



**U.P. Electronics Corporation Limited**  
**(U.P. Government Undertaking)**  
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**Request for Proposal (RFP)**

**FOR**

**Development & Implementation of Application Software for Aircraft Maintenance Management, Store-Purchase (Inventory) Management, Operations Management, Accounts Management and Personnel Management System, Document Tracking and E-Filing System for Directorate of Civil Aviation, Government of Uttar Pradesh.**

**Bid REFERENCE**

**: UPLC/Software /2012-13/11**

E-tender Portal

: <http://etender.up.nic.in>

Critical Dates

SN	Particulars	Date	Time
1	Publishing Date	7 February 2013	06:55 PM
2	Bid Submission Start Date	7 February 2013	6:55 PM Onwards
3	Bid Submission End Date	23 February 2013	5:00 PM
4	Bid Opening Date	23 February 2013	05:10 PM

Place of Opening e-Bids

: UP Electronics Corporation Ltd  
10-Ashok Marg,  
Lucknow-226001



## Index

<b>E-BID NOTICE</b>	<b>3</b>
<b>ABOUT DEPARTMENT OF CIVIL AVIATION, GOUP</b>	<b>5</b>
<b>SECTION I: LETTER OF INVITATION</b>	<b>6</b>
<b>SECTION II: INSTRUCTIONS TO BIDDERS (ITB)</b>	<b>8</b>
<b>SECTION III: TERMS OF REFERENCE (TOR) AND SCOPE OF WORK</b>	<b>15</b>
<b>SECTION IV: BIDDER'S ELIGIBILITY CRITERIA</b>	<b>58</b>
<b>SECTION V – STANDARD TERMS AND CONDITIONS</b>	<b>59</b>
<b>SECTION VI - TECHNICAL PROPOSAL SUBMISSION FORM</b>	<b>70</b>
ANNEXURE -XII	70
ANNEXURE XIII	71
ANNEXURE XIV	72
ANNEXURE XV	73
ANNEXURE XVI	74



**e-Bid Notice**  
**FOR**  
**Development & Implementation of Application Software for Aircraft**  
**Maintenance Management, Store-Purchase (Inventory) Management,**  
**Operations Management, Accounts Management and Personnel Management**  
**System, Document Tracking and E-Filing System for Directorate of Civil**  
**Aviation, Government of Uttar Pradesh.**

Online e-bids are invited from experienced Service Providers, who are already empanelled with U.P. Electronics Corporation Limited under Job Category I (Software Development) and Service Provider Category (“D”) only for develop a Web enabled application which mainly provide facility of **Aircraft Maintenance Management, Store-Purchase (Inventory) Management, Operations Management, Accounts Management and Personnel Management System, Document Tracking & E-Filing for Directorate of Civil Aviation, Government of Uttar Pradesh.** The e-bids are invited from 7 February 2013 to 23 February 2013 and e-Bids shall be opened on the 23 February 2013 or afterwards. The details of submission of e-Bids are available in the e-Bid document uploaded on the *e-tender portal* <http://etender.up.nic.in> and *website* [www.upclko.in](http://www.upclko.in). The Corporation reserves the right to cancel any or all the e-Bids or annul the Bidding process without assigning any reason thereof.

Managing Director  
U.P. Electronics Corporation Ltd.  
10 Ashok Marg  
Lucknow-226001

e-Bid Ref No : **UPLC/Software/2012-13/11**



**Request for Proposal  
For**

**Development & Implementation of Application Software for Aircraft  
Maintenance Management, Store-Purchase (Inventory) Management,  
Operations Management, Accounts Management and Personnel Management  
System, Document Tracking and E-Filing System for Directorate of Civil  
Aviation, Government of Uttar Pradesh.**

The Information Technology (I.T.) Act, 2000 enacted by Government of India provides the necessary legal and regulatory framework in which we will use IT in our daily lives. This law has created the right environment for the entry of the private entrepreneur and at the same time, defines the standards of services to the consumers and mainly to the rural masses.

U.P. Electronics Corporation Ltd (UPLC) is the nodal agency appointed by the Government of Uttar Pradesh to provide IT/ITES solutions to the departments. One of the main objectives of the State Government's IT effort is to provide speedy, transparent, accountable and efficient conduct of Government Systems and Delivery of Services. The Government of UP shall use Information Technology as a tool to reduce poverty. The Government is the largest service provider to the rural masses who are handicapped by the lack of information. The UPLC, being the nodal agency is committed to provide the necessary inventories for the spread of IT based education, healthcare, agriculture and allied informations in the rural areas.

**SERVICES PROVIDED BY THE UPLC:**

- (i) To Provide IT Consultancy to Various State Government Establishments of Uttar Pradesh.
- (ii) To provide services as `System Integrator' to Various State Government Establishments of Uttar Pradesh.
- (iii) To Provide Hardware Solutions with Installation, Commissioning and Warranty (ICW) to meet out the requirement of Various State Government Establishments of Uttar Pradesh.
- (iv) To Provide Software Solutions to cater to the requirement of Various State Government Establishments of Uttar Pradesh.
- (v) To Provide IT&ITES Solution on a turnkey basis suitable for end-to-end or partial functioning of State Government Establishments.
- (vi) To provide Computer Education and Training to the officials of various Government Departments/ Organizations/Institutions



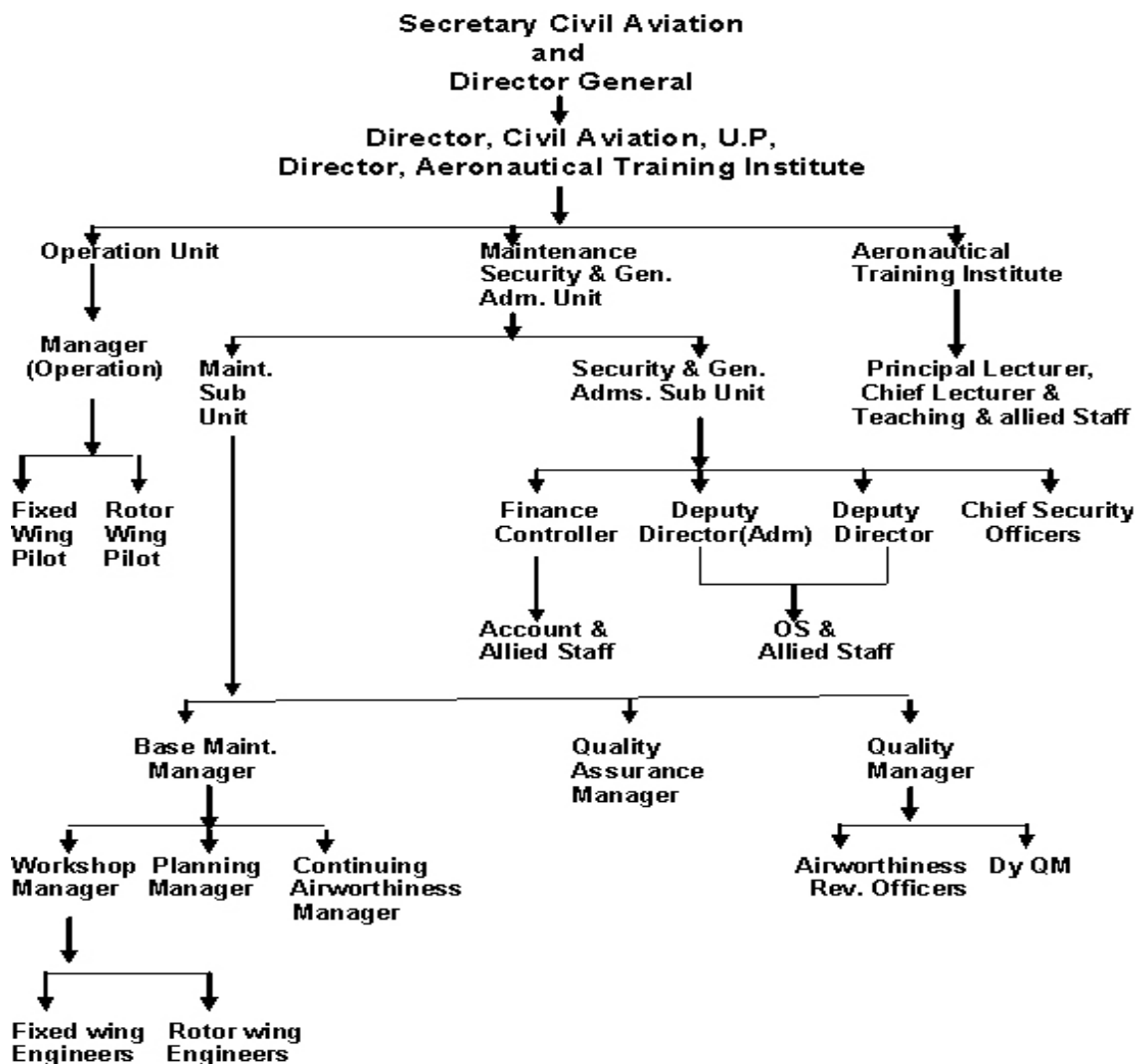
## **About Department of Civil Aviation, GoUP**

(Web Site: <http://civilaviation.up.nic.in>)

The Civil Aviation Department of Uttar Pradesh does the following functions:-

- Providing air transport facilities to VIPs on short notices.
- Providing air links at the time of distress and for law and order purpose
- Providing training in Aircraft Maintenance Engineering.
- Maintenance of State owned Aircrafts and Helicopters.
- Imparting Training in Flying and Aircraft Maintenance through PSP.
- Maintenance of state owned Airstrips.
- Development & Construction of New Airstrips within the state of UP.

### **BASIC ORGANISATIONAL CHART of Civil Aviation Department, Govt of Uttar Pradesh**





## SECTION I: Letter of Invitation

1. Through this Request for Proposal (RFP), it is intended to invite e-Bids for the selection of appropriate Software Agency / firm for the work develop a Web enabled application which mainly provide facility of Aircraft Maintenance Management, Store-Purchase (Inventory) Management, Operations Management, Accounts Management, Document Tracking & E-Filing and Personnel Management System for Directorate of Civil Aviation, Government of Uttar Pradesh.
2. Bidders are advised to study the e-Bid document carefully.
3. Submission of e-Bids against this tender shall be deemed to have been done after careful study and examination of the procedures, terms and conditions of the e-Bid document with full understanding and its implications.
4. The Corporation may, at its own discretion, extend the date for submission of e-Bids. In such case all the rights and obligations of the Corporation and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
5. **Only those Service Providers who are empanelled in U.P. Electronics Corporation Ltd under the Job Category – I (Software Development) and Service {Provider Category (“D”) vide e-bid reference no UPLC/Software/Empanelment 02/2011 & UPLC /Software /Empanelment 03/2012-13, are eligible to participate in this Tender. e-Bids submitted by any other bidders will be treated as non responsive and will not be considered against this e-Bid.**
6. The e-Bid document is available on e-tender portal <http://etender.up.nic.in> and also on UPLC's website [www.uplclko.in](http://www.uplclko.in). Interested Bidders May view, download the e-Bid document, seek clarification and submit these e-Bids online only on e-tender portal <http://etender.up.nic.in>, up to the date and time mentioned in the table below:-

e-Bid Reference No.	UPLC/Software/2012-13/11
Purpose	Request For Proposal (RFP) for selection of Software Company/Firm for implementation of the work of develop a Web enabled application software for Aircraft Maintenance Management, Store-Purchase (Inventory) Management, Operations Management, Accounts Management, Document Tracking & E-Filing and Personnel Management System for Directorate of Civil Aviation, Government of Uttar Pradesh
Date of Publication of e-Bid notice	07 February, 2013 on e-tender portal <a href="http://etender.up.nic.in">http://etender.up.nic.in</a> and website of UPLC <a href="http://www.uplclko.in">www.uplclko.in</a>
Last date for submission of e-Bids	23 February 2013 up to 05:00 P.M.
Site for submission of e-Bid	<a href="http://etender.up.nic.in">http://etender.up.nic.in</a>
Web site address	<a href="http://www.uplclko.in">www.uplclko.in</a>
e-mail address	<a href="mailto:md@uplclko.in">md@uplclko.in</a> , <a href="mailto:uplclko@gmail.com">uplclko@gmail.com</a>
e-Bid Inviting Officer	Shri Prabhat Mittal, I.A.S. Managing Director



Date of opening of e-Bids	23 February 2013 at 05:10 P.M. or afterwards
Venue of Opening of e-Bids	UP Electronics Corporation Ltd, 10, Ashok Marg, Lucknow-226001
Contact numbers	0522-2286808, 0522-2286809, 0522- 4130303
Fax number	0522-2288583

7. UPLC reserves the right to cancel any or all the e-Bids or annul the e-Bid process without assigning any reason thereof.

8. All the required documents must be uploaded by the Bidders electronically in the PDF format. It is suggested that the PDF Files should be made in gray scale using the minimum readable appropriate resolution so that the size of the files is minimized for fast uploading on the e-Bid portal <http://etender.up.nic.in>. The required electronic documents for each document label of Technical (Fee details, Annexure etc) schedules/packets can be clubbed together to make single different files for each label. The size of single label file should not exceed 6-7 MB size.



## SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

### 1. DEFINITIONS

In this Contract, the following terms shall be interpreted:

- a. “The Software Company/Firm” means only those Software Firms / Companies who are empanelled in U.P. Electronics Corporation Ltd as Service Provides vide e-bid reference no UPLC/Software /Empanelment 02/2011 & UPLC /Software /Empanelment 03/2012-13.
- b. “e-Bid” means the Technical proposal and the financial proposal.
- c. “Instructions to Bidders” means the document, which provides interested Bidders with all information needed to prepare their Bids. This document also details out the process for the selection of the Consultant for the work mentioned in this tender document.
- d. “Scope of work” (SOW) means Scope of work mentioned in Section III: Terms of Reference of the RFP which explains the objectives, Scope of work, activities, tasks to be performed, and expected results and deliverables of the assignment, respective responsibilities of the Purchaser and the Bidder.
- e. “The Contract rates” mean the charges for the various consultancy assignment payable to the Consultant under the Contract for the full and proper performance of its contractual obligations;
- f. “Services” means the Development and implementation of application Software services and other obligations of the Service provider covered under the Work Order/Contract;
- g. “The Project Site”, where applicable, means the sites or offices of Directorate of Civil Aviation, Government of Uttar Pradesh.
- h. “Day” means a calendar day.
- i. The “End-Customer/Client Department” means the Directorate of Civil Aviation, Government of Uttar Pradesh.

### 2. THE BIDDING DOCUMENT

#### 1. Availability of e-Tender Document

This e-tender document is available on the e-tender portal <http://etender.up.nic.in> and UPLC's website [www.upcllko.in](http://www.upcllko.in) to enable the Bidders to view and download the Bidding document, submit their e-Bids online up to the last date and time mentioned in e-tender document only on e-Bid portal <http://etender.up.nic.in>.





## 2. Contents of e-Bid Document

The nature and types of various consultancy services required, Bidding procedure, terms and conditions etc. are prescribed in the e-bid document. The e-bid document includes:

- SECTION I : LETTER OF INVITATION
- SECTION II : INSTRUCTIONS TO BIDDERS (ITB)
- SECTION III : TERMS OF REFERENCE (TOR) AND SCOPE OF WORK
- SECTION IV : BIDDER'S ELIGIBILITY CRITERIA
- SECTION V : STANDARD TERMS AND CONDITIONS
- SECTION VI : TECHNICAL PROPOSAL SUBMISSION FORM (Annexure XII & XIII)
- DECLARATION FOR PROPOSAL SUBMISSION FORM (Annexure XIV)
- FINANCIAL PROPOSAL SUBMISSION FORM (Annexure XV)
- Suggested Hardware & System Software (Annexure XVI)

The Bidders are expected to examine all the instructions, forms, terms and conditions, requirements and qualifications in the e-tender documents. Failure to furnish all the information required as per the Bidding documents or submission of an e-Bid not responsive to the e-tender document in every respect will be at the Bidder's risk and May result in the rejection of his e-Bid.

## 3. Clarifications of e-Tender Documents

A prospective Bidder requiring any clarification of the e-tender documents may raise his point of clarification to UPLC's e-mail [md@uplclko.in](mailto:md@uplclko.in) or [uplclko@gmail.com](mailto:uplclko@gmail.com)

## 4. Amendment of e-Tender Document

At any time prior to the deadline for submission of e-Bids, the UPLC May, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the e-tender document by amendments. Such amendments shall be posted/ uploaded on the e-tender portal <http://etender.up.nic.in> through corrigendum and shall form an integral part of the e-Bid documents. The relevant clauses of the e-tender documents shall be treated as amended accordingly.

It shall be the sole responsibility of the prospective Bidders to check the e-tender portal <http://etender.up.nic.in> and [www.uplclko.in](http://www.uplclko.in) from time to time for any amendment in the e-Bid document. In case of failure to get the amendments, if any, the UPLC shall not be responsible for any negligence on part of the Bidder.

In order to allow prospective Bidders a reasonable time to take the amendment into account in preparing their e-Bids, UPLC at its discretion, May extend the deadline for the submission of e-Bids. Such extensions shall be posted/up-loaded on the e-tender portal <http://etender.up.nic.in>.



### **3. PREPARATION & SUBMISSION OF e-Bids**

#### **3.1 Documents Constituting the e-Bid**

The e-Bids prepared by the Bidder shall comprise the following components:

e-Bids - e-Bids will comprise of :

- a) Technical proposal submission form – Annexure XII & XIII
- b) Financial proposal submission form – Annexure XIV & XV
- c) Suggested Hardware & System Software (Annexure XVI)

#### **3.2 Documents Establishing Bidder's Qualification**

The Bidder shall furnish, as part of Technical Proposal (Annexure I& II), documents establishing the qualification to perform the Contract. The documentary evidence in support of the information furnished should be submitted by the Bidder electronically in the PDF format. The Bidder's eligibility criteria and selection procedure are defined in Section IV of e-Tender document.

It is suggested that the PDF files should be made in grayscale using the minimum readable appropriate resolution so that the size of the files is minimized for fast uploading on the e-Bid portal.

### **4 Format and Signing of e-Bids**

The Bidder shall prepare one electronic copy for the e-Bids.

Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All the pages/ documents of the e-Bid shall also be signed manually by the person authorized to sign the e-Bids before converting them into PDF and uploading them as bidding documents.

### **5 Submission of e-Bids**

The e-Bid Submission module of e-tender portal <http://etender.up.nic.in> enables the Bidders to submit the e-Bid online against the e-tender published by the UPLC. Bid Submission can be done only from the Bid Submission start date and time till the e-Bid Submission end date and time given in the e-Bid. Bidders should start the Bid Submission process well in advance so that they can submit their e-Bid in time. The Bidders should submit their Bids considering the server time displayed in the e-tender portal. This server time is the time by which the Bid submission activity will be allowed till the permissible time on the last/end date of submission indicated in the e-tender schedule. Once the Bid submission date and time is over, the Bidders cannot submit their e-Bid. For delay in submission of e-Bids due to any reasons, the Bidders shall only be held responsible.

The Bidders have to follow the following instructions for submission of their e-Bids:



For participating in e-tender through the e-Bidding system, it is necessary for the Bidders to be the registered users of the e-tender portal <http://etender.up.nic.in>. For this, the Bidders have to register themselves by depositing a fee of Rs 6000/- (Rupees Six thousands only) in the office of U.P. Electronics Corporation Limited, 10, Ashok Marg, Lucknow-226 001 for getting a valid User ID and password and the required training/ assistance etc. on e-tender portal <http://etender.up.nic.in>. The Bidders May contact U.P. Electronics Corporation Limited at the contact details given in Section I of e-tender document.

