

ISO:9001:2015 Certified

Council of Scientific and Industrial Research

NATIONAL AEROSPACE LABORATORIES

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Date:12-Jan-2021


CORRIGENDUM/ADDENDUM

Tender No. NAL/PUR/CAD/315/20-Z

Tender ID: 2020_CSIR_64271_1 Dated 10-Dec-2020

In continuation of CSIR-National Aerospace Laboratories Tender No. NAL/PUR/CAD/315/20-Z Dated 10-Dec-2020 and Pre-Bid Proceedings hosted on 29-Dec-2020 for **"To Carry Out the Design and Execution of Complete Interiors and External Painting - SARAS Fuselage Assembly into SARAS mk2 Cockpit Etc."**, kindly note the changes as appended below.

Other clauses of the bidding document remain unchanged.



Stores & Purchase Officer
For and on behalf of CSIR

QUERIS RAISED BY BIDDERS AFTER VISIT TO CSIR-NAL FACILITY ON 5 – 6 JAN 2021

No.	Tender Clause	Bidder's Queries	NAL' Reply
1	3 Different Interiors Concept	There will be no change in Interiors layout, 3 different Interiors concepts will include Aesthetic changes in Cabin interiors such as different colors of seat upholstery, sidewall/headliner covering, carpet partitions covering etc. as per prevailing aviation theme.	Yes. There is no change in the layouts of seats or lavatory or the baggage area. Mainly the interior aesthetic – seat and carpet colors, side and ceiling panels design concept, lighting in cabin and cockpit....etc. as per the prevailing aviation themes or similar class of aircraft.
2	2D drawings	Vendor will need to provide NAL 3 different interiors concept in CATIA. The one which will be selected by NAL, vendor has to provide 2D drawing for only selected theme, not for all 3 concepts	Yes. 2D drawings not for all the 3 concepts. 2D drawings only for the 1 concept selected by CSIR-NAL.
3	Load bearing floor panels	Please Provide Load criteria	Refer ANNEXURE, Pg-1
4	PSU Panels	Vendor will design and install the PSU Panels which will consist of Call button, Light, Light switch & AC louver.	Yes. Additionally need to include the 'NO SMOKING' and 'SEAT BELT – ON / OFF SIGN'
5	Sidewall and Headliner panels	They can be of Kydex or honeycomb both are acceptable	Material can be similar to what is used in any other aircraft. Side and Ceiling panels have to be molded panels. Reference photos are provided in ANNEXURE, Pg-2
6	Thermal and acoustic installation	Please provide dB limit criteria for sound reduction check after installation	After the installation of Thermo-acoustic materials inside the Cabin and Cockpit in the Fuselage Mockup, the expected Noise Levels should be in the range of 80 to 85 dB (as mentioned in Chapter 4 of Tender Document) (For information: The measured Noise Level outside the aircraft near the Engine in SARA MK1 was 133 dB)

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7	Seats (Pax, Lav and Jump seats)	NAL will provide 3D CATIA model of all the seats, vendor need to manufacture them as per design. It should be in look and feel wise aviation type seats without reclining. Seats should not be of load bearing type. Please confirm Qnty. of seats to be installed. 18 Pax + 1 Lav + 1 Jump seat?	Quantity Required: Passenger Seats = 20 Nos. (18 seats will be installed in the Fuselage Mockup. Additional 2 seats required for any replacement at a later date). Seats shall take the load of the person sitting. Assume load of at least 90 kg. Lavatory Module = 1 No. Jump Seat = 1 No.
8	ECS and LSS	Installation drawing will be provided by NAL	ECS Distribution system details - Fixed flow ducts and Flexible flow ducts. Refer ANNEXURE, Pg-9 to 18
9	Lavatory Modules	Lavatory module (Non-functional, Look & Feel type) with a wash basin using commercially available materials, no provision for water and waste to be done	Lavatory Module to be provided along with wash basin and Lavatory Enclosure with a suitable folding type door where two hinge lines will be there. The lavatory enclosure panels should match with the fuselage interior panels (say wall panels) and should have a latching mechanism. Functioning Signage indicator showing - Lavatory OCCUPIED / NOT OCCUPIED should be provided in the cabin. Lavatory Module will be a Non-functional type. Materials used should be such that they will not get rusted and broken easily. CATIA model snap shots of the lavatory Module is shown in ANNEXURE, Pg-3 Dimensions of the proposed Lavatory Module is shown in ANNEXURE, Pg-4 Lavatory Module shall be provided with the necessary plumbing as shown in ANNEXURE, Pg-4


