[H]automate Industries LLC
1 Scamilton Rd
Windsor Locks, CT
Thomas Galarneau
603-837-4570

April 17, 1967

References:
- Historical Aircraft Transfer Initiative Dated August 29, 1967
- Department of Defense Database Development Standards Rev 2
- ITAR Compliance Package Submittal

Enclosures:
1. Project Timeline and Milestones
2. ITAR Compliance Assurance Document
3. Cost and Pricing Data Summary

Attachments:
A. Historical Aircraft Transfer Data Requirements
B. SQL RDBMS System Specifications
C. Crew Chief Personal Data Security Measures

Ms. Alison Rotundo

Proposal for the Historical Aircraft Transfer Database System (HATDS)

Ground Rules for bidding purposes

Period of Performance
The development of the HATDS will cover aircraft transfer data during the years 1968 to 1972, with the project initiation set for immediate commencement upon contract award and projected completion within the specified time frame of historical reference.

Proposal Releasability Statement
This proposal is intended for the review and consideration by the authorized members of the United States Department of Defense only. Dissemination, distribution, or copying of this document is strictly prohibited without prior approval from [H]automate Industries LLC herein known as the ‘company’.

Export Control Markings
The data and information contained within this proposal are controlled under the International Traffic in Arms Regulations (ITAR). They are not to be transferred to foreign nationals, entities, or governments without adherence to ITAR stipulations or specific written instructions. The

information contained within is subject to recall by the Defense Contract Management Agency (DCMA) and the Defense Contract Audit Agency (DCAA for auditing purposes.

Proposal Submission Details -

The United States Air Force reasonably requests a Firm Fixed Price response to this proposal no later than July 5, 1967.

DCMA/DCAA Forwarding Instructions:

This proposal, inclusive of the necessary cost and pricing data, will be submitted to the contract specialist designated by the Defense Contract Management Agency (DCMA) and the Defense Contract Audit Agency (DCAA) for official auditing and approval.

Tooling Required:

Development tools for the HATDS project will include commercial off-the-shelf SQL database software, requiring no unique or specialized tooling. Inventoried and serviceable aircraft tooling will be catalogued and recorded within the SQL database as it applies to each aircraft.

General Purpose Requirements:

The HATDS will be structured in compliance with FAR 15 and developed within a secure SQL-based Relational Database Management System, ensuring data integrity and operational efficiency. The database will feature a minimum of four interrelated tables.

Electronic Format Requirements:

The database structure, along with its maintenance and user manual, will be supplied in electronic format, ensuring compatibility and ease of use within existing DoD systems.

Basis of Estimates:

Estimated at 120 hours of work, based on historical data analysis and current project scope, the database development is calculated at a cost of $21,480. This estimate is provided at an engineering rate of $179 per hour, covering database construction only.

Confidential Cost Disclosure:

Costs associated with the development and delivery of Subcontractor Data Requirements List (SDRLs) will be provided to the government under strict confidentiality and in compliance with regulatory requirements.

Proposal Traceability:

For auditability by DCMA and DCAA, this proposal will be maintained on record for no less than seven years, ensuring traceability and compliance with federal auditing standards.

Rates:
Quoted rates for this proposal are fixed at $179 per hour and will remain valid throughout the duration of the project performance period.

Exchange Rates:
This section is not applicable, as all pricing is calculated and presented in United States Dollars (USD).

Unique Item Identifications and Valuation:
In accordance with DFARS 252.211-7003, each aircraft and associated crew chief will be uniquely identified within the HATDS, facilitating accurate tracking and historical valuation.

Compliant Proposal Guidelines:
The proposal is prepared following the guidelines of DFARS 252.215-7009, ensuring a compliant, thorough, and well-documented submission.

We appreciate your consideration of our proposal for the HATDS. We are poised to begin work immediately and are confident in your ability to deliver a high-quality database system that will serve to document and analyze the significant historical movements of the F105 Thunderchief and F111 Aardvark aircraft.

Please contact us should you have any questions or need further clarification on any aspect of this proposal.