In addition to the normal registration, the Bidder has to register with his/her Digital Signature Certificate (DSC) in the e-Bidding system and subsequently he/she will be allowed to carry out his/her e-Bids submission activities. Registering the Digital Signature Certificate (DSC) is a onetime activity till its validity. Before proceeding to register his/her DSC, the Bidder should first log on to the e-Bidding system using the User Login option on the home page with the Login Id and Password with which he/ she has registered as enumerated in the preceding paragraph above.

For successful registration of DSC on e-Procurement portal <http://etender.up.nic.in> the Bidder must ensure that he/she should possess Class-2/ Class-3 DSC issued by any one of certifying authorities approved by Controller of Certifying Authorities, Government of India. The Bidder May also apply to office of U.P. Electronics Corporation Limited, (UPLC) for getting DSC at the address given in the preceding paragraph above on a prescribed form available at UPLC's website [www.uplclko.in](http://www.uplclko.in) along with the payment of fee of Rs 1593/- per person, The Bidder is also advised to register his/her DSC on e-tender portal well in advance before Bid submission end date so that he/she should not face any difficulties while submitting his/her e-Bid against this e-tender. The Bidder can perform User Login registration/creation and DSC registration exercise as described in preceding paragraphs above even before e-Bid submission date starts. The UPLC shall not be held responsible if the Bidder tries to submit his/her e-Bids at the last moment before end date of submission but could not submit due to DSC registration or any other technical problems.

The Bidder can search for active Bids through "Search Active Bids" link, select a Bid in which he/she is interested in and then move it to 'My Bids' folder using the options available in the e-Bid Submission menu. After selecting and viewing the Bid, for which the Bidder intends to e-Bid, from "My Bids" folder, the Bidder can place his/her Bid by clicking "Pay Offline" option available at the end of the view Bid details form. Before this, the Bidder should download the Bid document and study hem carefully. The Bidder should keep all the documents ready as per the requirements of e-Bid document in the PDF format.

After clicking the 'Pay Offline' option, the Bidder will be redirected to the Terms and Conditions page. The Bidder should read the Terms & Conditions before proceeding to fill in the Processing Fee offline payment details. After entering and



saving the Processing fee details, the Bidder should click "Encrypt & Upload" option given in the offline payment details form so that "Bid Document Preparation and Submission" window appears to upload the required documents Technical Proposal Submission Form etc (**Annexure "XII" to Annexure "XVI"**) of this e-tender document. The details of the Demand Draft or any other accepted instrument which is to be physically sent in original before Bid submission and date and time, should tally with the details available in the scanned copy and the data entered during e-Bid submission time otherwise the e-Bid submitted will not be accepted.

Before uploading, the Bidder has to select the relevant Digital Signature Certificate. He May be prompted to enter the Digital Signature Certificate password, if necessary. For uploading, the Bidder should click "Browse" button against each document label in Technical schedules/packets and then upload the relevant PDF files already prepared and stored in the Bidder's computer. The required documents for each document label of Technical. Schedules/packets can be clubbed together to make single different files for each label.

The Bidder should click "Encrypt" next for successfully encrypting and uploading of required documents. During the above process, the Bid documents are digitally signed using the DSC of the Bidder and then the documents are encrypted/locked electronically with the DSC's of the Bid openers to ensure that the Bid documents are protected, stored and opened by concerned Bid openers only.

After successful submission of e-Bids, a page giving the summary of e-Bid submission will be displayed confirming end of e-Bid submission process. The Bidder can take a printout of the Bid summary using the "Print" option available in the window as an acknowledgement for future reference.

## **6 Deadline for Submission of e-Bids**

e-Bids must be submitted by the Bidders on e-tender portal <http://etender.up.nic.in>, not later than the date and time specified in this e-tender document.

The UPLC May extend this deadline for submission of e-Bids by amending the e-tender document in accordance with ITB Clause 4, in which case all rights and obligations of the UPLC and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

UPLC shall not consider any request for date-extension for e-Bid-submission on account of late downloading of e-tender (RFP) by any prospective Bidder. E-Bids should be uploaded on e-tender portal <http://etender.up.nic.in> on or before 05.00 P.M. of 23 February 2013.



## **7 Late e-Bids**

The server time indicated in the Bid Management window on the e-tender portal <http://etender.up.nic.in> will be the time by which the e-Bids submission activity will be allowed till the permissible date and time scheduled in the e-tender. Once the e-Bids submission date and time is over, the Bidder cannot submit his/ her Bid. Bidder has to start the e-Bid Submission well in advance so that the submission process passes off smoothly. The Bidder only, will be held responsible if his/ her e-Bids are not submitted in time due to any reasons.

## **8 Withdrawal and Resubmission of e-Bids**

At any point of time, a Bidder can withdraw his/ her e-Bids submitted online before the e-Bids submission end date and time. For withdrawing, the Bidder should first log in using his/ her Login Id and Password and subsequently by his/ her Digital Signature Certificate on the e-procurement portal <http://etender.up.nic.in>. The Bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the Bids submitted by the Bidder will be displayed. Click "View" to see the details of the Bid to be withdrawn. After selecting the "Bid Withdrawal" option, the Bidder has to click "Yes" to the message "Do you want to withdraw this Bid?" displayed in the Bid Information window for the selected Bid. The Bidder also has to enter the Bid Withdrawing reasons and upload the letter giving the reasons for withdrawing before clicking the "Submit" button. The Bidder has to confirm again by pressing "Ok" button before finally withdrawing his/ her selected Bid. Once the Bidder has withdrawn his /her Bid he/she cannot re-submit this Bid again.

The Bidder has to request the UPLC with a letter, attaching the proof of withdrawal and submission of e-Bids Processing Fee in the office of Managing Director, UPLC, to return back the e-Bids Processing Fee as per the procedure.

The Bidder can resubmit his/ her e-Bids as and when required till the Bid submission end date and time. The e-Bids submitted earlier will be replaced by the new one. The payment made by the Bidder earlier will be used for revised e-Bids and the new Bid submission summary generated after the successful submission of the revised e-Bids will be considered for evaluation purposes. For resubmission, the Bidder should first log in using his/ her Login ID and Password and subsequently by his/ her Digital Signature Certificate on the e-procurement portal <http://etender.up.nic.in>. The Bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the Bids submitted by the Bidder will be displayed. Click "View" to see the details of the Bid to be resubmitted. After selecting the "Bid Resubmission" option, click "Encrypt & Upload" to upload the revised e-Bids documents by following the methodology provided in clauses 09 above.

The Bidders can submit their revised Bids as many times as possible by uploading their e-Bids documents within the scheduled date & time for submission of e-Bids.



No e-Bids can be resubmitted subsequently after the deadline for submission of e-Bids.

## **9 Receipt and Opening of e-Bids by the Purchaser**

Bidders are advised to submit their e-bids in 'Two-Bid' system with Technical and Financial bids separately on e-tender portal.

Please note that prices should not be quoted in the Technical Bid. The Prices should be quoted in the Financial Bid only. On receipt on e-tender portal, the technical proposals will be opened first by the Committee members in the office of U.P. Electronics Corporation Ltd, Lucknow.

UPLC will open all e-Bids, in the presence of bidder's authorized representatives who choose to attend at 5:10 PM on 23 February, 2013 at UP Electronics Corporation Ltd, 10 Ashok Marg, Lucknow-226010. The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of e-Bid opening being declared a holiday for the Purchaser, the e-Bids shall be opened at the appointed time and place on the next working day. The bidder's names and the presence and other details as the Purchaser at its discretion May consider appropriate, will be announced at the opening. The name of such bidders not meeting the qualification requirement shall be notified subsequently.

After evaluation of technical e-Bids, UPLC shall notify those bidders whose e-Bids were considered non-responsive to the Conditions of the Contract and not meeting the Qualification Requirements indicating that they did not technically qualify for selection as Consultant. UPLC will simultaneously notify the bidders, whose technical e-Bids were considered acceptable and they have been short listed for opening of their financial e-bids.



### SECTION III: TERMS OF REFERENCE (TOR) AND SCOPE OF WORK

**Note:** *This report is not to be treated as a system study. Nor the information requirements highlighted in this report should be treated as comprehensive. In fact this report is a broad retrospection of the department's information requirements. Experts to carry out the system study may use this SoW & TOR.*

#### **Background**

The Civil Aviation Department, Govt. of Uttar Pradesh, (CADUP) is responsible for maintenance and operation of State owned fleet of aircraft. Currently, the fleet includes both fixed wing and rotor wing aircraft.

CADUP's main base at Lucknow has both **CAR-145** maintenance organization and **CAMO** approval under **CAR-M** sub-part-G from D.G.C.A., Govt. of India. The organizational structure of the engineering set-up is placed at **Annexure-1**.

#### **Existing System**

Computerization of CADUP started with UPTRON's 1650. Over the years, due to obsolescence of technology, amalgamated with the changing trend of hardware/ software environment, PCs were introduced in phased manner to meet the requirement of a decentralized environment. The key areas where systems were applied included engineering/ aircraft quality control cell, engineering stores, accounts (payroll, bill preparation, etc.) and purchase sections. Software technology available at that time (FoxPro, DOS version) was applied and localized software were developed to cater to engineering preventive monitoring requirements, stores inventory management and accounts section's requirements.

Over the years, computers were installed in administration, operations and various other sections, including Aircraft Maintenance Engineers (**AMEs**)/ officers and connected over LAN to facilitate sharing and transferring of data. There are about thirty desktops and laptops, mostly having dual core or core two-duo architecture. One server (HP make Proline model ML150G-6) is also available in the organization. The existing LAN topology is placed at **Annexure 2, 3 & 4**. However, recently, some modifications have been made.

#### **Our Requirement**

CADUP's intention is to get an integrated system environment developed, where in we want a solution, which can cater to Engineering Management, Maintenance Projection, Planning & Scheduling, Shop & Line Maintenance, Materials and Procurement Management, accounting/ payments monitoring etc. In short, CADUP needs an ERP management software solution.

The software solution must functionally integrate all the tools for managing complex equipment, in this case aircraft and helicopters. The tool shall not only enable us to manage the configuration of each aircraft and help track each aircraft's operational time against planned maintenance tasks, but also facilitate optimal maintenance scheduling with shorter interruptions to flight operations.

In aviation, many documents have to be kept on record and must be available to different





levels of management. These documents include maintenance manual, illustrated parts catalogue, other aircraft technical literatures, service bulletins, alert service bulletins, modification directives issued by DGCA, Govt. of India or airworthiness regulatory authority of the country of manufacturer of the aircraft, the approved maintenance schedules, approved TBO/ COSL, circulars issued by **AM (Accountable Manager)**, **BMM (Base Maintenance Manager)**, **WM (Workshop Manager)**, **QM (Quality Manager)**/ **DQM (Dy. Quality Manager)**, **CAM (Continuing Airworthiness Manager)** etc.

We intend to centralize all the work on server. All users would ideally use a web browser to log in. Levels of access may be restricted by category of the user.

#### **Data security, integrity and backup**

Security of data is of prime importance in aviation as the same would be one of the aspects for maintaining its integrity. At the time of any input, the system should be able to check data integrity. However, the system should be secured in such a manner so that no individual (**including system administrator**) can have direct access to the database. The design should be such that no one is able to change any data/ record set. If need for such change arises, a well-defined method should be laid down wherein, the old record is logged in one place before updating it. In case such direct changes are done, then the user has to have soft permission of at least two higher authorities.

In short, security at all levels of the IT infrastructure would be watertight by using a combination of hardware and software tools. It would encompass all elements of the IT infrastructure like: -

- USER & PASSWORD for each user.
- Encryption of passwords.
- Setting up Database Password.
- Form level Access Control.
- Log details of each user.
- Audit Trail of each Transaction.

Similarly, a well-defined data backup and recovery procedure should be inculcated while designing the system.

#### **Backup and Data Restoration Policy:-**

- **Backup & its Scheduling** - The saving of running and archive files onto Hard Drives or other offline mass storage media for the purpose of preventing loss of data in the event of equipment failure or destruction on periodical basis.
- **Archive** - The saving of old or unused files onto other offline mass storage media for the purpose of releasing on-line storage room.
- **Restore** - The process of bringing off line storage data back from the offline media and putting it on an online storage system such as a file server.





## How we envisage the proposed system

Changes in any system invite criticism and/ or opposition. Our case is no exception. Hence all care should be taken to hide the intricacies and complexities of the system from the end users and provide them with a very user-friendly interface. Our engineers and other staff members are computer literate, and we intend to provide them with an intranet-web based interface.

Our expectation of the system environment has been depicted in **Annexure 5**. This diagram is a macro level representation. In the following section, each module, their users, inputs and outputs have been discussed.

### Users of the proposed system

All levels of management as well as clerical staff will use the system. Broadly stated, the users can be defined as under (please refer to figure placed at **Annexure 5**):

- **User Levels and Their Roles** - all levels of management as well as clerical staff will use the system. Broadly stated, the users can be defined as under:
  - **Administrator:** A system administrator's responsibilities are:
    - Adding, removing or updating user account information, resetting passwords, etc.
    - Analyzing system and data transaction logs.
    - Performing routine audits of systems and software.
    - Performing backups.
    - Responsibility for security.
    - Installing and configuring new hardware and software.
    - Troubleshooting any reported problems.
    - System performance tuning.
    - Ensuring that the network infrastructure is up and running.
  - **First Level User - Director and Accountable Manager:** -
    - This is Top Level of user of the ERP System.
    - Can access the Operational, Administrative, Financial, Management Related and Decision Support Reports.
  - **Second Level User - Finance Controller (FC)**
    - This user can access the Administrative and Financial Related Decision Support Reports.
  - **Third Level User - Operations Manager & Flight Crew (PILOT) Other Users** -
    - Base Maintenance Manager/ Chief Engineer (BMM/ CE)
    - Stores Officer (SO)
    - Quality Manager (QM)
    - Continuing Airworthiness Manager (CAM)
    - Aircraft Maintenance Engineer (AME)
    - Planning Manager (PM)



- Continuing Airworthiness Management Organization (CAMO)
- Purchase Clerk (PC)
- Stores Clerk (SC)
- Accounts Clerk (AC)
- Stores Officer (SO)
- Quality Manager for internal technical audit (DQM)
- Airworthiness Review Officer (ARO)

### Scope of the System

CADUP's information requirement can be categorized as under mentioned modules:

1. Aircraft preventive maintenance or engineering management module.
2. Stores inventory management module.
3. Operations module
4. Purchase management module
5. Accounts module
6. Personnel management/ establishment module.

#### **Aircraft preventive maintenance or engineering management module**

This module shall be exhaustively used for Engineering Management, which will also include monitoring of all licenses / authorizations / approvals etc. granted to **AMEs** and **pilots** either by DGCA, Govt. of India or by the **Quality Manager (QM), CADUP**.

The information or operational requirement will depend upon the category of user. For example, at the very top level (say **AM** or **BMM/ CE**), the information requirement may be as meagre as just availability of different aircraft (please refer to **Report01** placed at **Annexure 6**). However, the **BMM/ CE** may also require detailed and more comprehensive information about all the aircraft for short time planning purpose (please refer to **Report02** place at **Annexure 7**). He may also need to monitor availability of funds under relevant budget head (interaction with **Accounts Module**). As a chief engineer, he may also need details of ordered spare parts (interaction with **Purchase Module**). At the same time, an **AME** would be more interested to know about status of components and maintenance status of all the aircraft under his charge (please refer to **Report03** place at **Annexure 8**). An **AME** would also like to know the availability of the spares required and hence his query will interact with the **Inventory Module**. If such spares are not available, his next course of action will require the services of the **Purchase Module**. In case of **CAMO** cell, the requirement would be aircraft wise status of fitted components, their maintenance activity that are falling due, keeping the data update in terms of aircraft flying hours, number of landing and of course the date of flight. The aim of **Preventive Maintenance**, as applied to aircraft, constitutes of maintenance activities performed at pre-determined intervals to maintain the aircraft, their systems and various components fitted in them, are in airworthy condition. The architecture of **Preventive Maintenance Module** has been broadly indicated in **Annexure 9**. **Aircraft Data, Personnel Data, Work-order & Ground Equipment Management** are the key areas of this module. The following section elaborates each of these areas in depth. However it would be pertinent to mention here the scope of different category of **AMEs**.

Category **A** (Airframe)



- Category **C** (Engine)
- Category **X** (Compass Swing)
- Category **R** (Avionics)
- Category **I** (Instruments)
- Category **E** (Electrical)

An **AME** can hold any combination of **A, C & X** or **E, I, R & X**. Further, aircraft are broadly categorised under two heads; namely having **All Up Weight (AUW)** below 5700 Kg and 5700 Kg and heavier aircraft. For aircraft having **AUW** less than 5700 Kg, there is only need of **AMEs** having license endorsed for a particular aircraft under category **A, C** and/ or **X** and another in the stream of **R** and/ or **X**. The jobs under the category **I & E** can be under-taken by an **AME** having endorsement for category **A**. However, for aircraft having **AUW** 5700 Kg or higher, the organization must have **AMEs** for all the streams.

#### **Aircraft Data Monitoring**

Aircraft data are broadly categorized under two heads; **Static** or say only applicable to the aircraft as a whole (not literally, but data that does not change on daily basis (e.g. aircraft registration, year of manufacturing, type of aircraft, type of engine(s), propeller(s) etc.) & **Dynamic** (like aircraft components/ system, checks done, checks due, etc.).

#### **Static or aircraft specific data**

Under this category, the following aircraft specific data, which are either static or relatively static, are included:

- Aircraft Registration Mark
- Serial Number of Aircraft
- Aircraft make/ Type (Static)
- Aircraft manufacturing year
- Engine Make
- Engine Type/ model
- Engine manufacturing year (right hand)
- Engine manufacturing year (left hand)
- Propeller Type
- Date of grant of initial certificate of registration (**ICOR**)
- Grant of initial certificate of airworthiness (**ICOFA**)
- History of subsequent certificates of airworthiness issued (**COFA**)
- History of subsequent airworthiness review certificates (**ARC**)
- History of all the maintenance activities carried out

#### **Dynamic data**

**Aircraft Component/ System Life** - This section would cover one important aspect of engineering management. All the aircraft are fitted with a number of components and various systems. Each type of part has a unique **part number**, and in majority of the cases, each of these is identified by a **serial number**. For e.g. say a starter generator will have a part number as well as a serial number. But a simple nut/ bolt/ 'O' ring will have part number, but they may not have a serial number.



All components have a service life. One objective of this module would be aircraft wise monitoring the **service life** of each component fitted on any aircraft. After completion of **Service Life**, the component will become due for a job like inspection; overhaul/ repair, etc. or it has to be discarded altogether (**retired**). **Service life** of a component can be defined in the following manner:

- a) **Hours** it has flown fitted on an aircraft. For example, the propeller fitted on an aircraft has a service life of say 2000 hours. This means it can be used on the aircraft for a maximum sum total of 2000 hours. After that, it becomes due for say overhaul. However, it does not mean that the propeller cannot be removed before completion of 2000 hours. There are exceptions also. For example, the manufacturer through a Service Bulletin can change the service life. Another exception can be in the form of extension granted by appropriate authority under special circumstances.
- b) Number of landings (also called **cycles**). One take off followed by a landing is called a cycle. For example, say the landing gear has a service life of say 100 cycles. This means that on completion of 100 landings, it would be due for some maintenance activity. Here also, exceptions are applicable as mentioned in para (a) above.
- c) **Calendar** period. It can in terms of days, months or years.
- d) **On Condition**. No definite service life. Component is changed after its condition deteriorates.
- e) Or any **combination** of (a), (b) & (c) with the condition that whichever event occurs first.