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10	Lavatory Module location	Can we change the location of lavatory module?	Lavatory Module location is fixed as per the layout behind the Cockpit Partition Wall on RH side.
11	L1 Entry Door	Is the doors location fixed, as per drawing given in tender document?	Locations of Main Door and Emergency Doors are as in the Fuselage Component available at Golden Jubilee Aircraft Hangar. Location of the Cargo Door is yet to be finalized. CSIR-NAL will provide the required cut-out for the Cargo Door and also the door panel will be provided by CSIR-NAL. Vendor is required to provide on the interior side of the door panel, thermo-acoustic blanketing and suitable paneling similar to the Wall Paneling.
12	Safety and emergency Equipment	Does vendor need to make provision for storage of Safety and emergency equipment? If yes, Please confirm locations.	Vendor shall make provisions for storage of Safety and Emergency Equipment. These equipment will be provided by CSIR-NAL. Plan view showing the locations of these equipment shown in ANNEXURE, Pg-5 & 6
13	Cabin Attendant	It is understood that only one Jump seat will be for cabin attendant, please confirm the location.	Refer ANNEXURE, Pg-7 for approximate dimensions of the Jump Seat Refer ANNEXURE, Pg-8 for dimensions of the proposed Passenger Seat
14	Emergency Path Light	Will it be of electric lights or only self-illumination strips ?	Emergency path light may be provided with fluorescent strips that are self-illuminating type. Vendor shall suggest and provide emergency path light similar to other passenger aircraft.
15	Overhead Bins	Not required, Please confirm.	Overhead bins for baggage are NOT REQUIRED for this scope of tender.
16	Interior Cabin Painting	Water based paints should be used, Please confirm	For the mock-up interiors, since molded panels will be provided for walls & ceilings, question of paint will not arise. In case if any painting is required, it shall be ENAMEL PAINT WITH MATT FINISH

		As submitted by umlaut in the pre-bid meeting and in below mail, the above mentioned condition in point d) does not apply to this tender, you are requested to remove this condition.	HOWEVER, the onus of complying to the deliverables as per the TENDER document shall be borne by the bidder. Also 'The JV partners are bound by all terms and conditions of contract including NDA as made applicable to the main vendor by CSIR-NAL'.
22		In India there are no such firms who have the required Airworthiness Approval for CARRYING OUT PROJECTS BOTH IN THE AREAS OF AIRCRAFT CABIN AND COCKPIT INTERIORS DESIGN AND EXECUTION FOR AIRWORTHY AIRCRAFT. When the term "Airworthy Aircraft" is stated, it means agencies who have the required approval certificate from Civil Aviation Authorities respectively both in Design as well as in fabrication.	Criteria-1, paragraph a) has been amended. CARRYING OUT PROJECTS BOTH IN THE AREAS OF AIRCRAFT CABIN AND COCKPIT INTERIORS DESIGN AND EXECUTION FOR AIRWORTHY AIRCRAFT OR AIRCRAFT MOCKUP
23		Both Design and Fabrication are separate faculties and involve very different requirements to be satisfied by agencies for obtaining the required above mentioned "Civil Aviation Approval Certificate". For eg Execution approval will need the agency to have a hangar and an airport or usage access to both. Hence keeping this PQC requirement of having both Design and Execution may result in no vendor qualifying the experience requirements.	CSIR-NAL will not ask for the Civil Aviation Approval Certificate from the Vendor. CSIR-NAL would like to evaluate the documents which will justify Vendor's - EXPERIENCE AND PAST PERFORMANCE. CSIR-NAL has given the choice to the Vendor to choose their place for execution of the interior including painting work either at CSIR-NAL premises or at the bidder's hangar or workshop.