Sincerely,

Lt. Cmd
Specialsauce
USPACOM

[Signed]

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ATTACHMENT A.

To effectively track and manage the transfer of aircraft and the associated details, the Historical Aircraft Transfer Database System (HATDS) will need to fulfill a list of requirements that capture comprehensive information about each transfer. Supplied below is a structured list of requirements for the database:

Aircraft Transfer Details
- Aircraft identification number and type (F105 Thunderchief or F111 Aardvark).
- Date of transfer initiation and completion.
- Status of the transfer (Initiated, In Progress, Completed, Cancelled).
- Detailed historical log for each aircraft, including previous transfers and modifications.

Assigned Crew Chief Data
- Full name of the crew chief.
- Rank and military identification number.
- Dates of service.
- Crew chief's home of record.
- Crew chief's Social Security Number (protected information requiring security measures).

Destination Bases Information
- Name and location of the base receiving the aircraft.
- Base identification number.
- Contact information for the base's receiving department or officer.
- Facility capabilities and limitations relevant to the incoming aircraft.

Special Tooling and Equipment
- List of special tooling required for each type of aircraft.
- Unique identification numbers for each tool.
- Current location and base assignment of the tooling.
- Maintenance and inspection logs for the tooling.

Maintenance and Service Records
- Complete maintenance history for each aircraft.
- Scheduled maintenance dates and details.
- Unscheduled repairs and service notes.
- Records of inspections and their outcomes.

Transfer and Logistic Details
- Transportation mode and carrier details.
- Route information for the transfer.
- Security measures taken during the transfer.
- Cost analysis of the transfer.

Compliance and Regulation Adherence
- ITAR compliance checks and documentation.
- Environmental impact assessments where applicable.
- Any variances or exceptions granted for the transfer.

Reporting and Auditing
- Capability to generate standard and custom reports.
- Audit trails for data entry and modifications.
- Data access and change logs for security auditing.

User Access and Security
- User profiles and access levels.
- Authentication requirements for database access.
- Encryption of sensitive data, especially personally identifiable information.

Backup and Recovery
- Regular backup schedule for the database.
- Disaster recovery plans and protocols.
- Archive of historical data separate from the operational database.

The HATDS will be designed with flexibility to adapt to evolving requirements and the possibility of future expansions, such as including additional aircraft types or extended service periods. Data integrity, user accessibility, and compliance with all relevant regulations will be paramount in the design of the database. The structure will ensure that all information is easily retrievable, clearly presented, and securely stored, facilitating the efficient and effective management of historical aircraft transfers.

ERD components below:

Entities:

1. Aircraft
   - Aircraft_ID (Primary Key)
   - Aircraft_Type (F105 Thunderchief, F111 Aardvark)
   - Crew_Chief
   - Transfer_Status (Lookup: Initiated, In Progress, Completed, Cancelled)
   - Location

2. Crew Chief
   - Crew_Chief_ID (Primary Key)
   - Name
   - Rank
   - Service_Number
   - Dates_of_Service (Date Range)
   - Home_of_Record
   - SSN (Encrypted)

3. Base
   - Base_ID (Primary Key)
   - Readiness
   - Location

4. Transfer
   - Aircraft_ID (Foreign Key)
   - Origin_Base_ID (Foreign Key)
   - Destination_Base(Foreign Key)
   - Transfer_Status(Foreign Key)

5. Maintenance_Record
   - Record_ID (Primary Key)
   - Aircraft_ID (Foreign Key)
   - Maintenance_Type (Lookup: Scheduled, Unscheduled, Inspection)
   - Maintenance_Date
   - Service_Notes