It is pertinent to mention here that if any major component has a service life of say X hours and Y years and thereafter it is due for say overhaul (a time consuming procedure), and it has flown for say x hours and y years (where x, y are less than X, Y respectively), then it can be prematurely removed from the aircraft and another component of the same type having say a full **service life** can be fitted. This is usually done to stagger the **service life** with the intention of not grounding the aircraft after this component has completed its full life. The service life is also called **TBO** or **COSL**.

It may also be noted that premature removal of a component can take place only under two circumstances, i.e. to stagger component service life as discussed above, or in case a component develops a defect (**snag**).

Another aspect related to the **service life** is that although a component can have **TBO/ COSL** for say 2000 hours. But some mid-life inspection is to be carried out at say every 500 hours.

To develop a proper understanding of aircraft component/ system **TBO/ COSL** monitoring, let us consider the situation when a new aircraft is inducted in the fleet. The concerned **AME** will prepare a '**MASTER TBO/ COSL**' and the **Periodic Maintenance Policy** (discussed below) in consultation with technical literature of the aircraft and will submit the same to **DGCA, Govt of India**, through the **BMM, QM/ DQM and CAM**. Once these are approved, a physical master copy is made and retained for future reference or changes. Next, the **AME** will pass on these details (i.e. approved **TBO** and



**Periodic Maintenance Policy**) to the **CAMO Cell** through **CAM**. **CAMO Cell** will then introduce the new aircraft detail in the **Preventive Maintenance Module**. If any change is required over a period, the **AME** will submit the revised **TBO** and **Periodic Maintenance Policy** to **DGCA** through **BMM, QM/ DQM and CAM**. After approval, the original **TBO** and/ or **Periodic Maintenance Policy** will be amended and accordingly these changes will reflect in the **Preventive Maintenance Module**.

Each component fitted on an aircraft is categorised under a harmonized coding system, **ATA code** (Air Transport Association). **ATA code** is basically the chapter number of the **Illustrated Parts Catalogue (IPC)**. These are same for all types of aircraft. For example, aircraft engine or power plant falls under chapter 72 of the **IPC**. Therefore all parts or systems of an engine are to be grouped under the **ATA code** 'Chapter 72'. Although, this code has no role to play in day-to-day activity, but an **AME** may like the status of all parts/ systems under a particular **ATA code**. Another use of this code arises at the time when a complete status of all parts/ systems fitted on a particular aircraft is to be prepared at regular interval of time for submitting the same to **DGCA** or **QM**. A tentative schema of the **TBO/ COSL** is given below:

- Aircraft registration mark
- ATA code
- Part number
- Alternate/ superseded part that can be used      Part nomenclature
- Part serial number
- Date of fitment on aircraft
- Flight hours done
- Flight landings or cycles done
- Component maintenance policy (**TBO/ COSL**) including list of mandatory spares, tools, special tools, ground equipment required, estimated grounding time, etc.

### **Aircraft Maintenance Policy**

Apart from monitoring the **TBO/ COSL** of parts/ systems fitted in an aircraft, a regular periodic inspection is to be carried out. These inspections are generally called **Schedules, Phase or 999 hour(s) or 99 day(s)/ month(s) inspection**. These maintenance policies differ according to the type of aircraft. The common maintenance policies are discussed below:

#### **I. Issue of Certificate of Airworthiness (CofA)**

An aircraft cannot fly without a valid **CofA**. This certificate is granted by **DGCA**, Govt. of India and is valid for **two** years. However the periodicity may vary as per policy decisions taken by **DGCA**, Govt. of India. The **CAMO** cell monitors the due date of **CofA**, and starts giving an indication (at a pre-determined time e.g. 90 days before due date) to the concerned **AME**, all reports being accessed by **AM, BMM, QM and DQM**. Since this activity grounds the aircraft for a long period, the top management may like to pre-pone/ stagger the date and period in view of flight commitments. Next, the **CAMO** cell will register for the **CofA** at web site of the **DGCA** and will intimate to the local Airworthiness office through **CAM**. It



will then generate a **Work-Order**, indicating the scope of work that has to be carried out during this maintenance phase. The **AME** may include other tasks/ jobs during the maintenance phase. However he will intimate the same along with time frame involved to the **AM/ DIR** through the **BMM**. After obtaining the approval for the additional jobs, the **AME** shall communicate the same to **CAM**, under intimation to **QM/ DQM**. After completion of all the works involved, the **AME** shall return the **Work-Order** and **Additional-Work** carried out to the **CAMO** cell through **CAM**. The **CAMO** cell will then update the records in the database and generate all **Documents** required for obtaining **CofA**.

II. Issue of Annual Review of Airworthiness (ARA)/ Airworthiness Review Certificates (ARC)

Although the **CofA** is valid for two years, but annual review of the airworthiness of an aircraft has to be carried out every year. This review is called the **ARA/ ARC**. The scope of work and methodology to be followed are more or less same as that of **CofA**. At this stage, various reports are generated.

III. Issue of Flight Released to Service (FRC)/ Certificate of Release to Service (CRS) with respect to Airframe, Engine and Radio (in case the AUW is less than 5700 Kg) and Airframe, Engine, Instruments, Electrical and Radio (in case the AUW is more than 5700 Kg)

IV. Daily Inspection (DI)

As the name suggests, this inspection is carried out by a qualified **AME** as per an approved checklist. **DI** varies from aircraft to aircraft. Since this inspection is carried out on a daily basis, hence no monitoring is required. However, a **Pilots** or **BAMEL** may be given **authorization** or **approval** to carryout **DI** at outstations. The validity of **authorizations** or **approvals** is to be monitored. This requirement has been explained under the sub-heading **Personnel Data Monitoring**.

V. Pre-Flight (PrFI) and Post-Flight (PoFI) Inspection

Just like **DI**, this (**PrFI**) inspection is to be carried out before *each and every* flight by a qualified **AME** or an **authorized/ approved** person and does not require any monitoring. Only **authorizations** or **approvals** need monitoring. Similarly, some aircraft may need post-flight (**PoFI**) inspection after every landing.

VI. Periodic Maintenance Schedule

Periodic maintenance policy, commonly called **schedules**, varies from aircraft to aircraft and is approved by the DGCA, Govt. of India. These activities are categorised under **Minor Inspections** and **Major Inspections** depending upon the type of inspection and its frequency.

a) **Minor Inspection.**

Generally **Minor Inspection** includes all inspection/ maintenance activity carried out below or up to **100 hours** of flying and/ or **equivalent calendar days** given in the manufacturer's **maintenance manual**. The **CAMO** cell, under guidance of the **CAM**, monitors all such activity and reflects status in their reports. The **CAM** in coordination with the **BMM**, directs the **CAMO** cell to raise a **work-order**. The **BMM** plans such inspection after completion of flying operation of the day and details engineers and required





number of technicians to carry out inspection schedule. Any defect reported by **pilot (PDR)** is also rectified with during maintenance. The certifying staffs carries out inspection after ensuring availability of proper tooling, test equipment, consumables, and reference publication. During maintenance, the components/ rotables due for removal are also removed and sent to shop for bench check/ repair/ testing as the case may be, and are fitted back after receipt from the shops. The source of such information is the **work-order**. Components/ rotables, which are life, expired or time expired or found unserviceable during maintenance or at workshop are replaced with serviceable ones (interaction with **inventory module**). On completion of maintenance, the certifying **AME** completes the documentation (including the **work-order**), declaring the airworthiness of the aircraft as a whole and issues a Certificate of Release to Service (**CRS**). The **AME** returns the **work-order** to the **CAMO** cell, which then becomes input sources. The **CAMO** cell, under guidance of **BMM** and **CAM**, on receipt of the **work-order**, updates the record in the **Preventive Maintenance module**.

#### b) **Major Inspections**

All inspections higher than minor inspections (inspection above 100 hours inspection) are termed as Major Inspection. The procedure followed is similar to the procedure described for minor inspection, however in major inspection, there may be additional work such as Structural Repair, special processes and NDT techniques, servicing of safety equipment, servicing of electrical/ radio equipment / instruments, etc. which requires proper co-ordination with all departments concerned to ensure timely servicing of the components/ maintenance so that the entire aircraft maintenance can be completed within the stipulated time period.

For carrying out major inspection, advance planning action is required to ascertain any component change, engine change, compliance of structural modification, mandatory modification etc so that the entire work scope or shop plan is kept ready and there is no delay in execution of work when the aircraft is docked in the hangar. While preparing for major inspection, it is imperative that proper co-ordination is ensured between the **BMM**, **QM**, **AMEs** and various other key personnel for a smooth and time efficient maintenance.

All maintenance carried out by the **AMEs** is as per sequence given in the inspection schedule and **work-order**. On confirming that the aircraft fully assembled and all maintenance work is completed, the **AME** completes all documentation, including the **work-order**) and issues the Certificate of Release to Service (**CRS**). The **AME** returns the **work-order** to the **CAMO** cell, which then becomes input sources. The **CAMO** cell, under guidance of **BMM** and **CAM**, on receipt of the **work-order**, updates the record in the **Preventive Maintenance module**.



VII. Unscheduled Inspection/ Special Inspection

During operation, the aircraft may encounter external damage like bird-hits, lightning strikes, heavy landings etc. On such occasions unscheduled inspections are carried out in accordance with the **special inspection schedules** prepared as per guideline of the aircraft manufactures and are approved. In this case also, the **BMM, CAM** and **CAMO** cell play the same role as in case of any **Scheduled** or **Periodic** inspection. A call out/ **work-order** for an unscheduled inspection is issued. The call-out is drawn as per aircraft manufacturer's maintenance manual/ instructions. A fresh Certificate of Release to Service (**CRS**) is issued after completion of the inspection.

VIII. Issue of Certificate of Release to Service

No aircraft can fly unless an appropriately qualified person has issued Certificate of Release to Service (**CRS**). Certificate of Release to Service is issued on any of the following instances:

1. After completion of Daily Inspection Schedule. It may be noted here that no **CRS** is issued in case an authorised pilot has carried out Daily Inspection (**DI**) at outstations.
2. After replacement of a component.
3. After any Defect Rectification.
4. After completion of any Minor/ Major Inspection Schedule.
5. After carrying out any **in-situ** (in situation; i.e. without removing the component from the aircraft) maintenance task.
6. At any other occasion as required by DGCA

Following are some additional information about **CRS**:

- Certificate of Release to Service (**CRS**) for airframe, engine and radio system are issued by appropriately licensed **AME, authorised** or **approved** person after carrying out inspections as per approved **inspection schedule**.
- When multiple jobs are carried out on an aircraft, perhaps by different certifying personnel, separate **CRS** is not to be issued. Any one of the certifying personnel may issue the **CRS** and he mentions in the **CRS** the reference of all other work carried out by other persons.
- The Quality Manager (**QM**) as per laid down policy issues the approval/ authorisations (also called Company Approval).
- The scope of approval / authorisation granted to a type rated **AME** may be restricted by the **QM**.

**Monitoring of SBs, SILs, ASB, Mods and CARs/ FAADs/ ADs etc.**

Service bulletins (**SBs**), alert service bulletins (**ASBs**), service instruction letters (**SILs**), modifications and mandatory modifications (**MODs & MAN-MODs**), etc are issued by the manufacturer of the aircraft/ engines. They may be applicable to **CADUP's** aircraft depending upon the serial number or year of manufacture of aircraft or any such other criteria. These are either in hard copy or in electronic form.

Civil aviation requirements (**CARs**) are bible of Indian aviation. They are issued by





DGCA, Govt. of India. Federal aviation authority (**FAA**) and European aviation and safety agency (**EASA**) are aviation authorities of U.S.A. and Europe respectively. Since **CADUP**'s fleets of aircraft are either manufactured by US or European companies, it is imperative that we monitor all the airworthiness directives (**ADs**) issued by them from time to time. It is desired that soft copies of all such technical documents should be accessible through the software.

On receipt of any of the above technical literatures, the **CAMO** puts up the same to **CAM**, who in turn decides its applicability. Next, the **CAM** puts this literature along with his suggestions to **MOD Committee**. The MOD committee is chaired by **CE/ BMM** and has **QM/ DQM, CAM** and concerned **AME** as members. Once the line of action on a particular literature is set, the same is passed on to **CAMO** for ensuring expected compliance.

Here it may be mentioned that once requirement for compliance is generated, the concerned **AME(s)**, when they log on to the software, it is desirable that the same is reflected in his/ their workspace. The dead line for compliance or repeated monitoring/ compliance should be monitored by the **CAMO** and work order(s) (**WO**) should be raised in the name(s) of concerned **AME(s)**. The **WOs** thus raised are to be monitored by different levels of officers, viz. **CE/ BMM, QM, CAM, concerned AMEs & CAMO**. The **WO** will reflect details of spares/ tools/ special tools, etc. The **AME** must be able to view availability of details in store at the click of a mouse. In case of non-availability, he will raise a **requirement** and send the same to suppliers for receiving quotes. On receiving quotes, **AME** will enter the rates etc and generate a **demand** and forwards the same to the purchase section. After official formalities, a purchase/ work order is issued.

#### **Work-Order Management**

**CAMO cell** under the control of **CAM** is responsible for collecting flight information (i.e. hours flown and number of landings) every day. The sources of this information is **Flight Report Book (FRB)**. **FRBs** are kept inside the aircraft, and the pilot records the following information:

- Aircraft registration mark
- Date of flight
- Time of take offs and landings
- Cycles

Next, the **CAMO cell** will record each aircraft's flying hours and number of landing (cycles) and the flight date and update all the effected fields of the database. It is desirable that all such entries that are made by the **CAMO cell** be recorded in log along with name of the user and duly time stamped. This is to reverse the entries if some typographical error that may take place. Next, they will take out a daily aircraft status report. The objective of this report is to find out if any **JOB** (like maintenance activity, **TBO** of any component, compliance of **SB/ SIL** or a **MOD**) is due in the near future. Here it is desirable that **man-days** or **man-hours** be recorded for each job. This will help the **CAMO cell** to plan better. If any **Job** (either in terms of **TBO/ COSL, Schedule, SBs, etc.**), is indicated in the near future (keeping the time required to carry out the activities), the **CAMO cell** will generate a **pre-alert** well in advance, indicating the time for which the aircraft is likely to be unavailable and send the same to concerned **AME, QM, CAM &**



**BMM.** BMM will intimate the **AM/ Director** and the **Operations Manager** regarding the period of unavailability (**grounding**) of the aircraft and obtain a formal approval to carry out the maintenance work. This procedure is followed so as to facilitate the management to take decision as to whether the job is to be pre-poned so that not more than one major aircraft is **grounded** at a time.

After receiving **BMM's** permission, the **CAMO cell** prepares a **Work-Order**, which will give details of jobs to be carried out, (a pre-printed check-list indicating what all activities are to be carried out), list of **mandatory spare parts, including lubricants**, that are to be replaced/ changed and list of **Special tools** required, if any. This **work-order** is then given to the concerned **AME** through the **CAM, QM** under intimation to the **BMM**. At the same time a list of all essential spares, consumables, and special tools is to be forwarded to the engineering stores. Accordingly, the store will prepare a crib and issue all the spares and tools. It is desired that once an **AME** logs in to his workspace, the detail(s) of **WO(s)** issued to him should be available. By the same context, when any **WO** is complied, the **AME** should be able to enter the details of jobs done using his allotted log in ID. The **CAMO** will accordingly generate all certificates of compliance; log book entries etc. and intimate **CAM** to close the relevant **WO**.

The present method is similar but manual. On receipt of the **work-order**, the **AME** gets the required spare parts, special tools, etc. issued from the stores (**interaction with Inventory Module**) and proceeds to carry out the jobs as per the **work-order**. On completion of the jobs, the **AME** will intimate the **CAMO cell** for updating relevant records/ fields. This would generally involve updating the **TBO** and **Maintenance Policy (schedule)** records. It is desired that all such entries that are made by the **CAMO cell** be recorded in log along with name of the user and duly time stamped. This is to reverse the entries if some typographical error that may take place. A well-designed procedure should be formulated to reverse the error. At the same time, there should be an alert system, which would intimate the **BMM, QM & CAM** about the detail of the reversal entries.

In case the **AME** does not respond within a reasonable time, the **CAM/ CAMO** cell should get an alert.

#### **Personnel Data Management**

The **CAMO cell** maintains and monitors certain information like:

- Micro-biological test of fuel sample of each aircraft
- Base approval/ organization's approval
- **AME's** details like, aircraft allotted, license validity, scope of license, training/ refreshers course due date, expiry date of various authorization, approvals, work scopes etc. granted by **DGCA/ QM**
- Different refresher's course falling due
- Expiry of pilot's approval granted by **DGCA/ QM** to carry out **DI** and **Pre-Flight Inspection**

#### **Ground Support Equipment (GSE) Management (including precision tools)**

Ground equipment that is used for maintenance purpose/ safety purpose may require some maintenance activity from time to time. Maintenance activity can be in terms of calibration, overhaul, pressure test, etc. The ground equipment has been categorised as under and they are under the charge of **AMEs**. **CAMO** generates an alert and sends the



same to concerned person for compliance. After compliance, the **CAMO** is informed who in turn update their records. It is desirous that person given responsibility of a group of **GSE** should be able to get a notification after logging to the software. Similarly, he should be able to update records **GSE** allotted to him.

#### **Information requirement from different module(s)**

##### **User First Category: Accountable Manager/ Director (AM)**

This is top-most level of user category. Generally, this level of user would be only interested in macro-level information for operational planning. An indicative output format is placed at **Annexure 6**. This level of user is interested only two things:

- 1) How many flying hours is available in different aircraft and
- 2) if any aircraft is to be grounded in near future. Access to personal data related to accounts and establishment section.

##### **User Second Category: Finance Controller (FC)**

This class of user is head of finance. Hence he would be more interested in the accounts module. Being chairman-member of the **Purchase Committee**, he might have to access records relevant to inventory & purchase as well. He should be able access the progress details of various bills pending with accounts section, position of budget heads, budget planning, monthly progress reports, adjustment status of advances made to parties, etc. Access to personal data related to accounts and establishment section.

##### **User Third Category: Operations Manager (OM) and pilots**

**OM** in fuel planning, co-ordinates of helipads, weather information, NOTAMS, aircraft endurance, availability of aircraft, load capacities/ passenger carrying capacities/ runway requirement for all the aircraft. Pilot's personal details like validity of license, medical due date, specific authorizations expiry date, their scope of license, etc. are required to be monitored. Crew planning for committed flights. Like **CAMO**, **OM** has to monitor technical literatures/ bulletins. Access to personal data related to accounts and establishment section.

A pilot/ crew can assume charge of flight duties for specified number of hours. This is called Flight Duty Time Limitation (**FDTL**). Therefore all pilots may need to know their **FDTL** status. Next the need is weather information, runway/ helipad information, availability of fuel etc. Pilots are also required to monitor their currencies in different aircraft, expiry of licenses, dates for medical examination, etc. Access to personal data related to accounts and establishment section.

##### **User Other Categories: Base Maintenance Manager/ Chief Engineer (BMM/ CE)**

This level of user requires maximum information, as they are key persons to take decision, plan and monitor activity of majority of the users. For example, they would be interested in macro as well as micro-level information. Aircraft-wise components due for major jobs between specified time periods are of prime importance. They would also be interested in the compliance status of various **SBs, SIL, MOD**, etc. This category of user may also need comprehensive aircraft status (refer **Annexure 8**) or even would like have information on availability of major components/ systems (interaction with **Inventory Module**) so that they are able to plan for budget or instruct the concerned **AME** to send



the spare unit for repair/ overhaul/ defect investigation etc. Other information requirements for this category of user have been discussed earlier section. Access to personal data related to accounts and establishment section.