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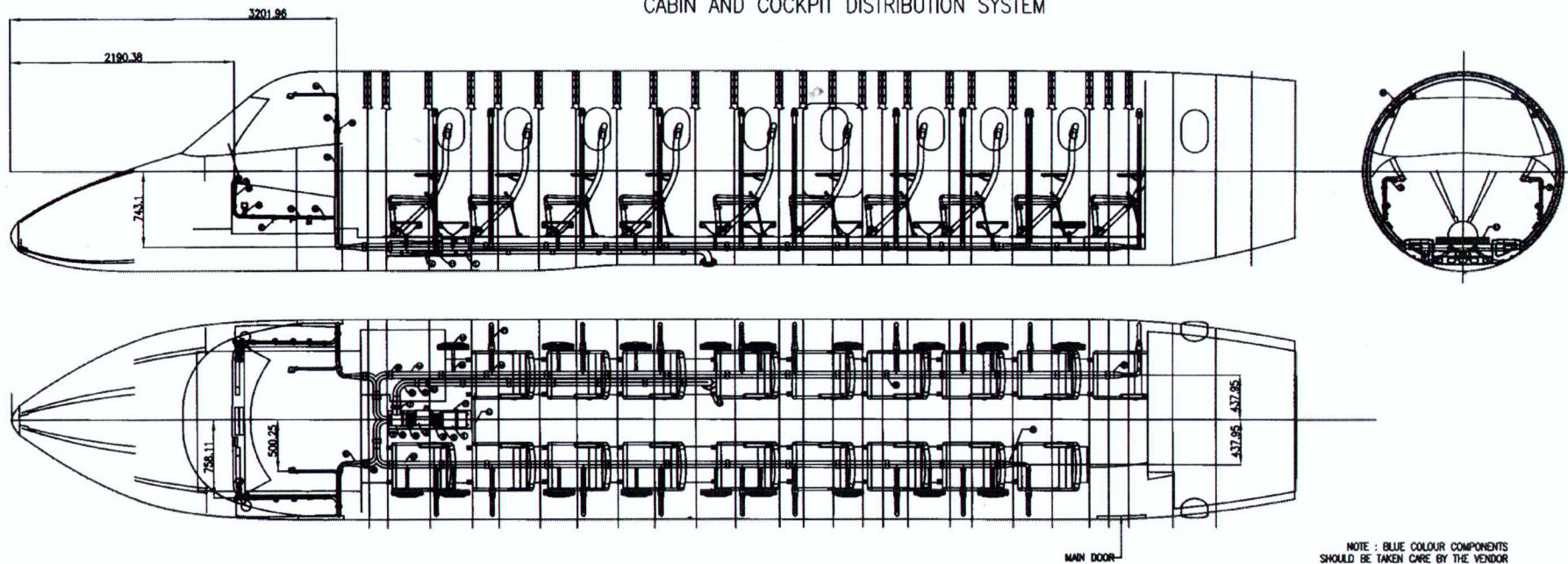
24		<p>Umlaut Submits after a study of the subject tender that it involves preparing the design of the aircraft interior, creating the bill of Airworthy interior materials and getting a mock-up interior fabricated using commercial grade equivalent materials in the NAL provided Test Fuselage.</p> <p>Hence this work can be done just by a Design Agency that carries out projects in areas of Aircraft Cabin and Cockpit Interior Design. The Design Agency can get the mock-up interiors fabricated locally at an economical cost. To employ an agency approved by Civil Airworthiness Authorities to fabricate the mock-up interior would be an excess and would result in great inflation of price and project budget.</p>	<p>Please refer to Technical Queries & Clarifications of Pre-bid Meeting dated 17.Dec.2020, Paragraphs 6 and 7 (hosted on CPP)</p> <p>CSIR-NAL will not ask for the Civil Aviation Approval Certificate from the Bidder.</p>
25	Chapter 6, Criteria-1 Paragraph a	<p>The bidder (manufacturer or principal of authorized representative – hereinafter referred simply as 'The Bidder') should have regularly for at least the last 5 years, ending 31st MARCH OF 2020 (hereinafter called 'The relevant Date'), CARRIED OUT PROJECTS BOTH IN THE AREAS OF AIRCRAFT CABIN AND COCKPIT INTERIORS DESIGN AND EXECUTION FOR AIRWORTHY AIRCRAFT <u>OR AIRCRAFT MOCKUP</u> (hereinafter called 'The Product'), <u>either independently or in collaboration with Joint Venture or Collaborative Agreement with another partner.</u> The bidder should submit the manufacturer authorization form as appended in Chapter-8 and</p>	


 Signature of Indenter 12/01/2021
 (SATISH R ROHIDEKAR)