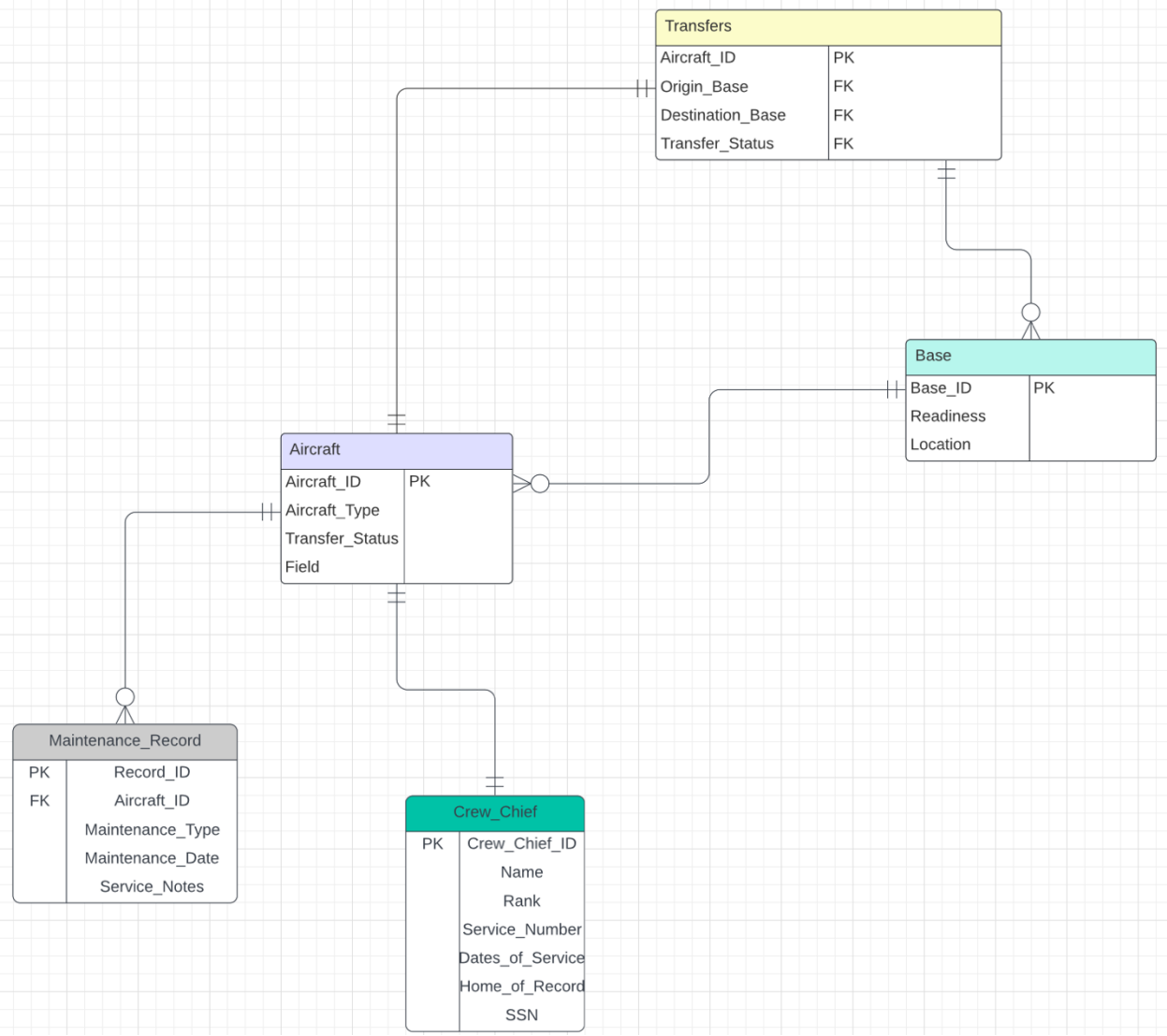
(the above was omitted but left as a reminder this table was supposed to be larger)

Relationships:

- Each Transfer involves one Aircraft - (Many-to-One).
- Each Transfer involves an Origin_Base and a Destination_Base - (Many-to-One).
- Each Aircraft can be associated with one Crew_Chief - (Many-to-One).
- Each Crew_Chief can be responsible for one Aircraft - (One-to-One).
- Each Base can have multiple Aircraft - (One-to-Many).

Assumptions:

- An aircraft is permanently assigned to one crew chief for the duration of its service life for simplicity, although this may change over time.