#### **Quality Manager (QM)**

In our case the Quality Manager (QM), is same for both **CAR-M** as well as **CAR 145** approvals. Since he is directly responsible to the **DGCA**, his interest would be 'QUALITY' oriented. He will need information like what all components or maintenance jobs are due; and whether they have been complied by the concerned **AME**. His interest would also include on the status of **work orders** issued by **CAMO cell**, action taken by **CAM**, status of the **Ground Equipment**, compliance of deficiencies indicated by internal audit or quality assurance team. Access to personal data related to accounts and establishment section.

#### **Planning Manager (PM)**

The Planning Manager (PM) directly reports to **BMM**. His information requirements involve all the modules. He should be in a position to access all reports. Access to personal data related to accounts and establishment section.

#### **Continuing Airworthiness Manager (CAM)**

The **CAM** is directly controlling the activities of **CAMO cell**, and in turn is answerable to **BMM** and **QM**. The information requirement would be limited to monitoring the **CAMO cell**. Therefore he would need access to all reports/ status of **work-orders**, **MODs/ ADs/ SBs/ SILs**, etc. Access to personal data related to accounts and establishment section.

#### **Continuing Airworthiness Management Organization (CAMO)**

Their job would be limited to gathering daily flight details of all aircraft, feeding them into the system, take out all daily reports (soft copy that can be sent through a mailing system, making hard copies, if and when required), generate **pre-alerts** for all aircraft, **GSE** and pending **WO**, issue of **work-orders**, provide information to **CAM** with respect to status of **ground equipment**, **Personnel data**, **work-orders** issued from time to time, or compliance of any orders given by **BMM**, **QM** or **CAM**. Will also initiate all activities that have been discussed above. (Like, **SBs/ MODs/ ADs**, etc.).

#### **Dy Quality Manager for internal technical audit (DQM)**

Normally, this level of user will be associated with 'quality audits'; hence, the information requirement would be more or less similar to that of **QM** as well as an **AME**. Access to personal data related to accounts and establishment section.

#### **Aircraft Maintenance Engineer (AME)**

Every **AME** is allotted one or more aircraft. The **CAM**, through **CAMO**, will issue work orders (**WO**) from time to time as per the maintenance policy of aircraft. Therefore the **AME** would like to have access to all data of his aircraft, should be able to update the records as per **WO**. He would also need to abreast with all technical literature relevant to his aircraft. Access to personal data related to accounts and establishment section.

#### **Purchase Clerk (PC)**

Please refer to 'Purchase Module'.



### **Stores Clerk (SC)**

Please refer to 'Accounts Module'

### **Accounts Clerk (AC)**

Please refer to 'Accounts Module'

### **Stores Officer (SO)**

Monitor stores activity. Plan out between spare parts on order and in demand. Monitor exports to ensure delivery to consignee, issue packing list, export invoice etc. Access to personal data related to accounts and establishment section.

### **Guest users (GUEST)**

Limited access

**System Administrator (ADMIN):** Backup/ restore data, create users, and other administrative job. However, it may be pointed out that the **ADMIN** should be authorized for data sensitive activity after receiving a soft permission from the **BMM**.

### **Inventory Control Module**

Unlike **Preventive Maintenance**, this module is fairly similar to any other type of inventory control. The difference lies in the physical storage, regulations governing storage policy and certain government requirements.

#### **Introduction**

Although CAD is a non-profit making government department, but the basic definitions and philosophies remains the same. Typically stated, inventory control is the process of deciding what and how much of various items are to be kept in stock and determine the time and quantity of various items to be procured. The objective of this module is to ensure quick location, stock position, reduce financial burden, weed out obsolete items, maintain proper records to help internal audits and of course, efficiently respond to DGCA inspections. Please refer to the pictorial depiction placed at **Annexure 10**. To start, it is imperative to know the structure/ types of store, mandatory records that are to maintained, various points of interaction and responsibility/ consumption centres.

#### **Types of Store and their points of interaction**

If all the stores are considered to be a single entity, then most significant are four points of interaction; the **consumption/ responsibility centre, receiving centre, issue centre** and **query centre**.

Whenever a consumption centre (for example a particular aircraft) requires an item it raises a request to the main store and gets it issued. If the item is not present then its substitute is issued. If neither the requested item nor its substitute item is available then enquires are raised to the purchase department for purchase of the same.

The purchase department processes this enquires and then a request for tender is to be made from the suppliers who supply the items. The tender is received are scrutinised and orders for supplies are placed with the suitable vendors.

The status of the purchase orders plays an important role in follows up of the orders.



Maintaining the proper status of the orders (in the quantity order, receipt, rejected, credits paid, payments status, currency of payment, conversion rate etc.) are vital.

The Item received by the receipt store from the vendor are sent to the main store after scrutiny. Aviation items received without realise note number are sent to the quarantine store till the time the vendor sends realise note number. The maintainers of the stock ledger and keeping track of the movement of the preventive maintenance items, issues and returns are managed by the main store.

Items are issued by the main store based on the request raised by the various consumption centres. When the required item is not present in the main store its present in the other consumption centres is also traced purchase enquiries are raised if the item required is not present.

Sometimes borrowing from some other can satisfy the temporary need for a particular item. This prevents further investments being made for a temporary need. The load agency coordinates this type of load activity.

Items loose out their utility value after some period of use. Some of them can be put back into service by overall treatment. The item thus treated is sent to the main store for further circulation. If any item is beyond economical repair (**BER**), it is sent to the scrap store.

### **Objectives of the inventory module**

**Purchase Enquires:** Enquires for purchasing materials are received from the responsibility consumption centres. Next request for quotation (**RFQ**) is made from the suppliers. Locating the supplier who supplies the item is a difficult - the number of stock items is of the order of 50,000 and the number of suppliers around 2,500. Such queries are to be facilitated very easily in this module. These enquires would be made by **AMEs, FC, BMM, members of purchase committee, SO, PC and SC.**

It is to be appreciated that checks for the material availability at the time of purchase at the main store or loan or overhaul agency is a difficult task to be performed manually. These checks can be imposed easily in this module and would be a key factor in controlling the inventory.

**Order placing and follow-up:** Status of the purchase order play an important role in follow-up of the order. Maintaining the proper status of the orders (the quantity ordered, received, rejected, credits paid, payment status, currency of payments, conversion rate etc.) are vital but equally difficult to be maintained manually.

**Stocks maintenance:** the maintenance of the stock ledger and keeping track of the movement of the various stock items, issues and returns are managed. However, it may be noted here that maintenance of physical (manual) stock register is a mandatory requirement as per government norms.

### **Points be considered while designing**

- **Monitor the location of the aviation items:** The preventive maintenance system would be used for monitoring the maintenance activities on the aviation items. It would keep track of all parameters that affect the serviceability of the components/ aircraft. Monitoring the movement of the item from one place to another is a critical requirement. The inventory control system should keep track





of the movement of the various items. For example preventive maintenance should not be done on an item given on loan or sent to an overhaul agency or scrapped or kept in quarantine store. The module should be well integrated with the Preventive maintenance module to take care of these oddities.

- **Selective issues:** The aviation items that come within the purview of preventive maintenance should be issued in consonance with the preventive maintenance module. The rest of the aviation items are issued by means of selection from the list of items containing the quantity and the release note number. Such a type of issue provides more flexibility in the issue and also helps to maintain the status of the individual item.
- **Overhaul monitoring:** Monitoring the items sent for overhaul and receive after overhaul are to be maintained by the system.
- **Scrap monitoring:** The items scrapped from the main store and rotables stores are condemned and subsequently auctioned. The cost recovery and the disposal status are also to be maintained.
- **Loan maintenance:** The items can be issued/ received on loan other agencies. Such items are to be monitored with respect to their return. It is not necessary that the same item issued would be returned. The equivalent item can also substitute the item. Manually maintained the balance of the item to be issued or returned is a complicated task. The inventory can be minimized here to a great extent by managing the loans properly.

#### **Types of Stores**

- Bonded Stores
- Quarantine Stores
- Tools Stores
- Commercial Stores

#### **Bonded Stores**

Bonded Store means where materials bearing evidence of having been received from approved sources are stocked. No aircraft goods are held in the bonded stores for distribution unless it is covered under a valid document certifying its airworthiness. The acceptable documents that are as proof of airworthiness are defined further in the following section.

Standard procedure for storing different consignment of the same article received under separate release documents shall be evolved so as to make it possible to identify them later with the related released documents.

Inflammable materials like dopes, thinners, paints, etc., are stored in a separate room away from the Bonded Stores meant for stocking aircraft goods.

While purchasing rubber parts, the supplier must provide the **cure date** and the Release note/ equivalent document.



### **Quarantine Stores**

It is a store usually where airworthy and serviceable components / materials awaiting evidence of having been received from approved sources are stocked. Such goods having incomplete information and data may be quarantined for any of the following reasons:

- For want of Release Note, Affidavits or Certification.
- Pending verification of specification compliance.
- Supplies received are found deteriorated and / or found damaged on inspection.
- When identity/ propriety of manufacturer is not established.
- Supplies received from unapproved sources.
- Discrepancy of correct part number, nomenclature, modification, etc.

When any discrepancy as noted above is observed, a discrepancy report is raised in respect of all such materials or parts received and these will be retained in the Quarantine Stores (suitably tagged) until such time as they are certified as conforming to specifications. On such certification, the material/ part shall be transferred to the 'Bonded Stores' and the discrepancy report cancelled. The 'Quarantine Stores' is kept separated from the 'Bonded Stores' and no material or part from the Quarantine Store is released to the 'Bonded Store' until certified by the 'Stores Inspector' or any other person approved by the Quality Manager/ Deputy Quality Manager for this purpose.

### **Tools Stores**

The Tools Stores will contain all aircraft tools and equipment. A record of all the tools/ equipment must be maintained, including test equipment, their calibration validity dates, etc. They should be sent for re-calibration before the expiry date.

### **Commercial Stores**

These storehouses all commercial items required for organization use, ground support and general maintenance purpose. No item from the Commercial Stores can be moved to the Bonded Store under any circumstances.

### **Valid documents for acceptance of aircraft parts, goods, materials, equipment and components etc.**

The **CARs** define the documents, which prove the airworthiness of the aircraft, aircraft parts, goods, materials and components etc. (collectively called Aeronautical Products). The DGCA defines the acceptable airworthiness documents for the aeronautical products imported from various countries. This AAC further details the classification of aeronautical products imported from USA. Accordingly:

CLASS I product is a complete type certificated aircraft, aircraft engine or aircraft propeller,

CLASS II product is a major component of a Class I product (e.g. wings, fuselages, empennage assemblies, landing gears, power transmissions, control surfaces etc.) the failure of which would jeopardies the safety of a Class I product.





CLASS III product is any part or component which is not a Class I or Class II product.

**Acceptable airworthiness documents for aeronautical new purchased products**

All aeronautical products when purchased new must have the documents as mentioned in the table to prove their airworthiness. **(This section is pertinent for purchase module; for one has to specify what kind of airworthiness document would be required at the time of placing the order)**

Type of product → Country of mfr. ↓	Class I	Class II	Class III
<b>India</b>	Certificate of manufacture as per CAR-21	Release Note	Release Note
EASA / USA	1) Export CofA (FAA form 8130-4 or EASA equivalent) 2) Certificate of manufacture as per Part 2	Airworthiness Approval Tag (FAA 8130-3 or EASA Form 1)	Airworthiness Approval Tag (FAA 8130-3 or EASA Form 1) OR A document issued by the manufacturer certifying that the part is manufactured under either of: - a) Production certificate as per Part 21 Sub-part G b) Part Manufacturer Approval as per Part 21 c) TSO authorisation Sub-part K
Canada, Australia, New Zealand and Singapore	Export CofA and Certificate of Manufacture as per the Civil Aviation Authority of that country	Airworthiness Approval Tag as per the Civil Aviation Authority of that country	Airworthiness Approval Tag as per the Civil Aviation Authority of that country
Any other country	Consult DGCA, India prior to import	Consult DGCA, India prior to import	Consult DGCA, India prior to import

**Acceptable Airworthiness Documents For Purchase Of The Overhauled/ Reconditioned/ Repaired/ Used Aeronautical products**



### **Class I products**

- All such products, which are imported, shall have Export CofA.
- All such products shall have DGCA Release Note or Authorised Release Certificate (DGCA/EASA Form 1 or FAA 8130-3 or equivalent document)
- Statement of Service Bulletins and ADs complied with.

### **Class II and III products**

- All Class II and III products shall have DGCA Release Note or Authorised Release Certificate (DGCA/EASA Form 1 or FAA 8130-3 or equivalent document)
- If the product has an approved TBO or inspection program, the Time and Cycles since new and last inspection/overhaul and statement of Service Bulletins and ADs complied with.

### **Acceptable airworthiness documents for the aeronautical products being received back after maintenance/ servicing.**

At times, **CADUP** sends the aeronautical products to other agencies for maintenance work as mentioned earlier. When such items are received back, it must accompany with the documents as detailed below:-

- Authorised Release Certificate (DGCA/EASA Form 1 or FAA 8130-3 or equivalent document) clearly mentioning the work performed on the product.
- If the product has an approved TBO or inspection program, the Time and Cycles since new and last inspection/ overhaul and statement of Service Bulletins and ADs complied with.

### **Acceptance Of Commercial Parts**

Many commercial items may be required to be used while maintenance of an aircraft. These items may not have approval of any Aviation Authority. Such items are generally:

- Consumable like lubricants, cements, compounds, paints, sealants and cleaners etc.
- Raw materials like metals, plastics, wood, fabric etc. and
- Few hardware items like general split pins, locking wires and general fasteners etc.
- Items of on-board entertainment and refreshment systems.

All these parts will only be accepted with a statement of conformity given on the invoice or packing sheet of these items, which is an acceptable practice in aviation. All such items must be stored in the Commercial Store area.

### **Issue of Parts/ Components/ Materials**

The standard and laid down procedure issue of items from the stores are:

### **Issue of Aircraft Goods From Bonded Stores**

The items stored in the Bonded Stores shall be issued for utilization on aircraft against the requisition slip raised by the **AME**. The store shall make available the Release Note



reference or other certification information for the item being issued to the **AME**. Where the item has its **TBO/ Service records/ AD** compliance record, the same shall also be made available with the item to the **AME**.

Items like rubber goods should be issued on **FIRST IN-FIRST OUT** basis, as far as practicable. The cure date shall also be taken into consideration for deciding its issuance.

#### **Assignment and release of items to and from quarantine stores**

Whenever an item is assigned to quarantine stores a quarantine tag for the same shall be issued clearly stating the reason of quarantine. The stores shall take quarantine action on parts which are shelf life expired.

When satisfactory clarification/ proper documents are received for the quarantined item, the same shall be re-inspected for damage/ general condition and if found okay, an accepted / serviceable tag shall be issued and item be shifted to the bonded stores.

In case if any part is returned as un-airworthy, a Rejection Note is raised for the disposal of such material unless such material is dispatched to the original supplier under the terms of warranty, etc.

Materials kept in the quarantine store is not issued for use on aircraft or transferred to bonded stores unless has been routed for re-inspection and duly certified by the concerned **AME** and with written acceptance of the Quality Manager.

#### **Storage procedures and conditions**

The tyres, rubber hoses/ seals should be released for maintenance work on **first IN first OUT** basis.

#### **Rubber Hoses**

The Hoses have been classified into two groups:

##### **GROUP 'A'**

Fuel, Oil, Pneumatic and Hydraulic pressure hoses.

##### **GROUP 'B'**

All other hoses like hydraulic return line and instrument hoses etc.

The **storage and service life** of aircraft / engine hoses and the hoses mentioned above shall be as per the manufacturer's recommendation. Whenever such information is not available, the procedure and the life stipulated in Civil Aviation Requirements and any other instruction issued by DGCA is followed.

#### **Rubber parts/ seals/ packing/ o-rings**

Except where otherwise stated by manufacturers, the storage/ shelf life of rubber parts of hydraulic and pneumatic components is limited to 6 years from the cure date.

#### **Storage of paints and similar materials**

If date of manufacture does not appear on the containers, date of release note shall be marked and to be used for storage / issue purpose. Oldest material is to be used first. The materials are stored off the floor in the well-ventilated dry area. Paint containers are



inverted after every 6 months.

### **Shelf Life of Components**

An approved copy of **COSL** document is available in stores for the guidance of stores personnel to ensure that the shelf life and other maintenance on components are taken care as per the stipulated and accepted program.

Shelf life is the maximum period for which the component/ product or items of equipment of the aircraft can remain in storage. On expiry of the shelf life the components shall be bench checked, inspected or overhauled as given in the **COSL** document to restore its serviceability. In some cases the shelf life expiry may lead to scrapping also.

Shelf life of rubber and synthetic parts is calculated from reference of cure date, which is marked generally on the parts and/or on their associated packages. The shelf life of any part is calculated from the end of the quarter in which the part was manufactured.

Storage life of instruments shall be as given in the **COSL** document. However in the absence of any specific guidance from the manufacturer/ overhaul agency, the shelf life of instruments (other than gyro instruments) normally does not exceed 2 years. Instruments, which require periodic lubrication must be removed from storage and lubricated by certifying staff/ authorisation holders at periods as, recommended (such information will also to be documented in the approved **COSL** document).

### **Redundant, obsolete and scrapped items**

Some items after servicing may be discarded or due to modification the items held in stores may be of pre-modification status and can become redundant. Such items that may not be needed further in maintenance may become obsolete or redundant. These items are not used in maintenance work. Certifying Staff labels all such items and returns them to stores for taking necessary-scrapping action. Some items in maintenance may be rejected due to the expiry of ultimate life or due to its “beyond economic repair” conditions. All such items that have no use in maintenance are to be removed away and properly labelled, identified and returned to store for proper scrapping action.

The items are scrapped in stores with a “scrap label” signed by authorized persons and identified with red paint to preclude any possibility of getting mixed with other serviceable component. The department as per rules of the government periodically auctions such scrapped items.

### **Duties and responsibilities of storekeeper and store personnel**

Stores Keeper is in-charge of all the stores i.e. Bonded Stores, Quarantine Stores, Tool Stores and Commercial Stores. He is familiar with the requirements for normal functioning of an Approved Stores. He inspects all incoming goods and verifies that they are accompanied by valid release-notes/ approved documents for airworthiness from the Authority of the originating country.

He inspects the goods for transit or transportation damage and route the goods to either Bonded Stores or Quarantine Stores, as applicable. He prepares rejection notes for items which have been rejected after inspection. He ensures that the stores components are maintained in a clean and airworthy condition as per stores procedures. In addition, his responsibilities include:



- Quarantine inspection of all parts awaiting disposal
- Inspection of the outgoing items as per the stores transfer procedure
- Periodic inspection of all parts to determine the serviceability with COSL/ relevant documents as per stores procedure.
- Ensure all tools and equipment held in stores are in serviceable condition and also to ensure periodic checks/ calibration are adhered to as per the laid down procedures.
- Ensure all consumable items in the bonded stores are within their stipulated shelf life.
- All component/ equipment stored in the stores are preserved as per preservation procedures laid down in the concerned component manuals.
- To keep him self abreast with the current inspection requirement/ stores procedures as laid down from time to time by the manufacturers/ DGCA.
- He shall ensure up keep of all stores documents and records thereof.
- He shall report directly to the Quality Manager/ Deputy Quality Manager for his day-to-day functioning in accordance with the requirements of this MOE.

#### **Acceptance of tools and equipment**

The Stores Keeper for the procedures regarding special tools and equipment and Base Maintenance Manager for locally fabricated tools/equipment/test benches

#### **Acceptance of special tools and equipment**

The Stores keeper ensures the following prior to acceptance:

- Ensure that the tool and equipment confirm with the respective purchase/ repair order.
- Incoming inspection to be carried out and also check that the tools and equipment are accompanied with relevant documents/ Manuals and with the calibration certificate of conformance as applicable.
- The serviceable label reflects the calibration done and due dates wherever applicable.