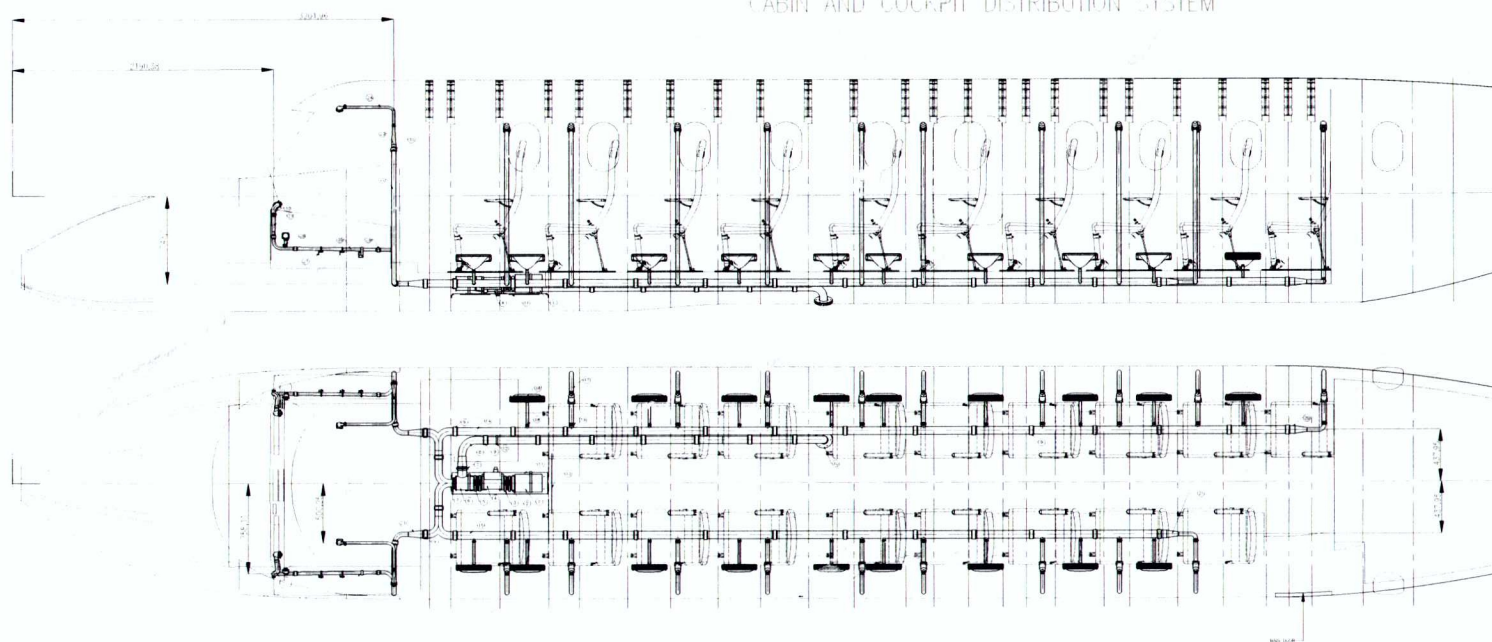

 Signature of Project Leader 12/JAN/2021
 (Vineet Kumar)

ANNEXURE

CABIN AND COCKPIT DISTRIBUTION SYSTEM



CABIN AND COCKPIT DISTRIBUTION SYSTEM



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TOTAL WEIGHT		Kg.
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CHANGE SHEET																2020	NAME	DATE
CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO			
																PREPARED	IRSHAD	
																APPROVED	M L SHNKAR	
																CHECKED		
								TITLE CABIN & COCKPIT DISTRIBUTION WITH RC SYSTEM								NUMBER		SHT 1 OF 1

[illegible]



CENTRE FOR CIVIL AIRCRAFT DESIGN AND DEVELOPMENT
NATIONAL AEROSPACE LABORATORIES, BANGALORE-560 037, INDIA

FABRICATED PART						RAW MATERIAL					
SL. NO.	ITEM NO.	NO. REQ.	NAME	PART NO.	CAL. WT. IN KG.	SPECIFICATION	STOCK SIZE PER ITEM IN mm.	TOTAL QTY.	UNIT	REMARKS	ZONE
1	2	3	4	5	6	7	8	9	10	11	12
14	14	1	2.5" RH PIPE ASSY FOR CABIN DISTRIBUTION								
15	15	1	2.5" LH PIPE ASSY FOR CABIN DISTRIBUTION								
16	16	18	FIXED FLOW DIFFUSER ASSY								
17	17	18	PUNKAH LOUVRE ASSY								
18	18	40	HOSE CLAMP 0.75"								
19	19	44	HOSE CLAMP 1.25"								
20	20	2	2.5" TO 1.25" REDUCER PIPE ASSY IN CABIN DISTRIBUTION								
21	21	2	2.5" TO 1.5" REDUCER PIPE ASSY IN COCKPIT								
22	22	2	1.5" PIPE ASSY								
23	23	2	1.5" TO 0.75" REDUCER PIPE ASSY IN COCKPIT								
24	24	2	PUNKAH LOUVRE HEAD COOLING ASSY IN COCKPIT								
25	25	1	1" PIPE ASSY								

CHANGE STATUS

TOTAL WEIGHT Kg.

CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	2020	NAME	DATE
																PREPARED	IRSHAD	
																APPROVED	M L SHNKAR	
																CHECKED		
TITLE																NUMBER		SHT 1 OF 1
CABIN & COCKPIT DISTRIBUTION																		
WITH RC SYSTEM																		