Aircraft (Aircraft_ID, Aircraft_Type, Transfer_Status, History_Log)
- `Aircraft_ID`: Unique identifier for each aircraft, serves as the primary key.
- `Aircraft_Type`: Type of aircraft (F105 Thunderchief, F111 Aardvark).
- `Transfer_Status`: Status of the aircraft's transfer process.

Crew_Chief (Crew_Chief_ID, Name, Rank, Service_Number, Dates_of_Service, Home_of_Record, SSN)
- `Crew_Chief_ID`: Unique identifier for each crew chief, primary key.
- `Name`: Full name of the crew chief.
- `Rank`: Rank of the crew chief.
- `Service_Number`: Military service number.

- `Dates_of_Service`: Date range of service.
- `Home_of_Record`: Home address of the crew chief.
- `SSN`: Social Security Number (stored encrypted).

Base (Base_ID, Base_Name, Base_Location, Contact_Info, Facility_Capabilities)
- `Base_ID`: Unique identifier for each base, primary key.
- `Base_Name`: Name of the base.
- `Base_Location`: Geographical location of the base.
- `Contact_Info`: Contact details for the base.
- `Facility_Capabilities`: Describes the base's capabilities relevant to aircraft.

Transfer (Transfer_ID, Aircraft_ID, Origin_Base_ID, Destination_Base_ID, Initiation_Date, Completion_Date, Transport_Details, Cost)
- `Transfer_ID`: Unique identifier for the transfer record, primary key.
- `Aircraft_ID`: Foreign key related to `Aircraft`.
- `Origin_Base_ID`: Foreign key related to `Base` where the transfer originates.
- `Destination_Base_ID`: Foreign key related to `Base` where the aircraft is sent.
- `Initiation_Date`: Start date of the transfer.
- `Completion_Date`: End date of the transfer.
- `Transport_Details`: Information on the transport mode and logistics.
- `Cost`: The financial cost of the transfer.

Tooling (Tooling_ID, Tooling_Name, Aircraft_Type_ID, Location_Base_ID, Maintenance_Log)
- `Tooling_ID`: Unique identifier for the tooling, primary key.
- `Tooling_Name`: Name or description of the tooling.
- `Aircraft_Type_ID`: Foreign key related to `Aircraft_Type` from `Aircraft`.
- `Location_Base_ID`: Foreign key related to `Base` where the tooling is located.
- `Maintenance_Log`: Record of maintenance activities for the tool.

Maintenance_Record (Record_ID, Aircraft_ID, Maintenance_Type, Maintenance_Date, Service_Notes)
- `Record_ID`: Unique identifier for the maintenance record, primary key.
- `Aircraft_ID`: Foreign key related to `Aircraft`.
- `Maintenance_Type`: Type of maintenance activity (Scheduled, Unscheduled, Inspection).
- `Maintenance_Date`: Date when the maintenance was performed.
- `Service_Notes`: Notes or details about the service performed.

Cardinality and Anticipated Entries:

- Aircraft: Expected entries could number in the dozens, corresponding to the 10 F105s and 10 F111s.
- Crew_Chief: Assuming each aircraft has a designated crew chief, entries would correspond to the number of aircraft.
- Base: With 2 different bases for the F111s and the F105s, entries should be at least 2 but likely only 2.

- Transfer: Each aircraft will have a ‘yes’ or ‘no’ to identify whether it has been transferred or not.