#### **Calibration of tools and equipment**

The CAD, UP ensures that tools and test equipment are controlled and calibrated to standards acceptable to DGCA or as per manufacturer's instructions at a frequency to ensure serviceability and accuracy. These tools and test equipment clearly identified and listed in a control register.

A clear system of labelling of all tools, equipment and test are ensured to provide information on when the next inspection or service or calibration falls due. The listed register also includes all precision tools and equipment together with a record of calibration and standards used.

#### **General requirement from store/ inventory module**

In the above section, an overview of aviation stores with stores responsibilities has been covered. Here is a stepwise day-to-day function vis-à-vis to proposed module of stores.

#### **A Stores/ Inventory module**



Cater to requests have **PREVENT** module User categories: **BMM/ FC/ QM/ PM/ AME/ CAM/ SO** Stock position of non-lived spare parts in bonded stores

Stock position of lived spare parts in bonded stores along with life/ TBO/ TSO history  
Availability of rotatable items along with maintenance and procurement history

- In bonded store
- In quarantine store with reason of rejection In out-ward loan
- In in-ward loan
- Sent for overhaul/ calibration/ check etc
- On order (request to **PURCHASE** module)
- Lying in **CHA's warehouse/** in transit to **CADUP**

Cater to native requests User categories: **BMM/ FC/ PM/ AME/ CAM/ SO/ PC/ SC**

- Stock position along with physical location and reference to stock ledger
- Procurement history of a spare part
- Links to alternate and superseded part number(s)
- Store issues

Out of CADUP issues

National

- Inward loan return Outward loan
- Exchange unit
- Defective unit return
- Special case of permanent issue
- Unit being sent for repair/ calibration/ overhaul/ check etc. International  
Export invoice & packing list preparation Inward loan return
- Outward loan
- Exchange unit
- Defective unit return
- Special case of permanent issue
- Unit being sent for repair/ calibration/ overhaul/ check etc.

Store receipts (request to **PURCHASE** module for items on order list)

- Part number, cost/ amount may vary from purchase order
- Alert **PURCHASE** module for additional financial sanction, if required

National

- Inward loan
- Outward loan return
- Unit received against exchange
- Unit received against defective one (including scrap item) Special case of  
permanent receipt
- Unit being received after repair/ calibration/ overhaul/ check etc.

International

- Inward loan
- Outward loan return
- Unit received against exchange
- Unit received against defective one (including scrap item) Special case of



- permanent receipt
- Unit being received after repair/ calibration/ overhaul/ check etc.

Road permit accounting (request to **PURCHASE** and **ACCOUNTS** module)

Accounting and forwarding of invoices to **ACCOUNTS** through **PURCHASE** for payment

### **Purchase management module**

It may be pointed out that although all modules are to be integrated such that they interact with each other smoothly, but preventive module would be the starting point; i.e. unless this module generates spares requirement/ aircraft serviceability status, there would be no interaction with the inventory module or operation module. And by context, purchase and accounts would become redundant with out inputs from the inventory module.

It is for this reason it becomes imperative to understand our existing purchase and accounts sections. Please refer to **Annexure 11**. There are two purchase channels, one related to aviation and other to commercial. Accordingly, there are two purchase committees, headed by chairmen. In both the cases, the Director is the sanctioning authority. However, if the financial / administrative powers are beyond the scope of the **DIR**, the proposal is referred to the Government. At present, the process for monitoring cases referred to government is manual. It is desired that all such cases be monitored on a periodic basis with respect to the purchase committee, urgency of requirement, expiry of offer/ quotation or rate revision by **SUPPLIER/ VENDOR** etc.

### **Local Purchases**

At present, this section is headed by an Office Superintendent (**OS**). Any officer, from time to time, may need certain items, which may not be available in **CADUP**. In such cases, the **Demanding Officer (DO)** raises a **DEMAND** by way of an application addressed to the **DIR** or by filling up a local purchase demand form. The **OS** may choose to obtain in principal administrative approval or directly proceeds with the formality of inviting quotations from **registered firms/** or open market as the case may be. It maybe mentioned here that every year, **CADUP** invites firms for forming a panel of registered suppliers by way of tender. It may also happen that the demand of an officer is beyond the scope of supply of the registered supplier or the demand may be urgent and the requirement is immediate. In such cases, the purchase section may invite quotation from open market.

Whichever the case may be, the **OS** will next prepare a draft for approval of the **purchase committee/ chairman** and **DIR**. Then a purchase or work order is issued. The **OS** monitors the supply against all such orders and sends reminder to supplier/ party reminder letters in case delay. It is desire that the software under consideration caters to this module of local purchase/ tender management as well.

### **Aircraft related purchases**

This is handled by a dedicated group of staff under guidance of a **purchase committee/ DIR**. The main job of this section is to receive proposals from demanding officers, putting up to **purchase committee/ chairman/ DIR**, raising a work/ purchase or subscription order (collectively called **ORDER**), preparing import/ export document, preparation of duty exemption certificates, pursue vendors who have not supplied/ taken





action in accordance with the order, send road permits to party, intimation of expected cargo arrival, road permits, etc.

A demanding officer/ **BMM/ PM/ AMEs** must be able to access the database to be abreast with procurement information. There should be well defined procedure for accounting for road permits, pending supplies, items lying with **CHA**, proof of deliveries in cases of exports, position of margin money account, validity of letter of credits, acknowledgement of receipt of payments by parties. In short, the purchase clerk should be equipped with all possible information when his seniors raise any query. Examples of such queries are as under:

- What all **ORDER** have been placed to a **VENDOR** during current a given period
- How much amount has been paid to a **VENDOR** during current a given period and the break-up in terms of paid, bills under process, bills not received supplies yet to be made etc.
- What is the current budget position after taking into account committed bills
- Committed expenditure as on a cut off date
- How many road permits have been sent but counterfoils not received
- Is a particular item or a group of items is/ are on order
- What all consignments are with **CHA**
- Aircraft wise expenditure
- **AME**-wise expenditure
- **VENDOR**-wise expenditure
- Status of items exported
- Bank statement reconciliation and so on.

In addition, it is desirable that all documents sent to bank for payment, opening of letter of credit, and payments in foreign currencies be generated and monitored by this software. Further, it is envisaged that once the **PURCHASE** generates an **ORDER**, it should be visible to concerned **AME, BMM, FC, PM, SO, SC & AC** in their areas. Once the consignment is received, the **SC** has to just register the part, quantity and rate of the item(s) received vis-à-vis corresponding **ORDER**. If this be the case, then all authorized person/ sections would know of the receipt in store just by logging on to his work area.

In some cases of purchase (both local as well as aircraft related), would be through tenders. An adequate process for handling such tenders is desired.

### **General requirement from PURCHASE module**

In the above section, aviation related and local purchases along with responsibilities have been covered. Here is a stepwise day-to-day function vis-à-vis to proposed module of purchase.

#### **B Purchase sub-system**

1. **AME** makes a query from **PREVENT** about jobs falling due in near future.
2. Next he queries from **STORES** about availability of spares/ consumables/ instruments/ tools/ special tools etc.
3. In case of availability, no action is required





4. In case of non-availability or insufficient stock; **AME** will create an RFQ (Request For Quotation) in the proposed system thus creating an initial **REQUIREMENT**
5. The RFQ is next sent (by email/ fax or by post) to **VENDOR(s)/ AGENCY(s)**
6. **VENDOR:**
  - a) Indian **VENDOR** (either manufacturer, authorised distributor or retailer)
  - b) Foreign **VENDOR** (either manufacturer, authorised distributor or retailer), generally manufacturer
7. **AGENCY:**
  - a) Indian **AGENCY** (either manufacturer, manufacturer's approved MROs or an MRO)
  - b) Foreign **AGENCY** (either manufacturer, manufacturer's approved MROs or an MRO)
8. Airworthiness document requirements: Depends upon the country of the **VENDOR/ AGENCY**.
9. On getting replies against an **RFQ**; the **AME** prepares a proposal, raises a **DEMAND** and sends it to Purchase along with a proposal with brief justification. At present, **CADUP** is using pre-printed pro forma for obtaining
10. A proposal can be for:
  - a) Out-right purchase of either
    - I. New item
    - II. Overhauled item
    - III. Reconditioned item
  - b) Purchase on exchange and on no-charge basis
  - c) Purchase on exchange and chargeable basis
  - d) Purchase against warranty claim and no-charge basis
  - e) Purchase on exchange and chargeable
  - f) Out-right overhaul/ repair of a rotatable
  - g) Subscription of technical/ non-technical literature
  - h) Exception
11. Next, the **PURCHASE** section processes the **DEMAND**:
  - a) Obtain clearance of:
    - i) Members, Purchase Committee
    - ii) Chairman, Purchase Committee
    - iii) Director
  - b) For the purpose of:
    - i) Administrative/ financial approval
    - ii) Advance payment, if any
    - iii) If any items is to be returned/ exported either temporarily, exchange basis or permanently
  - c) Next the purchase generates either a PO, or WO or SUBSCRIPTION renewal order as the case may be
  - d) Dispatch the order to **VENDOR/ AGENCY**
  - e) The purchase order copy should be visible to **BMM, PM, concerned AME, STORE and ACCOUNTS** when they log into their work area
12. If advance payment is involved, **PURCHASE** advices **ACCOUNTS**



13. If **VENDOR/ AGENCY** is Indian, the **ACCOUNTS** sends the advance directly and advises the **PURCHASE, AME & PM**
14. If **VENDOR/ AGENCY** is from a foreign country, then **ACCOUNTS** hands over the advance to **PURCHASE**. **PURCHASE** then completes the **IBD (International Banking Division)** formalities and informs the concerned **AME** and **Planning Manager**. If payment is against **Letter of Credit (LC)**, the **AME** is apprised about the last date. The proposed system should be able to remind the **PURCHASE** about the validity of all current and open **LCs**.
15. If the **VENDOR/ AGENCY** is Indian, or our **CHA**
  - a) They may ask for **Road Permit (form 38)** (if their location is not in **Uttar Pradesh**). If form 38 is not required, then skip to step 17
    - I. After receiving the request for form 38, **PURCHASE** will, in writing, request the **ACCOUNTS** to issue the same.
    - II. On receiving dispatch information of form 38, **PURCHASE** will inform the **Planning Manager** and **STORES**.
16. If the **VENDOR/ AGENCY** is located in a foreign country,
  - a) Our **Custom House Agent (CHA)** will send us a pre-alert of import shipment, which contains the following information:
    - i) Our **PO/ WO** reference number(s)
    - ii) Flight details
    - iii) Copies of invoice(s)
    - iv) Copy of airway bill (**MAWB & HAWB**)
    - v) If eligible for duty exemption, issue **DEC u/s 39/96 10 (i)** or **10 (ii)**
17. Receive goods in store

### **Account Module**

The accounts module may include all kinds of statements like individual pay-slip, **GPS** record, status of income tax, bills pending for re-imbursment, etc. However, the **FC** should be in a position to block out all or any individual's account as regards.

As far as a payment to different parties (**VENDORS/ AGENCIES**) are concerned, it is desirable that the concerned **AME, BMM, SO, PC & AC** should have access to this module. They should be able to track as to when a particular invoice/ bill or request for advance payment was received and the role played/ action taken by concerned sections of **CADUP**. Similarly, all road permits should be accountable right from issue till receiving in the stores.

For all engineering requirements, the budget head "42 - Other expenditure" is used. Therefore the **FC, BMM**, concerned **AME** and **PM** would like to have an on-hand status of this head. The report should be categorized after taking into account all bills pending with stores/ purchase, goods received but bills are yet to be received, all committed expenditure (bills sent to treasury and bills under process). It is desirable that all payments that are dispatched through bank instruments should be available with postal details.



### **Personnel/ establishment module**

It is desired that all information of individual employees be available in this module. They can be in terms of casual, earned or restricted leave availed. However, there should be blocking facility for all or any single employee.

### **Operations module**

Apart from the information requirement of the **OM** and **crew** from the **PREVENT** module, this section of the **CADUP** has to deal with various activities like monitoring validity of permissions issued by the **DGCA**, **QM** and other regulatory authorities. Flight manuals, flight related manuals are to be subscribed. There should be well-defined procedure for all such mandatory requirements. Apart from, two of the most important requirements are monitoring of availability of fuel at different helipads along with their expiry dates, and coordinates of all helipads in the state as well as adjoining states. The **crew** would be interested about the weather forecast and all flight restriction issued by different agencies (call Notice To Airmen or NOTAM).

Summarizing all the modules collectively, it should be apparent to everybody involved in the system as to what action is expected from him/ her. There should be well-defined checklist for each situation. For example, order placing by **PURCHASE** and consignment receipt by **STORES** would involve the following actions:

- **Order placing**
- **Tasks (Purchase)**
- Prepare End user certificate if required
- Carry out insurance related formalities, if required
- Dispatch of PO/ WO
- Inform **VENDOR/ AGENCY**
- Inform concerned **AME**
- Inform **STORES**
- Inform **ACCOUNTS**
- **If advance payment required**
  - Obtain sanctions/ approvals
  - Inform **ACCOUNTS** for preparing a treasury cheque in case of Lucknow or foreign party, bank draft for Indian companies outside Lucknow. Excepting for foreign parties, the payments are handed over by **ACCOUNTS**.
  - If foreign payments involved, the **ACCOUNTS** gets the treasury cheque and hands over the same to **PURCHASE**.
  - The **PURCHASE** next completes all formalities related to foreign payments and informs the concerned **AME** and **PM** regarding transfer details for
  - Informing the **VENDOR/ AGENCY**
- **If Exchange/ unit(s)/ is/ are to sent back**
  - If permanent issue: advise **STORE** accordingly
  - If export involved
    - ✓ Get evaluation and other details from **AME**
    - ✓ Prepare export documents
    - ✓ Prepare export invoice & voucher (**STORE**)
    - ✓ Contact **CHA**



- ✓ Consignment hand-over record (**STORE**)
- If DGR is applicable (dangerous goods)
  - ✓ Advise store
  - ✓ **STORE** to confirm from **AME**
  - ✓ Packing, labelling, marking, emergency response, etc (**STORES**)
- Check packing in consultation with **AME/ PM**
- Tagging/ technical log book/ papers (**STORES/ AME**)
- Documentation (**STORES**)
- Dispatch (**STORES**)
- Confirm receipt (**STORES**) Proof of delivery
- **Consignment receiving**

### **Party asks for 38**

**PURCHASE** initiates note sheet to **ACCOUNTS** through DDO for issuing dispatching of road permit to party.

**ACCOUNTS** informs Concerned **AME**, **PURCHASE** & **STORE** **AME** inform **VENDOR**

Consignment pre-alert received: **PURCHASE** informs (vendor, PO/WO #, no. pkt etc.)  
Receiving c'smnt: **STORES** obtain security clearance CSO

### **STORES activities:**

- Check vendor Gate no. 1
- Check PO/ WO nos.
- Check number of packets
- Check condition of consignment
- If 38 issued, collect counter foil from deliveryman
- In case any damage found, inform and record the same on copy of challan.
- Inform Store Officer for insurance claim. Damaged item to be quarantined. **AME** + Store Store Officer to be informed
- Give receipt for the packets and 38 to deliveryman
- **Returning 38 STORES** initiate note sheet along with 38 DDO

### **Verification** Get the items verified on invoice **AME**

- Checkout items received against order
- Make store entries

**Forwarding invoices** Hand-over invoices to accounts through note sheet under intimation to purchase/ Accounts

**If additional sanction required** - Initiate note for additional sanction through **AME** and hand-over invoices to accounts

**Preparation of bill** - Bill entry/ budget updates **Treasury**



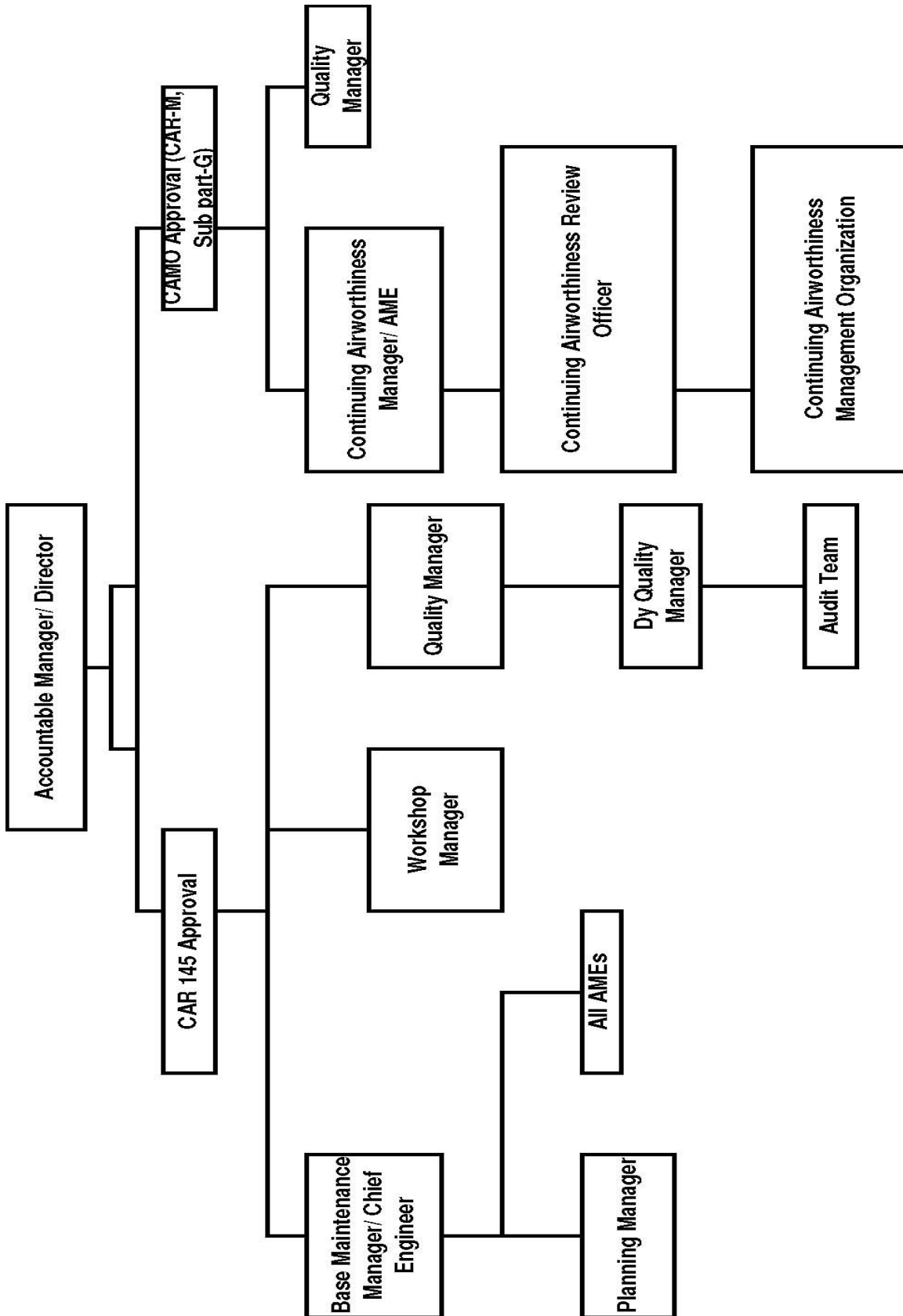
**Collection of cheque** inform purchase with detail

**If bank draft required** get the same prepared and dispatch DDO

**If IBD payment ACCOUNTS** hand-over cheque to purchase Bank transfer: **PURCHASE** initiates action through DDO Intimate **AME/ VENDOR/ AGENCY** regarding transfer of payment.

