बिड संख्या/Bid Number: GEM/2026/B/7274228
दिनांक /Dated: 21-02-2026

बिड दस्तावेज़ / Bid Document

बिड विवरण/Bid Details	
बिड बंद होने की तारीख/समय /Bid End Date/Time	16-03-2026 11:00:00
बिड खुलने की तारीख/समय /Bid Opening Date/Time	16-03-2026 11:30:00
बिड पेशकश वैधता (बंद होने की तारीख से)/Bid Offer Validity (From End Date)	90 (Days)
मंत्रालय/राज्य का नाम/Ministry/State Name	Ministry Of Science And Technology
विभाग का नाम/Department Name	Department Of Scientific And Industrial Research (dsir)
संगठन का नाम/Organisation Name	Council Of Scientific And Industrial Research (csir)
कार्यालय का नाम/Office Name	Csir-national Aerospace Laboratories, Bengaluru
कुल मात्रा/Total Quantity	7
वस्तु श्रेणी /Item Category	Tools 01 , Tools 02 , Tools 03 , Tools 04 , Tools 05 , Tools 06 , Tools 07
GeMARPTS में खोजी गई स्ट्रिंग्स / Searched Strings used in GeMARPTS	Manufacturing and Supply of Metal Tools for Elevator Fairings, Spar and Horn Skin
GeMARPTS में खोजा गया परिणाम / Searched Result generated in GeMARPTS	Cutting Oil (V2)
अधिसूचना के लिए चयनित प्रासंगिक श्रेणियाँ / Relevant Categories selected for notification	• Cutting Oil (V2)
बीओक्यू शीर्षक /BOQ Title	ACD 227 25
वर्षों के अनुभव एवं टर्नओवर से एमएसई को छूट प्राप्त है / MSE Relaxation for Years Of Experience and Turnover	Yes | Complete
स्टार्टअप के लिए अनुभव के वर्षों और टर्नओवर से छूट प्रदान की गई है / Startup Relaxation for Years Of Experience and Turnover	Yes | Complete
विक्रेता से मांगे गए दस्तावेज़/Document required from seller	Certificate (Requested in ATC),OEM Authorization Certificate,Additional Doc 1 (Requested in ATC),Additional Doc 2 (Requested in ATC) *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer

बिड विवरण/**Bid Details**	
क्या आप निविदाकारों द्वारा अपलोड किए गए दस्तावेज़ों को निविदा में भाग लेने वाले सभी निविदाकारों को दिखाना चाहते हैं? संदर्भ मेनू है/Do you want to show documents uploaded by bidders to all bidders participated in bid?	Yes (Documents submitted as part of a clarification or representation during the tender/bid process will also be displayed to other participated bidders after log in)
बिड लगाने की समय सीमा स्वतः नहीं बढ़ाने के लिए आवश्यक बिड की संख्या। / Minimum number of bids required to disable automatic bid extension	2
दिनों की संख्या, जिनके लिए बिड लगाने की समय-सीमा बढ़ाई जाएगी। / Number of days for which Bid would be auto-extended	7
ऑटो एक्सटेंशन अधिकतम कितनी बार किया जाना है। / Number of Auto Extension count	1
बिड से रिवर्स नीलामी सक्रिय किया/Bid to RA enabled	No
बिड का प्रकार/Type of Bid	Two Packet Bid
प्राथमिक उत्पाद श्रेणी/Primary product category	Tools 01
तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय /Time allowed for Technical Clarifications during technical evaluation	5 Days
निरीक्षण आवश्यक (सूचीबद्ध निरीक्षण प्राधिकरण /जेम के साथ पूर्व पंजीकृत एजेंसियों द्वारा)/Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	No
मूल्यांकन पद्धति/Evaluation Method	Total value wise evaluation
वित्तीय दस्तावेज की आवश्यकता है / Financial Document Required	Yes
मध्यस्थता खंड/Arbitration Clause	No
सुलह खंड/Mediation Clause	No

ईएमडी विवरण/EMD Detail

आवश्यकता/Required	No

ईपीबीजी विवरण /ePBG Detail

एडवाइजरी बैंक/Advisory Bank	State Bank of India
ईपीबीजी प्रतिशत (%)/ePBG Percentage(%)	3.00
ईपीबीजी की आवश्यक अवधि (माह) /Duration of ePBG required (Months).	14

(a).ईएमडी और संपादन जमानत राशि, जहां यह लागू होती है, लाभार्थी के पक्ष में होनी चाहिए। / EMD & Performance securityshould be in favour of Beneficiary, wherever it is applicable.

लाभार्थी /Beneficiary :

DIRECTOR, CSIR-NAL
Csir-national Aerospace Laboratories, Bengaluru, Department of Scientific and Industrial Research (DSIR), Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology
(The Director)

बोली विभाजन लागू नहीं किया गया/ Bid splitting not applied.

एमआईआई खरीद वरीयता / MII Purchase Preference

एमआईआई खरीद वरीयता / MII Purchase Preference	Yes
मेक इन इंडिया विक्रेताओं को खरीद में प्राथमिकता, यदि उनका मूल्य L1+X% तक की सीमा में है / Purchase Preference to MII sellers availabele upto price within L1+X%	20
मेक इन इंडिया खरीद में प्राथमिकता के लिए बिड की मात्रा का अधिकतम प्रतिशत / Maximum Percentage of Bid quantity for MII purchase preference	50
सार्वजनिक खरीद (मेक-इन-इंडिया को प्राथमिकता) आदेश 2017 के अनुसार केवल क्लास 1/क्लास 2 के स्थानीय आपूर्तिकर्ताओं को ही भागीदारी की अनुमति है दिनांक 16.09.2020 (समय-समय पर संशोधित एवं लागू) / Allow participation only from Class 1/Class 2 local suppliers as per the Public procurement(Preference to Make-in-india) order 2017 date 16.09.2020(as amended and applicable time to time)	Yes, in compliance with the MII ORDER : DPIIT Order(as amended and applicable time to time)

एमएसई खरीद वरीयता/MSE Purchase Preference

एमएसई खरीद वरीयता/MSE Purchase Preference	Yes
सूक्ष्म और लघु उद्यम मूल उपकरण निर्माताओं को खरीद में प्राथमिकता, यदि उनका मूल्य L1+X% तक की सीमा में हो / Purchase Preference to MSE OEMs available upto price within L1+X%	15
सूक्ष्म और लघु उद्यम को खरीद में प्राथमिकता के लिए बिड की मात्रा का अधिकतम प्रतिशत / Maximum Percentage of Bid quantity for MSE purchase preference	25

1. If the bidder is a Micro or Small Enterprise as per latest orders issued by Ministry of MSME, the bidder shall be relaxed from the eligibility criteria of "Experience Criteria" as defined above subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Experience Criteria, shall upload the supporting

documents to prove his eligibility for Relaxation.
2. If the bidder is a Micro or Small Enterprise (MSE) as per latest orders issued by Ministry of MSME, the bidder shall be relaxed from the eligibility criteria of "Bidder Turnover" as defined above subject to meeting of quality and technical specifications. If the bidder itself is MSE OEM of the offered products, it would be relaxed from the "OEM Average Turnover" criteria also subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Turnover, shall upload the supporting documents to prove his eligibility for Relaxation.
3. If the bidder is a DPIIT registered Startup, the bidder shall be relaxed from the the eligibility criteria of "Experience Criteria" as defined above subject to their meeting of quality and technical specifications. The bidder seeking Relaxation from Experience Criteria, shall upload the supporting documents to prove his eligibility for Relaxation.
4. If the bidder is a DPIIT registered Startup, the bidder shall be relaxed from the the eligibility criteria of "Bidder Turnover" as defined above subject to their meeting of quality and technical specifications. If the bidder is DPIIT Registered OEM of the offered products, it would be relaxed from the "OEM Average Turnover" criteria also subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Turnover shall upload the supporting documents to prove his eligibility for Relaxation.
5. Preference to Make In India products (For bids < 200 Crore):Preference shall be given to Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as a Class 1 local supplier is denoted in the bid document. If the bidder wants to avail the Purchase preference, the bidder must upload a certificate from the OEM regarding the percentage of the local content and the details of locations at which the local value addition is made along with their bid, failing which no purchase preference shall be granted. In case the bid value is more than Rs 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or a chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in -India) order 2017 dated 04.06.2020. Only Class-I and Class-II Local suppliers as per MII order dated 4.6.2020 will be eligible to bid. Non - Local suppliers as per MII order dated 04.06.2020 are not eligible to participate. However, eligible micro and small enterprises will be allowed to participate .The buyers are advised to refer the OM No.F.1/4/2021-PPD dated 18.05.2023.
OM_No.1_4_2021_PPD_dated_18.05.2023 for compliance of Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017.

6. Purchase preference will be given to MSEs having valid Udyam Registration and whose credentials are validated online through Udyam Registration portal as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail themselves of the Purchase preference, the bidder must be the manufacturer / OEM of the offered product on GeM. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises and hence resellers offering products manufactured by some other OEM are not eligible for any purchase preference. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service and Buyer will decide eligibility for purchase preference based on documentary evidence submitted, while evaluating the bid. If L-1 is not an MSE and MSE Seller (s) has / have quoted price within L-1+ 15% (Selected by Buyer) of margin of purchase preference /price band defined in relevant policy, such MSE Seller shall be given opportunity to match L-1 price and contract will be awarded for 25% (selected by Buyer) percentage of total quantity. The buyers are advised to refer the OM No. F.1/4/2021-PPD dated 18.05.2023 OM_No.1_4_2021_PPD_dated_18.05.2023 for compliance of Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017. Benefits of MSE will be allowed only if seller is validated on-line in GeM profile as well as validated and approved by Buyer after evaluation of documents submitted.
7. Estimated Bid Value indicated above is being declared solely for the purpose of guidance on EMD amount and for determining the Eligibility Criteria related to Turn Over, Past Performance and Project / Past Experience etc. This has no relevance or bearing on the price to be quoted by the bidders and is also not going to have any impact on bid participation. Also this is not going to be used as a criteria in determining reasonableness of quoted prices which would be determined by the buyer based on its own assessment of reasonableness and based on competitive prices received in Bid / RA process.

Tools 01

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

Specification Document	View File
BOQ Detail Document	View File

Advisory-Please refer attached BOQ document for detailed consignee list and delivery period.

परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 02

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

Specification Document	View File
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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 03

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 04

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 05

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

Specification Document	View File
BOQ Detail Document	View File

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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 06

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

Specification Document	View File
BOQ Detail Document	View File

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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

Tools 07

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

Specification Document	View File
BOQ Detail Document	View File

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परेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	परेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	E Damodara	560017,Old Airport Road, Kodihalli, Bangalore - 560 017,	1	170

क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें/Buyer Added Bid Specific Terms and Conditions

1. **Generic**

   OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity up to 25% of the contracted quantity during the currency of the contract at the contracted rates. The delivery period of quantity shall commence from the last date of original delivery order and in cases where option clause is exercised during the extended delivery period the additional time shall commence from the last date of extended delivery period. The additional delivery time shall be (Increased quantity ÷ Original quantity) × Original delivery period (in days), subject to minimum of 30 days. If the original delivery period is less than 30 days, the additional time equals the original delivery period. The Purchaser may extend this calculated delivery duration up to the original delivery period while exercising the option clause. Bidders must comply with these terms.

2. **Service & Support**

   Availability of Service Centres: Bidder/OEM must have a Functional Service Centre in the State of each Consignee's Location in case of carry-in warranty. (Not applicable in case of goods having on-site warranty). If service center is not already there at the time of bidding, successful bidder / OEM shall have to establish one within 30 days of award of contract. Payment shall be released only after submission of documentary evidence of having Functional Service Centre.

3. **Certificates**

   Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

4. **Buyer Added Bid Specific ATC**

   Buyer uploaded ATC document Click here to view the file .

5. **Rate Contract**

   Performance Security: Against all Purchase Orders placed by any buyer against the Rate Contract Catalogue, the seller would be required to furnish a performance security of 3 % of total contract value of the relevant Purchase Order as per GeM GTC.

6. **Rate Contract**

   Tax and Duties Toll Tax/ Entry Tax/ Octroi Duty & Local Taxes. No separate payment would be made by the Buyer for Toll Taxes, Entry Taxes, Octroi duty and local Taxes, if any. The Seller should cater for these Taxes/ duties as part of Basic Rate quoted in the Bid.

7. **Rate Contract**

   Demurrage charges In case the rejected items are not lifted by the firm within 48 hrs, the demurrage charges at the rate of 0.5% of total contract value will be charged per day. In case the items are not lifted within a month, the same will be destroyed by the station board of officers and no claim will be admitted.Demurrage charges. In case the rejected items are not lifted by the firm within 48 hrs, the demurrage charges at the rate of 0.5% of total contract value will be charged per day. In case the items are not lifted within a month, the same will be destroyed by the station board of officers and no claim will be admitted.

8. **Rate Contract**

   Bidder's offer is liable to be rejected if they dont upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

9. **Rate Contract**

   Malicious Code Certificate:

   The seller should upload following certificate in the bid:-
   (a) This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code that would activate procedures to :-
   (i) Inhibit the desires and designed function of the equipment.
   (ii) Cause physical damage to the user or equipment during the exploitation.
   (iii) Tap information resident or transient in the equipment/network.
   (b) The firm will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software.

10. **Rate Contract**

    Escalation Matrix For Service Support : Bidder/OEM must provide Escalation Matrix of Telephone Numbers for Service Support.

11. **Rate Contract**

    Dedicated /toll Free Telephone No. for Service Support : BIDDER/OEM must have Dedicated/toll Free Telephone No. for Service Support.

12. **Rate Contract**

    AVAILABILITY OF OFFICE OF SERVICE PROVIDER: An office of the Service Provider must be located in the state of Consignee. DOCUMENTARY EVIDENCE TO BE SUBMITTED.

13. **Rate Contract**

    Availability of Service Centres: Bidder/OEM must have a Functional Service Centre in the State of each Consignee's Location in case of carry-in warranty. (Not applicable in case of goods having on-site warranty). If service center is not already there at the time of bidding, successful bidder / OEM shall have to establish one within 30 days of award of contract. Payment shall be released only after submission of documentary evidence of having Functional Service Centre.

14. **Rate Contract**

    ISO 9001: The bidder or the OEM of the offered products must have ISO 9001 certification.

15. **Rate Contract**

IT equipment shall be IPv6 ready from day one.

16. **Warranty**

Warranty period of the supplied products shall be 1 years from the date of final acceptance of goods or after completion of installation, commissioning & testing of goods (if included in the scope of supply), at consignee location. OEM Warranty certificates must be submitted by Successful Bidder at the time of delivery of Goods. The seller should guarantee the rectification of goods in case of any break down during the guarantee period. Seller should have well established Installation, Commissioning, Training, Troubleshooting and Maintenance Service group in INDIA for attending the after sales service. Details of Service Centres near consignee destinations are to be uploaded along with the bid.

17. **Generic**

IT equipment shall be IPv6 ready from day one.

18. **Certificates**

ISO 9001: The bidder or the OEM of the offered products must have ISO 9001 certification.

19. **Generic**

Malicious Code Certificate:

The seller should upload following certificate in the bid:-
(a) This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code that would activate procedures to :-
(i) Inhibit the desires and designed function of the equipment.
(ii) Cause physical damage to the user or equipment during the exploitation.
(iii) Tap information resident or transient in the equipment/network.
(b) The firm will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software.

20. **Scope of Supply**

Scope of supply (Bid price to include all cost components) : Only supply of Goods

21. **Generic**

Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.

22. **Warranty**

Timely Servicing / rectification of defects during warranty period: After having been notified of the defects / service requirement during warranty period, Seller has to complete the required Service / Rectification within 3 days time limit. If the Seller fails to complete service / rectification with defined time limit, a penalty of 0.5% of Unit Price of the product shall be charged as penalty for each week of delay from the seller. Seller can deposit the penalty with the Buyer directly else the Buyer shall have a right to recover all such penalty amount from the Performance Security (PBG).Cumulative Penalty cannot exceed more than 10% of the total contract value after which the Buyer shall have the right to get the service / rectification done from alternate sources at the risk and cost of the Seller besides forfeiture of PBG. Seller shall be liable to re-imberse the cost of such service / rectification to the Buyer.

23. **Generic**

1. The Seller shall not assign the Contract in whole or part without obtaining the prior written consent of buyer.
2. The Seller shall not sub-contract the Contract in whole or part to any entity without obtaining the prior written consent of buyer.

3. The Seller shall, notwithstanding the consent and assignment/sub-contract, remain jointly and severally liable and responsible to buyer together with the assignee/ sub-contractor, for and in respect of the due performance of the Contract and the Sellers obligations there under.

24. **Certificates**

To be eligible for award of contract, Bidder / OEM must possess following Certificates / Test Reports on the date of bid opening (to be uploaded with bid):

As per terms and conditions of Tender Document enclosed
.

25. **Generic**

Without prejudice to Buyer's right to price adjustment by way of discount or any other right or remedy available to Buyer, Buyer may terminate the Contract or any part thereof by a written notice to the Seller, if:
i) The Seller fails to comply with any material term of the Contract.
ii) The Seller informs Buyer of its inability to deliver the Material(s) or any part thereof within the stipulated Delivery Period or such inability otherwise becomes apparent.
iii) The Seller fails to deliver the Material(s) or any part thereof within the stipulated Delivery Period and/or to replace/rectify any rejected or defective Material(s) promptly.
iv) The Seller becomes bankrupt or goes into liquidation.
v) The Seller makes a general assignment for the benefit of creditors.
vi) A receiver is appointed for any substantial property owned by the Seller.
vii) The Seller has misrepresented to Buyer, acting on which misrepresentation Buyer has placed the Purchase Order on the Seller.

अस्वीकरण/Disclaimer

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization, whereby Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specifications and / or terms and conditions governing the bid. If any clause(s) is / are incorporated by the Buyer regarding following, the bid and resultant contracts shall be treated as null and void and such bids may be cancelled by GeM at any stage of bidding process without any notice:-

1. Definition of Class I and Class II suppliers in the bid not in line with the extant Order / Office Memorandum issued by DPIIT in this regard.
2. Seeking EMD submission from bidder(s), including via Additional Terms & Conditions, in contravention to exemption provided to such sellers under GeM GTC.
3. Publishing Custom / BOQ bids for items for which regular GeM categories are available without any Category item bunched with it.
4. Creating BoQ bid for single item.
5. Mentioning specific Brand or Make or Model or Manufacturer or Dealer name.
6. Mandating submission of documents in physical form as a pre-requisite to qualify bidders.
7. Floating / creation of work contracts as Custom Bids in Services.
8. Seeking sample with bid or approval of samples during bid evaluation process. (However, in bids for attached categories, trials are allowed as per approved procurement policy of the buyer nodal Ministries)
9. Mandating foreign / international certifications even in case of existence of Indian Standards without specifying equivalent Indian Certification / standards.
10. Seeking experience from specific organization / department / institute only or from foreign / export experience.
11. Creating bid for items from irrelevant categories.
12. Incorporating any clause against the MSME policy and Preference to Make in India Policy.
13. Reference of conditions published on any external site or reference to external documents/clauses.
14. Asking for any Tender fee / Bid Participation fee / Auction fee in case of Bids / Forward Auction, as the case may be.