ECSSYS3:C:/NITINDWG/INST RECIRCUFAN&FILTER IN TOILETCOMP 4 CABARDISTR/117T 7P 0050 00 000

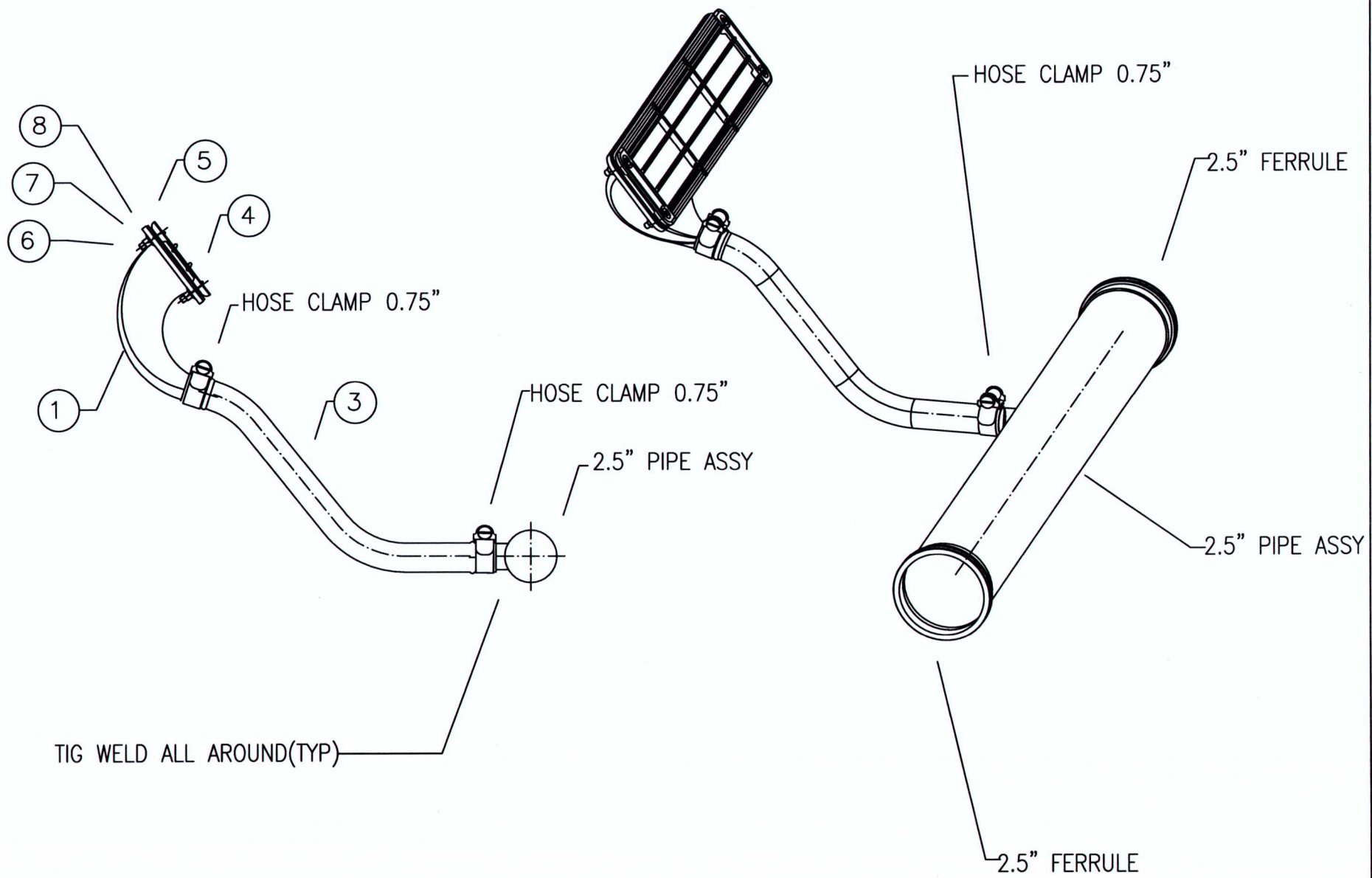
FABRICATED PART					RAW MATERIAL						
SL. NO.	ITEM NO.	NO. REQ.	NAME	PART NO.	CAL. WT. IN KG.	SPECIFICATION	STOCK SIZE PER ITEM IN mm.	TOTAL QTY.	UNIT	REMARKS	ZONE
1	2	3	4	5	6	7	8	9	10	11	12
1	1	1	FILTER ELEMENT	QB00661							
2	2	1	4.25" V- FLANGE AND CLAMP								
3	3	1	4.25" HOSE WITH HOSE CLAMPS								
4	4	1	RECIRCULATING FAN	4610108999 (AE1209AA0)							
5	5	1	4.5" HOSE WITH HOSE CLAMPS								
6	6	1	MIXING CHAMBER								
7	7	2	2.5" V- FLANGE AND CLAMP								
8	8	1	2.5" INCH PIPE ASSY COLD LINE								
9	9	37	2.5" FERRULE ASSY								
10	10	1	FLANGE AND GASKET								
11	11	1	BKT ASSY FOR MIXING CHAMBER, RC FAN & FILTER ELEMENT								
12	12	1	2.5" BRACKET ASSY								
13	13	1	FILTER PLATE								