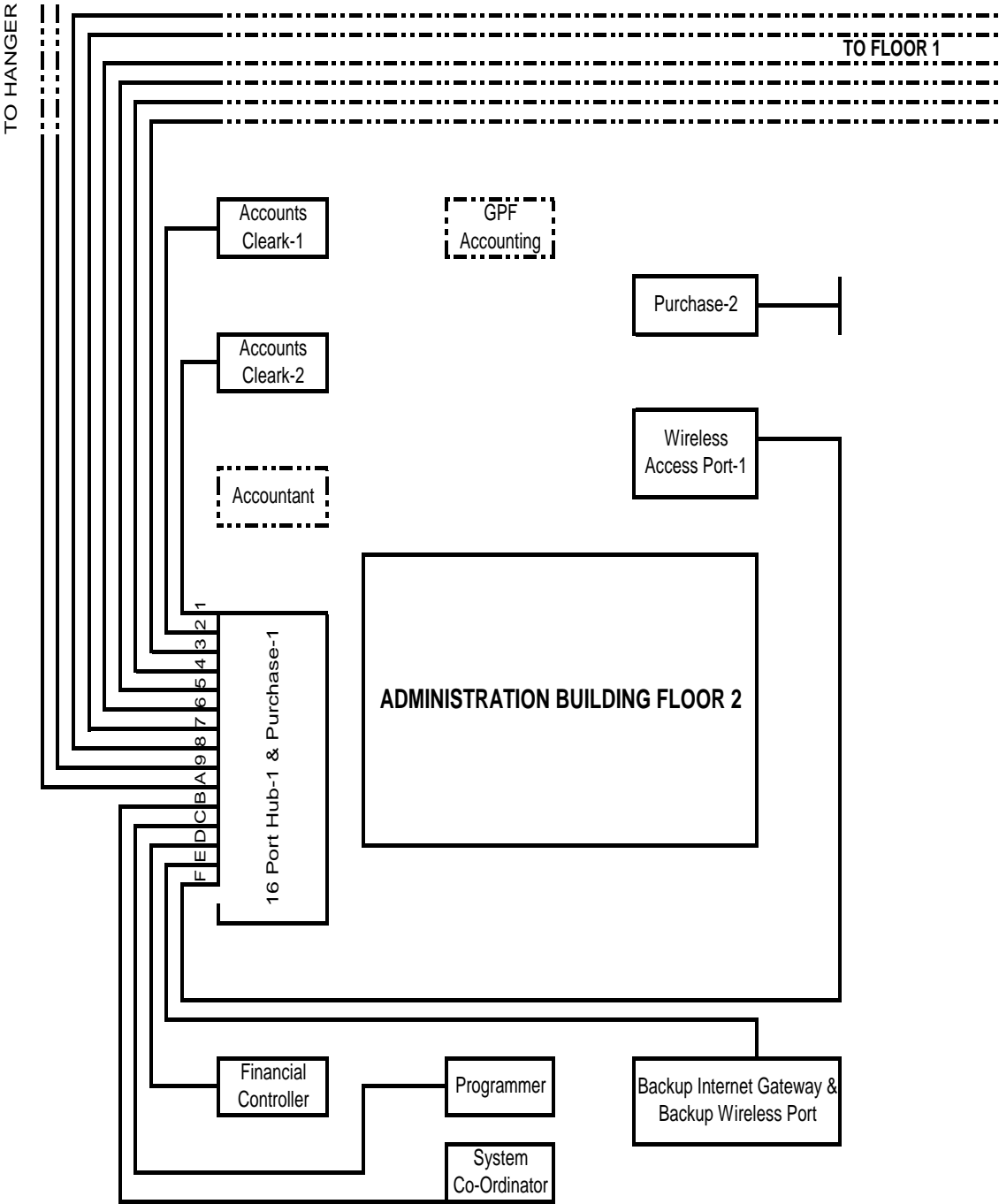


Annexure 1





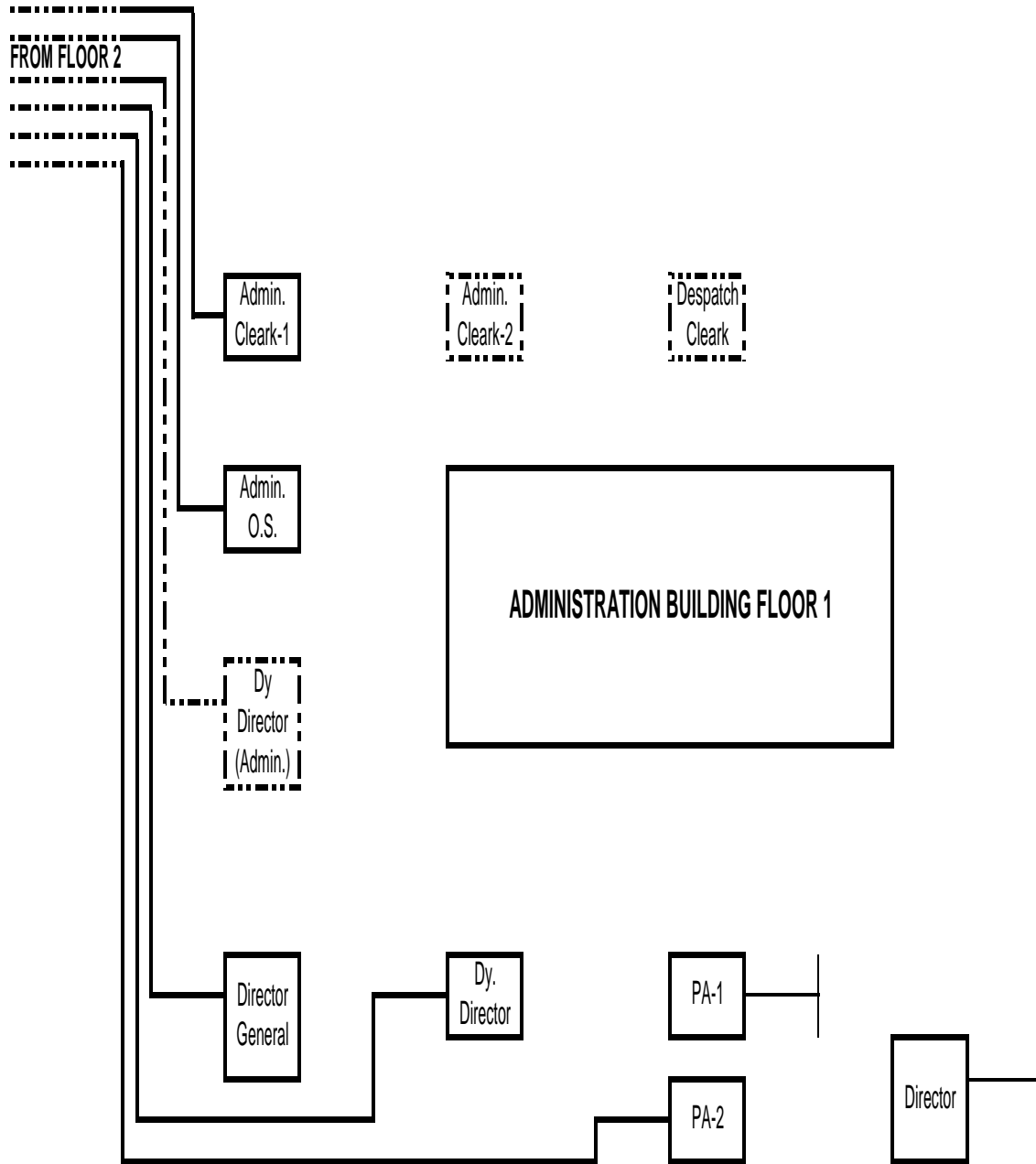
Annexure 2





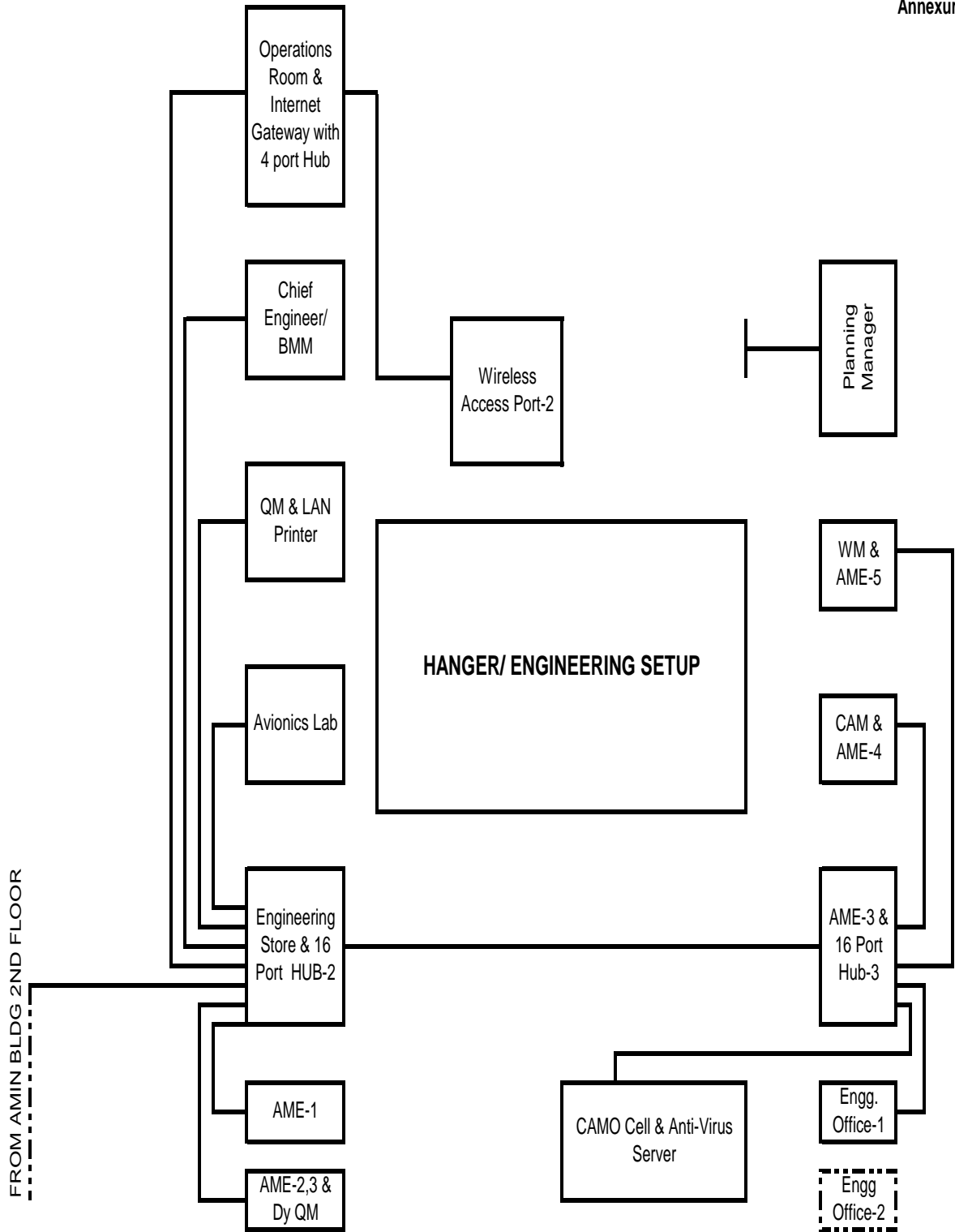


Annexure 3



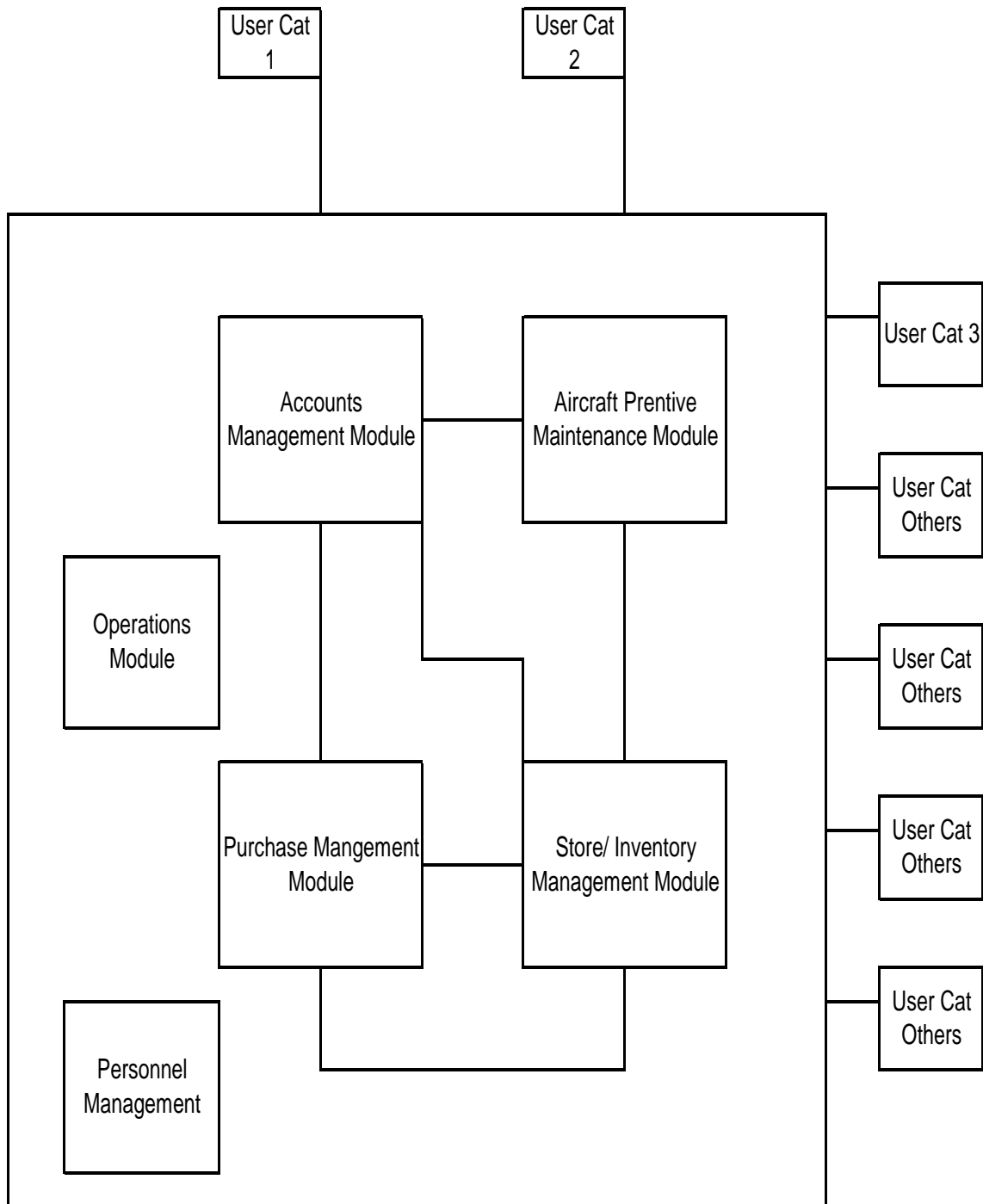


Annexure 4





Annexure 5





Report No: 01

Civil Aviation Department, Govt of UP  
Lucknow Airport, Lucknow

Report Date: DD/MM/YYYY

Time: HH:MM:SS

Aircraft Registration	Time Since New (Hours/ Cycle)		Pay Load	Availability of aircraft			
				Immediate Available for:	Limited by:	Subsequent Availability:	Limited by:
Fixed Wing:-	Hours	Cycles		Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	
				Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	
				Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	
Rotor Wing:-							
				Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	
				Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	
				Hours:		Hours:	
				Cycles:		Cycles:	
				Calender:		Calender:	



Report No: 02

Civil Aviation Department, Govt of UP  
Lucknow Airport, Lucknow

Report Date: DD/MM/YYYY

Time: HH:MM:SS

A/c S/No & Registration	Hours (CofA)	Cycle (CofA)	Last Flown	Hours Left	Cycles Left	Due Date	Component/ Maintenance Job	Radio FRC Validity
<b>Fixed Wing</b> VT-XYZ	102.35	124	dd/mm/yyyy	112.25 13.35	39 N/A	dd/mm/yyyy dd/mm/yyyy	Component-1 25 Hrs./ 15 Days Schedule	dd/mm/yyyy
VT-MNO	99.35	95	dd/mm/yyyy	39.05 13.35	24 N/A	dd/mm/yyyy dd/mm/yyyy	Component-2 100 Hrs./ 3 Months Schedule	dd/mm/yyyy
<b>Rotor Wing</b>								



Report No: 03

Civil Aviation Department, Govt of UP  
Lucknow Airport, Lucknow  
Schedule Expiry Status of all Aircraft