Each table is designed to stand alone with its primary key, with foreign keys establishing the necessary one-to-many or many-to-one relationships. The cardinality is set by the logical requirements of the database, considering historical and operational data tracking needs.

```
CREATE DATABASE militaryaircraft;

#Create a staging table that matches the CSV structure
CREATE TABLE Staging_Aircraft (
    Name VARCHAR(255),
    Rank VARCHAR(50),
    SSN VARCHAR(11),
    Service_Number VARCHAR(50),
    Dates_of_Service VARCHAR(50),
    Home_of_Record TEXT,
    Aircraft_ID VARCHAR(50),
    Aircraft_Type VARCHAR(50),
    Origin_Base VARCHAR(255),
    Destination_Base VARCHAR(255),
    Transfer_Status VARCHAR(50),
    Initiation_Date DATE,
    Completion_Date DATE
);
```

```
MariaDB [militaryaircraft]> DESCRIBE Staging_Aircraft;
+------------------+--------------+------+-----+---------+-------+
| Field            | Type         | Null | Key | Default | Extra |
+------------------+--------------+------+-----+---------+-------+
| Name             | varchar(255) | YES  |     | NULL    |       |
| Rank             | varchar(50)  | YES  |     | NULL    |       |
| SSN              | varchar(11)  | YES  |     | NULL    |       |
| Service_Number   | varchar(50)  | YES  |     | NULL    |       |
| Dates_of_Service | varchar(50)  | YES  |     | NULL    |       |
| Home_of_Record   | text         | YES  |     | NULL    |       |
| Aircraft_ID      | varchar(50)  | YES  |     | NULL    |       |
| Aircraft_Type    | varchar(50)  | YES  |     | NULL    |       |
| Origin_Base      | varchar(255) | YES  |     | NULL    |       |
| Destination_Base | varchar(255) | YES  |     | NULL    |       |
| Transfer_Status  | varchar(50)  | YES  |     | NULL    |       |
| Initiation_Date  | date         | YES  |     | NULL    |       |
| Completion_Date  | date         | YES  |     | NULL    |       |
+------------------+--------------+------+-----+---------+-------+
```

```
CREATE TABLE Transfers (
```

```
    Transfer_ID INT AUTO_INCREMENT PRIMARY KEY,
    Aircraft_ID VARCHAR(50) NOT NULL,
    Origin_Base_ID INT NOT NULL,
    Destination_Base_ID INT NOT NULL,
    Transfer_Status BOOLEAN, -- 1 for 'Y', 0 for 'N'
    FOREIGN KEY (Aircraft_ID) REFERENCES Aircraft(Aircraft_ID),
    FOREIGN KEY (Origin_Base_ID) REFERENCES Bases(Base_ID),
    FOREIGN KEY (Destination_Base_ID) REFERENCES Bases(Base_ID)
);
```

```
MariaDB [militaryaircraft]> DESCRIBE Transfers;
+------------------+--------------+------+-----+---------+-------+
| Field            | Type         | Null | Key | Default | Extra |
+------------------+--------------+------+-----+---------+-------+
| Aircraft_ID      | int(11)      | NO   | PRI | NULL    |       |
| Origin_Base      | varchar(255) | NO   |     | NULL    |       |
| Destination_Base | varchar(255) | NO   |     | NULL    |       |
| Transfer_Status  | varchar(255) | NO   |     | NULL    |       |
+------------------+--------------+------+-----+---------+-------+
```

```
CREATE TABLE Bases (
    Base_ID INT AUTO_INCREMENT PRIMARY KEY,
    Base_Name VARCHAR(255) NOT NULL
);
```

```
MariaDB [militaryaircraft]> DESCRIBE Bases;
+-----------+--------------+------+-----+---------+----------------+
| Field     | Type         | Null | Key | Default | Extra          |
+-----------+--------------+------+-----+---------+----------------+
| Base_ID   | int(11)      | NO   | PRI | NULL    | auto_increment |
| readiness | varchar(4)   | YES  |     | NULL    |                |
| location  | varchar(255) | YES  |     | NULL    |                |
+-----------+--------------+------+-----+---------+----------------+
```

```
CREATE TABLE Aircraft (
    Aircraft_ID VARCHAR(50) PRIMARY KEY,
    Aircraft_Type VARCHAR(50),
    Transfer_Status BOOLEAN
);
```

```
MariaDB [militaryaircraft]> DESCRIBE Aircraft;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| Aircraft_ID     | int(11)      | NO   | PRI | NULL    |       |
| Aircraft_Type   | varchar(255) | NO   |     | NULL    |       |
| Crew_Chief      | varchar(255) | YES  |     | NULL    |       |
| Transfer_Status | varchar(255) | NO   |     | NULL    |       |
| Location        | varchar(255) | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
```

