refund to you on demand and without demur and without reference to the Supplier the said payment of Rs..... (Rupees) on receipt of your intimation that the Supplier has not fulfilled the conditions of the PO.
4. This guarantee shall not be revoked without your express consent and shall not be affected by your granting any indulgence to the Supplier, which shall include but not be limited to postponement from time to time of the exercise of any powers vested in you or any right which you may have against the Supplier and to exercise the same in any manner at any time and either to enforce or forbear to enforce any covenant contained or implied in the said PO or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by your exercising any of your rights with reference to matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving our Bank from its obligation under this guarantee.
5. We also agree that you shall be entitled to your option to enforce this guarantee against our Bank as a principal debtor by a mere demand in writing from you which shall be conclusive evidence to us that such repayment is due and payable to you under the terms of the said PO and shall be binding on us notwithstanding any other security, or guarantee that you may have in relation to the Supplier's liabilities in respect of the premises. This guarantee shall not be affected by any change in the constitution of our Bank or the Supplier or for any other reason whatsoever.

6. This bank guarantee shall expire, unless extended, on The bank will, however, honor claims submitted by you upto 60 working days after the expiry date.
7. Notwithstanding anything herein contained, our liability under this guarantee is restricted to Rs..... (Rupees). This guarantee in original shall be returned to us duly discharged upon final expiry of the validity.
8. Payment by us to you will be made within 15 working days from receipt of your written request making reference to this guarantee and on demand.

Date:

Authorized Signatory
Seal of the Bank

BID SECURITY DECLARATION FORMDate: _____
Tender ID No. _____

To

Director (MM)
Aeronautical Development Agency
PB No. 1718, Vimanapura Post
BANGALORE - 560017

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.

I/We accept that I/We may be disqualified from being eligible to submit bids for any contract with you for a period of **Two Years** from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

- (a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid;

or

- (b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, before the deadline defined in the RFP.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for and on behalf of: (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

Annexure – IC

Format for Non-disclosure of Confidential and Proprietary Information to be executed by Vendor. This Format together with Appendix ‘A’ would form complete Declaration

M/s a company incorporated under the Indian Companies Act, 1956 and having its registered office at here in after referred as “**Receiving Party**” which expression shall unless repugnant to the subject or the context mean and include its successors, nominees or assigns do here by declare on this day of 2012 that the Proprietary Information provided by Aeronautical Development Agency, a Society registered under the Registration of Societies Act 1860, coming under the administrative control of the Ministry of Defence, Government of India having its principal office at Ramesh Nagar, Vimanapura Post, P.B. No 1718, Bangalore – 560017, India herein after referred as the “**Disclosing Party**” will be held confidential.

We further declare that the Confidential and Proprietary information provided by Aeronautical Development Agency, Bangalore against its Supply/Work order No. ADA/COM/IND/...../...../20..... - 20..... Dated will be used only for (Description of the supply/work). The Proprietary Information will be protected from unauthorized use and disclosure. This declaration will apply to all Confidential and Proprietary Information disclosed by Aeronautical Development Agency, Bangalore

Confidential and Proprietary Information provided by Aeronautical Development Agency, Bangalore consist of Specifications, Designs, Plans, Drawings, Software, Proto-types and/ or technical information, and all copies and derivatives containing such information. Information may be in any form or medium, tangible or intangible and may be communicated / disclosed in writing, orally, or through visual observation or by any other means

M/s. will cause its employees to comply with the above declaration and shall prevent disclosure of Information to any Party. It is further stated that Information provided by M/s Aeronautical Development Agency, Bangalore and all media developed by the Party containing information will be returned to them.

We further assure Aeronautical Development Agency, Bangalore that they have the right to obtain an injunction enjoining any breach of the Declaration, as well as the right to pursue any and all other rights and remedies available at law or in equity for such a breach.

Access to Information provided by Aeronautical Development Agency, Bangalore shall not preclude an Individual of our Company from working on future projects which relate to similar subject matters

This declaration will be construed in, interpreted and applied in accordance with the laws of India.

In case of dispute or differences, breach & violation relating to the terms of the Declaration, we agree that the said matter or dispute or difference shall be referred to the sole arbitration of Director (Material Management), Aeronautical Development Agency, Bangalore. The award of the Arbitrator is final and binding. The Arbitrator shall act under the provisions of the Arbitration and conciliation Act, 1996 or any statutory modifications or re-enactment there of or any rules made thereof.

This Declaration will remain in effect for minimum 10 years from the date of the last disclosure of Confidential and Proprietary information, at which time it will terminate, unless extended by Aeronautical Development Agency, Bangalore.

Signed for and on behalf of

Witness:

M/s

Signature:

Signature:

Name:

Name:

Title:

Title:

Place:

Date:

Appendix 'A'**Format for Non-disclosure of Confidential and Proprietary Information**

1. **Definitions:** Unless the context otherwise requires, the following terms when ever used in this Contract have the following meaning
 - (a) **Disclosing Party** means “ Aeronautical Development Agency (ADA), Bangalore”
 - (b) **Receiving Party** means the Vendor/Seller/Development Partner receiving Confidential and Proprietary information from ADA, Bangalore
 - (c) **Confidential information** means any information which shall include but not limited to Design, Specifications, Plans, Drawings, Software, Proto-types, and or technical information, and all copies, derivatives, containing such information. Information may be in any form or medium, tangible or intangible and may be communicated / disclosed in writing, orally, or through visual observation or by any other means.