15. Buyer added ATC Clauses which are in contravention of clauses defined by buyer in system generated bid template as indicated above in the Bid Details section, EMD Detail, ePBG Detail and MII and MSE Purchase Preference sections of the bid, unless otherwise allowed by GeM GTC.
16. In a category based bid, adding additional items, through buyer added additional scope of work/ additional terms and conditions/or any other document. If buyer needs more items along with the main item, the same must be added through bunching category based items or by bunching custom catalogs or bunching a BoQ with the main category based item, the same must not be done through ATC or Scope of Work.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

All GeM Sellers/Service Providers shall ensure full compliance with all applicable labour laws, including the provisions, rules, schemes and guidelines under the four Labour Codes i.e. the Code on Wages, 2019; the Industrial Relations Code, 2020; the Occupational Safety, Health and Working Conditions Code, 2020; and the Code on Social Security, 2020 as and when notified and brought into force by the Government of India.

For all provisions of the Labour Codes that are pending operationalisation through rules, schemes or notifications, the corresponding provisions of the pre-existing labour enactments (such as The Minimum Wages Act, 1948, The Payment of Wages Act, 1936, The Payment of Bonus Act, 1965, The Equal Remuneration Act, 1976, The Payment of Gratuity Act, 1972, etc. and relevant State Rules) shall continue to remain applicable.

The Seller/ Service Providers shall, therefore, be responsible for ensuring compliance under:

- **All notified and enforceable provisions of the new Labour Codes as mentioned hereinabove; and**
- **All operative provisions of the erstwhile Labour Laws until their complete substitution.**

All obligations relating to wages, social security, safety, working conditions, industrial relations etc. and any other statutory requirements shall be strictly met by the Seller/ Service Provider. Any non-compliance shall constitute a breach of the contract and shall entitle the Buyer to take appropriate action in accordance with the contract and applicable law.

यह बिड सामान्य शर्तों के अंतर्गत भी शासित है /This Bid is also governed by the General Terms and Conditions

जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो।बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्रवाई का आधार होगा।/In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws.

---धन्यवाद/Thank You---

Invitation for e-Bids / Notice Inviting e-Tender

Tender No. NAL/PUR/ACD/227/25 **Date: 17/02/2026**

CSIR - National Aerospace Laboratories (NAL), Bengaluru, Republic of India, is one of the premier research laboratories under aegis of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organization. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites e-bids from the Manufacturers, their distributors and Indian Agent of Foreign Principals, if any, for the procurement of the following Goods/Services for its day-to-day research

Sr. No.	Brief Description of material (s)	Unit	Quantity
1	**Manufacturing and Supply of Metal Tools for Elevator Fairings, Spar and Horn Skin.**	**Set**	**1**
Please refer Annexure for Specification and drawings.			

Type of Bid	Two Bid
Performance Security	3% of the order value
Bid Security (EMD) (in INR)	Bid Security Declaration should be enclosed with the quotation

1. The Schedule for Submission of e-Bids and Opening of e-Bids is as follows:

Date & Time of Submission of e-Bid	**13/03/2026** - 11.00 Hrs
Date and Time of Opening of e-Bid	**13/03/2026** - 11.30 Hrs

2. E-Bids are invited through the electronic tendering process and the Tender Document can be downloaded from the Government e-Marketplace Portal i.e., https://gem.gov.in. **The submission of e-Bids will be only through the GeM portal** https://gem.gov.in. **Bids will not be accepted in any other form.**

3. Interested bidders' may obtain further information from the office of the:
Stores & Purchase Officer
Purchase Section
CSIR- National Aerospace Laboratories
PB No.1779, HAL Airport Road, Kodihalli, Bengaluru – 560017
Karnataka-India
Tel #: 080 25086040/6041, Fax #: 080 25269611
Email : purchasek@nal.res.in

4. The prospective bidders' should adhere to deadlines specified in Tender details corresponding to this Tender on GeM portal **https://gem.gov.in**.

5. **Bid Security (BS) / Earnest Money Deposit (EMD):**
The bidders has to furnish/submit BID SECURING DECLARATION as per the FORMAT, in the name of "**The Director, National Aerospace Laboratories, Bengaluru",** without which the bid is liable to be rejected.

6. **Open Tender enquiry:**
Only Local suppliers with prescribed local content as detailed in DPIIT Order No. P-45021/2/2017-PP (BE-II) dated 16th Sep, 2020 and subsequent orders issued by Ministry of Finance, Government of India from time to time, are eligible for bidding. bidders' must enclose the certificate declaring the local content of supplies as per the format.

7. **Global Tender Enquiry:**
Either the Indian Agent on behalf of the Foreign Principal or the Foreign Principal can bid directly in a tender but **not** both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent **cannot** represent **two** different foreign principals in one tender.

(a) In case of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry.

One manufacturer can also authorize only one agent/ dealer. There can be only one bid from the following:

i)	The Principal manufacturer directly or through one Indian agent on his behalf; and
ii)	Indian/foreign agent on behalf of only one principal.

(b) Foreign bidders' must disclose the name and address of agent and representative in India and Indian bidders' must disclose their foreign principal or associates.

(c) If bidders' is Indian Agent of Foreign Principal, the following instruction shall be complied and as amended from time to time as on the date of issue of Tender.

i)	Bidders' must necessarily comply with conditions of "Make in India" Order No.F-45021/2/2017-PP (BE-II) dated 16-Sep-2020 of Ministry of Commerce and Industry, Government of India, as amended from time to time on the date of issue of Tender.
ii)	The bidders' shall comply with restrictions under Rule 144(xi) of the GFR 2017 related to restrictions on participation of Foreign bidders' and their Authorised Indian Agent/Dealer in terms of Order No.P-45021/112/2020-PP(BE-II) (E-43780) dated 24-Aug-2020 of the Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade, as amended from time to time as on the date of issue of Order.

Note: Kindly refer to the first page of Notice Inviting Tender for tender type/mode of procurement and submit the bid accordingly

9. The bids of those bidders' failing to comply the following clauses will be summarily rejected.

(a) The bidders' proposing to supply finished products directly/indirectly from bidders' of Countries sharing the land border with India should submit copy of registration done with the Ministry of Home Affairs and Ministry of External Affairs

(b) If the products supplied are not from bidders' of Countries sharing Land border with India, the bidders' should enclose a declaration

(c) The debarment of a bidders' in this tender, if any, is reciprocal of that Principal's Country, if it is Import.

Note: Kindly refer to the first page (NIT) for tender type (i.e. Open Tender Enquiry / Global Tender Enquiry) and submit your bid accordingly.

10. As per Govt. of India procurement policies,

a) The purchaser intends to give purchase/service preference to local supplies (Preference to Make in India) in case the cost of procurement is up to Rs.50.00 (fifty) lakhs.

b) The procuring entity intends to give purchase/service preference to products/goods manufactured by micro, small and medium enterprises.

11. Bidders' are requested to refer to the instructions regarding Procurement Policies for "Make in India", issued by Ministry of Commerce and Industry, Department of Industrial Policy and Promotion dated. 28-May-2018, and 4-Jun-2020 and guidelines as and when issued.

12. Printed conditions, if any, submitted along with the quotation shall not be binding on us.

13. Bidders' to certify the quoted price is not higher than the price quoted with other Government Institution for similar specifications and quantity during the current financial year.

14. Payments shall be made promptly by the Purchaser but in no case later than thirty (30) days after submission of the invoice or claim by the Supplier. While claiming the payment, the supplier should certify in the bill/invoice that the payment being claimed strictly in terms of the contract and all obligations on the part of the supplier for claiming the payment have been fulfilled as required under the contract.

Mandatory fields in Tax Invoice and Receipt Vouchers	
Invoice Number and Date	Name, address and GSTIN of the supplier
Shipping and billing Address	Customer Name & GSTIN [CSIR-NAL] Bank Details
HSN Code/SAC Code	Place of Supply
Taxable value and discounts	Item details i.e. description, quantity (number), unit, the total value
Signature of the Supplier	Rate and amount of taxes i.e. CGST/SGST/IGST

15. Kindly, note CSIR-NAL GST No.29AAATC2716R1ZB. The bidders are requested to furnish their GST no. in their invoice, failing which NAL will not be able to make the timely payment.

16. Unsolicited / conditional / unsigned Quotations/Quotations received after the due date and time shall be summarily rejected. The bidders shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.

17. The prospective bidders' are requested to refer to the Standard Terms and Conditions available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids'

18. The Director, CSIR-National Aerospace Laboratories (NAL), Bengaluru, India reserves the right to accept or reject any bids or accept all tenders either in part or in full or to split the order, or to annul the bidding process without assigning any reasons there for.

Thanking you,

Yours faithfully,

Stores & Purchase Officer
For and on behalf of CSIR-NAL

CSIR-National Aerospace Laboratories, Bengaluru - 560 017, India

CSIR-NAL

File No: NAL/PUR/ACD/227/25

Annexure

Specifications and Allied Technical Details for Metal Tools: Elevator Fairing, Spar & Horn Skin

1 **End Use:**

Metal tools will be used to manufacture composite Elevator Fairing, Spar & Horn Skin components for SARAS Mk-II aircraft under autoclave moulding conditions of 190°C with external pressure of 7bar and under full vacuum.

2 **Detailed Specifications**

Fabrication & supply of metal tools as per the following supplied drawings and CAD models listed below in Table 1. CAD 3D models in STP/IGS format will be provided to the vendor awarded with PO.

Table 1: Tools details for fabrication and supply: Elevator Fairing, Spar & Horn Skin Tools

Sl. No.	Tool Description	Drawing Number	Qty (Nos)
1	Tool for Front Spar LH & RH Aft Box Assy	25-A-T-55-20-130-001-000	1
2	Tool for Tip Cap Horn Assy LH& RH	25-A-T-55-20-150-003-000	1
3	Tool For TT Actuator Access Cover LH (STA#3- STA #5)	25-A-T-55-20-130-008-000	1
4	Tool for Fairing Access Cover LH (SAT#3- STA#4)	25-A-T-55-20-130-009-000	1
5	Tool for Rear Spar LH	25-A-T-55-20-131-010-000	1
6	Tool for Aft Box Clips	25-A-T-55-20-130-016-000	1
7	Tool Assembly for Aft Rib CFC Plug	25-A-T-55-20-131-030-000	1

2.1. General instructions

i. Drawings and Catia V5 CAD models listed above will be supplied by CSIR-NAL for tool fabrication.

ii. Tool Material and build quality should meet the drawings requirements.

iii. Primary tool Material: SA 516 Gr.70. For detailed item specification, refer drawings.

iv. Tolerance on the tool thickness should be as per respective tool drawing.

v. All machined surfaces/ planes should be hard chrome/electroless nickel finish. Other area for corrosion resistance to be painted with high temperature aluminum paint to withstand operating temperature of 250^{0}C. (The thickness of the hard chrome coating may be 20 to 30 microns.)

vi. Contour and reference planes should be machined to 2 triangle (▽▽) surface finish standard.

vii. Contour tolerance for the tool surface should be within +/-0.3 mm with respect to the tooling holes and as per respective tool drawing.

viii. The tool contour inspection should be carried out w.r.t tooling holes at every 50mm grid location (minimum) along length and width. Closer readings to be taken on need basis / Laser scanning report for the tool surface.

ix. Part boundary marking-grooves should be done as called in the Model/drawings. The tolerance on the tool groove boundary is ±1.0 mm

2.2 List of Deliverables (BoQ):

Sr. No.	Item Description	Quantity (Nos)
Elevator Fairing, Spar & Horn Skin Tools and accessories:		
1	Tool for Front Spar LH & RH Aft Box Assy	One
2	Tool for Tip Cap Horn Assy LH& RH	One
3	Tool For TT Actuator Access Cover LH (STA#3- STA #5)	One
4	Tool for Fairing Access Cover LH (SAT#3- STA#4)	One
5	Tool for Rear Spar LH	One
6	Tool for Aft Box Clips	One
7	Tool Assembly for Aft Rib CFC Plug	One
Documents/CAD data/Reports:		
1.	CMM/ Laser Tracker Report	
3.	Raw Material CoC & Heat treatment /Stress relieve Report	
4.	Surface Finish/Treatment Report	
5.	NDT reports of welding ensuring defect free joints.	
6.	Any updated tool 3D CAD model and drawings released by vendor. One set of released drawings should be given in print.	
7.	Updated CAD model of Tool if any	

3 Scope of Supply and incidental works:

Scope of Supply includes the following:

(i) Supply of the Tools / system along with the accessories as per detailed specifications mentioned in section 2 above.
(ii) Acceptance as per section 4.5.
(iii) On site comprehensive warranty as per section 6
(iv) Delivery schedule as per section 8.

4 Inspection & Tests

4.1 General

1. The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified here.

2. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at the point of delivery and/or at the Goods final destination.

3. Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.

4. Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.

5. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at final destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.

6. The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.

7. With a view to ensure that claims on insurance companies, if any, are lodged in time, the bidders and /or the Indian agent, if any, shall be responsible for follow up with their principals for ascertaining the dispatch details and informing the same to the Purchaser and he shall also liaise with the Purchaser to ascertain the arrival of the consignment after customs clearance so that immediately thereafter in his presence the consignment could be opened and the insurance claim be lodged, if required, without any loss of time. Any delay on the part of the bidder/ Indian Agent would be viewed seriously and he shall be directly responsible for any loss sustained by the purchaser on the event of the delay.

8. Before the goods and Tools are taken over by the Purchaser, the Supplier shall supply operation and maintenance Manuals together with Drawings of the goods and Tools built. These shall be in such details as will enable the Purchase to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

9. The Manuals and Drawings shall be in the ruling language (English) and in such form and numbers as stated in the Contract.

10. Unless and otherwise agreed, the goods and Tools shall not be considered to be completed for the purposes of taking over until such Manuals and Drawing have been supplied to the Purchaser.

11. On successful completion of acceptability test, receipt of deliverables, etc. and after the Purchaser is satisfied with the working of the Tools, the acceptance certificate signed by the Supplier and the representative of the Purchaser will be issued. The date on which such certificate is signed shall be deemed to be the date of successful commissioning of the Tools.

4.2 Manufacturer's Inspection Certificate

After the goods are manufactured and assembled, inspection and testing of the goods shall be carried out at the supplier's plant by the supplier, prior to shipment to check whether the goods are in conformity with the technical specifications. Manufacturer's test certificate with data sheet shall be issued to this effect and submitted along with the delivery documents. The purchaser reserves the options to be present at the supplier's premises during such inspection and testing.

4.3 Pre-Dispatch Inspection

NAL personnel may visit at different stages of manufacturing (mentioned below) of tools, at supplier's place or at other place where work is in progress.

i. After welding of face sheet and substructures
ii. During stress relieving
iii. During contour machining
iv. During contour inspection

1)	Location	At vender location
2)	Number of persons	02 to 03
3)	Period of pre-dispatch Inspection	3-5 days depending on the requirement
4)	Nature of pre-dispatch Inspection	a) Tool contour and dimensional inspection b) Verification of assembly/disassembly of tool

Note:
i) Pre- Dispatch inspection of tool will have to be done at vendor place like Tool Contour, Dimensional Inspection, Vacuum Integrity and leak test at room temperature. The vendor should inspect final machined contour of tool by using Coordinate Measuring Machine (CMM)/Laser tracker (LT) with valid calibration in the presence of CSIR-NAL team. Vendor should meet all specifications as per tool drawing.
ii) Travel expenses of CSIR-NAL personnel for pre-dispatch will be borne by CSIR-NAL.
iii) Vendor to share complete inspection reports prior to pre-dispatch inspection including raw material, CoC, ensuring no cracks and stress relieving/ heat treatment

4.4 Third Party Inspection

NOT APPLICABLE

4.5 Acceptance Test

The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the Tools is installed at Purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the Tools is expected to occur. The Supplier shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified.

On the event of the ordered item failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which, the Purchaser reserve the right to get the Tools replaced by the Supplier at no extra cost to the Purchaser.

Successful conduct and conclusion of the acceptance test for the installed goods and Tools shall also be the responsibility and at the cost of the Supplier.

The Acceptance Tests Plan (ATP) at the final destination (NAL) include the following:

4.5.1 Tool should meet all the requirements mentioned in the drawing/s and the requirements mentioned in this document.

The acceptance tests at the final destination (NAL) include the following:

a)	Vacuum Integrity and leak test: Tool will be subjected for autoclave cure cycle (180°C for 2 hours under full vacuum and 7bar pressure) Autoclave is used to check for vacuum integrity & vacuum leaks test at **CSIR-NAL at no cost to vendor.** Note: Maximum allowed vacuum leakage rate is 0.01bar/min and should not exceed after a retention time of minimum of 5 minutes after disconnecting the vacuum source. In case of leaks (if any), vendor should carry out repair work without any additional cost to NAL.
b)	After conducting autoclave cure cycle. Tool NMG/surface Contour and Dimensional measurement, checks and Inspection as per the supplied drawings. Deviations if any, to be corrected by vendor without any additional costs to NAL.

4.5.2 After subjecting the tools to cure cycle, Laser tracker inspection of all the tools will be carried out by CSIR-NAL as per the drawing at no cost to vendor. Also, the visual and dimensional inspection of the tool will be carried out at per drawing by CSIR-NAL at no cost to vendor.

4.5.3 After cure cycle if any deviation is found in tool NMG/surface contour and dimensional measurements, checks as per the supplied drawings after inspection, these deviations have to be corrected by supplier without any additional costs to NAL.

4.5.4 After the cure, the tool should not have any peeling of paint and any other visible deterioration. If found, vendor should rectify the tools without any additional cost to CSIR-NAL.