Report Date: DD/MM/YYYY

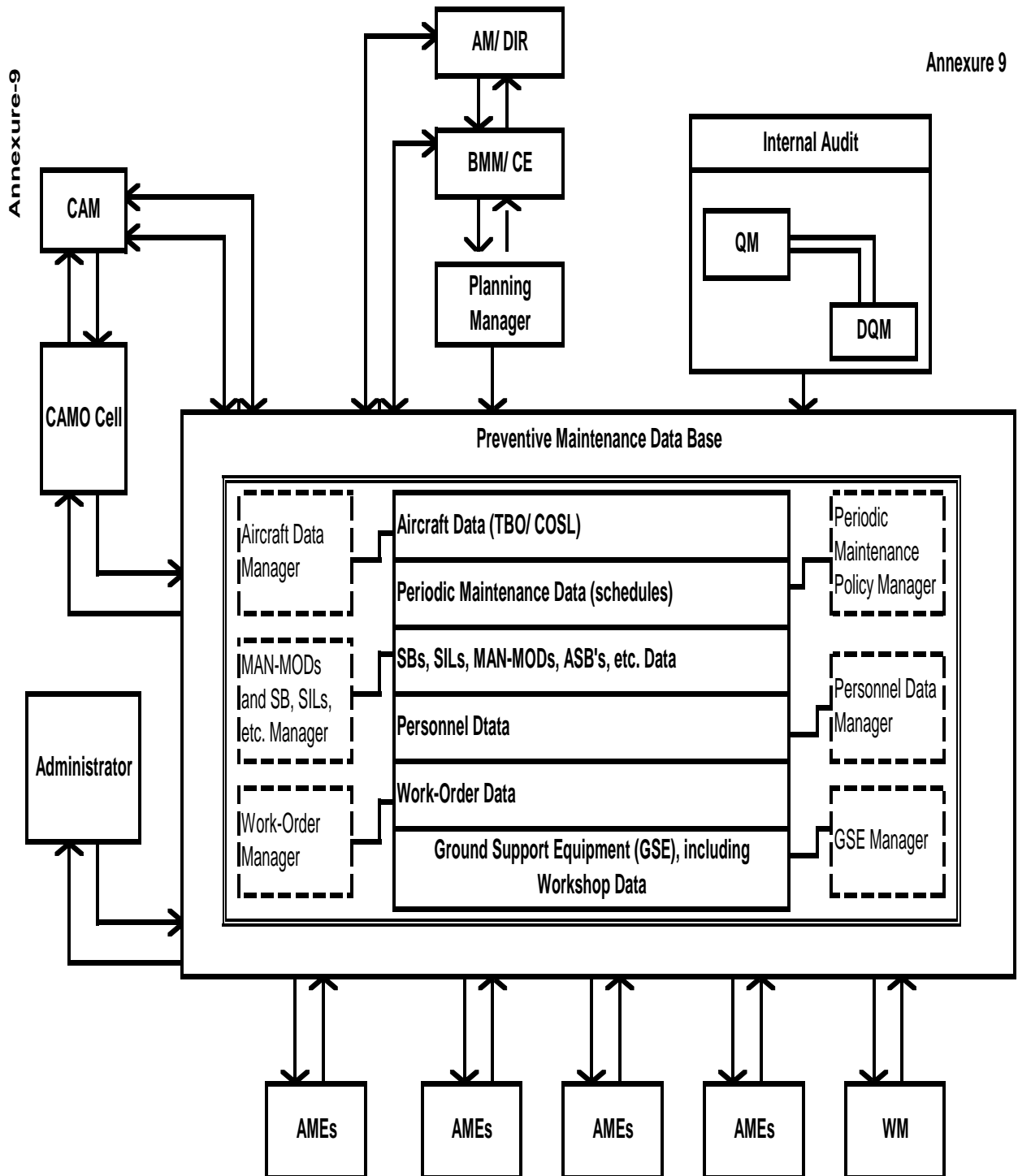
Time: HH:MM:SS

Aircraft Registration	CofA/ ARA Validity	Hours/ Cycle (CofA)	Hours/ Cycle (TSN)	Last Flown	Radio CRS Due Date	Battery CT Due Date	Maintenance Schedules		
							25 Hrs	50 Hrs	100 Hrs
<b>FIXED WING</b>									
VT-UPW	dd/mm/yyyy	99	99.99	dd/mm/yyyy	dd/mm/yyyy	dd/mm/yyyy	N/A	N/A	N/A
	dd/mm/yyyy								
Next Hi-Chk = 200 Hrs Insp Sch Hrs Left= 139.24 Date N/A Next Hi-Chk = 12 Months Insp Hrs Left= N/A Dt = 08/04/2011 Next Hi-Chk = 400 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A Next Hi-Chk = 800 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A									
VT-UPX	dd/mm/yyyy	99	99.99	dd/mm/yyyy	dd/mm/yyyy	dd/mm/yyyy	N/A	N/A	N/A
	dd/mm/yyyy								
Next Hi-Chk = 200 Hrs Insp Sch Hrs Left= 139.24 Date N/A Next Hi-Chk = 12 Months Insp Hrs Left= N/A Dt = 08/04/2011 Next Hi-Chk = 400 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A Next Hi-Chk = 800 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A									
<b>ROTOR WING</b>									
VT-UPY	dd/mm/yyyy	99	99.99	dd/mm/yyyy	dd/mm/yyyy	dd/mm/yyyy	N/A	N/A	N/A
	dd/mm/yyyy								
Next Hi-Chk = 200 Hrs Insp Sch Hrs Left= 139.24 Dt N/A Next Hi-Chk = 12 Months Insp Hrs Left= N/A Dt = 08/04/2011 Next Hi-Chk = 400 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A Next Hi-Chk = 800 Hrs Insp Sch Hrs Left= 139.24 Dt = N/A									

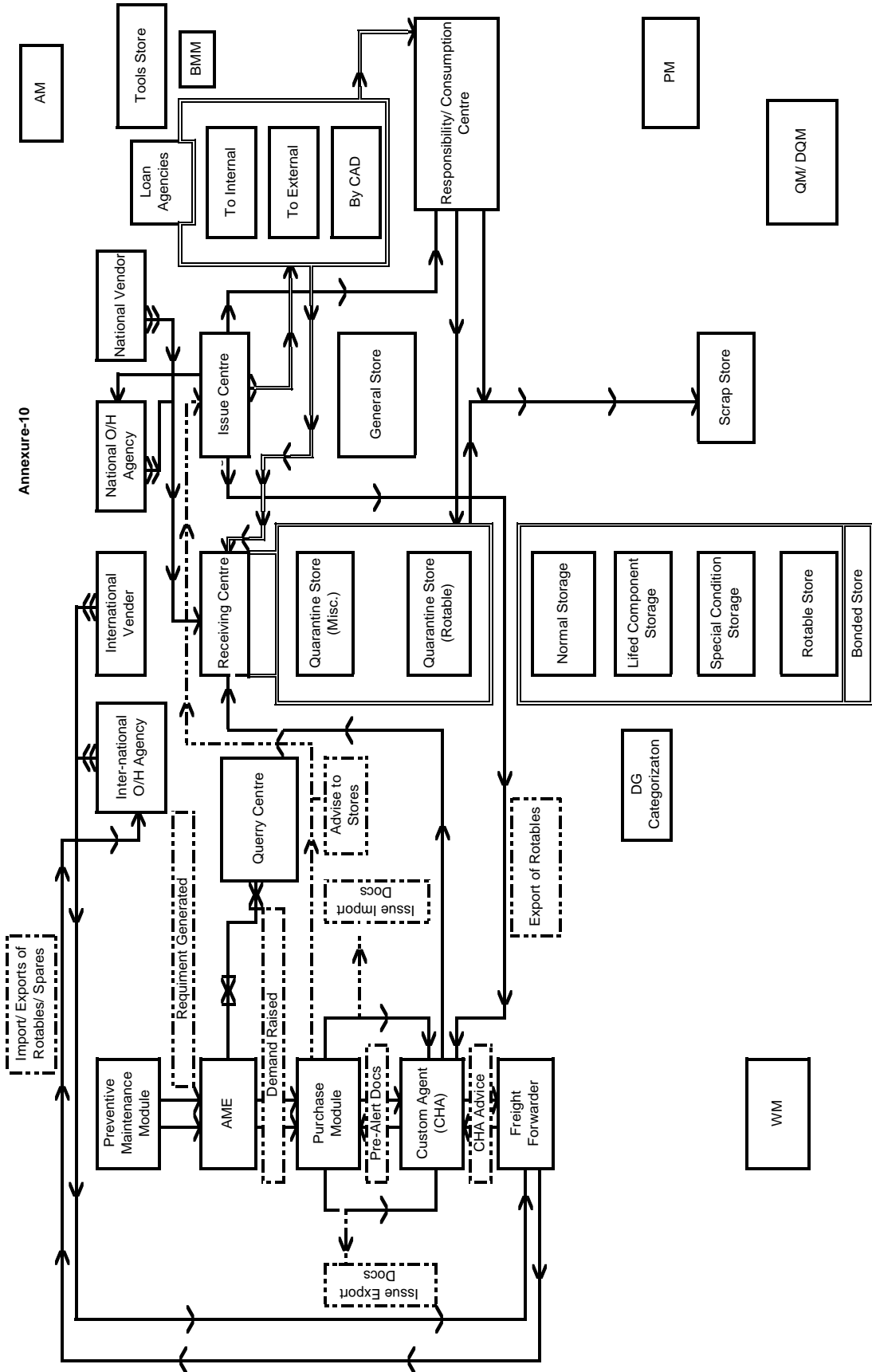


## Preventive Maintenance Module

Annexure 9



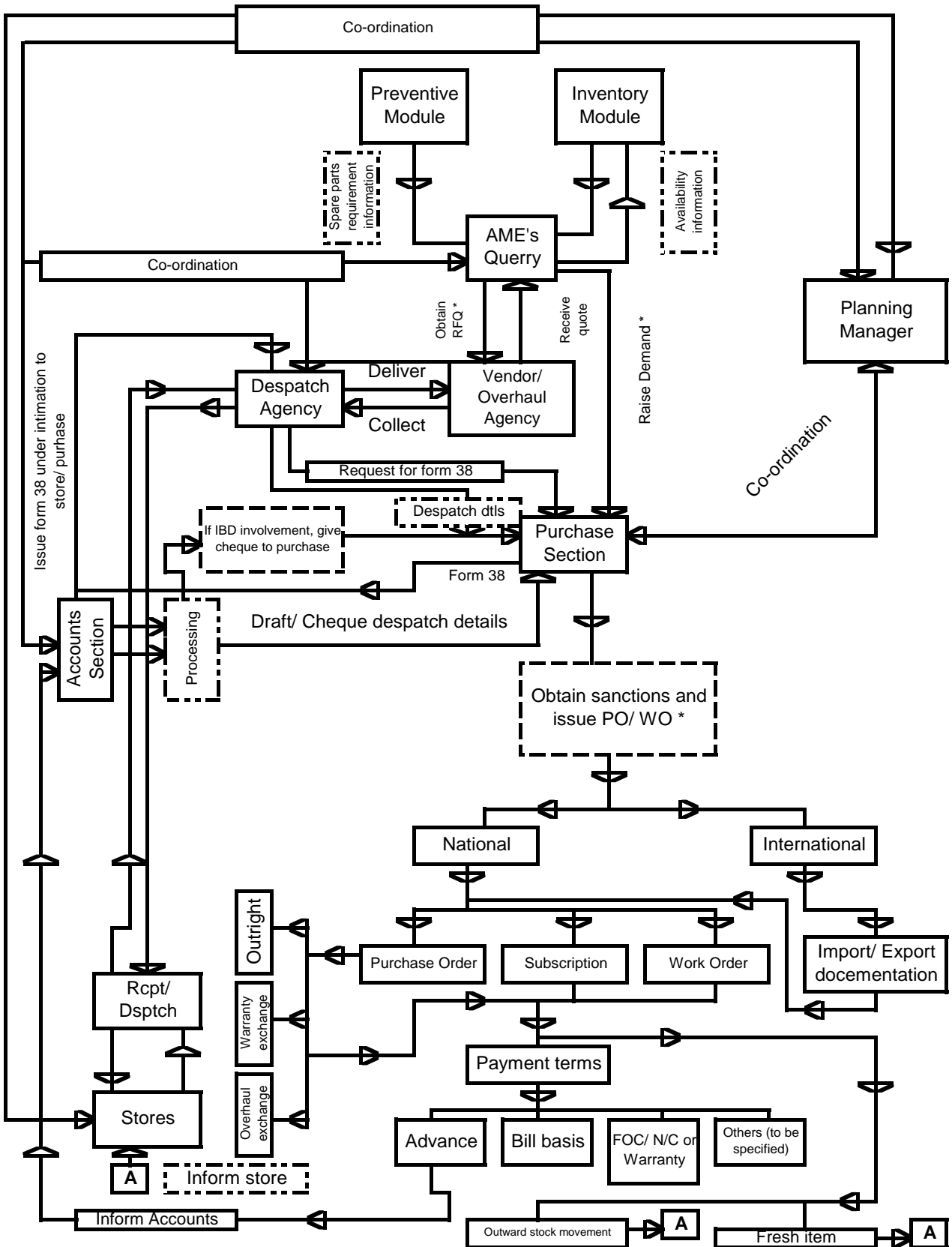




**INVENTORY MODULE**



### Spares Procurement Procedure





Scope of work under this contract shall be :

- Study the detailed process
- **Prepare SRS document which includes Requirement Matrix, OOP & UML diagrams and get it approved by Civil Aviation Department (CAD), GoUP**
- Design and Develop the Web Enabled Application
- Conduct the Test Run and get the acceptance from Civil Aviation Department (CAD), GoUP
- Provide Training to all Civil Aviation Department (CAD), GoUP
- Make the System Go-Live
- Provide warranty support of one year from the date of Go-Live
- Provide Help Desk Support for a period of one Year from the date of Go-Live



#### **SECTION IV: BIDDER'S ELIGIBILITY CRITERIA**

Only those bidders shall be eligible for bidding in this tender who are empanelled in UPLC under Job *Category – I (Software Development) and Service Provider Category (“D”)* *only vide e-bid reference no UPLC/Software /Empanelment 02/2011 & UPLC/Software/Empanelment 03/2012-13*

- a) Bids should comprise of following sections:
  - i) Technical Bid
  - ii) Financial Bid
  
- b) Both the bids must be submitted separately on e-tender portal <http://etender.up.nic.in>. Prices should not be quoted in the Technical Bid. The prices should be quoted in the Financial Bid only.
  
- c) In the Technical Bid, the Submission of Demo Screen shots and Business Process Logic covering all functionalities mentioned on Page no 13-15 for the Software is essential. In absence of the Screen Shot & Business Logic for all functions, Technical Bid will not qualify for opening of the Financial Bid.



## SECTION V – Standard Terms and Conditions

### 1. Prices

- 1.1 The total Prices (F.O.R. destination) quoted by the Service Provider should be F.O.R. destination and inclusive of all prevalent Taxes e.g. VAT, Service Tax, Duties, License fees, etc till delivery, installation and implementation of application software and all the services to the end-customer.
- 1.2 If at any time during the said period, the Service Provider reduces the sale price, sells, or offers to sell such Services and goods to any person/organization, Central or State Government Departments etc as the case May be, at a price lower than the price chargeable under the contract, the Service Provider shall forthwith notify such reduction, or sale or offer to sell to the UP Electronics Corporation Ltd (UPLC) and the price payable under the contract for the supply of Services and material after the date of coming into force of such reduction or sale or offer to sell, shall stand correspondingly reduced.

### 2. Period of Validity of Offer

The offer shall remain valid for 180 days after the date of offer opening prescribed by UPLC. Any offer valid for a shorter period shall be rejected by UPLC as non-responsive.

### 3. UPLC's Centage Charges

UPLC's Centage Charges as per norms would be added over and above the prices quoted by the Vendor/negotiated prices payable to the Service Provider, before submission of final proposal of UPLC to the end-customer, by UPLC.

### 4. Scope of Work

The Scope of Work shall be as per requirement of the end-customer, as mentioned in Section –III (Terms of Reference (TOR) And Scope Of Work.

### 5. Time Schedule/Delivery Period

The supply or installation of Software and training as per schedule mentioned in **Annexure-XVI of this RFP, which has to submit by the bidder with the technical bid** and all other items and integrated Solution, if required in the project to the end-customer should be completed within the time (75 days) specified by the end-customer/as per requirement of the project.

### 6. Technical Presentation

The bidder, whos bid found technically qualified has to demonstrate the technical presentation which tell about the choice of the technology, database, architect, flow of system & demographic layout etc, of proposed application software system.

### 7. Submission of Offer

The Service Provider should submit their e-bid duly signed and stamped by the authorized Signatory on each and every page of the documents..

### 8. Evaluation of Offers

The Service Providers will upload there e-bid within stipulated time. The selection will be based on the proven competence of technically qualified bidder and lowest bid.

### 9. Changes in Technical Specifications



- 8.1 UPLC reserves the rights to effect changes within the general scope of work in consultation with the end-customer in any one or more of the following:
- (a) Technical specifications of the systems and Goods to be furnished under the scope of work are to be specifically designed and manufactured to meet the requirement of project for supply to end-customer; and the application software so developed on the required SW environment to meet the requirement of project
  - (b) The method of transportation or packing;
  - (c) The place of delivery; and/or
  - (d) The Services to be provided by the Service Provider.
- 8.2 Any such change will be notified in writing, before opening of the financial proposal/quotation. In case, any of the Service Provider has already submitted its offer before receiving the notification of changes from UPLC, will be allowed to submit its revised offer.
- If any such change causes an increase or decrease in the cost, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within seven (7) days from the date of the Supplier's receipt of the Purchaser's change order.

#### **10. Right to negotiate**

The negotiation, if required shall be carried out only with the technically qualified with the lowest Bidder by UPLC and/or end-customer / any other competent authority/ high power purchase committee of the State Government as per the procedures/policy of the Government of UP, prevailing at that point of time.

#### **11. Award Criteria**

10.1 The UPLC will determine to its satisfaction whether the Service Provider that is selected as having submitted the lowest evaluated responsive offer, meets the criteria specified, and is qualified to perform the contract satisfactorily.

10.2 **Lowest (L-1) cost will be evaluated based on the total cost quoted against Sl No 1 to Sl 8 of Financial Proposal Submission Form (Annexure XV).**

10.3 The UPLC will award the contract/order to the lowest evaluated successful Service Provider whose offer has been determined to be responsive to all the conditions of the contract and meeting the Technical specification and qualification requirement of the end-customer.

#### **12. Acceptance of the Bid**

UPLC do not bind itself to accept the lowest or any bid, and reserves the right to:-

- (a) Reject any or all offers with/without any reason
- (b) Accept any offer of Service Provider without assigning any reason and also reduce or extend the period of contract without assigning any reason.
- (c) Accept any offer of Service Provider, who is capable to handle the project and/or whose offer is viable.

#### **13. Notification of Award**

12.1 After receiving the firm Order from the end-customer, prior to the expiration of the validity period (i.e. 150 days), UPLC will notify the successful Service Provider in writing by letter/e-mail/fax, that its offer has been accepted.



12.2 The notification of award will constitute the formation of the Contract.

#### **14. Signing of Contract**

13.1 As soon as the UPLC notifies the successful Service Provider whose offer has been accepted, the UPLC will send the Service Provider the Contract Form, incorporating all the conditions of the contract between the parties i.e. UPLC and successful Service Provider, and if required with the end-customer also.

13.2 Within 7 days of receipt of the Contract Form, the successful Service Provider shall execute, sign and date the Contract and return it to the UPLC.

#### **15. Inspection & Tests**

Inspection and tests prior to web enabled application software for Work Progress Information System (WPIS) and at final acceptance are as follows:

##### **14.1**

- (i) Service Provider shall intimate to the UPLC indicating that the developed Application Software and are ready for inspection and the UPLC can send their representative for inspection at their premises. After receipt of such intimation from the Service Provider, the UPLC shall arrange for test. The test will be conducted in the premises of the Service Provider prior to supply and installation at final destination. For conducting the inspection and tests at the premises of the Service Provider, all reasonable facilities and assistance, shall be furnished by the Service Provider at no charge to the inspectors of the UPLC/end-customer. The developed application Software, which is required to be carried out after approval of SRS, Design document etc by the end-customer, such approved application Software should be delivered and installed by the Service Provider at the respective sites within the time schedule and integrate it with the Hardware environment for satisfactory performance of the project. For site preparation, the Service Provider should furnish all details to the UPLC sufficiently in advance so as to enable to the en-customer to get the works completed before receipt of the equipment.
- (ii) The acceptance test will be conducted by the UPLC/end-customer, their consultant or any other person nominated by the UPLC/end-customer, at its option. There shall not be any additional charges for carrying out acceptance tests. The acceptance will involve trouble-free operation during acceptance testing period. No malfunction, partial or complete failure of any part of hardware or excessive heating of motors attached to printers, drivers etc. or bugs and malfunctioning in the software should occur. The software should be complete in itself in totality or module-wise as approved in the project by the end-customer. During acceptance tests, the items having the same or only higher technical specifications as given in the contract shall be accepted. The Service Provider shall maintain necessary log in respect of the result of the tests to establish to the entire satisfaction of the UPLC/end-customer. An average uptake efficiency of 98% for the duration of test period shall be considered as satisfactory.
- (iii) In the event of the developed Application Software and/or goods failing to pass the acceptance test, if carried out at site of installation, a period specified by UPLC/end-customer will be given to rectify the defects and clear the acceptance test, failing which the UPLC/end-customer reserves the rights to get the application SW/equipments replaced by the Service Provider at no extra cost.





14.2 The UPLC's rights to inspect, test and, where-ever necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the UPLC or its representative prior to the Goods shipment.

#### **14.3 Manual and Drawing**

14.3.1 The technical/operational/user manual shall be in the English or Hindi language and in such form and numbers as stated in the purchase order. Manual May be in CD/DVD Format also.

14.3.3 The Service Provider at its own expense will provide necessary training to the officials of the end-customer on the Software and Systems supplied by the Service Provider.