Exception: Such confidential information shall not include any information which

- (i) is at the time of disclosure, publicly known: or
- (ii) becomes at a later date, publicly available otherwise than a wrongful act or negligence or breach of the Agreement of or by the Receiving Party
- (iii) the Receiving Party can demonstrate by its written records was in its possession, or known to the Receiving Party, before receipt under this Agreement, and which was not previously acquired under an obligation of confidentiality or:
- (iv) is legitimately obtained at any time by the Receiving Party from a third party without restriction in respect of disclosure or use: or
- (v) the Receiving Party can demonstrate to the satisfaction of the Disclosing Party, has been developed independently of its obligations under this Agreement and without access to the Confidential information

2. Authority of the Signatory of Receiving Party shall be established prior to signing of the Declaration

3. Standard of Care: The Receiving Party shall protect the confidential information disclosed by the First Party with appropriate care

(a) Receiving Party shall communicate to the First Party in writing the list of nominated persons for receiving confidential information

(b) When confidential information is received by the Receiving Party, the receiving party should acknowledge the receipt of confidential information

(c) Receiving Party should not discuss the confidential information disclosed by the Disclosing Party with any Third Party within Government Organizations or outside Government Organizations without the prior written approval of the Disclosing Party

(d) Failure to observe any of the above provisions by the Receiving Party shall not constitute a waiver of such provisions

Annexure-I

Requirement Specifications for wind tunnel model design

1. Load data from customer to design a model leading to design drawings & stress report
2. Stress reports of geometry, dimensions, assemblies, choice of material with strain induced and deformation to be provided to the test facility one month before the tests.
3. Assembly drawings indicating
 - Aircraft centre line (ACL) and fuselage reference line (FRL)
 - Moment reference point (not applicable for air intake model)
 - Balance centre (not applicable for air intake model)
 - Hinge and balance axis position for measurement of hinge moment and point of application of loads (not applicable for air intake model)
 - Subassembly and detail drawings for manufacturing and assembly of various configurations for testing
 - Manufacturing tolerance and surface roughness
4. Description of screws specifying applicable torque for tightening the screw
5. Geometric inspections component & assembly levels and mechanical/hydrostatic test requirements
6. Definition of instrumentation, sensors, motors etc with cabling and connectors
7. Assembly and handling instructions
8. Complete nomenclature including off the self-components
9. Details of material including heat treatment & surface treatment specification
10. 3D modelling of wind tunnel model in a specified format in agreement with test facility
11. Design review to be organized with the participation of design staff of test facility
12. Design file would be provided on CDROM, file transfer through secured data exchange server or in the form of paper documents
13. Internal and external forces acting on the model, subassembly and individual components are to be determined for all configurations proposed for testing under extreme test condition
14. Sign conventions of forces and control surface deflections to be provided by customer
15. If dynamic component of loads are not known during model design then 20% of the static loads may be considered
16. Material test report/certificates of model components to be provided by vendors
17. For all critical sections of model & its components the designer must clearly present the combined stresses (tensile, compressive, torsion & shear) and location of maximum stresses
18. In case of nominal loads, the combined stresses should be 75% less than yield tensile stress (YTS) and 50% less than UTS
19. Material used for manufacturing must be approved by test facility
20. Integrity of structural materials to be checked using NDT (dye penetrant, ultra sound, radiology etc). In case of composite material it must be ensured that the risk of delamination, inclusion, contamination are excluded and orientation of fibers is recorded and material certificate to be available to test facility
21. For use of composite material, the component must be loaded under 150% of normal static loads and control surfaces under 100% of maximum loads
22. For calculation of static divergence a factor of safety 3 to be considered

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23. For calculation of dynamic divergence a factor of safety 2 in addition to above to be considered
24. Calculation of Natural frequencies of all subassemblies leading to risk of mechanical coupling to be carried with indication of limit conditions to represent its coupling
25. Each component of the model to be marked permanently with reference drawing no.
26. Optimize accessibility of internal instrumentation, configuration changes with minimum no. of screws
27. Recommended surface pressure tap minimum diameter of 0.3-0.6 mm and pressure tap connection to be made with annealed steel tube (vinyl tube) of OD 0.6-1.00 mm

28. To design a WT Model, estimation of steady/unsteady and start/stop loads are important for selection of balance, support sting/strut and scale of the model
29. Users to provide design documents, model construction, inspection and material certificates

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Annexure-II

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ADA/ARD&P/4633-D/257/2020
December 23, 2020

Statement of Work for the proposed project

“Design and Fabrication of 1:4.7 scale AF2 High Speed Wind Tunnel Model for Air Intake Measurements”

1. Summary of the envisaged work

The envisaged work under the proposed project comprises of Design and Fabrication of 1:4.7 scale high speed wind tunnel model for evaluation of the intake characteristics of an aircraft configuration under study at Aeronautical Development Agency (ADA), Bangalore. This 1:4.7 scale high speed air intake model is proposed to be tested in ONERA wind tunnel facilities at France.

The scaled wind tunnel model of the aircraft configuration, referred to as AF2 in this document is to be built with sufficient modularity to cater for future modifications for testing. The vendor needs to design and fabricate the wind tunnel model and deliver the model to ADA with a breakdown of cost estimate and time schedule. The 1:4.7 scale model has to be designed as per ONERA wind tunnel model design criteria to meet all the requirements of wind tunnel facility. The vendor needs to submit both technical and cost bids to ADA within stipulated time frame as prescribed by ADA.