5 Training

NOT APPLICABLE

6 Incidental Services

- On site Comprehensive Warranty: 1 year from the date of acceptance

7 Annual Maintenance Contract

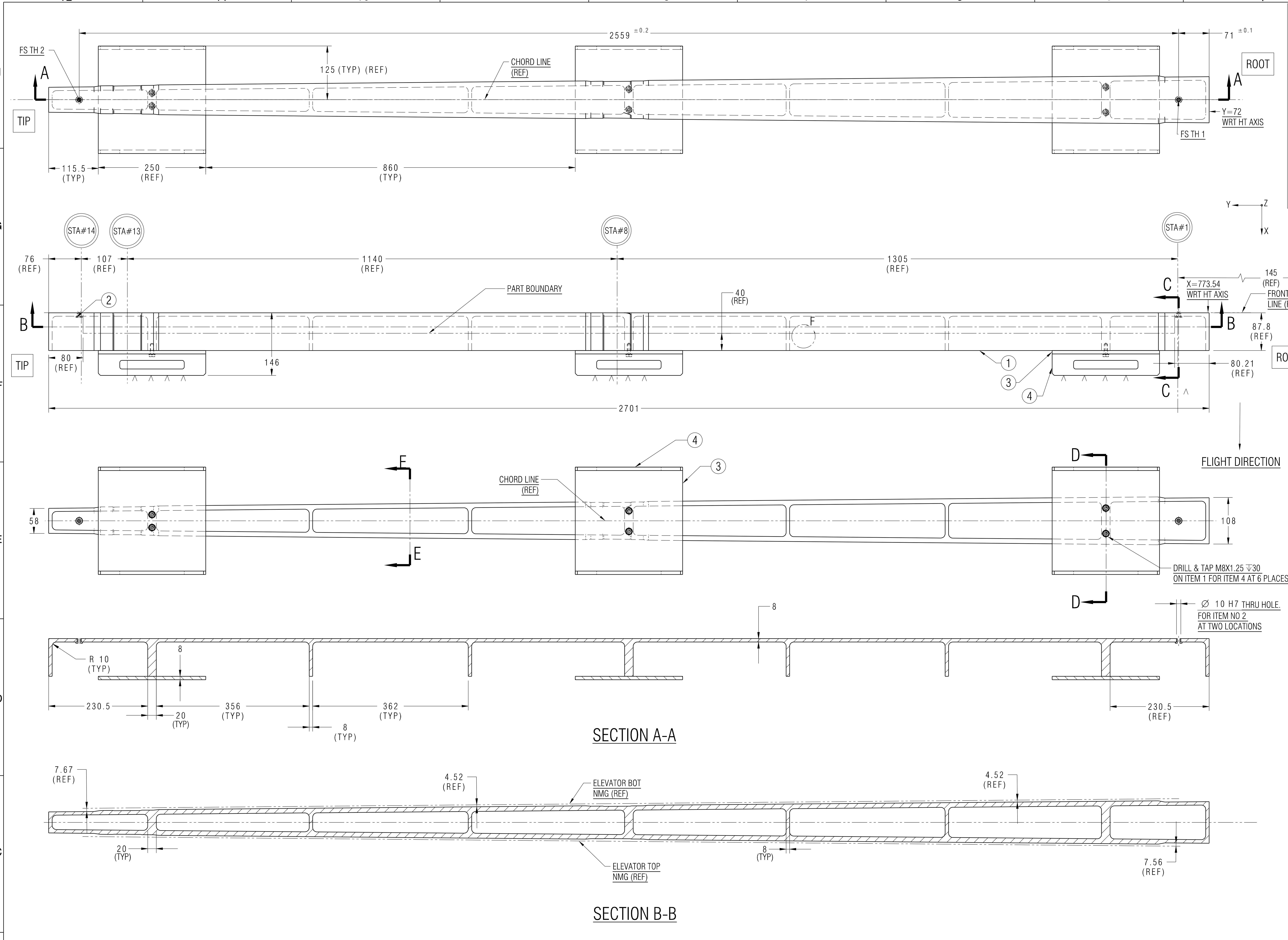
NOT APPLICABLE

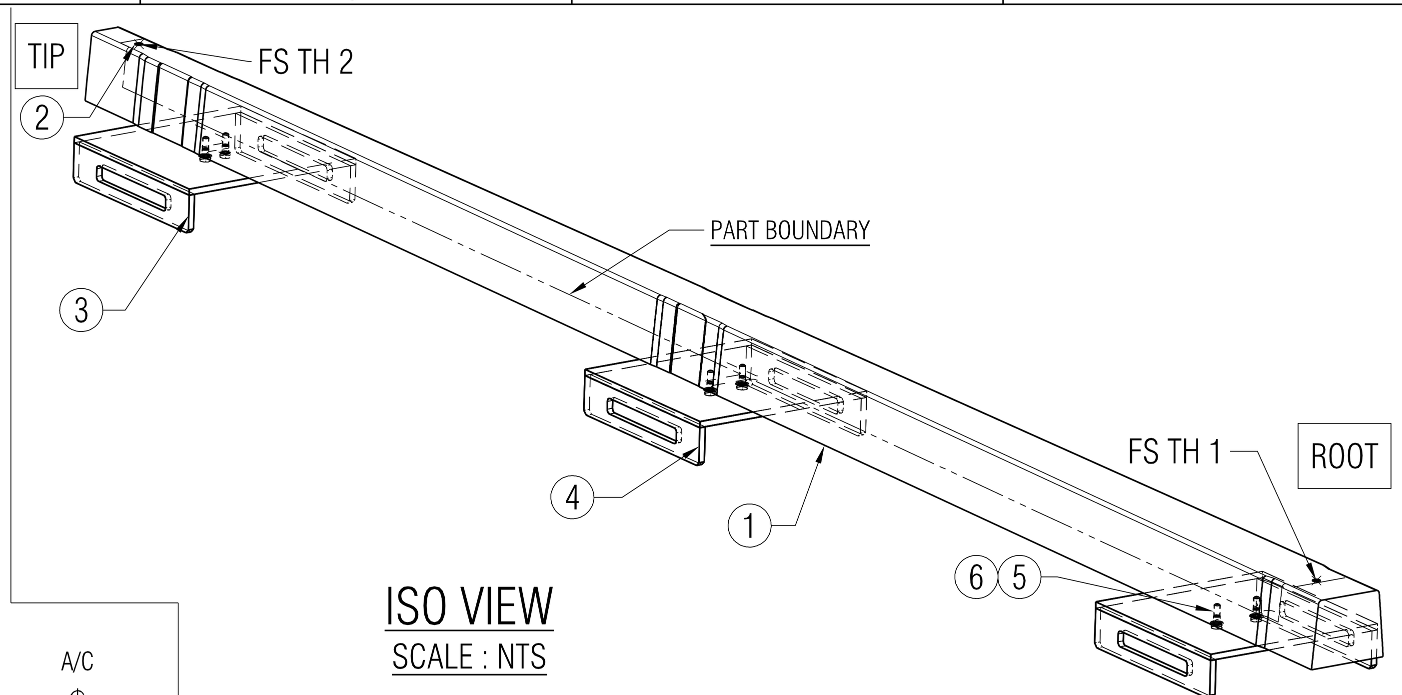
8 Delivery Schedule (including supply, installation, commissioning, training & acceptance)

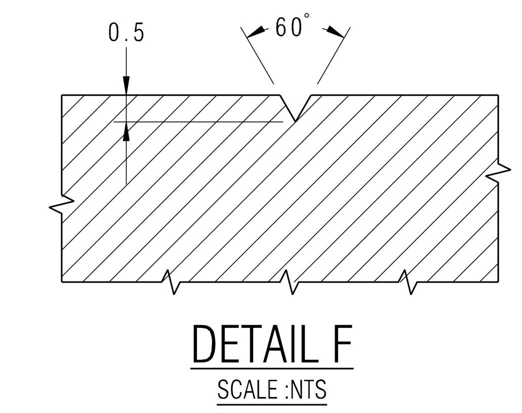
Delivery of the item		Installation & commissioning		Training at CSIR-NAL, if any	Acceptance of the item
Days/ Weeks/ Months	Location	Days/ Weeks/Months from the date of receipt of Tools	Location	Days/ Weeks/Months from the date of Installation & Commissioning	Days/ Weeks/Months from the date of Installation, Commissioning & Training
4 months	CSIR-NAL, Bengaluru	Not Applicable		Not Applicable	10 Days

9 Commercial evaluation of bid

The bid will be treated as incomplete if bidder has not quoted for all the components given in scope of supply (clause 2) and the incomplete bid will be rejected. The bidder should also include all incidental services in their quote. The bid will be commercially evaluated for the components in the scope of supply.







NOTES :

1) THIS TOOL IS MADE TO MANUFACTURE FRONT SPAR LH & RH AFT BOX ASSY -25-A-A-55-20-130-001-0F0 & 25-A-A-55-20-230-001-0F0.
2) CAD MODEL IS THE MASTER DEFINITION OF THE TOOL.
3) TOOL CONTOUR OFFSET BY 0.25mm INSIDE FROM THE PART INNER SURFACE.
4) BREAK AT SHARP EDGES BY 0.5R.
5) ENGRAVE PART BOUNDARY AND ORIENTATION MARK AS PER CAD MODEL, FOR SCRIBE LINE DETAILS, REFER DETAIL - F.
6) STREES RELIEVE THE TOOL BEFORE FINAL MACHINING OF CONTOUR.
7) NO TOOLTECH ON THE TOOL WHILE INSPECTING THE CONTOUR.
8) INSPECT THE CONTOUR OF ITEM NO 1 USING CMM / LASER TRACKER WRT TOOLING HOLE CO-ORDINATES.
9) TOLERANCE : A) CONTOUR TOLERANCE ±0.3mm
B) ON TOOL THICKNESS ±2mm.
C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART - 1) - COARSE.
10) FINISH THE TOOL OTHER THAN STANDARD FASTNERS WITH ELECTROLESS NICKEL COATING/HARD CHROME.
11) USE 0.12mm THICK TOOLTECH ON THE TOOL CONTOUR SURFACE, DURING PART MANUFACTURING.
12) ATTACH METAL TAG AT NON WORKING PLACE USING SUITABLE ADHESIVE. THE ADHESIVE SHOULD WITHSTAND 200°C

ELEVATOR

TOOL NAME: TOOL FOR FRONT SPAR LH & RH AFT BOX ASSY
TOOL NO: 25-A-T-55-20-130-001-000
PART NAME: FRONT SPAR LH AFT BOX ASSY
PART NO: 25-A-A-55-20-130-001-0F0

CLEARED FOR SL NO. | DATE OF INSPECTION | STAMP

50 (REF)
100 (REF)

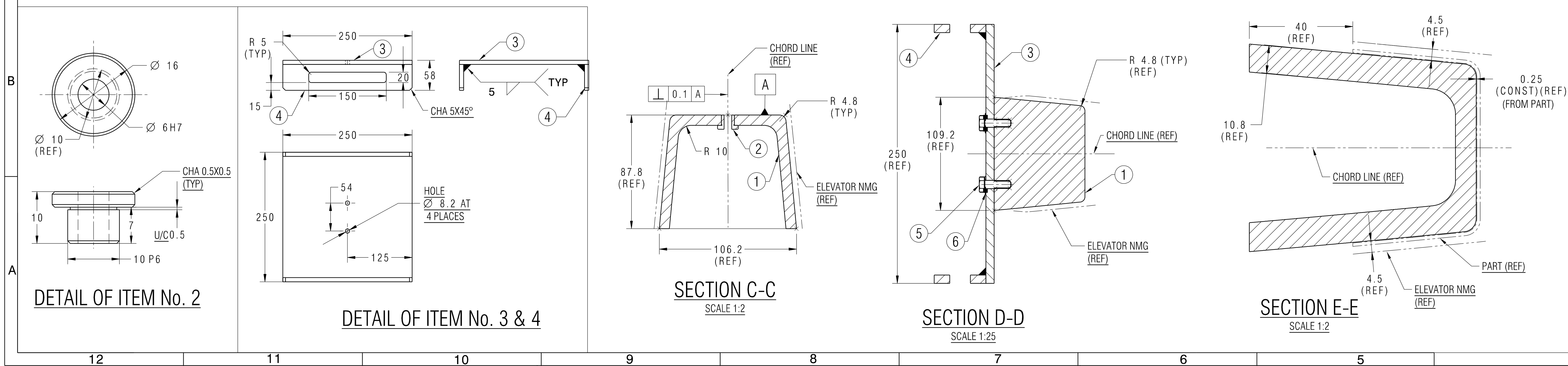
TOOLING HOLE CO-ORDINATES WRT GLOBAL AXIS

DESCRIPTION	X	Y	Z
FS TH 1	15863.28	-143	3110.25
FS TH 2	15863.28	-2702	3110.25

TOOLING HOLE CO-ORDIANTES WRT HT AXIS

DESCRIPTION	X	Y	Z
FS TH 1	773.54	-143	0
FS TH 2	773.54	-2702	0

ITEM No.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
6	6	WASHER	CARBON STEEL	ODX16IDX8X1	HT 10.9 CLASS
5	6	HEX.BOLT	CARBON STEEL	M8X1.25X25Lg	HT 10.9 CLASS
4	6	LIFTING PLATE - 2	SA516 Gr.70	250X50X8	
3	3	LIFTING PLATE - 1	SA516 Gr.70	250X250X8	
2	2	COLLAR BUSH	EN24	ROD Ø16 ; 10Lg	
1	1	LAYUP & CURING TOOL	SA516 Gr.70	2701X108X88	



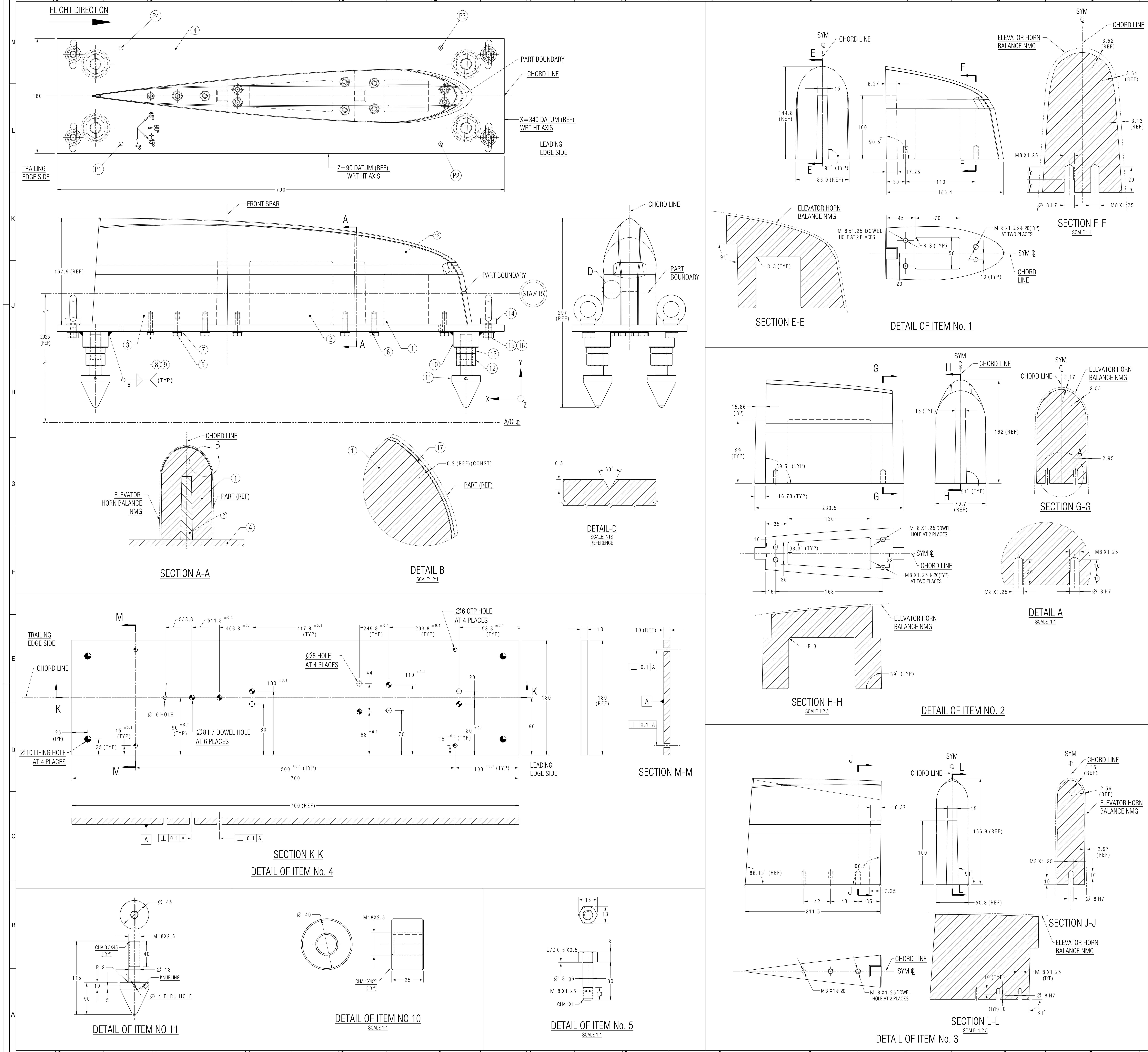
ADVANCED COPY

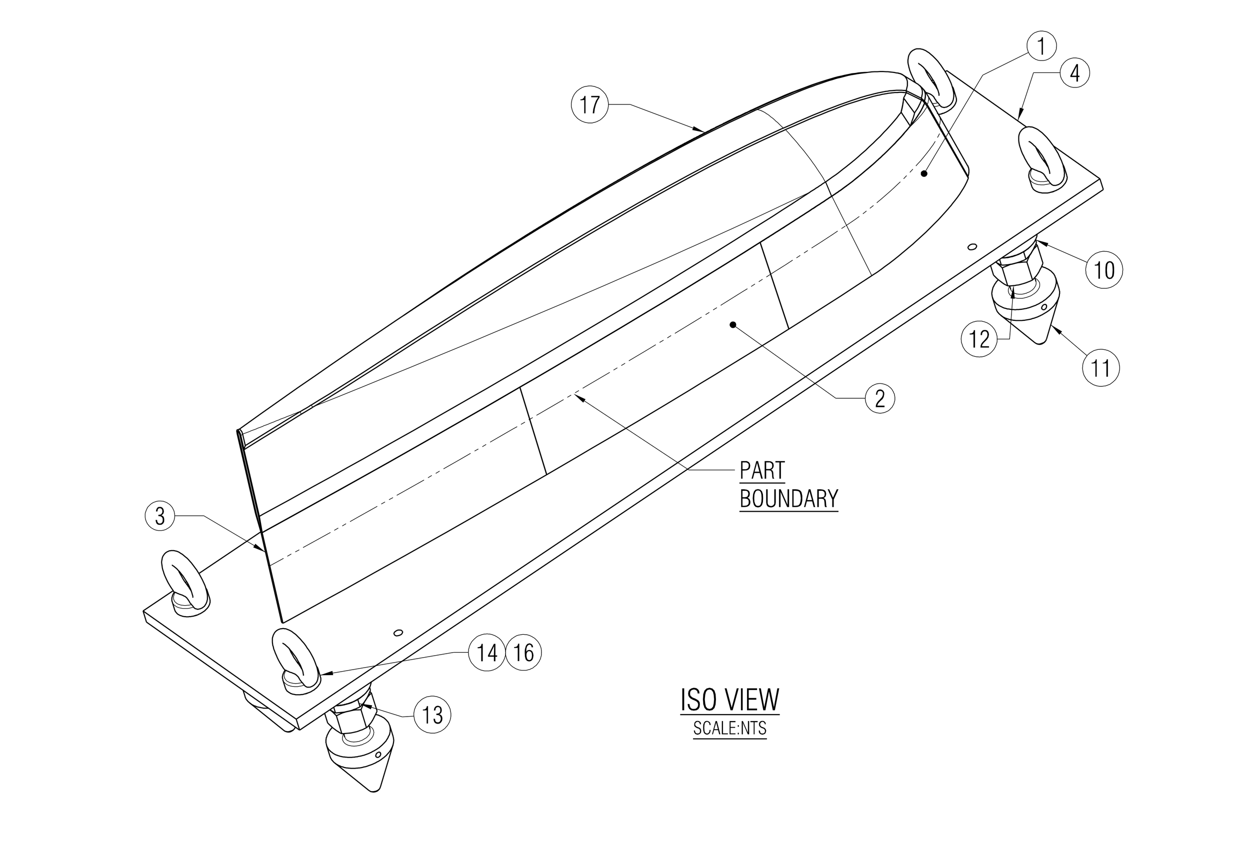
DIMENSIONS IN mm EXCEPT NOTED

TITLE: ELEVATOR

TOOL FOR FRONT SPAR LH & RH AFT BOX ASSY

THIRD ANGLE PROJ. | SCALE 1:2 & NOTED | DWG.No. 25-A-T-55-20-130-001-000 | SHT. 1 OF 1 SHTS





NOTES:

1) THIS TOOL IS MADE TO MANUFATURE TIP CAP HORN ASSY LH & RH.
2) CAD MODEL IS THE MASTER DEFINITION OF THE TOOL.
3) TOOL CONTOUR OFFSET BY 0.2MM INSIDE FROM THE PART INNER SURFACE FOR TOOLTECH AND PEELPLY ALLOWANCE.
4) BREAK AT SHARP EDGES BY 0.5R.
5) ENGRAVE PART BOUNDARY, STATION REFERENCE LINES AND ORIENTAION MARK AS PER CAD MODEL, FOR SCRIBE LINE DETAILS, REFER DETAIL-D.
6) STRESS RELIEVE THE TOOL BEFORE FINAL MACHINING OF CONTOUR.
7) NO TOOLTECH ON THE TOOL WHILE INSPECTING THE CONTOUR.
8) A) INSPECT THE CONTOUR OF ITEM NO 1 ,2&3 INDIVIDUALLY DURING TOOL MANUFACTURING USING CMM / LASER TRACKER.
   B)INSPECT THE CONTOUR OF ITEM 1,2 ,3 & 4 IN ASSEMBLED CONDITION USING CMM / LASER TRACKER WRT OTP CO-ORDINATES.
9) FOR OTP CO- ORDINATES REFER TABLE-1 AND TABLE-2.
10) TOLERANCE : A) CONTOUR TOLERANCE ±0.2mm FOR THE INDIVIDUAL TOOL AND ±0.4mm ON ASSEMBLY.
    B) ON TOOL THICKNESS ±2mm.
    C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART-1)-COARSE.
11) FINISH THE TOOL OTHER THAN STANDARD FASTENERS WITH ELECTROLESS NICKEL COATING / HARD CHROME.
12) USE 0.12mm THICK TOOLTECH ON THE TOOL CONTOUR SURFACE, DURING PART MANUFACTURING.
    NO TOOLTECH ON TOOL MATCHING AREA.
13) BOND METAL TAG ON TOOL AT NON WORKING PLACE USING SUITABLE ADHESIVE. THE ADHESIVE SHOULD WITHSTAND 200° C.

ASSEMBLY INSTRUCTIONS:

1) ASSEMBLE ITEM 1,2 &3 TO ITEM 4 USING ITEM 5, 6, 7, 8 & 9 AND CHECK PLANARITY WRT DATUM 'A'.
2) TRANSFER THE ITEM 4 PILOT DOWEL HOLES TO ITEM 1, 2 & 3 AT 6 LOCATIONS AND ENLARGE ∅8H7 ON ASSEMBLY AND INSTAL ITEM 6.

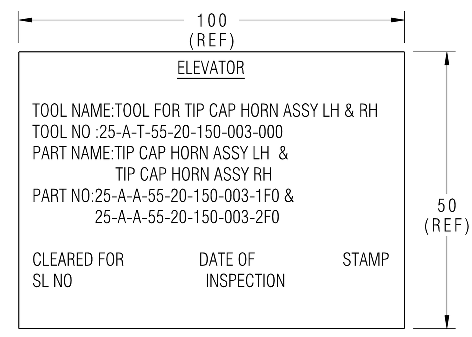
OTP CO-ORDINATES FOR INSPECTION
(FOR THE LOCATION OF P1,P2,P3 & P4 REFER ISOMETRIC VIEW)

TABLE-1 FROM GLOBAL AXIS

ITEM	P1	P2	P3	P4
X	16027.71	15527.89	15531.81	16031.64
Y	-2875.5	-2875.5	-2875.5	-2875.5
Z	3189.58	3176.49	3026.54	3039.63

TABLE-2 FROM HT AXIS

ITEM	P1	P2	P3	P4
X	940	440	440	940
Y	-2875.5	-2875.5	-2875.5	-2875.5
Z	75	75	-75	-75



METAL TAG

ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
17	1	CONTOUR SKIN	CFC	AS REQUIRED	NOT IN MACHINING SCOPE
16	8	WASHER	CARBON STEEL	ID11XOD20X2	HT 10.9 CLASS
15	4	HEX NUT	CARBON STEEL	M10X1.5	HT 10.9 CLASS
14	4	EYE BOLT	STD	M10	
13	4	CHECK NUT	CARBON STEEL	M18X2.5	HT 10.9 CLASS
12	4	LOCK NUT	CARBON STEEL	M18X2.5	HT 10.9 CLASS
11	4	ADJUSTABLE LUG	STEEL	ROD ∅45;115SL	
10	4	TAPPED BUSH	STEEL	ROD ∅40;25SL	
9	1	WASHER	CARBON STEEL	ID7XOD12X1	HT 10.9 CLASS
8	1	HEX BOLT	CARBON STEEL	M6X1;20Lg	HT 10.9 CLASS
7	10	WASHER	CARBON STEEL	ID9XOD16X1	HT 10.9 CLASS
6	4	HEX BOLT	CARBON STEEL	M8X1.25;20Lg	HT 10.9 CLASS
5	6	DOWEL BOLT	EN 24	∅15;38 Lg	40-45 HRC
4	1	BASE PLATE	SA 516 Gr.70	720X210X50	
3	1	CORE 3	SA 516 Gr.70	212X167X51	
2	1	CORE 2	SA 516 Gr.70	234X162X80	
1	1	CORE 1	SA 516 Gr.70	184X146X84	

ADVANCE COPY

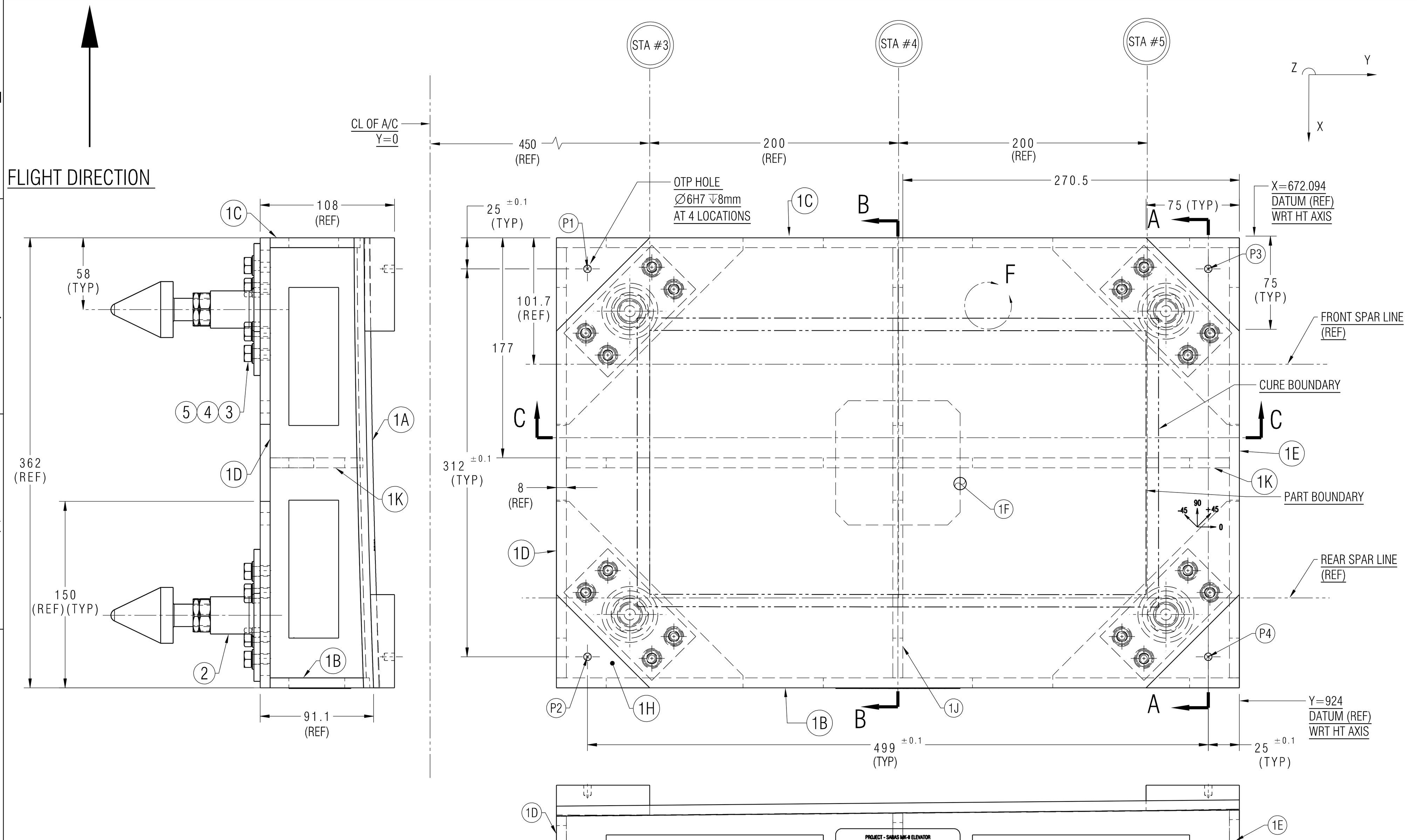
DIMENSIONS IN mm EXCEPT NOTED

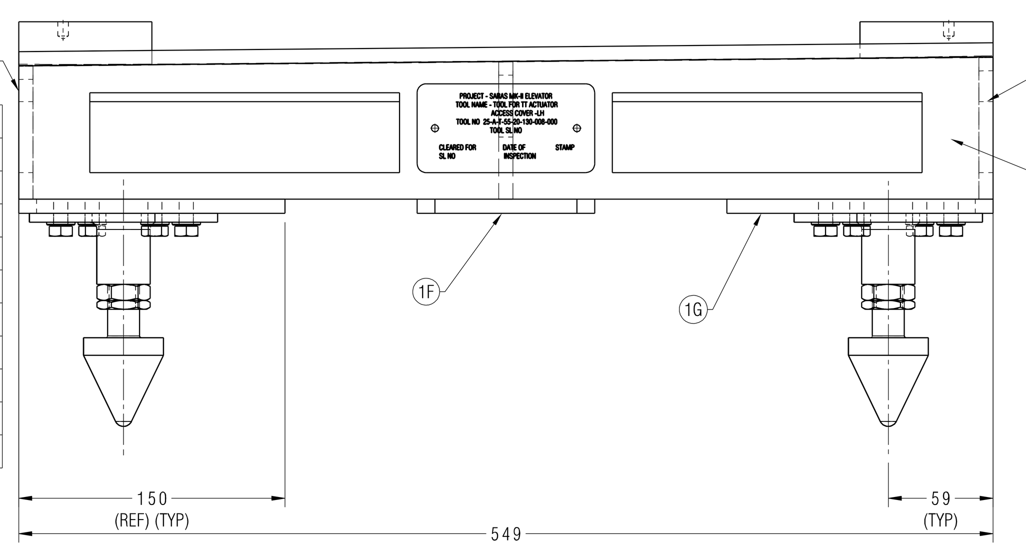
TITLE: ELEVATOR

TOOL FOR TIP CAP HORN ASSY LH & RH

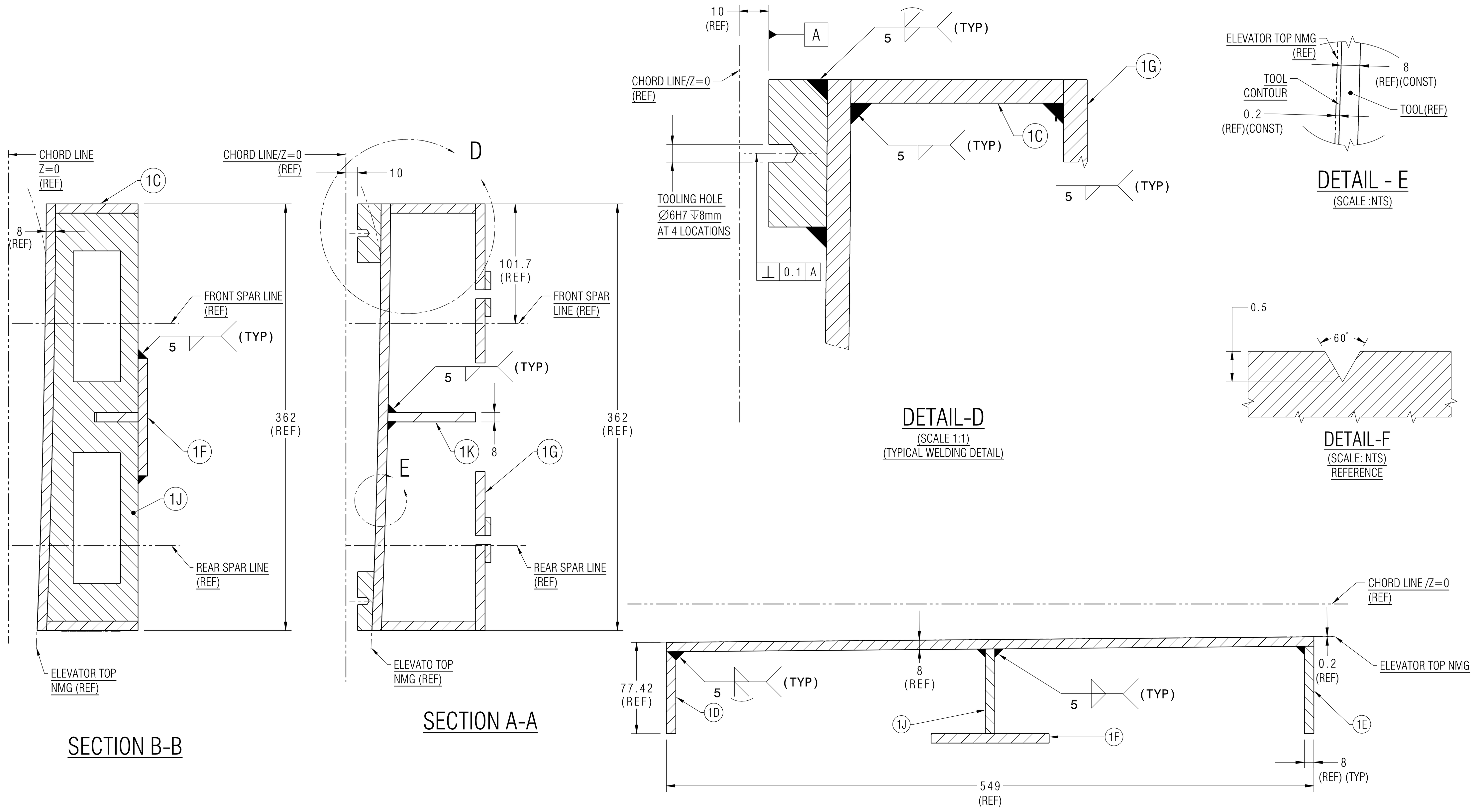
THIRD ANGLE PROJ. | SCALE 1:2 & NOTED | DWG.No. 25-A-T-55-20-150-003-000 | SHT. 01 OF 01 SHTS.