CHANGE STATUS

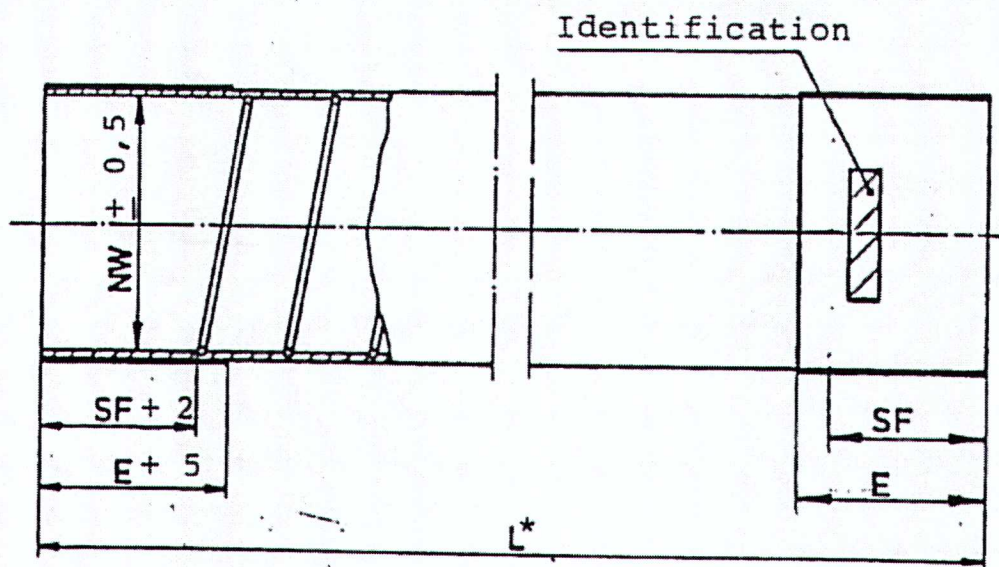
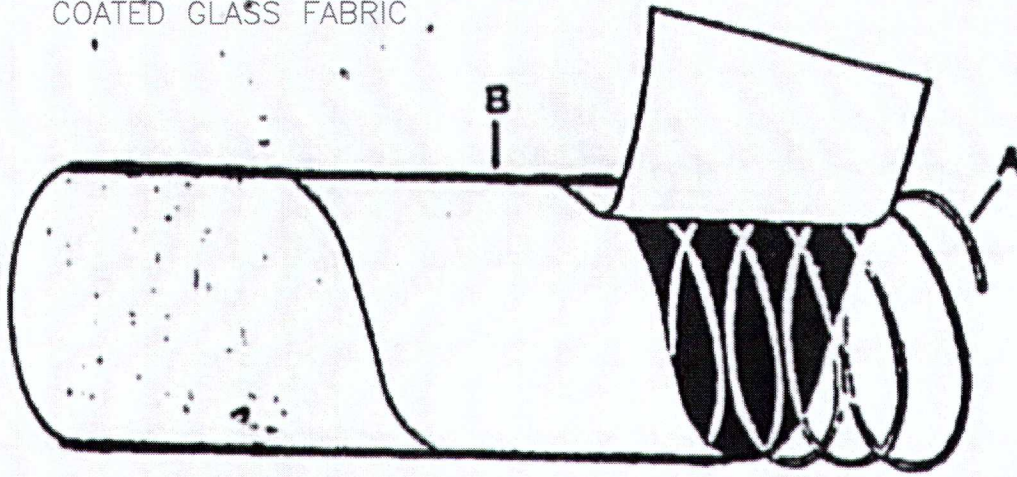
TOTAL WEIGHT		Kg.
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CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	2020	NAME	DATE
																PREPARED	IRSHAD	
																APPROVED	M L SHNKAR	
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								TITLE							NUMBER	SHT 1 OF		
								<u>CABIN & COCKPIT DISTRIBUTION</u>										
								<u>WITH RC SYSTEM</u>										