Model Design and Fabrication

2. Description of Model

The 1:4.7 scale Intake model consists of truncated wings & fuselage without vertical tail, fuselage rear end and elevons etc. as shown in Fig.1. However, air intake is to be simulated up to duct rear end. The design of Intake model should be modular with an option to remotely actuate the canard surfaces for desired deflections. Each canard surface will be integrated with independent actuator (electrical or hydraulic) that will be housed inside the front fuselage of the model. This actuator for the canard will be provided by ADA. Therefore, the provision for Canard actuation will have to be catered in the model design. Additionally the Intake model should have a modular front duct module (FDM) with splitter plate as

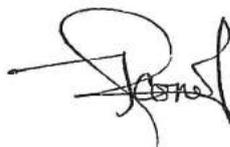

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shown in Fig. 2. There are 4 multi-function probes (MFP), one Infrared search and track sensor (IRST) and one Inflight refueling probe (IFRP) ahead of the Intake as shown in Fig.3. The Model should have the provision to remove and integrate these probes (MFP, IRST, IFRP) as required for the testing configuration. The 4 MFPs (movable) to be fabricated which would be integrated with potentiometer and that would be provided by ADA. The model will have a flow through intake up to duct rear end interfaced with a 40-probe kulite rake followed by mass flow controller and its housing. This rake interfaces will be provided by ADA. The 1:4.7 scale model should have a modular construction taking into account all the design options, canard deflections and interchangeability requirements. The model has to be supported by a separate sting for testing the model in ONERA tunnel. Adequate instrumentation has to be provided on air intake model to evaluate intake stability characteristics and internal performance. The model will have about 200 surface static pressure ports, 30 nos. of total pressure probe and 10 nos. of Kulite transducers for measurement of both steady and unsteady total and static pressures measurements at various regions of the model (fuselage, duct, splitter plate, diverter etc) in addition to aerodynamic interface plane (AIP) for flow field diagnostic studies. The locations of the surface pressure tapings and kulite sensors will be provided by ADA.

2.1 Major modules

The Intake model should be fabricated with desired modularity for ease of fabrication, integrated with a 40-probe kulite rake and pressure port instrumentation including housing of 8 ESP scanners inside front fuselage. The sets of deflectable control surfaces will be separately fabricated and remotely deflected. The multifunction probes, Infrared search and track sensor and Inflight refueling probe have to be modular. The Front duct and splitter plate should be modular to test multiple geometries. The Intake model should have two hard points on wing bottom and three hard points on fuselage to fix external stores as shown in Fig.4.

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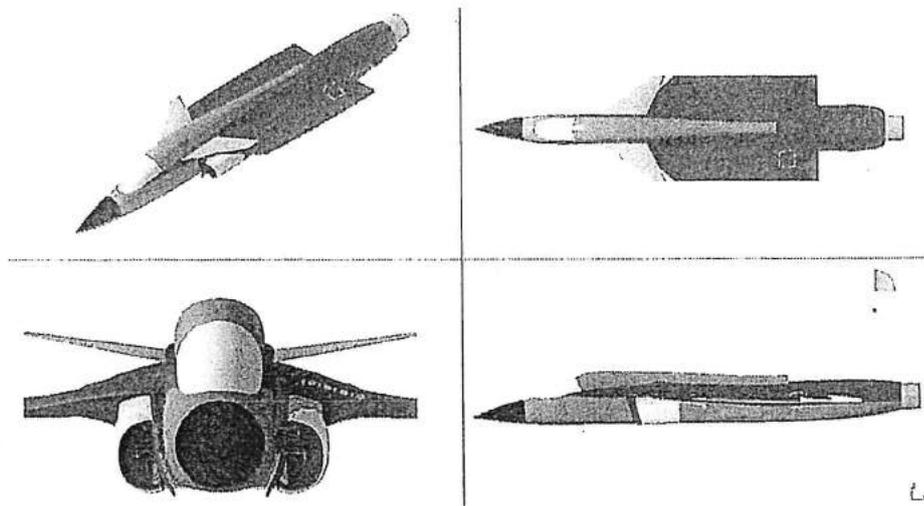