FLIGHT DIRECTION





DETAIL PARTS BOM	ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
	1K	1	STIFFENER 2	SA 516 Gr.70	533X75X8	
	1J	1	STIFFENER 1	SA 516 Gr. 70	346X78X8	
	1H	4	TOOLING HOLE PAD	MS	75SQ;25THK	
	1G	4	DATUM PLATE 2	SA 516 Gr. 70	150SQ;8THK	
	1F	1	DATUM PLATE 1	SA 516 Gr.70	100SQ;8THK	
	1E	1	FLANGE PLATE 4	SA 516 Gr.70	346x80x8	
	1D	1	FLANGE PLATE 3	SA 516 Gr.70	346x75x8	
	1C	1	FLANGE PLATE 2	SA 516 Gr.70	549x73x8	
	1B	1	FLANGE PLATE 1	SA 516 Gr.70	549x81x8	
	1A	1	TOOL SKIN PLATE	SA 516 Gr.70	549x362x8	



SECTION B-B

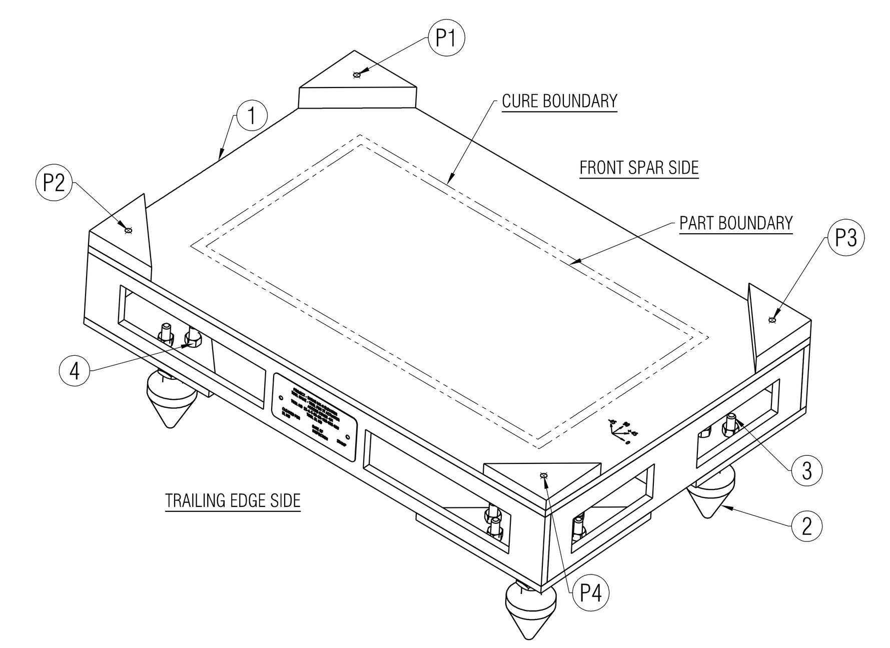
SECTION A-A

SECTION C-C

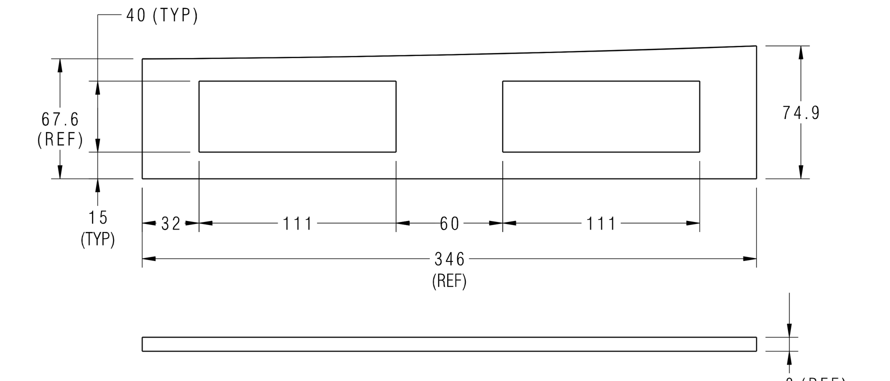
DETAIL-D
(SCALE 1:1)
(TYPICAL WELDING DETAIL)

DETAIL - E
(SCALE NTS)

DETAIL-F
(SCALE: NTS)
REFERENCE

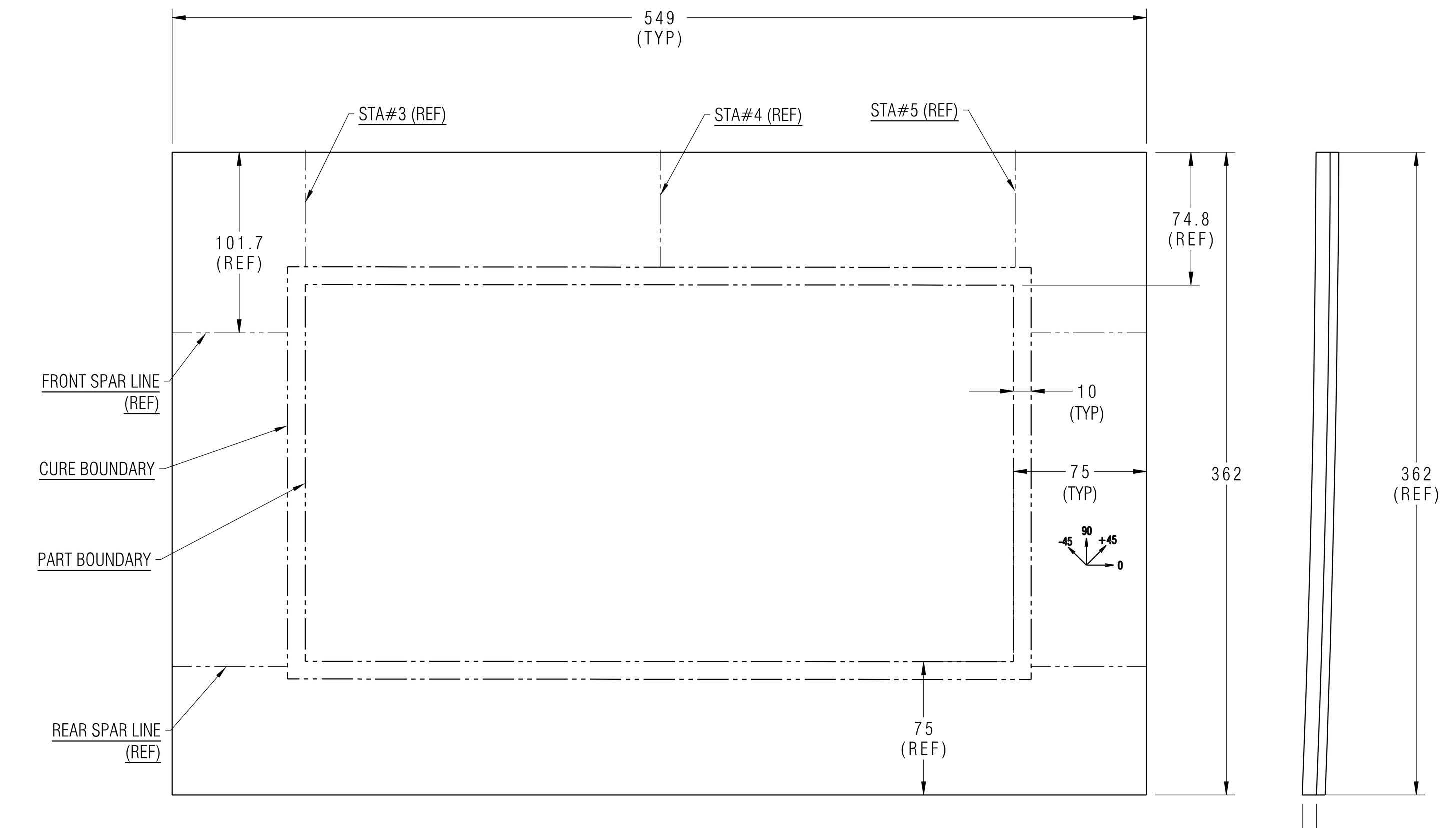


ISO VIEW
SCALE NTS



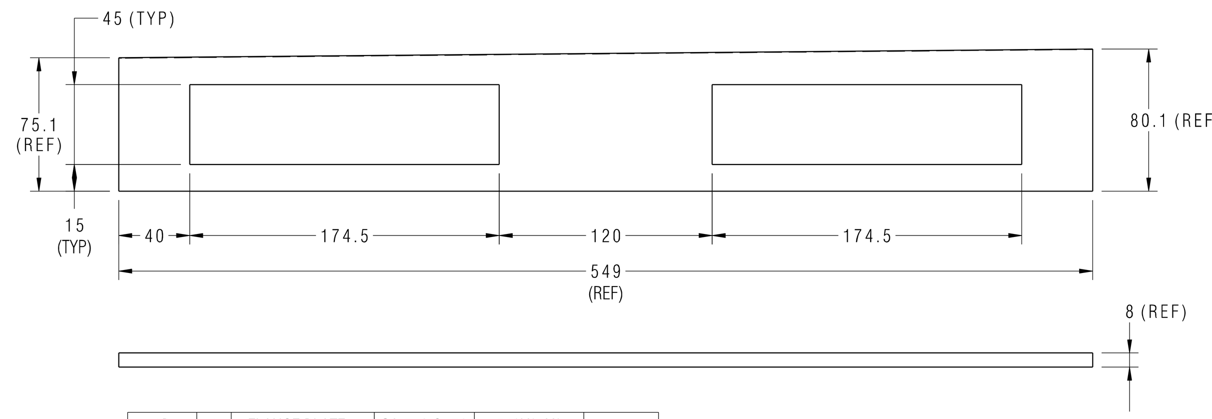
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1D	1	FLANGE PLATE 3	SA 516 Gr.70	346X75X8	

DETAIL OF ITEM 1D



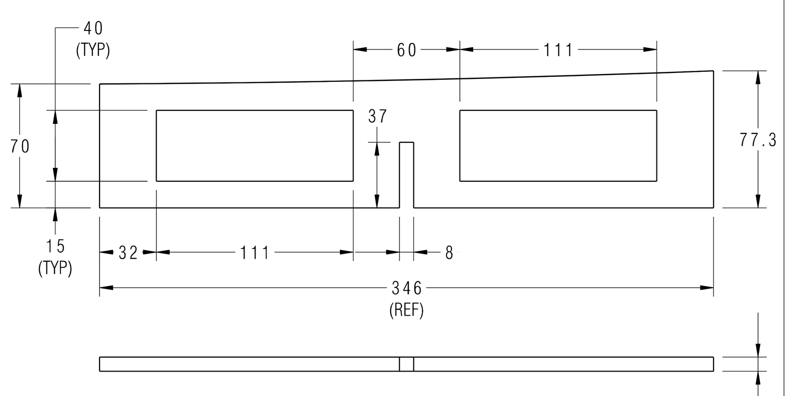
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1A	1	TOOL SKIN PLATE	SA 516 Gr.70	549X362X8	

DETAIL OF ITEM 1A



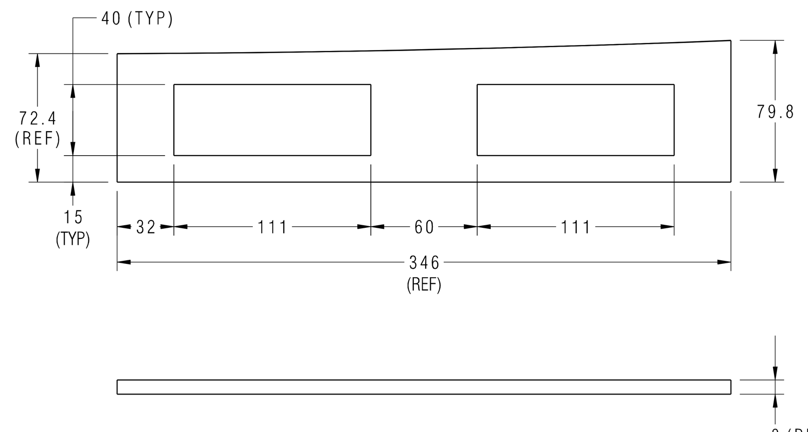
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1B	1	FLANGE PLATE 1	SA 516 Gr.70	549X81X8	

DETAIL OF ITEM 1B



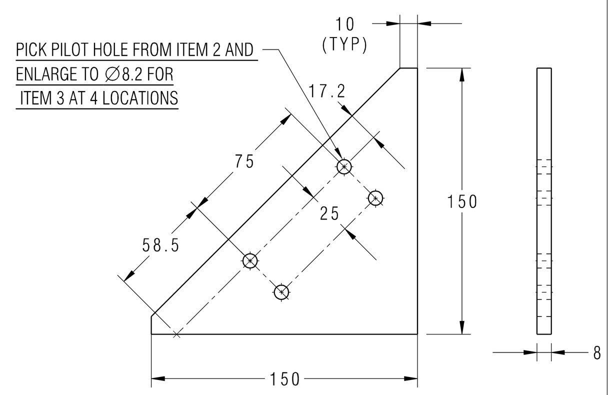
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1J	1	STIFFENER 1	SA 516 Gr.70	346X78X8	

DETAIL OF ITEM 1J



ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1E	1	FLANGE PLATE 4	SA 516 Gr.70	346X80X8	

DETAIL OF ITEM 1E



ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1G	4	DATUM PLATE 2	SA 516 Gr.70	150SQ;8THK	

DETAIL OF ITEM NO : 1G

NOTES:

1) THIS TOOL IS MADE TO MANUFACTURE FOR TT ACTUATOR ACCESS COVER LH (STA#3-STA#5) 25-A-A-55-20-130-008-0F0.
2) CAD MODEL IS MASTER DEFINATION OF THE TOOL.
3) TOOL CONTOUR OFFSET BY 0.2MM OUTSIDE FROM THE PART OUTER SURFACE (NMG) FOR TOOLTECH AND PEELPLY ALLOWANCE.
4) BREAK AT SHARP EDGES BY 0.5R.
5) ENGRAVE PART BOUNDARY,STATION REFERENCE LINE AND ORIENTAION MARK AS PER CAD MODEL, FOR SCRIBE LINE DETAILS, REFER DETAIL-F.
6) STRESS RELIEVE THE ASSEMBLY AFTER WELDING BEFORE MACHINING .
7) INSPECT THE MOULD CONTOUR USING CMM / LASER TRACKER W.R.T OTP CO - ORDINATES.
8) FOR OTP CO- ORDINATES REFER TABLE-1 AND TABLE-2. REFERE ZONE 1C3
9) TOLERANCE ; A) CONTOUR TOLERANCE ±0.3mm
B) ON TOOL THICKNESS +2,-0.
C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART-1)-COARSE.
10) BOND METAL TAG ON TOOL AT NON WORKING PLACE USING SUITABLE ADHESIVE. THE ADHESIVE SHOULD WITHSTAND 200° C.
11) FINISH THE TOOL WITH ELECTROLESS NICKEL COATING / HARDCHROME.
12) CAD MODEL OF TOOL SKIN SURFACE IS ROTATED BY 5° WITH RESPECT TO REAR SPAR LINE FOR MATERIAL OPTIMIZATION.
13) REFER KEY DIAGRAM FOR REFERENCE ONLY. 1C5

OTP CO - ORDINATES FOR ISNPECTION

(FOR THE LOCATION OF P1,P2,P3 & P4 REFER ISOMETRIC VIEW)

TABLE - 1 FROM GLOBAL AXIS

	X	Y	Z
P1	15786.59	-400	3118.24
P2	16098.50	-400	3126.41
P3	15786.59	-899	3118.24
P4	16098.50	-899	3126.41

TABLE - 2 FROM HT LOCAL AXIS

	X	Y	Z
P1	697.09	-400	10
P2	1009.10	-400	10
P3	697.09	-899	10
P4	1009.10	-899	10

METAL TAG

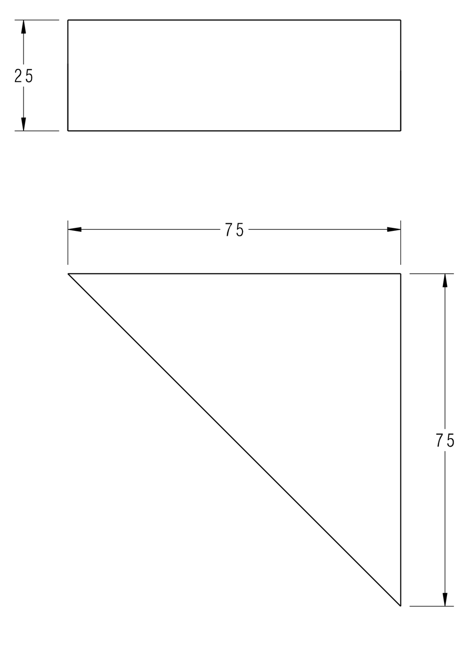
ELEVATOR

TOOL NAME : TOOL FOR TT ACTUATOR
ACCESS COVER -LH (STA#3-STA#5)
TOOL NUMBER : 25-A-T-55-20-130-008-000

PART NO: 25-A-A-55-20-130-008-0F0

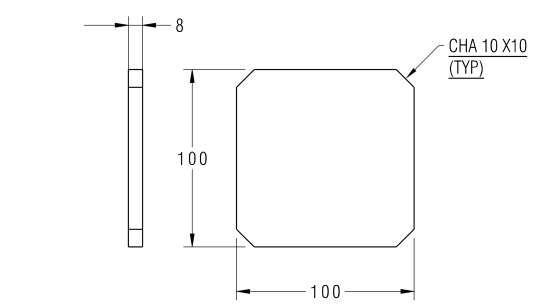
CLEARED FOR SL NO: | DATE OF INSPECTION | STAMP:

50 (REF) | 100 (REF)



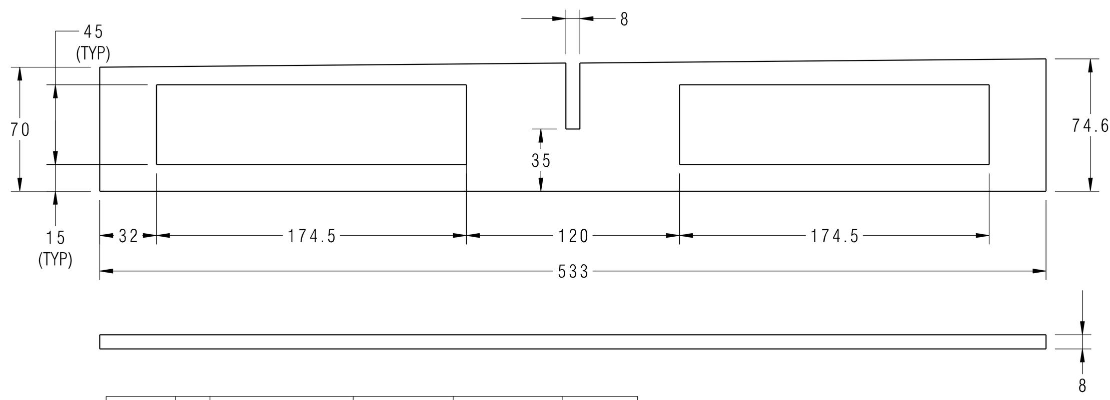
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1H	4	TOOLING HOLE PAD	MS	75SQ;25THK	

DETAIL OF ITEM NO : 1H
(SCALE 1:1)