Create table; Crew_Chiefs

```
CREATE TABLE Crew_Chiefs (
  Name varchar(255) NOT NULL,
  Rank varchar(50),
  Service_Number varchar(50) UNIQUE,
  Dates_of_Service varchar(50),
  Home_of_Record text,
  aircraft_id varchar(255),
  ssn varchar(255)
);
```

```
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| Name            | varchar(255) | NO   |     | NULL    |       |
| Rank            | varchar(50)  | YES  |     | NULL    |       |
| Service_Number  | varchar(50)  | YES  | UNI | NULL    |       |
| Dates_of_Service| varchar(50)  | YES  |     | NULL    |       |
| Home_of_Record  | text         | YES  |     | NULL    |       |
| aircraft_id     | varchar(255) | YES  |     | NULL    |       |
| ssn             | varchar(255) | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
```

QUESTIONS:::

1. How many aircraft transfers have been completed, and what are their aircraft IDs?

QUERY -> SELECT COUNT(*) AS Number_of_Completed_Transfers, Aircraft_ID
FROM Transfers
WHERE Transfer_Status = 'Y'
GROUP BY Aircraft_ID;

Number_of_Completed_Transfers	Aircraft_ID
1	80609
1	80610
1	80611
1	80613
1	80616
1	80617
1	80619
1	80620
1	80621
1	80622

2. What are the names and ranks of crew chiefs associated with F105 aircraft?

QUERY -> SELECT Name, Rank
FROM Crew_Chiefs
WHERE aircraft_id BETWEEN '80608' AND '80617'
ORDER BY aircraft_id
LIMIT 10;

Name	Rank
Meagan Ross	Sergeant
Hannah Burgess	Lieutenant
Laura Archer	Staff Sergeant
Ryan Perez	Sergeant
Stephanie Williams	Captain
Matthew Jarvis	Captain
Bryan Patterson	Staff Sergeant
Caitlin Barrera	Lieutenant
Christopher Moore DVM	Staff Sergeant
Vanessa Klein	Staff Sergeant

3. Which aircraft have not completed transfer and what are the Aircraft ID's?

QUERY -> SELECT Aircraft_ID
FROM Transfers
WHERE UPPER(Transfer_Status) = 'N';

Aircraft_ID
80608
80612
80614
80615
80618
80623
80624
80625
80626
80627

4. Reveal the number of crew chiefs that have transferred their aircraft and return their aircraft id. (This requires a join between 'Transfers' and 'Crew_Chiefs')

QUERY -> SELECT Crew_Chiefs.Name, Transfers.Aircraft_ID
FROM Crew_Chiefs
JOIN Transfers ON Crew_Chiefs.aircraft_id = Transfers.Aircraft_ID
WHERE Transfers.Transfer_Status = 'Y';

Name	Aircraft_ID
Hannah Burgess	80609
Laura Archer	80610
Ryan Perez	80611
Matthew Jarvis	80613
Christopher Moore DVM	80616
Vanessa Klein	80617
Marrie Montana MD	80619
Stephen Harris	80620
Christine Mendez	80621
Joseph Gordon	80622

5. How many aircraft have been successfully transferred by crew chiefs with the rank of "Staff Sergeant," and what are the current locations of these aircraft?

Query -> SELECT COUNT(T.Aircraft_ID) AS TotalTransferred, T.Destination_Base

```
FROM Crew_Chiefs CC
JOIN Transfers T ON CC.aircraft_id = T.Aircraft_ID
WHERE CC.Rank = 'Staff Sergeant' AND T.Transfer_Status = 'Y'
GROUP BY T.Destination_Base;
```

TotalTransferred	Destination_Base
2	Elmendorf AFB
2	Pease AFB

6. Return only the aircraft ID's who are in a transfer status of 'Y', and are heading to the base of readiness, 'UP'.

```
Query -> SELECT
   A.Aircraft_ID
FROM
   Aircraft A
JOIN Transfers T ON A.Aircraft_ID = T.Aircraft_ID
JOIN Bases B ON T.Destination_Base = B.location
WHERE
   T.Transfer_Status = 'Y'
   AND B.readiness = 'UP';
```

Aircraft_ID
80617
80619
80620
80621
80622