Fig. 1. Intake model Configuration

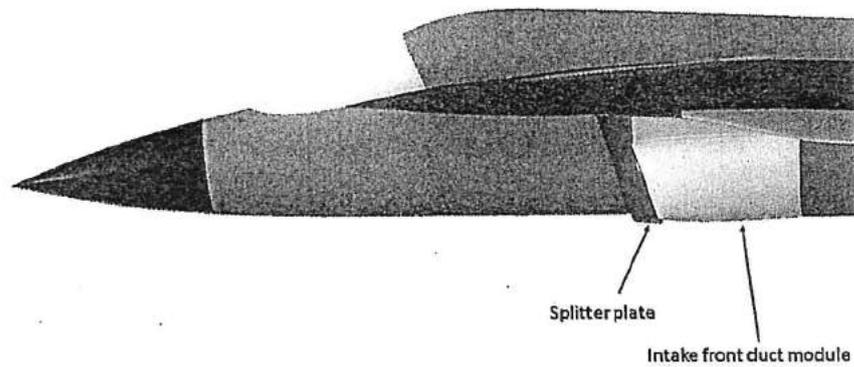


Fig. 2. Intake front duct module and splitter plate

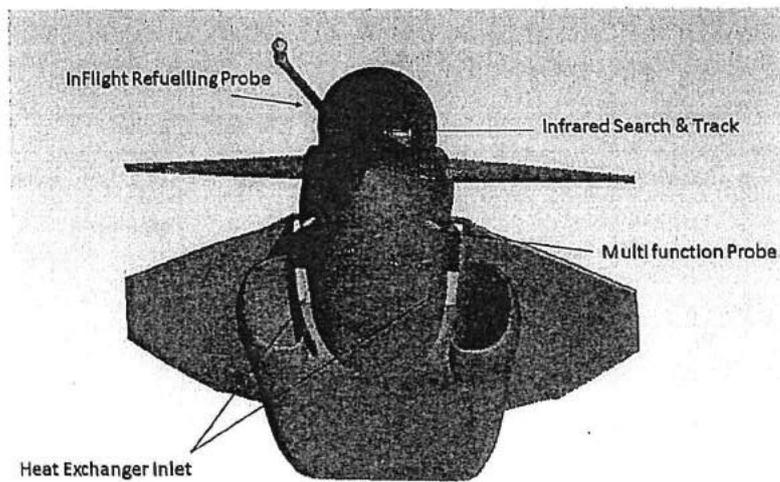


Fig. 3. Protrusions ahead of the Intake

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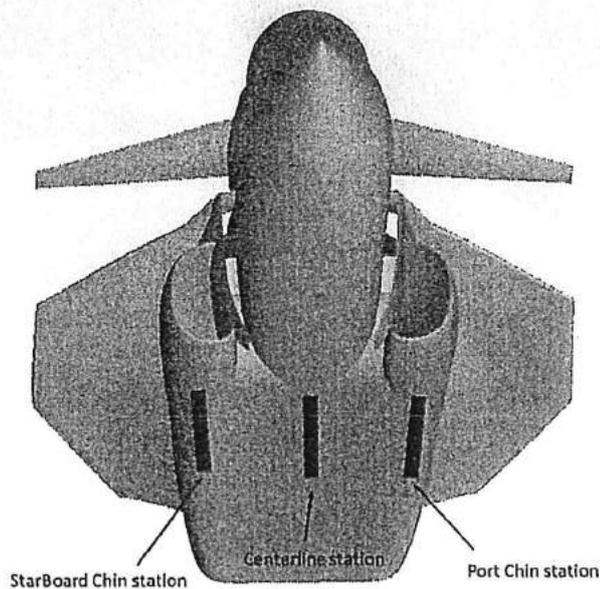


Fig. 4. Hard points to fix external stores

2.2. Modularity:

The intake model should have sufficient modularity for ease of structural design and manufacturing. Additionally, the discrete pieces that have to be fabricated separately are listed in Table.1. The wind tunnel tests are to be carried out with multiple deflections of the Canard surfaces. The Intake front duct module and splitter plate will have to be separate and 3 front duct module shapes are proposed to be tested. An opening for the heat exchange inlet on fuselage sides to be provided as shown in Fig.3 and the exit of the same would be on top of fuselage for which ADA would provide the geometry.

Table.A1. Discrete pieces

S.N	Discrete pieces	Deflections (degree)	No of pieces per side	Total Number of pieces
1.	Canards	remotely actuated	1	2
2.	Front duct module and splitter plate	-	3	6
3.	Rotatable Multi-function Probe	-	2	4
4.	Infrared search and Track	-	1	1
5.	Inflight refueling probe	-	1	1

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As shown in Table.1, the canards will have deflections ranging from -20 degrees (leading edge up, LEU) to +30 degrees (leading edge down, LED). AF2 model will have three store attachment points under the fuselage. The model should have provisions for testing without and with the stores attached to these attachment points. Various components as part of external stores which needs to be fabricated for this wind tunnel model is as specified in Table.A2. The basic aircraft model without any of the stores components in Table A2 is termed as clean configuration.

Table.A2. Discrete pieces for stores

S.N	Discrete pieces	Total Number of pieces
1.	Chin LDP	1
2.	Chin DLP	1
3.	Chin 1000Lb Bomb	1
4.	Chin HSLD	1
5.	Centreline 1300DT	1

3. Model design

3.1 Aircraft geometry for model design

The final geometry of AF2 and its stores and control surfaces will be provided by ADA in CATIA v5 format (*.CATPart) after signing the Non-Disclosure Agreement (NDA). Model design aspects include scaling and sizing of the model, modularity requirements and structural strength and rigidity to withstand critical aerodynamics design loads. The model design needs to give sufficient emphasis to ease of fabrication and assembly. A basic structural analysis has to be carried out for all the components of the model. Further, a detailed stress analysis using finite element method (FEM) has to be carried out on the main components viz, the front fuselage with canopy, rear fuselage and the stub wing which is supposed to be the most critical component of the model from design point of view. The factor of safety (FS) on all critical sections, joints and fasteners of the model should be sufficiently high as per industry standards and the model acceptability criteria of the testing facility, to withstand the highest loads expected during wind tunnel testing up to the highest Reynold's no. and dynamic pressure offered by the facility. The assembly of an earlier model of similar size is shown in Fig. 5.

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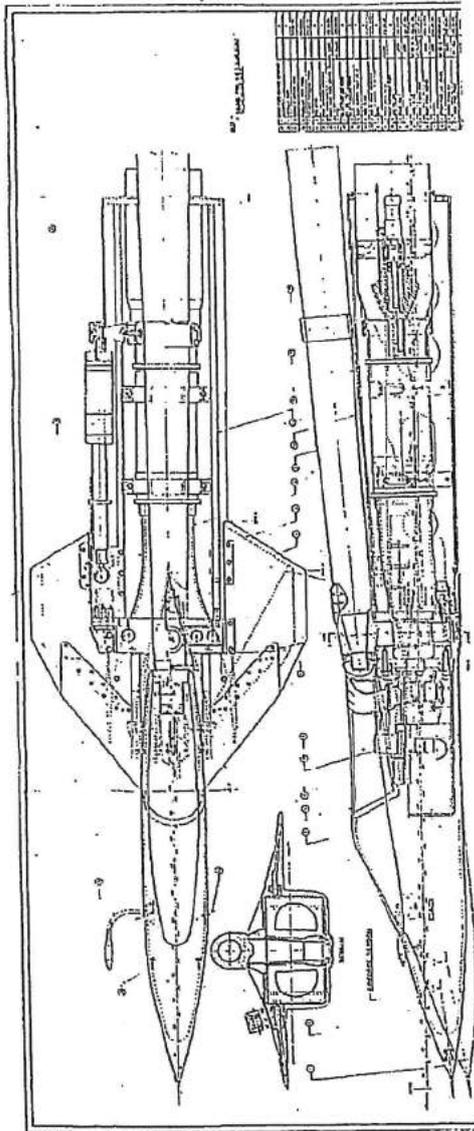


Fig.5. Model Assembly of an earlier model of similar size

3.2 Inputs from ADA:

ADA will provide the following inputs to the vendors for the model design, fabrication and integration of all other components.