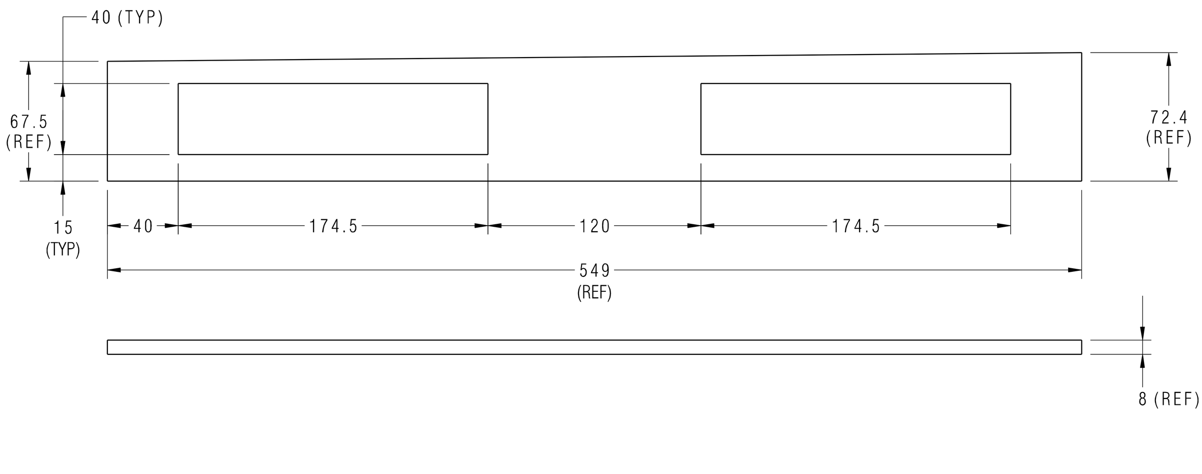
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1F	1	DATUM PLATE 1	SA 516 Gr. 70	100SQ;8THK	

DETAIL OF ITEM 1F



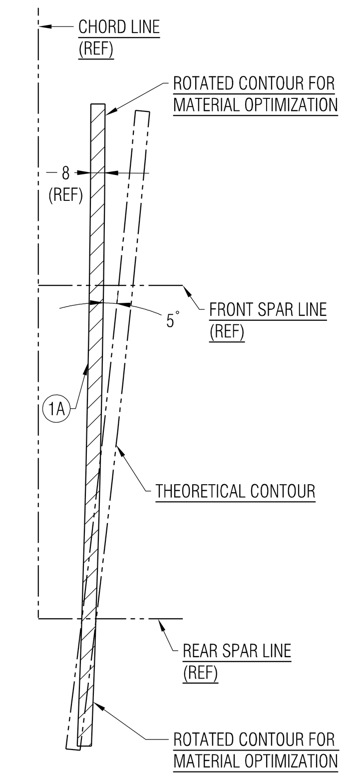
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1K	1	STIFFENER 2	SA 516 Gr.70	533X75X8	

DETAIL OF ITEM 1K



ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
1C	1	FLANGE PLATE 2	SA 516 Gr.70	549X73X8	

DETAIL OF ITEM 1C



KEY DIAGRAM
(REFERENCE)
(REF NOTE : 13)

ASSEMBLY BOM	ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
	5	16	WASHER	CARBON STEEL	ID9X OD16 X1	HT 10.9 CLASS
	4	16	HEX NUT	CARBON STEEL	M8X1.25	HT 10.9 CLASS
	3	16	HEX BOLT	CARBON STEEL	M8X1.25X35	HT 10.9 CLASS
	2	4	ADJUSTABLE LUG	-	-	REF DRW NO 0020-1000-003-000
	1	1	TOOL ASSEMBLY	-	-	

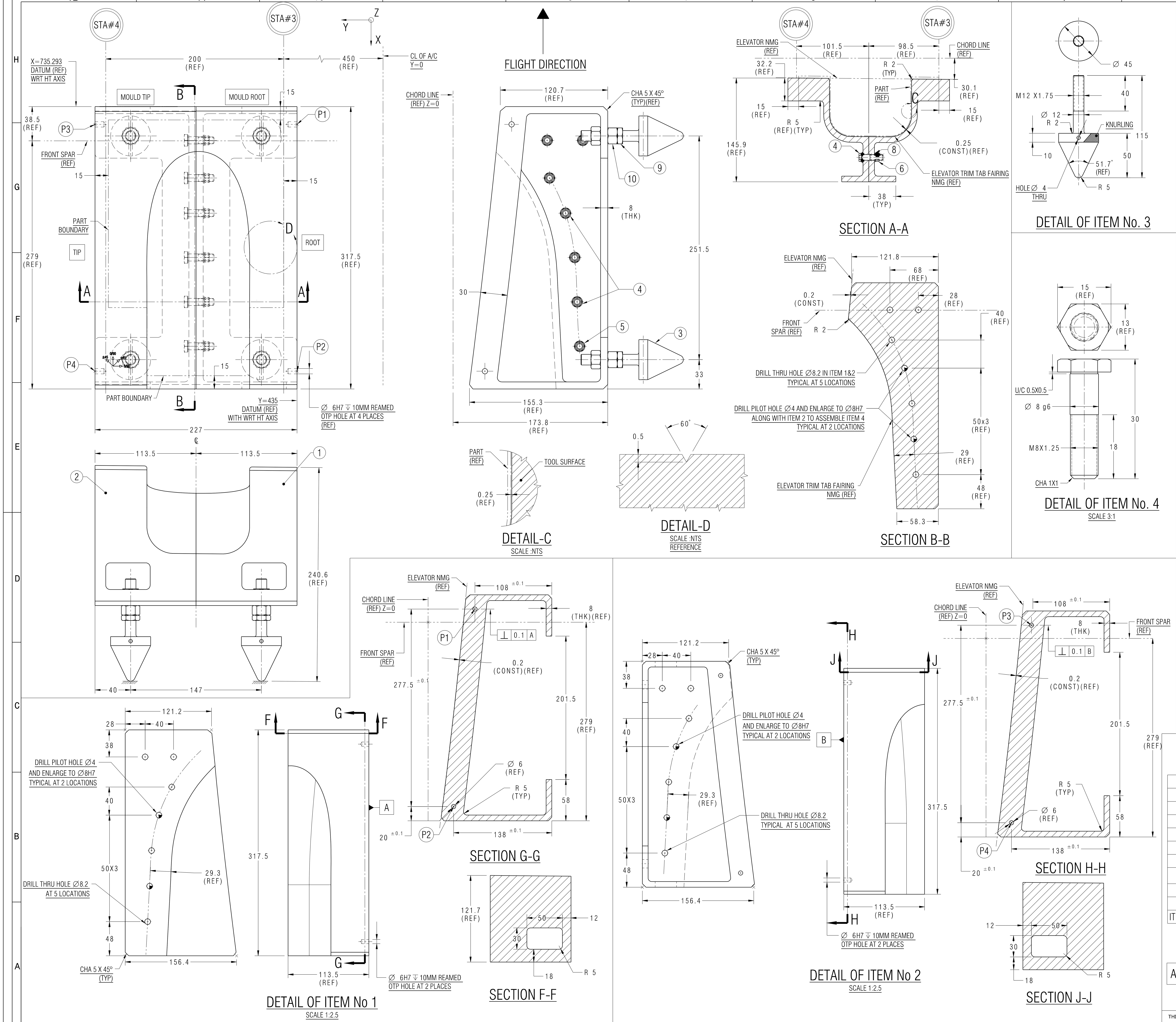
ADVANCED COPY

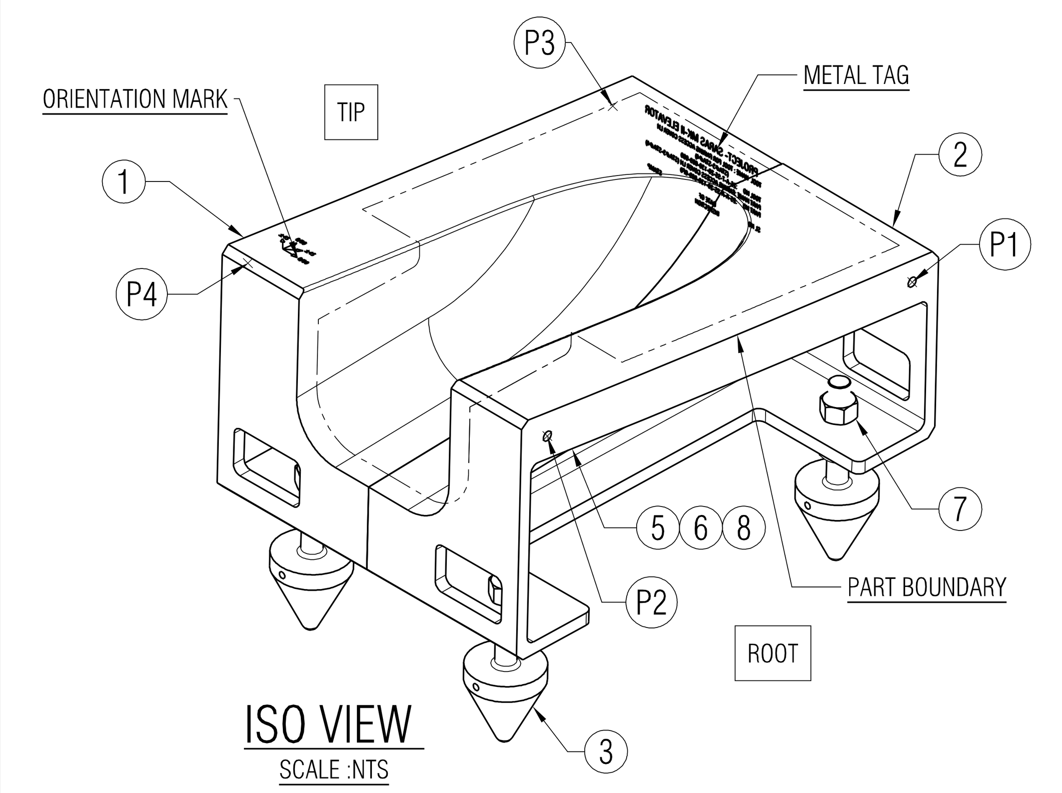
DIMENSIONS IN mm EXCEPT NOTED

TITLE: ELEVATOR

TOOL FOR TT ACTUATOR ACCESS COVER LH (STA#3-STA#5)

THIRD ANGLE PROJ. | SCALE 1:2.5 & NOTED | DWG.No. 25-A-T-55-20-130-008-000 | SHT. 1 OF 1 SHTS.





NOTES:

1) THIS TOOL IS MADE TO MANUFATURE FAIRING ACCESS COVER LH (STA#3-STA#4) 25-A-A-55-20-130-009-0F0.
2) CAD MODEL IS THE MASTER DEFINITION OF THE TOOL.
3) TOOL OFFSET BY 0.25MM OUTSIDE FROM THE PART OUTER SURFACE FOR TOOLTECH AND PEELPLY ALLOWANCE.
4) BREAK AT SHARP EDGES BY 0.5R.
5) ENGRAVE PART BOUNDARY AND ORIENTAION MARK AS PER CAD MODEL,FOR SCRIBE LINE DETAILS, REFER DETAIL-D.
6) STRESS RELIEVE THE TOOL BEFORE FINAL MACHINING OF CONTOUR.
7) NO TOOLTECH ON THE TOOL WHILE INSPECTING THE CONTOUR.
8) INSPECT THE CONTOUR OF ITEM No 1&2 INDIVIDUALLY DURING TOOL MANUFACTURING USING CMM/LASER TRACKER WRT OTP CO-ORDINATES AND TOOL BUTTING SURFACE WRT DATUM A&B .
9) FOR OTP COORDINATES REFER TABLE 1 AND TABLE 2 C2
10) TOLERANCE : A) CONTOUR TOLERANCE ±0.3mm FOR THE INDIVIDUAL TOOL (ITEM 1 & ITEM 2) AND ±0.6mm ON ASSEMBLY
B) ON TOOL THICKNESS ±2mm.
C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART-1)-COARSE.
11) FINISH THE TOOL OTHER THAN STANDARD FASTENERS WITH ELECTROLESS NICKEL COATING/ HARD CHROME.
12) USE 0.12mm THICK TOOLTECH ON THE TOOL CONTOUR SURFACE, DURING PART MANUFACTURING.
13) ASSEMBLE ITEM 1&2 USING ITEM 4,5,6&8.
14) ATTACH METAL TAG AT NON WORKING PLACE USING SUITABLE ADHESIVE. ADHESIVE SHOULD WITHSTAND 200°C.

ELEVATOR

TOOL NAME : TOOL FOR FAIRING ACCESS COVER LH (STA#3-STA#4)
TOOL NO :25-A-T-55-20-130-009-000
PART NAME :FAIRING ACCESS COVER LH (STA#3-STA#4)
PART NO :25-A-A-55-20-130-009-0F0

SL NO | DATE OF INSPECTION | STAMP

METAL TAG

OTP CO - ORDINATES FOR INSPECTION

(FOR LOCATION P1 TO P4 REFER ISOMETRIC VIEW)

TABLE 1 WRT GLOBAL AXIS

	X	Y	Z
P1	15846.76	-435	3044.03
P2	16123.38	-435	3081.28
P3	15846.7	-662	3046.03
P4	16123.38	-662	3081.28

TABLE 2 WRT TO HT LOCAL AXIS

	X	Y	Z
P1	755.29	-435	-65.77
P2	1032.79	-435	-35.77
P3	755.29	-662	-63.77
P4	1032.79	-662	-35.77

ITEM No.	QTY No.	DESCRIPTION	MATERIAL	SIZE	REMARKS
10	4	CHECK NUT	CARBON STEEL	M12X1.75	HT 10.9 CLASS
9	4	LOCK NUT	CARBON STEEL	M12X1.75	HT 10.9 CLASS
8	5	WASHER	CARBON STEEL	ID 9 XOD16X1.6	HT 10.9 CLASS
7	4	HEX NUT	CARBON STEEL	M12X1.75	HT 10.9 CLASS
6	7	HEX NUT	CARBON STEEL	M8X1.25	HT 10.9 CLASS
5	5	HEX BOLT	CARBON STEEL	M8X1.25X30	HT 10.9 CLASS
4	2	HEX BOLT	EN24/MS	M8X1.25X30	HRC 40-45
3	4	ADJUSTABLE LUG	STEEL	ROD Ø45;115SL	
2	1	MOULD RH	SA 516 Gr.70	318X228X156	
1	1	MOULD LH	SA 516 Gr.70	318X228X156	