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- A — NYLON SPIRAL
 B — ON ONE SIDE NEOPRANE
 COATED GLASS FABRIC



SL. NO.	LENGTH, L (mm)	NOMINAL BORE, NW (mm)	DIMENSIONS		CAL. WEIGHT (gm).	TOTAL QTY.
			SF	E		
1	280	DIA 19	15	20	11	18



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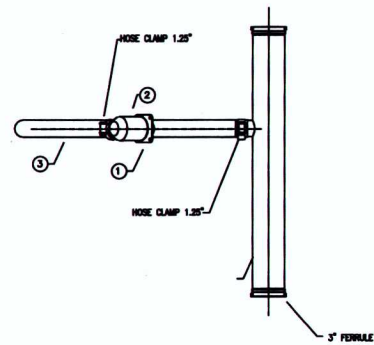
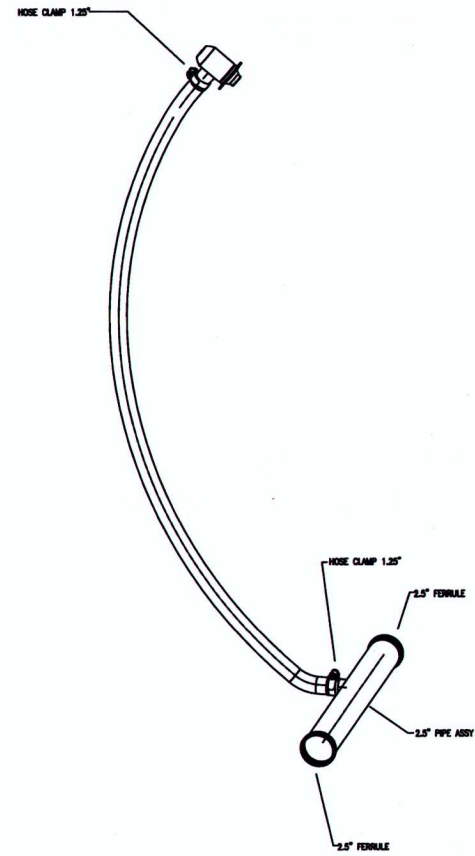
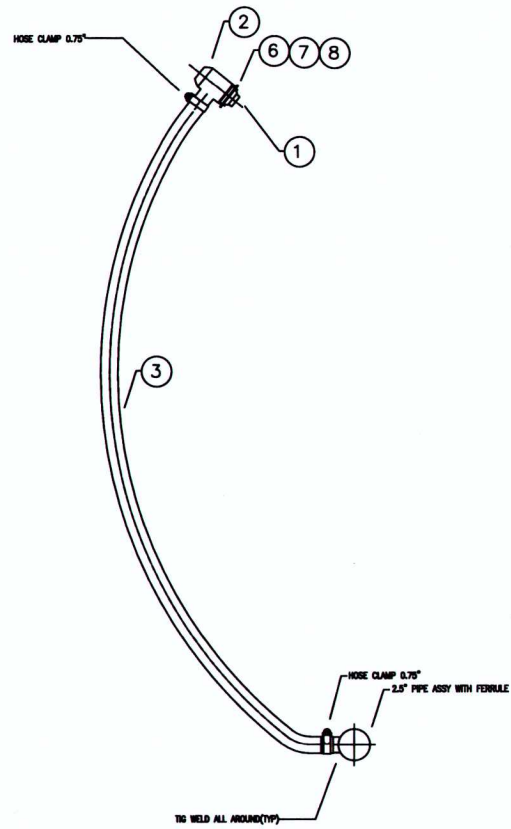
FABRICATED PART						RAW MATERIAL					
SL. NO.	ITEM NO.	NO. REQ.	NAME	PART NO.	CAL. WT. IN KG.	SPECIFICATION	STOCK SIZE PER ITEM IN mm.	TOTAL QTY.	UNIT	REMARKS	ZONE
1	2	3	4	5	6	7	8	9	10	11	12
1	1	1	DIFFUSER								
2	2	2									
3	3	1	FLEXIBLE PIPE								
4	4	1	SHUTTER								
5	5	1	FILTER								
6	6	4	SCREW								
7	7	4	NUT								
8	8	4	WASHER								
9	9	1									
10											
11											
12											
13											