1. Model NMG in CATIA format
2. Sting interfaces
3. Rake interfaces
4. Kulite probes interfaces and its locations
5. Four Multi function probes interfaces and volume constraints
6. Two canard actuators interfaces and volume constraints

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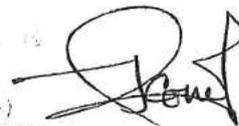
7. Pressure port locations and tubing details
8. Pressure scanners, inclinometer details
9. Model support system and instrumentation as received from the testing facility
10. Other model design inputs like aerodynamic loads etc

The vendor has to ensure the integration of two canard actuators, four multi function probes and kulite probes, the pressure port tunings, pressure scanners, inclinometers into the 1:4.7 scale Intake model.

3.3 Model Instrumentation

The requirements and location of pressure measurements and instrumentation (such as steady static pressure taps, total head probes, unsteady static and total pressure etc.) on the external surfaces, in the diverter passage, heat exchanger scoop, inlet ducts, aerodynamic interface plane (AIP) etc. will be provided by ADA. The model should be designed to cater for integrating these ports and the routing cables. The pressure ports should be aligned perpendicular to the surface so that the errors are minimized for the static pressure measurements. The diameter (ID) of the pressure port should be at least 0.5mm. The intake duct of the model should be designed to match the Kulite rake dimensions and provide proper routing for the measurement cables. The Kulite rake diameter and its dimensions are shown in Fig.6. The detailed sting, rake and their interface dimensions will be provided by ADA.

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File No. 17 (1) / 2019-2020



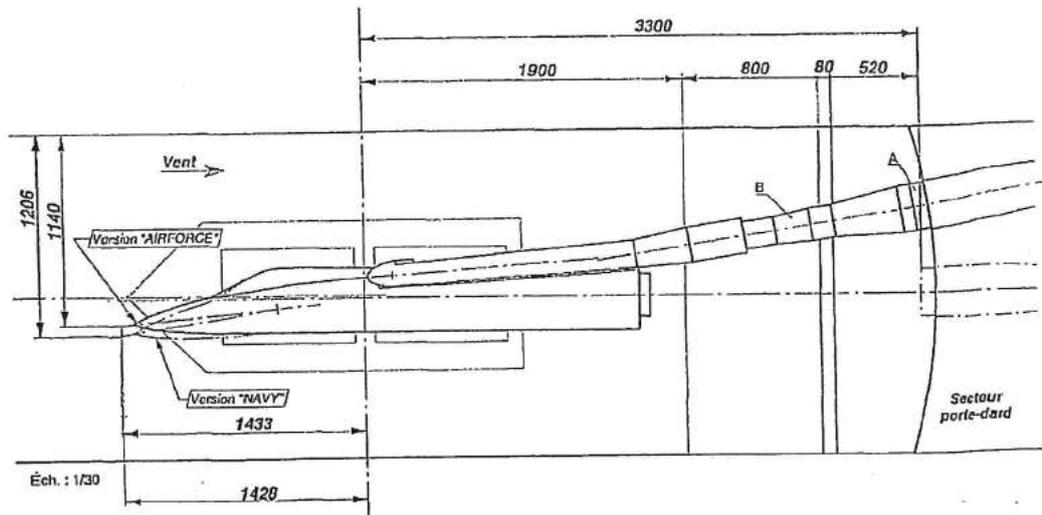


Fig.7. Schematic of the model mounted in Wind tunnel

3.5 Design reviews and Acceptance of the design

There will be a Preliminary Design Review (PDR) and a Critical Design Review (CDR) for the model design. ADA will constitute design review committees for both PDR and CDR, and these reviews will be held at ADA. The vendor will make presentations to the design review committees, either by being present at ADA for the review or through video conferencing.

PDR will be conducted, immediately after the overall scheme for realization of the model is formulated by the vendor in sufficient detail. PDR suggestions will be incorporated in the subsequent design process. The following are required to be presented to the PDR committee:

- a) Proposed break-up of the model into components
- b) Proposed scheme for realizing the model
- c) Proposed detailed design process

CDR will be conducted after the detailed design of the model is completed. The vendor should be prepared to provide the following information at the time of CDR:

- a) Detailed break-up of the model into components.
- b) Design calculations for fasteners and joints
- c) Details of stress analysis
- d) Fabrication plan

Three dimensional (3D) CAD model along with its components should be made available to the CDR committee. In order to avoid delays in the design and fabrication

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process, formal reports are not being insisted upon at the time of CDR. However, the responsibility of ensuring the structural integrity of the model as specified by the testing facility lies with the vendor.

The formal documents, which are considered to be part of CDR, need to be made available to ADA before the model is finally accepted by ADA prior to the tests are as follows:

- Wind tunnel model component and assembly drawings
- Design reports including design calculations for fasteners and joints
- Stress analysis reports
- Formal report on the fabrication methodology

Fabrication will start only after the CDR recommendations are incorporated in the design.

4. Model Fabrication

The 1:4.7 scale AF2 basic model and its components will have to be made out of high strength material satisfying mechanical strength, stiffness, hardness, fracture toughness and durability requirements. Appropriate sequences of machining and heat treatment need to be followed to ensure that the model has the necessary characteristics. Corrosion resistance of the material would be considered, and if required appropriate protective coating would be provided to the model. Suitable sequence of operations, such as buffing and polishing, will be performed to ensure required surface finish. For construction of front duct module (FDM) and Y-shaped inlet duct, an option of composite route or a hybrid material (Composite + Metal + Additive manufacturing) can be looked at to ease the integration of pressure ports.

