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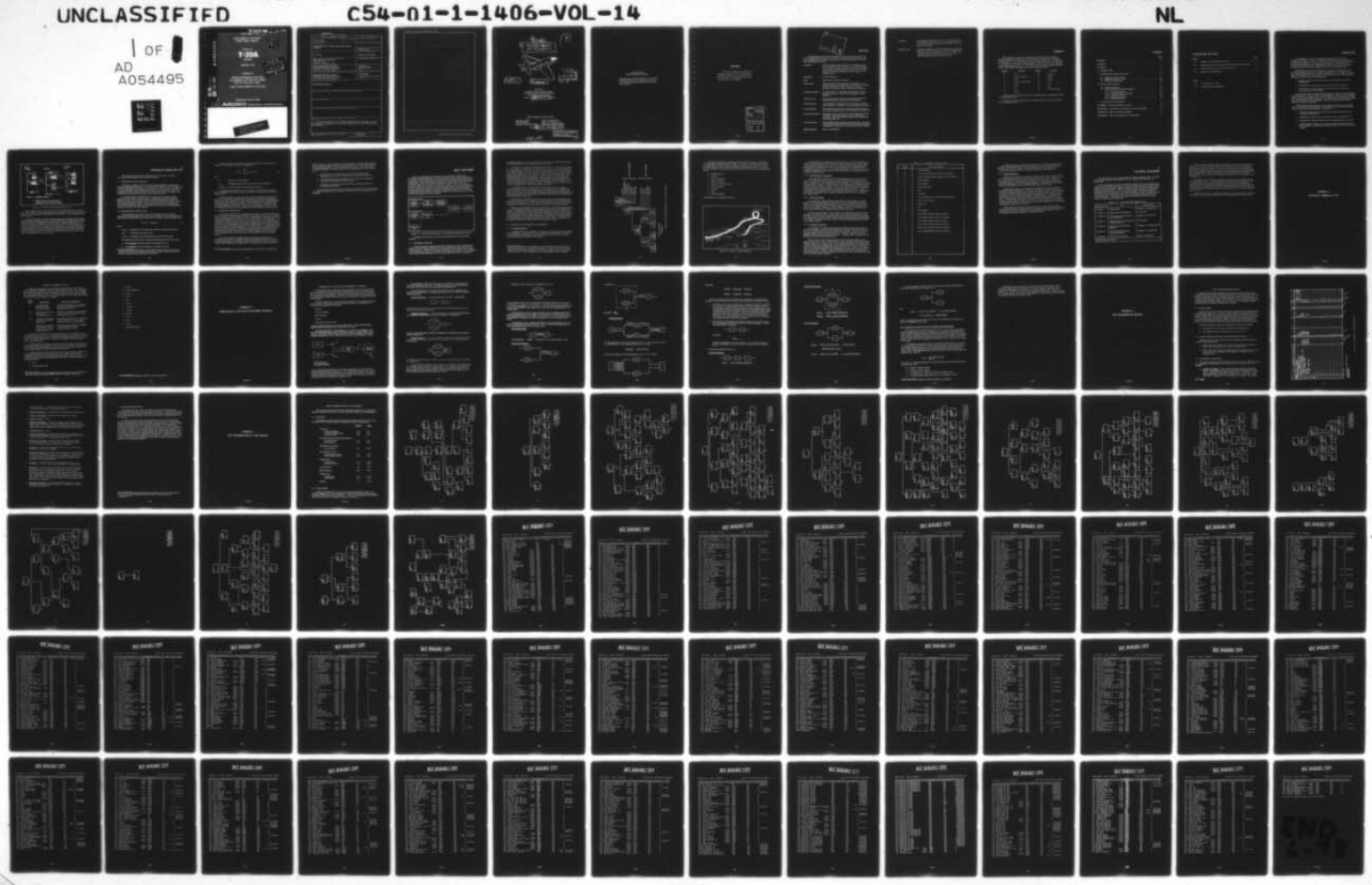

Final Report

DEVELOPMENT OF AIR FORCE FLIGHT SAFETY MODELS

Volume 14

T-39A

AIRCRAFT

September 1976

Prepared for

SERVICE ENGINEERING DIVISION
SAN ANTONIO AIR LOGISTICS CENTER
Kelly Air Force Base, Texas

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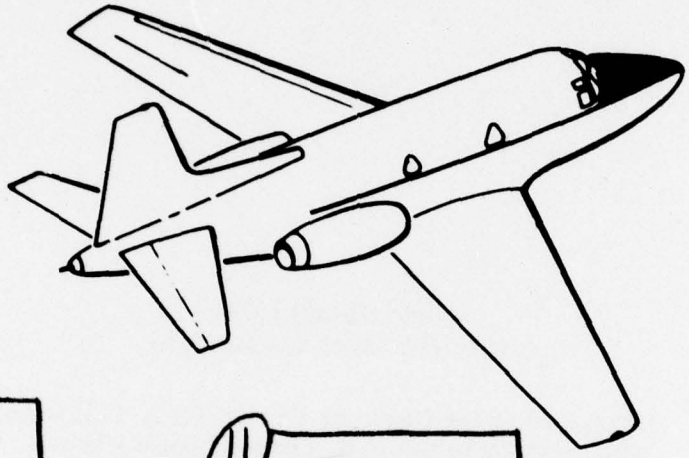