#### **16. Incidental Services**

All the incidental costs e.g. On-site delivery & satisfactory installation of all the items and/or LAN/WAN/Networking as per purchase order; Furnishing all the manuals as per purchase order to the project sites; and Maintenance and repair of the equipment at each location during the comprehensive warranty period including the cost of all spares shall be deemed to be included in the Contracted Value with the Service Provider and the Service Provider should provide such services without claiming for any extra charges for it.

#### **17. Warranty and Maintenance Services**

- a) The Service Providers shall be responsible for providing technical support for the successful running of the software/system so developed/ deployed as per the approved project during the period of Warranty (one year or otherwise specifically mentioned in the end-customer's order, from the date of successful installation).
- b) The Service Providers shall be required to provide maintenance support of the developed software and/(or) hardware equipment etc, provided to the client, under the Specific Job awarded to the Service Provider, for the period mutually agreed upon with the client.
- c) The UPLC shall promptly notify the Service Provider in writing of any claims arising under this warranty.
- d) During warranty period, any changes suggested after one month of feedback time shall be take care of in the support period extending up to one year. the defects/bugs/edit/modification of application software shall be rectified or repaired whatever required, by the Service Provider, to the satisfaction of the user departments. Period for correction of defects in the warranty period is 48 hrs.

#### **18. UPLC's right to vary Quantities at the Time of Award**

The UPLC reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.



If any such change causes an increase or decrease in the cost, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within seven (7) days from the date of the Supplier's receipt of the Purchaser's change order.

#### **19. Payment Schedule**

All payments from the client department shall be received through Cheque/Draft favouring U P Electronics Corporation Limited, payable at Lucknow. The payment/running payment would be released to the Service Provider only after receipt of the payment from the end-customer and as per the terms and conditions of the Job order awarded to the Service Provider by UPLC and review of the progress in project.

#### **20. Performance Bank Guarantee**

24.1 The Service Provider will have to submit a Bank Guarantee (BG) of 10% of order value valid for warranty period. In case of delay in submitting the BG, corresponding amount will be withheld by the Corporation out of payment payable to the service provider for a period till satisfactory project completion, or for a period specifically mentioned by the client department required for the smooth services during the Warranty period. The performance Bank Guarantee shall be denominated in Indian Rupees. After submission of Bank Guarantee in UPLC, its cognizance would be taken only after its verification from the concerned Bank.

24.3 The proceeds of the performance Bank Guarantee shall be payable to the authority in favour of whom the performance bank guarantees was prepared, as compensation for any loss resulting from the Service Provider's failure to complete its obligations under the Contract.

24.4 The Performance Bank Guarantee will be discharged by the UPLC/ end-customer and returned to the Service Provider upon the written request as promptly as possible following the date of its validity or completion of the Service Provider's performance obligations including any onsite warranty/extended warranty obligations, whichever is later, under the contract.

#### **21. Assignment/Sub-contracting**

The Service Provider shall not assign/sub-contract, in whole or in parts its obligations to perform under the Contract to any other firm except with the UPLC's prior written consent, but not absolving of Sub-Provider's ultimate responsibilities to successfully implement the project in totality in proper functional performance.

#### **22. Termination for Default**

21.1 The UPLC May, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Service Provider, terminate the Contract in whole or part:

- (a) If the Service Provider fails to deliver any or all of the Goods or services within the period(s) specified in the Contract/Purchase Order, or within any extension thereof granted by the UPLC/ end-customer
- (b) If the Service Provider fails to perform any other obligation(s) under the Contract or Purchase Order.



21.2 In the event the UPLC terminates the Contract in whole or in part, UPLC May procure, upon such terms and in such manner, as it deems appropriate. Goods or Services similar to those undelivered, and the Service Provider shall be liable to the UPLC for any excess costs for such similar Goods or Services. However, the Service Provider shall continue the performance of the Contract to the extent not terminated.

### **23. Termination for Insolvency**

The UPLC May at any time terminate the Contract by giving written notice to the Service Provider, if the Service Provider becomes bankrupt or otherwise insolvent. In this event termination will be without compensation to the Service Provider, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the UPLC/end-customer.

### **24. Termination for Convenience**

23.1 The UPLC, by written notice sent to the Service Provider May terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the UPLC/end-customer's convenience, the extent to which performance of the Service Provider under the Contract is terminated, and the date upon which such termination becomes effective.

23.2 The Goods that are complete and ready for shipment at the time of Service Provider's receipt of notice of termination shall be accepted by the UPLC/end-customer's at the Contract terms and prices. For the remaining Goods, the UPLC/end-customer's May elect:

- (a) To have any portion completed and delivered at the Contract terms and prices; and/or
- (b) To cancel the remainder and pay to the Service Provider an agreed amount for partially Completed Goods.

### **25. Service Provider Integrity**

The Service Provider is responsible for and obliged to conduct all contracted activities in accordance with the contracts using state-of-the-art equipment / SW solutions, methods and economic principles and exercising all means available to achieve the performance specified in the contract.

### **26. Service Provider's Obligations**

The Service Provider is obliged to work closely with the UPLC/end-customer's staff, act within its own authority and abide by directives issued by the UPLC/end-customer and implement all the activities. The Service Provider shall abide by the job safety measures prevalent in the country and will indemnify the UPLC from all demands or responsibilities arising from consequences, accidents or loss of life and property due to negligence of the Service Provider. The Service Provider will pay all indemnities arising from such incidents and will not hold the UPLC responsible or obligated. The Service Provider is responsible for managing the activities of its personnel and will hold itself responsible for any misdemeanors. The Service Provider will treat all data and information as confidential about the UPLC and end-customer, obtained in the execution of his responsibilities, in strict confidence and will not reveal such



information to any other party without the prior written approval of the UPLC/end-customer.

### **27. Patent Right**

In the event of any claim asserted by a third party of infringement of copy right, patent, trademark or industrial design rights arising from the use of the services, Goods or any parts thereof in the country, the Service Provider shall act expeditiously to extinguish such claim. If the Service Provider fails to comply and the UPLC is required to pay compensation to a third party resulting from such infringement, the Service Provider shall be responsible for the compensation including all expenses (court costs and lawyer fees etc), without delay on getting demand notice from UPLC.

### **28. Site Preparation and Installation**

Incharge of the project site, deputed by the end-customer will be solely responsible for site preparation in compliance with the technical and environmental specifications defined by the Service Provider. The incharge of project site will identify the installation site before the scheduled installation date to allow the Service Provider to perform a site inspection to verify the appropriateness of the sites before the installation of the Hardware and Software.

### **29. Software and System Installation**

The Service Provider is responsible for all unpacking, the assemblies, installations of required hardware and software, cabling between hardware units and connecting to power supplies. The Service Provider will test all required hardware and software operations and accomplish all adjustments necessary for successful and continuous operation of the hardware and software at all installation sites.

### **30. Software and System Maintenance**

The Service Provider will accomplish preventive and breakdown maintenance activities to ensure that all required Hardware execute without defect or interruption for at least 98% up time for 24 hours a day, 7 days of the week of operation of the machine worked on a quarterly basis. If any critical component of the entire configuration is out of service for more than two days, the Service Provider shall immediately replace the defective unit at its own cost. The Service Provider will ensure to respond to a project site visit and commence repair work on the equipment/ make functional the application Software within 24 hours of being notified of system malfunction.

### **31. Transfer of the Rights of the UPLC**

All the items are being procured by the UPLC on behalf of end-customers (various offices/institutions of Government of Uttar Pradesh). Till successful installation and commissioning of all the items, the UPLC will be responsible for monitoring of the observance of the clauses under this contract. After successful installation & commissioning of all the items, the concerned offices/ institutions of Government of Uttar Pradesh shall exercise all the rights, duties and obligations of the UPLC under this contract.

### **32. Code of Conduct**

- a) Relationship with Client: Dealings with client must be conducted in an ethical manner, terms of agreement should be clearly and precisely expressed and fulfilled in good faith; work undertaken should be carried



out promptly and efficiently and client's interests properly safeguarded and confidentiality maintained.

- b) Relationship with other Service Provider: Dealings with other Service Providers must be conducted in a positive and professional manner and in utmost courtesy and fairness; property rights, work results, confidential data and vendor/client relations of Service Providers ought to be respected; and no engagement in harmful, disappearing or predatory tactics will be entertained.
- c) Relationship with Principals: Service Providers shall represent Principals in a fair and business like manner in accordance with their contract, their property and other rights; and provide full and accurate business records.
- d) Relationship with Employees: Service Providers shall strive to employ high caliber staff and offer fair and equal opportunities for growth and development. Relevant training and constant upgrading of the employees has to be provided in line with job responsibilities. Also, employees have to be informed of their obligation to keep important data confidential. And of the fact that any professional misconduct constituting of unauthorized disclosure of confidential nature or violation of copyright laws will cause employers to take disciplinary action.
- e) Relationship with Public: Service Providers shall promote effective use of Information Technology as an instrument for social and economic good and act as good corporate citizens and fulfill their responsibilities to the community.
- f) Intellectual Property Protection: Service Providers shall neither use nor encourage the use of Pirated Software in their own and their client's organizations. All Software and other related Software Products must be Original, Licensed and Genuine and must conform to the norms and guidelines of Information Technology (IT) Act, 2000 and its amendments from time to time, failing which the empanelment of Service Providers will automatically stand terminated.

### **33. Use Of Documents And Information For Software Projects**

The Service Providers shall not, without UPLC's prior written consent, disclose any document containing specification, plan, drawing, pattern, sample or information furnished by or on behalf of end-customer in connection therewith to any person other than a person employed by the Service Providers in the performance of the allotted job. Disclosure to any such employed person shall be made in confidence and shall extend only as far as May be necessary for purpose of such performance.

### **34. Intellectual Property Rights (IPR) and Replication Rights**

Application software plans; drawings, specifications, design, reports and other documents prepared by the Service Providers in the execution of the allotted Job order shall become and remain the exclusive property of the UPLC. The Source Code of the Application Software and the documents will be the exclusive property of UPLC and UPLC will have the Intellectual Property Rights (IPR) and Replication Rights on developed software and documents. Service Providers will be obliged to submit at least two copies of Software with Source Code and



complete SRS and Complete Operational documentation. The bound copies of Documentation of System Study, System Requirement Specification (SRS) and Users Manuals are to be handed over to the end-customer after its completion at respective stages along with its soft copies on the latest media available at that time.

### **35. Force Majeure**

- 38.1 Notwithstanding the provisions of conditions of contract, the Service Provider shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 38.2 For purpose of this Clause, “Force Majeure” means an event beyond the control of the Service Provider and not involving the Service Provider’s fault or negligence and not foreseeable. Such events May include, but are not limited to, acts of the UPLC either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes. If a Force Majeure situation arises the Service Provider shall promptly notify the UPLC in writing of such conditions and the cause thereof. Unless otherwise directed by the UPLC in writing, the Service Provider shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### **36. Settlement of Disputes**

- 39.1 If any dispute or difference of any kind whatsoever arises between the UPLC and the Service Provider in connection with or arising out of the Contract both the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 39.2 If, the parties have failed to resolve their dispute or difference by such mutual consultation within 30 (thirty) days, then aggrieved party May give notice to other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter May be commenced unless such notice is given.
- 39.3 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration May be commenced prior to or after delivery of the Goods and services under the Contract.

### **40. Arbitration**

- 40.1 In case of dispute or difference arising between the UPLC and a Service Provider relating to any matter arising out of or connected with the award of contract, such dispute or difference shall be referred to Sole Arbitrator, the Principal Secretary/Secretary, IT & Electronics Department, Govt of U.P. or its nominee, to decide the dispute both in case of foreign supply as well as Indian supply. The provision of Arbitration and Conciliation Act, 1996 shall apply.
- 40.2 Arbitration proceedings shall be held at Lucknow, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be in English or Hindi.





40.3 The decision of the Sole Arbitrator or its nominee shall be final and binding upon both parties. The cost and expenses of arbitration proceedings will be paid as determined by the Arbitrator. However the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings shall be borne by each party itself.

40.5 Notwithstanding any reference to arbitration herein.  
 (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and  
 (b) the UPLC shall pay the Service Provider any money due to the Service Provider.

40.6 All disputes shall be subject to the jurisdiction of the Courts at Lucknow only.

**41. Limitation of Liability**

Except in cases of criminal negligence or willful misconduct, and in the case of Infringement

- (a) the Service Provider shall not be liable to the UPLC/end-customer, whether in contract tort, or otherwise, for any indirect or consequential loss of damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Service Provider to pay liquidated damages to the UPLC; and
- (b) the aggregate liability of the Service Provider to the UPLC/end-customer, whether under the Contract, in tort or otherwise, shall not exceed the total value of items ordered under this Contract provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

**42. Governing Language**

The Contract shall be written in English or Hindi language. Subject to condition of contract, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same languages.

**43. Applicable Law**

The Contract shall be interpreted in accordance with the laws of the Union of India.

**44. Notices**

44.1 Any notice given by one party to the other pursuant to the award of Contract shall be sent to other party in writing by e-mail or by Fax or by post and confirmed in writing to the other Party's address. For the purpose of all notices, the following shall be the address of the UPLC and Service Provider

**UPLC:** U.P. Electronics Corporation Ltd,  
 10, Ashok Marg,  
 Lucknow (U.P.) - 226 001

**Service Provider:** (To be filled in at the time of Contract execution)

.....  
 .....  
 .....





A notice shall be effective when delivered or on the notice's effective date whichever is later.

**45. Acquaintance with all Conditions**

The Service Provider acknowledged that he has made himself duly acquainted with all the terms, conditions and circumstances under which the services/supplies required under the contract will have to be made or furnished and with all the terms, clauses, conditions, specifications and other details of the contract and the Service Provider shall not plead ignorance of any of those as excuse in case of complaint against or on rejection of supplies and services tendered by him or with a view either to ask for encashment of any rates agreed to in the contract or to evading any of his/her obligations under the contract.



## SECTION VI - Technical Proposal Submission Form

Annexure -XII

### *Bidder's General Information –*

SN	Particulars	Description/Details	Reference Documents	Page No.
A.	Name of Bidding Company			
B.	<b>Contact Details</b>			
	a) Address			
	d) Telephone with STD Code e) Mob No.–			
	e) Fax			
	f) email			
	g) Website			
	h) Name of Managing Director/ CEO			
C	a) Business Process Logic covering all functionalities required for Software	( attached separate sheet)		
	b) Server/ Platform which shall be provided			



**Annexure XIII**

**2- Technical / Managerial Staff [ Enclosed Separate Sheet if required ]**

<b>SN</b>	<b>Role</b>	<b>Name</b>	<b>Qualification</b>	<b>Task</b>
1.	System Analysis / Software Architect	..... .....		
2.	Project Manager	..... .....		
3.	Team Leaders	..... ..... .....		
4.	Software Executives (Programmers)	..... ..... .....		
5.	Testing Team includes Team Head & other Testing Executives	..... ..... .....		
6.	Deployment Team	..... ..... .....		
7.	Others (Please Specify)	..... ..... .....		

**Signature.....**  
**In the capacity of.....**  
**Duly authorized to sign proposal for**  
**and on behalf of.....**  
**Date.....**  
**Place.....**



Annexure XIV

**DECLARATION FOR PROPOSAL SUBMISSION FORM**

The Managing Director,  
UP Electronics Corporation Ltd.  
10, Ashok Marg, Lucknow.

Sub: Submission of Techno- Commercial Proposal against your letter  
UPLC/Software/2012-13/10, Dated 07 February 2013.

Dear Sir,

Kindly refer your letter no. UPLC/Software/2012-13/11, Dated 07 February 2013 on the subject cited above and find enclosed our Techno-Commercial Proposal on your prescribed format.

We as an Empanelled Software Service Provider registered with your Corporation vide letter no: \_\_\_\_\_ Dated \_\_\_\_\_, hereby declares that though we are bound by the terms and conditions laid down while empanelling us as a Software Vendor. We however specifically submitted that the terms and conditions of this tender and also full fill the eligible criteria as mentioned in this tender in addition to terms and condition aforesaid also bind us.

We are looking forward to take this opportunity.

Regards.

Your's faithfully

Date :

[ authorized signatory]

Place:

Name of Firm with address

( seal)



Annexure XV

**Financial Proposal Submission Form**

Ref: Submission of Proposal against your RFP Reference No. UPLC/Software/2012-13/11,

Our details financial proposal is as follows:

<b>Development of Web Enabled Application Software for Aircraft Maintenance Management, Store-Purchase (Inventory) Management, Operations Management, Accounts Management, Document Tracking and E-Filing System and Personnel Management System for Directorate of Civil Aviation, Government of Uttar Pradesh which is inclusive of the cost of one year on-site support, User Manuals and User Training at CADUP office after successful implementation. (Please Quote Module Wise)</b>				
<b>S.No.</b>	<b>Description</b>	<b>Price (Rs.)</b>	<b>Service Tax @12.36%</b>	<b>Grand Total (Rs.)</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>5=(3+4)</b>
1.	Aircraft preventive Maintenance or Engineering Management System			
2.	Stores Management System			
3.	Purchase Management System			
4.	Operations Module			
5.	Accounts Module			
6.	Personnel / Human Resource Management System (Establishment Module)			
7.	Document Tracking and E-Filing System			
<b>Sub Total (I)</b>				
8.	Any other Charges (Please Specify)			
<b>Sub Total (II)</b>				
<b>Grand Total (I+II)</b>				
<b>Amount in Words :-</b>				
<b>Above prices are inclusive of one year on-site Support, User Manuals and User Training at CADUP office after successful implementation</b>				

**Note: - Bidders are requested not to quote the prices of hiring of Web Space and any Hardware Component and System Software like Operating System. The Bidder will deploy the application at Hardware Servers / Computers available with the CADUP office.**

Date :

Place:

[ authorized signatory]  
Name of Firm with address  
( seal)



## Annexure XVI

### **Hardware & System Software Suggested by the Bidder to Deploy and install the Application (Table A)**

<b>SN</b>	<b>Descriptions</b>
<b>1</b>	Detailed Configuration & Specification of Rack Server for Web / Application Server with Warranty period
<b>2.</b>	Detailed Configuration & Specification of Rack Server for Database Server with Warranty period
<b>3.</b>	Storage Type with Warranty period
<b>4.</b>	Online UPS (Stating Capacity, load factor and endurance with Warranty period
<b>5.</b>	Heavy Duty Laser Printer with Warranty period
<b>6.</b>	Recommended OPERATING SYSTEM with Media
<b>7.</b>	Application Server (Middleware) eg IIS, Tomcat, Weblogic etc
<b>8.</b>	Proposed Technology (eg Windows & JAVA) and Frameworks (eg .NET/ Spring/Struts/Hibernate etc)
<b>9.</b>	Data Base (eg MySql, MS-SQL, ORACLE, DB2 etc) with how many licensed clients on media
<b>10.</b>	Antivirus
<b>11.</b>	Firewalls
<b>12.</b>	Networking & Networking Equipment
<b>13.</b>	Other... (Please specify)

**Note: - Bidders are requested not to quote the prices of hiring of Web Space and any Hardware Component and System Software like Operating System and Database etc in financial bid. The Bidder will deploy the application at Hardware Servers / Computers available with the CADUP office.**

### **Schedule and Timeline (Table B)**

<b>SN</b>	<b>Job Descriptions</b>	<b>No of Days required to Complete the Task</b>
<b>1</b>	Study of System & Requirement, Preparation of SRS, submission and its approval from CADUP	
<b>2.</b>	Analysis & Design of proposed System	
<b>3.</b>	Development, Testing and Deployment of System	
<b>4.</b>	Delivery of User Manuals & Offering free Training on Application Software to CADUP Officials	
<b>5.</b>	Acceptance of System by CADUP & final project sign off	
<b>Total Number of Days</b>		

Date :  
Place:

[ authorized signatory]  
Name of Firm with address  
( seal)