It has to be ensured that required surface tolerance is achieved. The desired model accuracy would be 0.1 mm for Intake duct surfaces and 0.2 mm for fuselage. Also, the intake internal contour tolerance to be within ± 0.1 mm. The surface finish should be in the range 0.2 - 0.8 micron Ra. An appropriate reference surface and a reference line should be provided for aligning the model in the tunnel. Tolerance on angular deflections of deflectable surfaces (whether as deflectable pieces or fixed sets of pieces) should be within 0.25 deg. Care should be taken to prevent air leakage from all the inlet junctures (Sealant to be used).

4.1 Inspection Tests to be conducted during fabrication

The fabrication process is required to be accompanied by a number of tests. At the raw material stage itself, NDT (Non Destructive Testing) inspection needs to be conducted

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through ultrasonic testing. The finished components should be subjected to fluorescent dye penetrant tests. Coupons for tensile strength tests are required to be made along with the components and tensile tests need to be conducted. Coupons are also required to be made for hardness tests after heat treatment and hardness tests need to be conducted.

The manufactured parts should undergo inspection with a Coordinate Measuring Machine (CMM) to ensure that the manufactured part satisfies the prescribed tolerance limits. CMM inspection needs to be conducted at component level. CMM inspection is also required for checking symmetry and alignment after assembly. It is required to conduct inspections to ensure that the interfaces (steps and gaps) are within the specified tolerance limits. Further tests are required for quantifying the surface finish also.

4.2 Deliverables for the fabricated wind tunnel model

The model will be accepted by ADA based on the model acceptance review, to be held at the NAL, Bangalore, after the following are furnished by the vendor to ADA:

- 1:4.7 scale Wind tunnel model
- NDT reports including ultrasonic test reports and dye penetrant test reports
- Reports on coupon level tests for hardness and tensile strength
- Inspection reports including geometry fidelity checks and surface finish checks
- Coupons for tensile strength tests
- Coupons for hardness tests
- Design reports and 2 sets of fabrication drawings
- CAD Wind Tunnel models

4.3 Vendor evaluation

The vendor has to capture in detail all the design and manufacturing processes of metal and composite model/component as mentioned in Annexure-I & II of 1:4.7 scale high speed intake model for wind tunnel testing and that needs to be reflected in the technical bid which shall be evaluated during the meeting of technical evaluation committee at ADA. The main points to be mentioned in the technical bid are as follows.

1. The complete design and fabrication processes with schedule details
2. Model modularity approach and seamless assembly & disassembly
3. Expertise in Intake model design, FEA and composite/metal manufacturing

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4. Expertise in weight optimisation, C.G balancing and embedment of surface pressure ports/kulite sensors and routing out
5. Model Inspection methodology, strength testing and certification
6. Methodology/expertise to ensure that there is no leak in the internal flow and scheme of leak proof pressure ports.
7. CMM methodology to check for model design accuracy

5. Time schedule for design and fabrication

A calendar of events for model design and fabrication may be drawn up, covering the following:

- (a) Model design commencement
- (b) Preliminary design review
- (c) Critical design review and acceptance of design
- (d) Completion of model fabrication and associated inspection and checks
- (e) Review for model acceptance
- (f) Delivery of model to NAL, Bangalore

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Annexure-II (A)

Vendor Criteria for composite Model Fabrication for Wind Tunnel Testing

1. Vendor should have at least 5 yrs experience and should have carried out Fabrication of Composite Wind Tunnel Models with Pressure tapping probes.
2. Vendor to give supporting documents for the above with PO , Images and Wind Tunnel Facility where the Test was carried out.
3. Vendor should have ISO qualified certificate
4. Vendor should have good infrastructure in terms of Surface plate, NABL calibrated measuring instruments.
5. Vendor should meet the desired tolerances as specified in the drawings
6. Fabrication of WTM process consists of:
 - a) Fabrication of Master Pattern using NC machining
 - b) Derivation of composite moulds from the above
 - c) Fabrication of Composite product with in-situ built pressure probes.
 - d) Assembly of the above components.
7. Inspection for the above process will be done by CMM at every stage
8. Fabrication of Model shall include meeting the Weight criteria
9. Vendor to give support for Fitment at the respective Wind tunnel facility