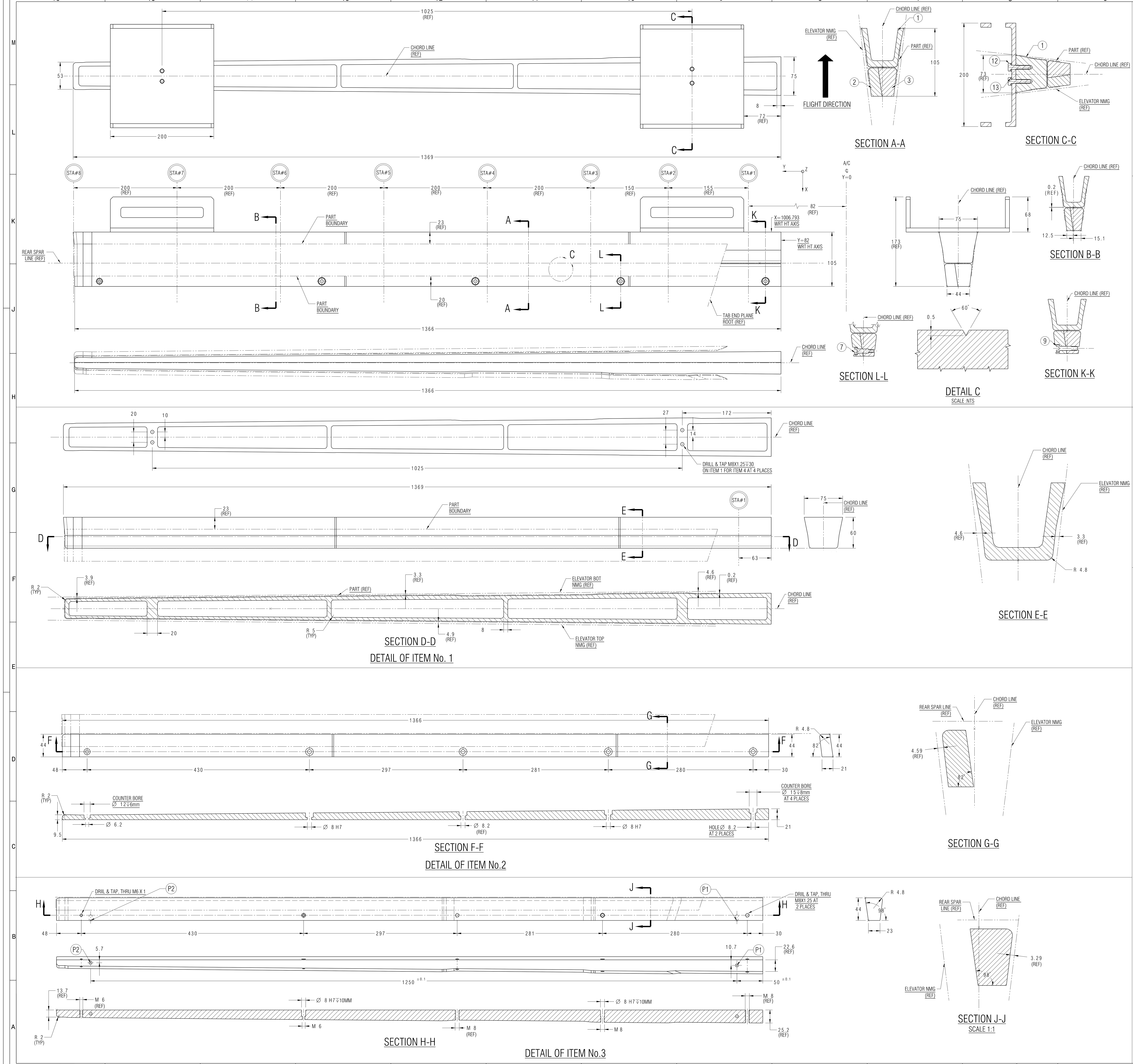
DIMENSIONS IN mm EXCEPT NOTED

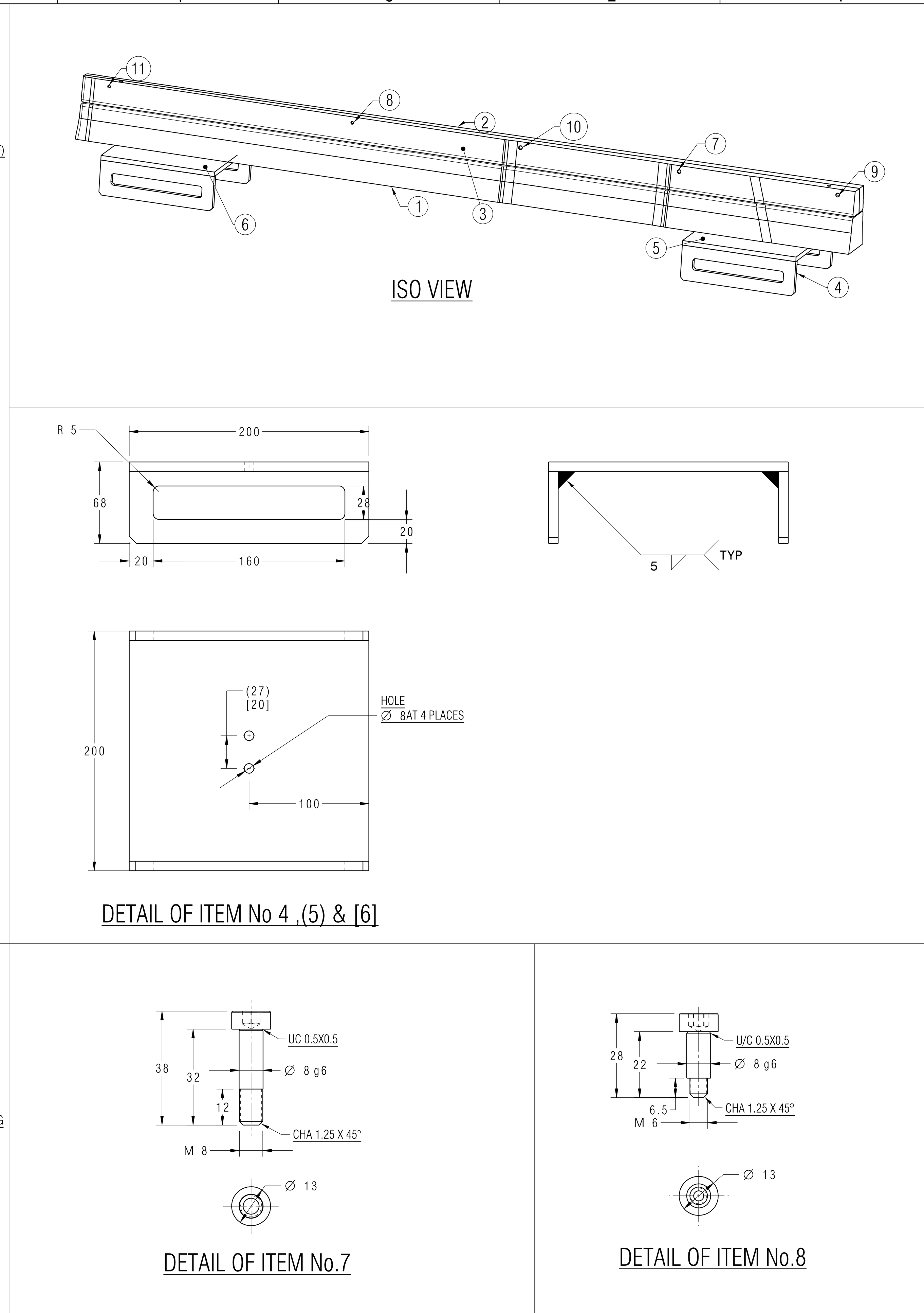
ADVANCE COPY

TITLE: ELEVATOR

TOOL FOR FAIRING ACCESS COVER LH (STA#3-STA#4)

THIRD ANGLE PROJ. | SCALE 1:2 & NOTED | DWG.No. 25-A-T-55-20-130-009-000 | SHT. 1 OF 1 SHTS.





NOTES :

1) THIS TOOL IS MADE TO MANUFACTURE REAR SPAR- LH 25-A-A-55-20-131-010-0F0
2) CAD MODEL IS THE MASTER DEFINITION OF THE TOOL.
3) TOOL CONTOUR OFFSET BY 0.2mm INSIDE FROM THE PART INNER SURFACE.
4) BREAK AT SHARP EDGES BY 0.5R.
5) MATCH DRILL BETWEEN ITEM No. 2 & 3 TO ENSURE THE ASSEMBLY.
6) ENGRAVE PART BOUNDARY AND ORIENTATION MARK AS PER CAD MODEL, FOR SCRIBE LINE DETAILS, REFER DETAIL - C.
7) STREES RELIEVE THE TOOL BEFORE FINAL MACHINING OF CONTOUR.
8) NO TOOLTECH ON THE TOOL WHILE INSPECTING THE CONTOUR.
9) A) INSPECT THE CONTOUR OF ITEM NO 1, 2 & 3 INDIVIDUALLY DURING TOOL MANUFACTURING USING CMM / LASER TRACKER
   B) INSPECT THE CONTOUR OF ITEM 1, 2 & 3 IN ASSEMBLED CONDITION USING CMM / LASER TRACKER WRT OTP CO-ORDINATES ON ASSEMBLY
10) TOLERANCE : A) CONTOUR TOLERANCE ±0.3mm
    B) ON TOOL THICKNESS ±2mm.
    C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART - 1) - COARSE.
11) FINISH THE TOOL OTHER THAN STANDARD FASTNERS WITH ELECTROLESS NICKEL COATING/HARD CHROME.
12) USE 0.12mm THICK TOOLTECH ON THE TOOL CONTOUR SURFACE, DURING PART MANUFACTURING.
13) ATTACH METAL TAG AT NON WORKING PLACE USING SUITABLE ADDHESIVE, THE ADDHESIVE SHOULD WITHSTAND 200°C

OTP CO-ORDINATES

(FOR THE LOCATION OF P1 ,P2 REFER ISOMETRIC VIEW)

TABLE-1 FROM GLOBAL AXIS

	P1	P2
X	16096.71	16096.57
Y	-132	-1381.99
Z	3106.35	3111.35

TABLE-1 FROM HT LOCAL AXIS

	P1	P2
X	1006.79	1006.79
Y	132	1381.99
Z	9.99	4.99

ELEVATOR

TOOL NAME: TOOL FOR REAR SPAR-LH
TOOL NO: 25-A-T-55-20-131-010-000
PART NAME: REAR SPAR-LH
PART NO: 25-A-A-55-20-131-010-0F0

CLEARED FOR SL NO. | DATE OF INSPECTION | STAMP

50 (REF) × 100 (REF)

ITEM No.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS
13	4	WASHER	CARBON STEEL	OD16XID9	HT 10.9 CLASS
12	4	HEX.BOLT	CARBON STEEL	M8X1.25X25Lg	HT 10.9 CLASS
11	1	ALLEN SCREW	CARBON STEEL	M6X1X17	HT 10.9 CLASS
10	1	ALLEN SCREW	CARBON STEEL	M8X1.25X26	HT 10.9 CLASS
9	1	ALLEN SCREW	CARBON STEEL	M8X1.25X37	HT 10.9 CLASS
8	1	DOWEL BOLT	CARBON STEEL	ROD ∅13; 28Lg	HRC 40-45
7	1	DOWEL BOLT	CARBON STEEL	ROD ∅13; 38Lg	HRC 40-45
6	1	LIFTING PLATE - 1	SA516 Gr.70	200X200X8	
5	1	LIFTING PLATE - 2	SA516 Gr.70	200X200X8	
4	4	LIFTING PLATE - 3	SA516 Gr.70	200X68X8	
3	1	LAYUP TOOL - AFT - 2	SA516 Gr.70	1366X44X12	
2	1	LAYUP TOOL - AFT - 1	SA516 Gr.70	1366X44X9	
1	1	LAYUP TOOL - FWD	SA516 Gr.70	1369X75X10	

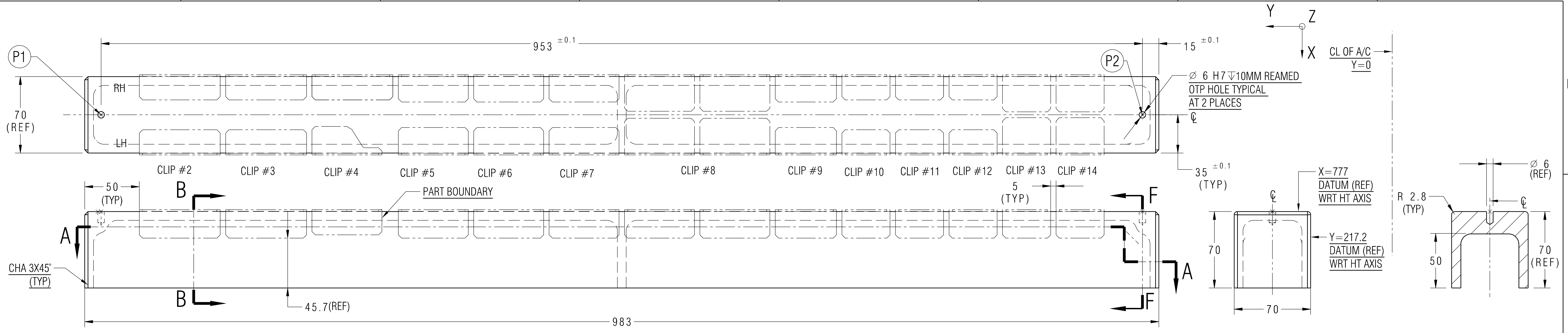
ADVANCED COPY

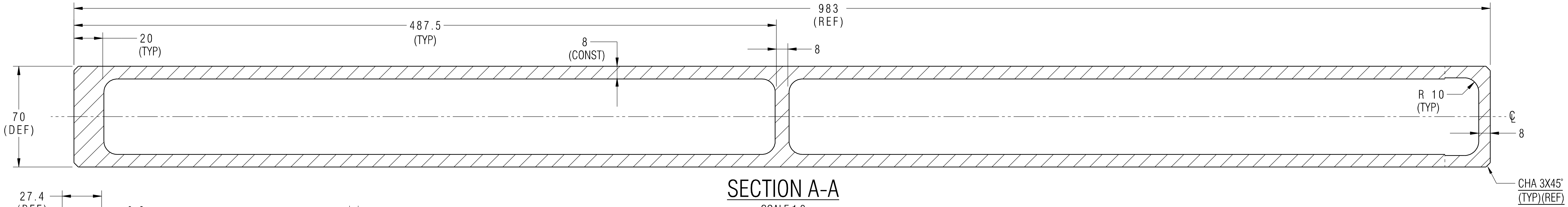
DIMENSIONS IN mm EXCEPT NOTED

TITLE: ELEVATOR

TOOL FOR REAR SPAR- LH

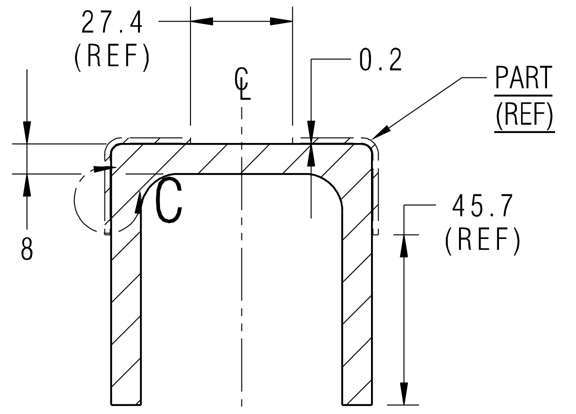
THIRD ANGLE PROJ. | SCALE 1:1 & NOTED | DWG.No. 25-A-T-55-20-131-010-000 | SHT. 1 OF 1 SHTS.





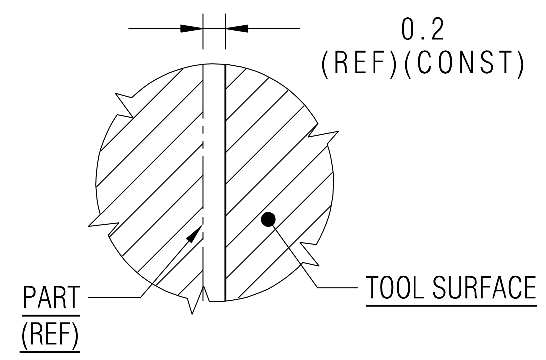
SECTION A-A

SCALE 1:2



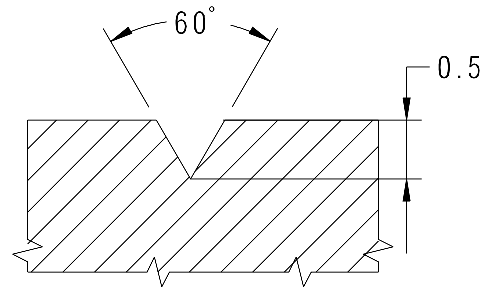
SECTION B-B

SCALE 1:2



DETAIL C

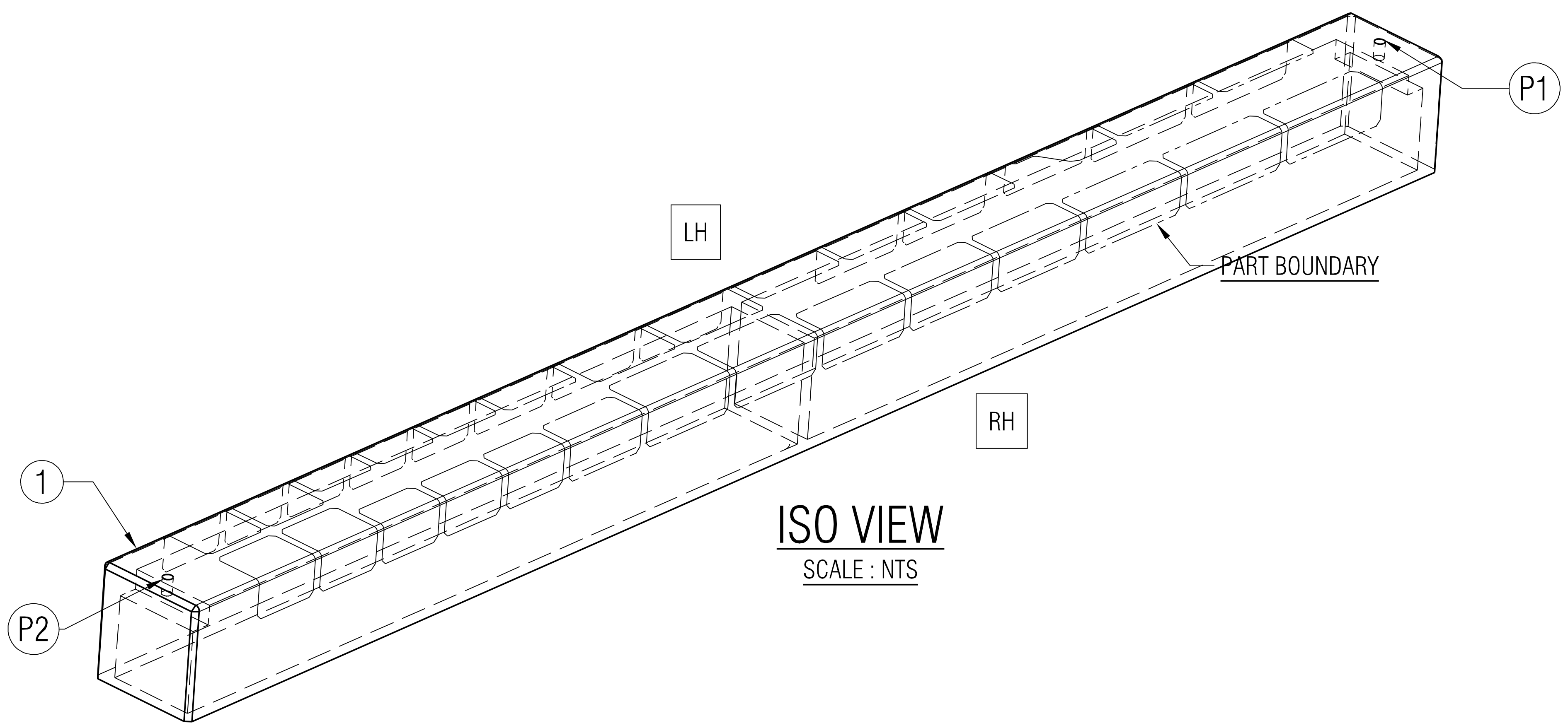
SCALE: NTS



DETAIL-D

SCALE: NTS

REFERENCE



ISO VIEW

SCALE : NTS

METAL TAG

ELEVATOR

TOOL NAME: TOOL FOR AFT BOX CLIPS
TOOL NO: 25-A-T-55-20-130-016-000
PART NAME: AFT BOX CLIPS
PART NO: 25-A-A-55-20-130-016-0F0

CLEARED FOR SL NO. | DATE OF INSPECTION | STAMP

50 (REF)

60 (REF)

NOTES:

1) THIS TOOL IS MADE TO MANUFATURE CLIPS LH AND RH.
2) BREAK AT SHARP EDGES BY 0.5R.
3) ENGRAVE PART BOUNDARY, STATION REFERENCE LINES AND ORIENTAION MARK AS PER CAD MODEL,FOR SCRIBE LINE DETAILS, REFER DETAIL-D.
4) STRESS RELIEVE THE TOOL BEFORE FINAL MACHINING OF CONTOUR.
5) INSPECT THE CONTOUR USING CMM / LASER TRACKER WRT OTP CO-ORDINATES
6) TOLERANCE : A) CONTOUR TOLERANCE ±0.3mm .
B) TOLERANCE ON TOOL THICKNESS:±2mm.
C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART-1)-COARSE.
7) FINISH ITEM NO.1 WITH ELECTROLESS NICKEL COATING/HARD CHROME
8) BOND METAL TAG ON TOOL AT NON WORKING PLACE USING SUITABLE ADHESIVE, THE ADHESIVE SHOULD WITHSTAND 200°C.