CHANGE STATUS

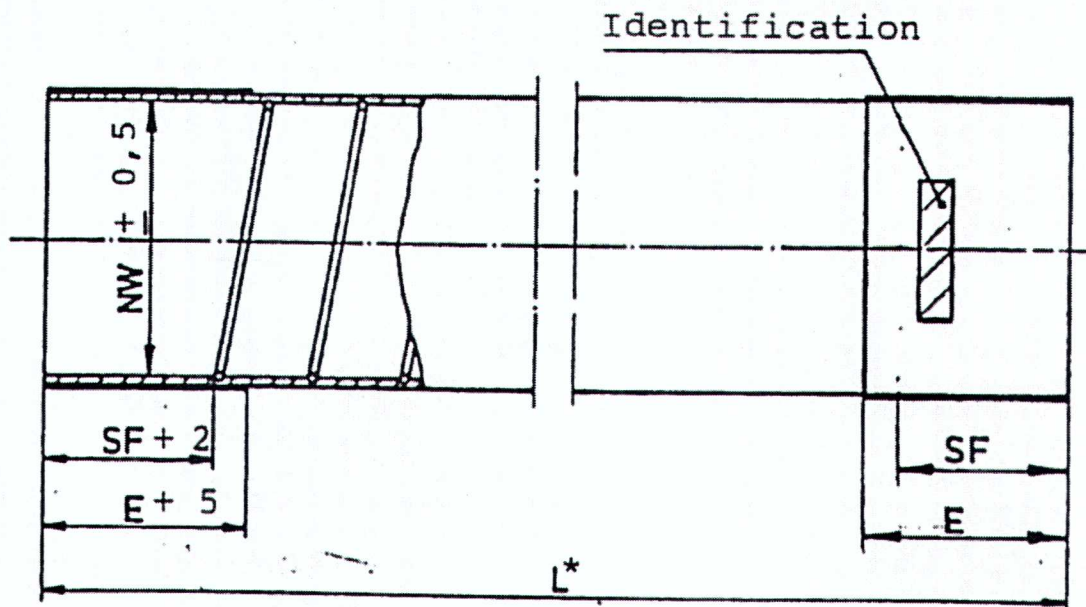
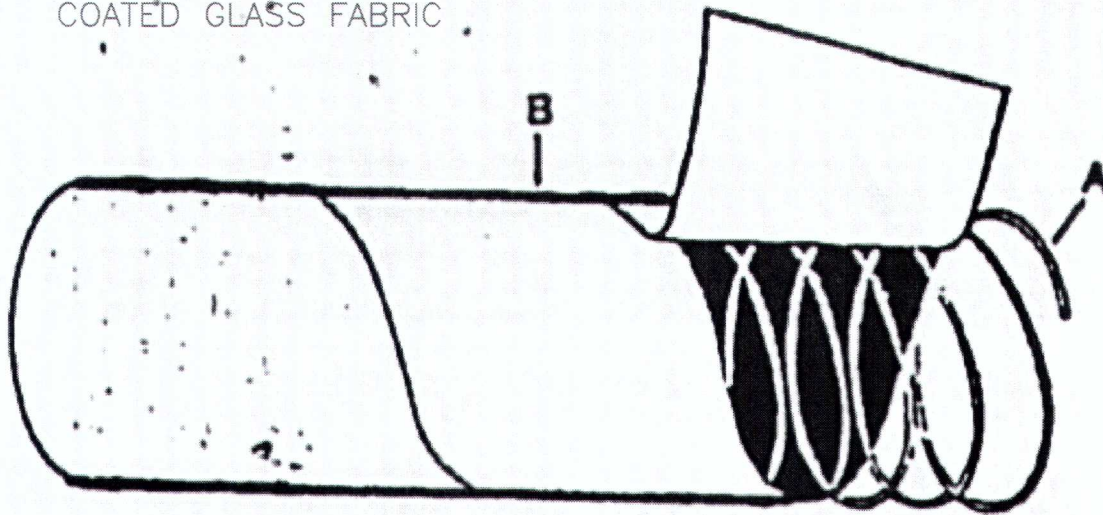
TOTAL WEIGHT Kg.

CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	2020	NAME	DATE
																PREPARED	IRSHAD	
																APPROVED	M L SHNKAR	
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								TITLE								NUMBER		SHT 1 OF 1
								FIXED DIFFUSER COOLING ASSEMBLY										

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- A - NYLON SPIRAL
B - ON ONE SIDE NEOPRANE COATED GLASS FABRIC



SL. NO.	LENGTH, L (mm)	NOMINAL BORE, NW (mm)	DIMENSIONS		CAL. WEIGHT (gm).	TOTAL QTY.
			SF	E		
1	1560	DIA 32	15	20	102	18



CENTRE FOR CIVIL AIRCRAFT DESIGN AND DEVELOPMENT
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ECSSYS3:C:/NITINDWG/INST RECIRCUFAN&FILTER IN TOILETCOMP 4 CABAIRDISTR/117T 7P 0050 00 000

FABRICATED PART						RAW MATERIAL					
SL. NO.	ITEM NO.	NO. REQ.	NAME	PART NO.	CAL. WT. IN KG.	SPECIFICATION	STOCK SIZE PER ITEM IN mm.	TOTAL QTY.	UNIT	REMARKS	ZONE
1	2	3	4	5	6	7	8	9	10	11	12
1	1	1	PUNKAH LOUVER								
2	2	1	PLENUM CAP								
3	3	1	FLEXIBLE PIPE								
4	4	2									
5	5	1									
6	6	4	SCREW								
7	7	4	NUT								
8	8	4	WASHER								
9	9	1									
10											
11											
12											
13											

CHANGE STATUS								TOTAL WEIGHT								Kg.					
CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	CH.LET	SL NO	MOD/ALT	COL NO	2020	NAME	DATE			
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																APPROVED	M L SHNKAR				
																CHECKED					
																TITLE		NUMBER		SHT 1 OF 1	
																GASPER COOLING ASSY					