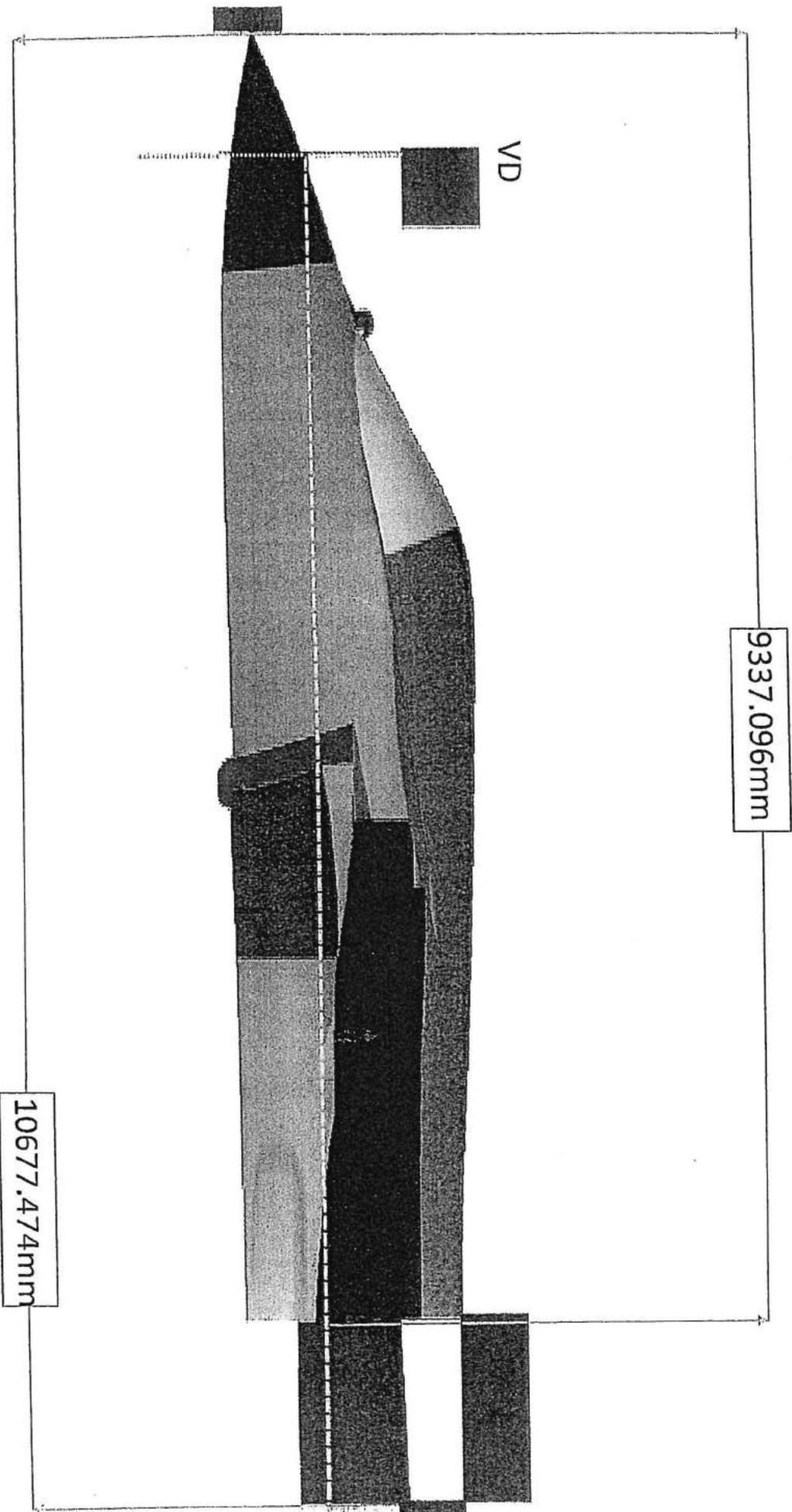


Fig. - 1

Answer - 1

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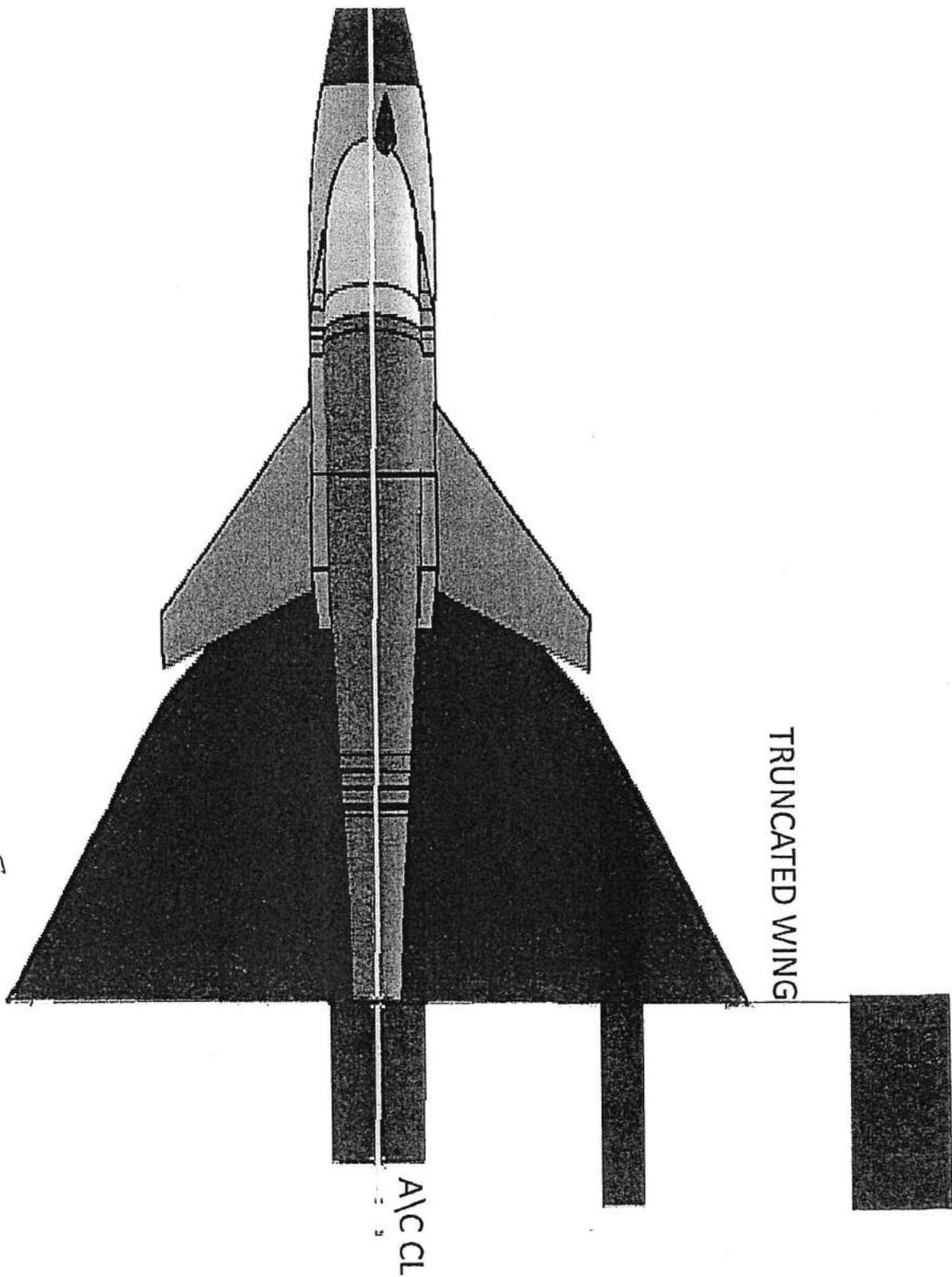