OTP CO - ORDINATES FOR INSPECTION

(FOR LOCATION P1 TO P4 REFER ISOMETRIC VIEW)

TABLE 1 WRT GLOBAL AXIS

	X	Y	Z
P1	15868.7	-262.22	3038.4
P2	15843.6	-262.22	3991.0

TABLE 2 WRT TO HT LOCAL AXIS

	X	Y	Z
P1	777	-262.22	-72
P2	777	-262.22	881

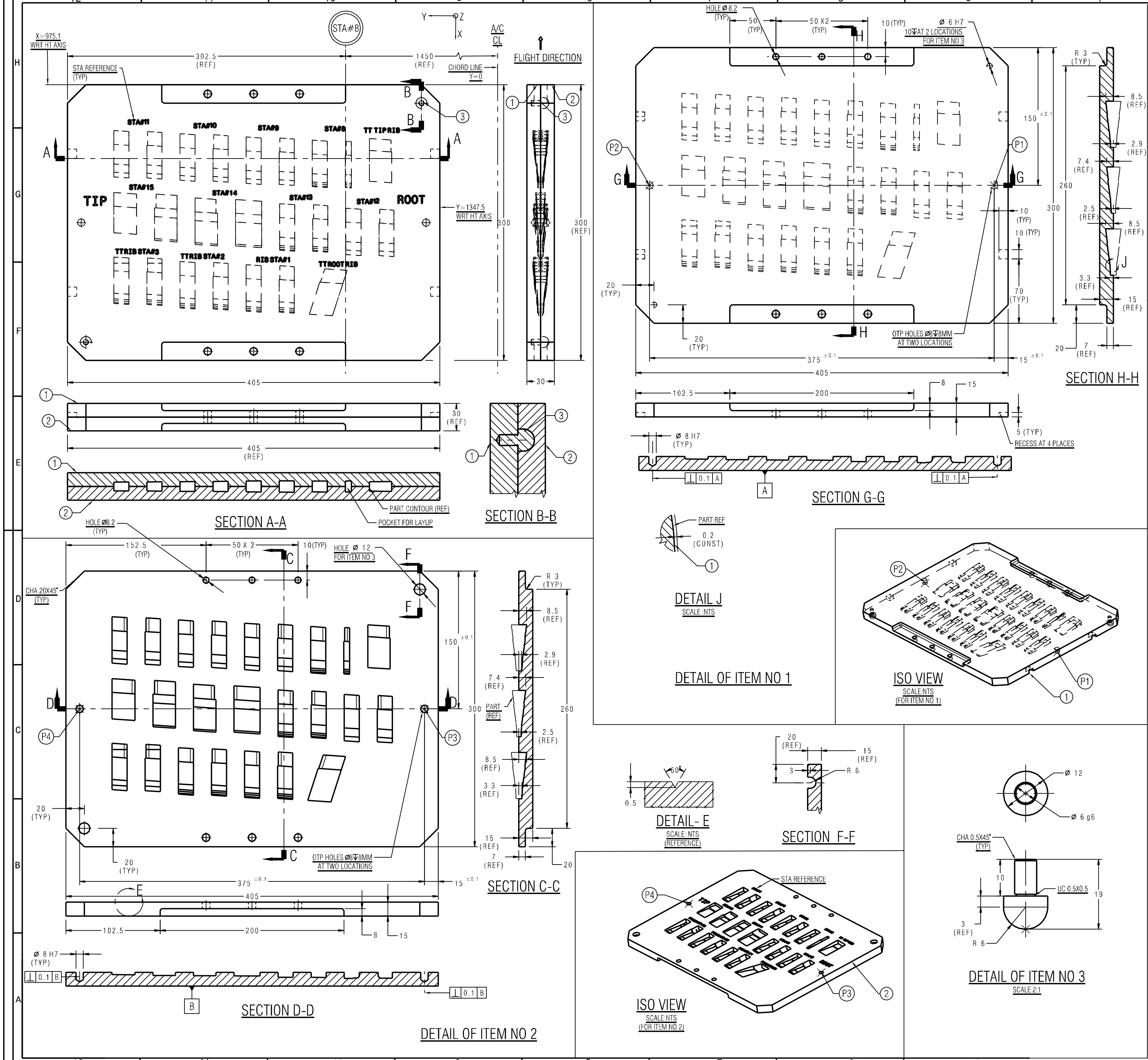
01	01	TOOL	SA 516 Gr.70	983X70X70	
ITEM NO.	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS

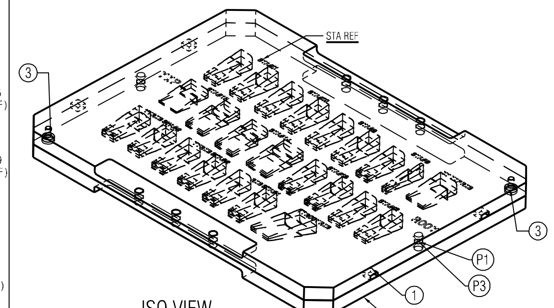
DIMENSIONS IN mm EXCEPT NOTED

TITLE: ELEVATOR

TOOL FOR AFT BOX CLIPS

THIRD ANGLE PROJ. | SCALE 1:2.5 & NOTED | DWG.No. 25-A-T-55-20-130-016-000 | SHT. 1 OF 1 SHTS.



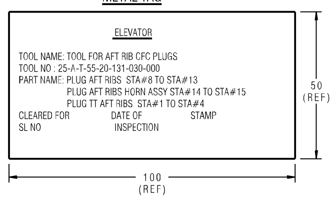


ISO VIEW
SCALE: NTS

NOTES:

1) THIS TOOL IS MADE TO MANUFACTURE CFC PLUG FOR AFT RIBS STA #8 TO STA #13, HORN ASSY RIBS STA #14 TO STA #15 & AND TT RIBS TT STA #1 TO STA #4
2) TOOL CONTOUR OFFSET BY 0.2mm OUTSIDE FROM THE PART OUTER SURFACE FOR TOOLTECH, PEEL PLY ALLOWANCE.
3) BREAK SHARP EDGES BY 0.5R.
4) ENGRAVE PART BOUNDARY, STATION REFERENCE LINES, STATION REF AS PER CAD MODEL, FOR SCRIBE LINE DETAILS, REFER DETAIL-G.
5) STRESS RELIEVE THE TOOL BEFORE FINAL MACHINING OF THE CONTOUR.
6) NO TOOLTECH ON THE TOOL WHILE INSPECTING THE CONTOUR.
7) INSPECT THE CONTOUR OF ITEM NO 1 USING CMM / LASER TRACKER, WRT OTP CO-ORDINATES.
8) FOR OTP CO- ORDINATES REFER TABLE-1 AND TABLE-2. D1
9) TOLERANCE ; A) CONTOUR TOLERANCE ±0.3mm
B) ON TOOL THICKNESS ±2mm.
C) UNTOLERANCED DIMENSIONS TO CONFIRM TO SPEC : IS2102(PART-1)-COARSE.
10) USE 0.12mm THICK TOOLTECH ON THE TOOL CONTOUR SURFACE DURING PART MANUFACTURING.
11) BOND METAL TAG ON TOOL AT NON WORKING PLACES USING SUITABLE ADHESIVE, THE ADHESIVE SHOULD WITHSTAND 200°C.
12) FINISH : ITEM NO 1 AND 2 WITH ELECTROLESS NICKEL COATING/HARD CHROME.

METAL TAG



OTP CO-ORDINATES

(FOR THE LOCATION OF P1 ,P2 ,P3 & P4 REFER ISOMETRIC VIEW)

TABLE-1 FROM GLOBAL AXIS

	P1	P2	P3	P4
X	16214.7	16214.7	16214.7	16214.7
Y	-1362.5	-1737.5	-1362.5	-1737.5
Z	3119.45	3119.45	3119.45	3119.45

TABLE -2 FROM HT LOCAL AXIS

	P1	P2	P3	P4
X	1125.09	1125.09	1125.09	1125.09
Y	-1362.5	-1737.5	-1362.5	-1737.5
Z	0	0	0	0

3	2	LOCATING PIN	EN24	Ø12,19Lg	
2	1	MOULD BOTTOM	SA 516 Gr.70	405X300X15	
1	1	MOULD TOP	SA 516 Gr.70	405X300X15	
ITEM NO	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS

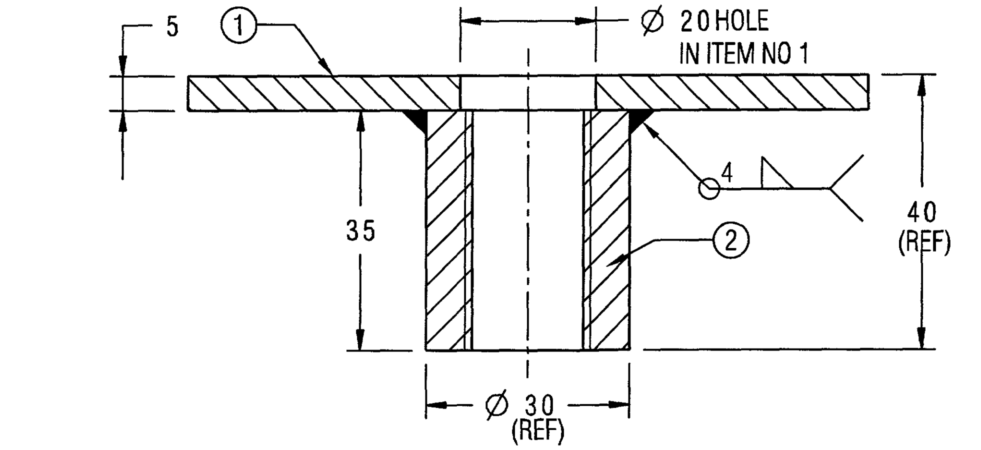
ADVANCE COPY

DIMENSIONS IN mm EXCEPT NOTED

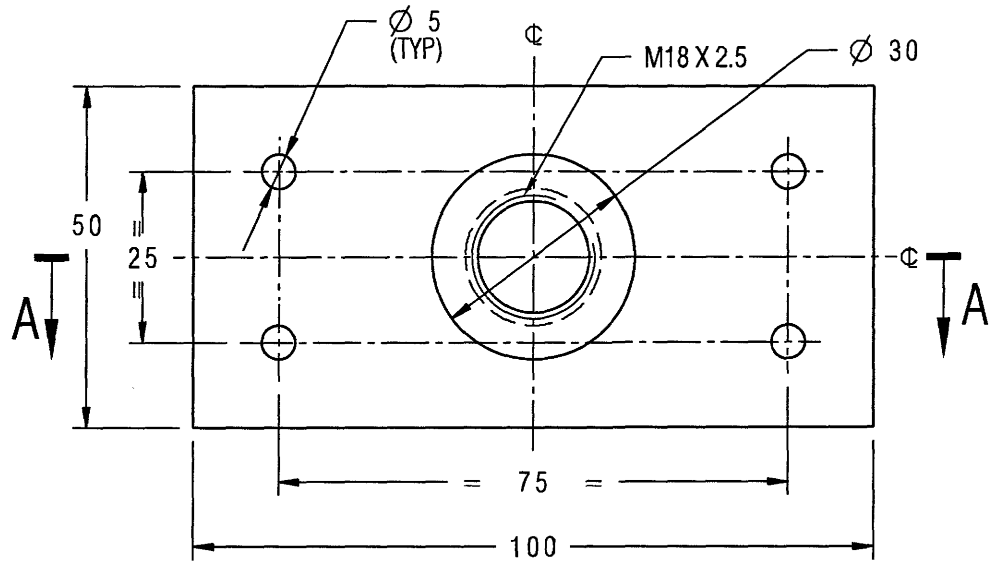
TITLE: ELEVATOR

TOOL ASSEMBLY FOR AFT RIB CFC PLUG

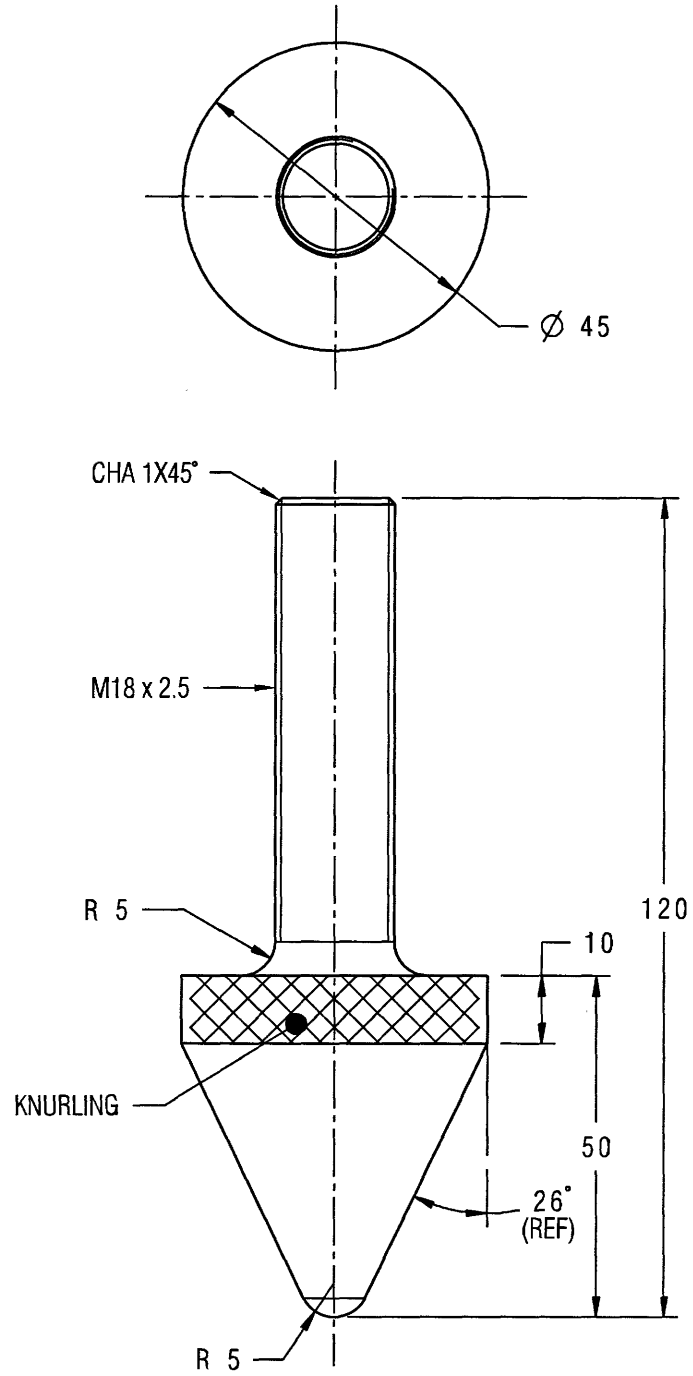
THIRD ANGLE PROJ. | SCALE 1:2 & NOTED | DWG.No. 25-A-T-55-20-131-030-000 | SHT. 1 OF 1 SHTS.



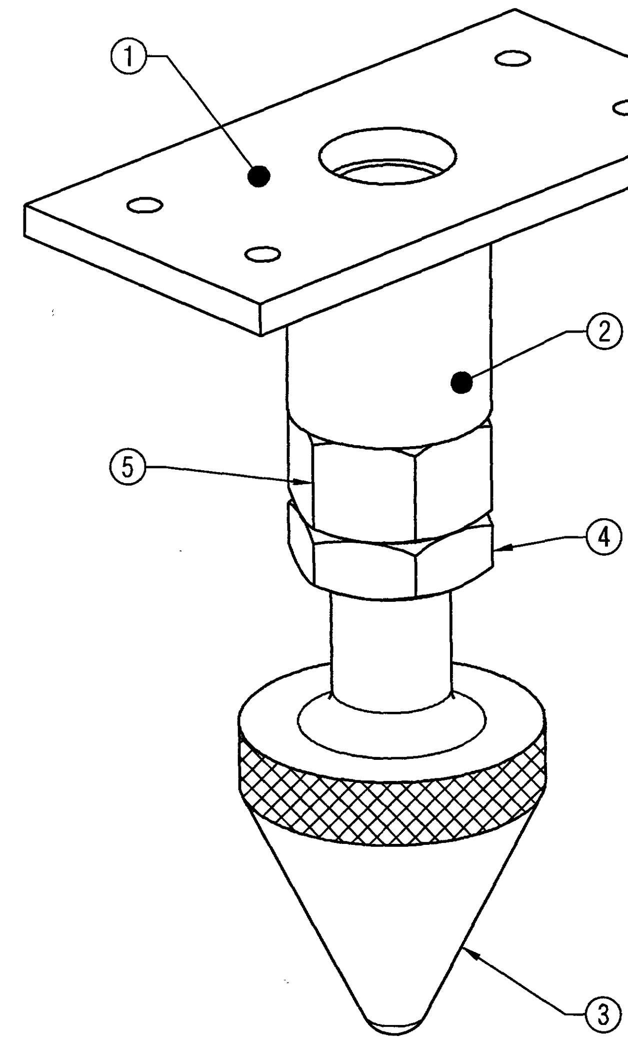
SECTION AA



ITEM NO: 1 & 2



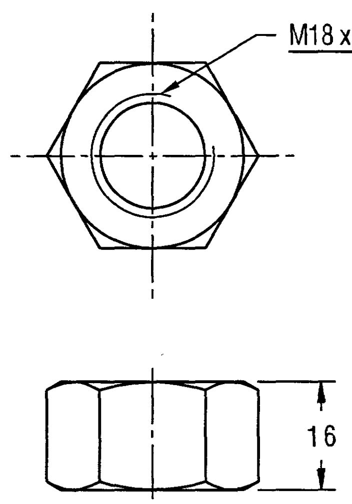
ITEM NO: 3



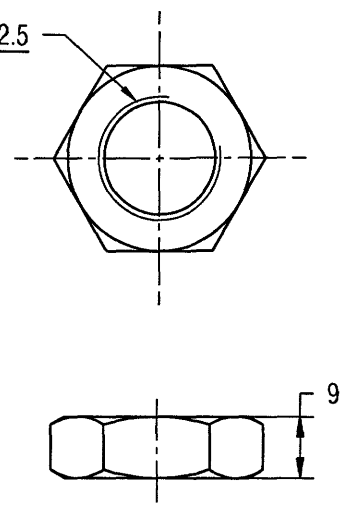
ISOMETRIC VIEW

SCALE-NTS

5	1	CHUCK NUT	STD	M18 x 2.5	-
4	1	LOCK NUT	STD	M18 x 2.5	-
3	1	LUG	MS	Ø45; 120L	-
2	1	HUB	MS	Ø30x35L	-
1	1	TOP PLATE	MS	100x50x5Thk	-
ITEM NO	QTY	DESCRIPTION	MATERIAL	SIZE	REMARKS



CHUCK NUT
ITEM NO: 5



LOCK NUT
ITEM NO: 4

NOTE:

1. BREAK ALL SHARP CORNERS.
2. QTY: REFER RESPECTIVE TOOL DRAWING
3. UNTOLERANCED DIMENSIONS CONFORM TO IS 2102 PART 1 COURSE MEDIUM
4. FINISH WITH CADMIUM/ZINC PLATING WITH PASSIVATION FOR ALL THE ITEMS.

2024	NAME	ORGN	DATE
DRAWN	KUMAR.R	ACD	20/02
DESIGN	SIDDESHWAR CHARANTIMATH	ACD	21/02
CHECK	SUNNY DARSHAN	ACD	21/02
APPROVAL	GADDIKERI KOTRESH	ACD	21/2/24

NAL

ADVANCED COMPOSITES DIVISION
NATIONAL AEROSPACE LABORATORIES, BANGALORE 560 017
INDIA

DIMENSIONS IN MM EXCEPT NOTED

TITLE

ADJUSTABLE LUG ASSY

THIRD ANGLE PROJ.

SCALE 1:1 & NOTED

DWG. NO. 0020 1000 003 000

SHT. 1 OF 1