Fig. 2

TRUNCATED WING

A/CCL

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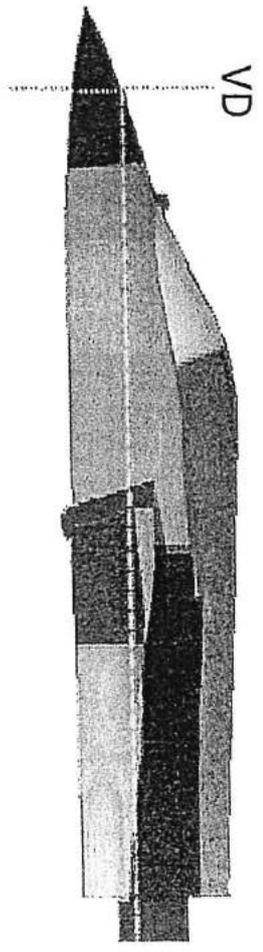
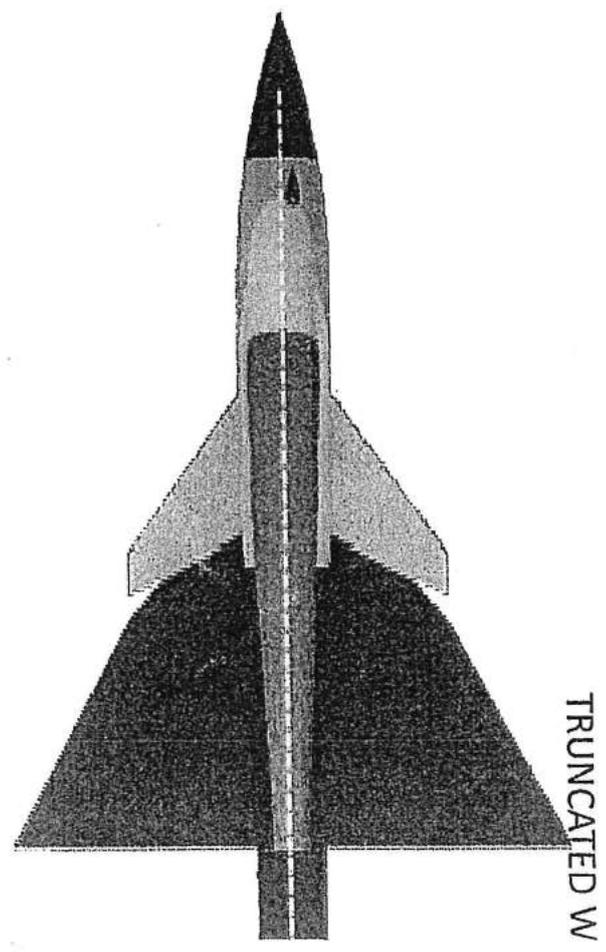
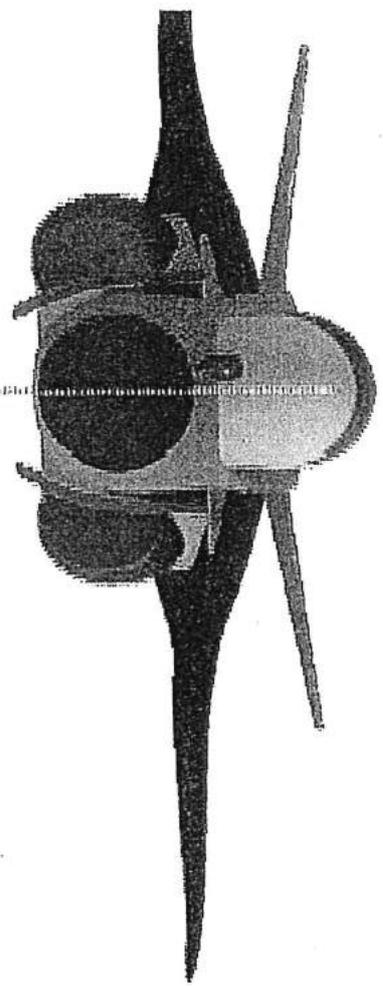
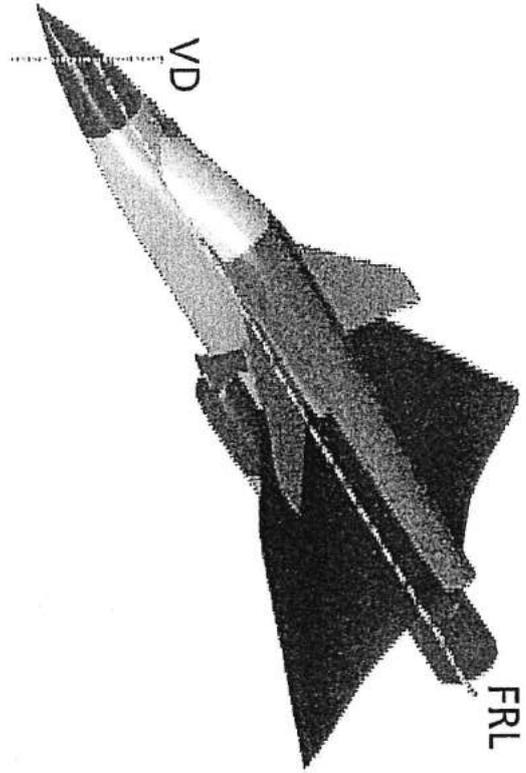


Fig. 3

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 PT. No. 17 (A) 1978