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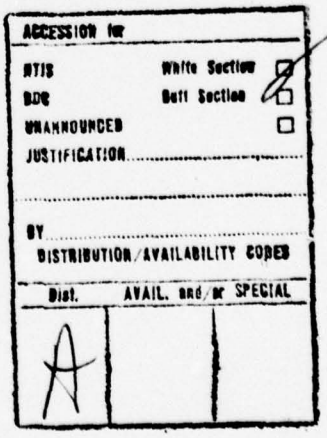
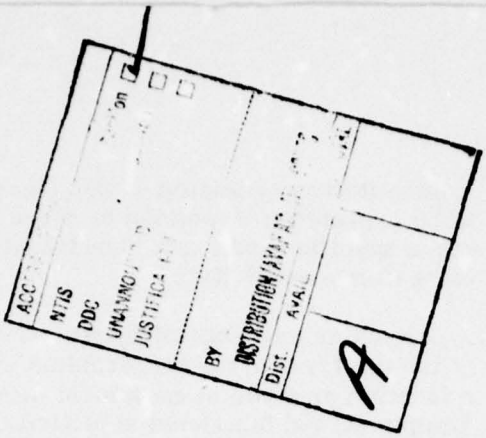




GLOSSARY

This glossary presents general definitions of terms used in this report. The reader will find certain of these terms defined in somewhat different words in the text, depending on the context of the discussion; but the meaning will be consistent with the definitions given here.

Criticality – A numerical index of the significance of equipment failure history relative to aircraft safety. As an analysis parameter, it can be considered proportional to the likelihood that an item will fail and thereby cause an accident. It is the product of the failure probability and the sensitivity of an equipment item.

Dependency – See link dependency.

FSPT – Flight Safety Prediction Technique

Flight Phases – Discrete segments of the aircraft mission profile. For present purposes, the flight phases are defined as 1) startup and taxi, 2) takeoff, 3) climb, 4) cruise, 5) tactics, 6) cruise, 7) descend, 8) land, and 9) taxi and shutdown.

Functional Analysis – The determination of equipment relationships to aircraft functions performed, and the interrelationships of these functions.

Functional Link – The simplest form of functional relationship in which one function is dependent upon the next lower function.

Functional Path – The compilation of functional links, in sequence, through which a function is identified as being dependent upon another.

Link Dependency – The conditional probability of a dependent function failing, given that a particular function it is dependent upon has failed.

Provisory Condition – Operation of an aircraft in a mode or environment such that the safety-related importance of certain equipments is increased. Provisory conditions include icing, night flight, supersonic flight, etc.

Provisory Factor – The probability that a provisory condition exists. Also used to describe the coded notation used to indicate that a functional relationship is dependent on a particular provisory condition.

Safety Sensitivity – Same as "sensitivity".

Sensitivity – A quantitative indication of the degree of safety degradation to be expected if a function or piece of equipment fails. The more specific terms are "functional sensitivity" or "equipment item sensitivity".

Sensitivity Path – A particular sequence of functional dependencies (beginning at the top level in the hierarchical structure) through which a function or piece of equipment derives a sensitivity value. Equipment and functional sensitivity values are often derived through several such sensitivity paths.

FOREWORD

This document is part of a 16-volume report describing the application to specific aircraft types of ARINC Research Corporation's Flight Safety Prediction Technique (FSPT). The technique was developed under previous Air Force contracts (see Appendix A). The present effort, undertaken in 1972 under Contract F09603-72-A-1132-SA01, has led to further refinement of the FSPT through its broad application to many different types of aircraft. The flight safety models generated for these aircraft are presented in individual volumes of this report as follows:

Volume	Aircraft	Volume	Aircraft
2	T-38	10	B-52G, H
3	F-111A, FB-111A	11	C-130E
4	A-7D	12	KC-135
5	F-4D, E; and RF-4C	13	C-5A
6	C-141	14	T-39
7	A-37	15	F-15
8	O-2	16	UH-1N Helicopter
9	OV-10		

Volume 16 will document the results of a feasibility study of extending the FSPT to rotary-wing aircraft.

Volume 1, an overall summary of the contractual effort, will be issued at the end of the contract period.

CONTENTS

ILLUSTRATIONS AND TABLES

1
INTRODUCTION

The Flight Safety Prediction Technique developed by ARINC Research Corporation provides for assessment of the impact on flight safety of the failure of specific items of equipment within an aircraft. In the FSPT, mathematical modeling procedures are applied for processing aircraft-equipment failure data to yield a quantified index ranking safety-related problems on the basis of their likelihood of occurrence and the resulting degradation in the aircraft's capability to fly.

The ranking factor is called "criticality", which in its simplest form is the product of the failure probability and flight-safety sensitivity of an equipment. (A more detailed definition appears in Section 2 and Appendix B.) The failure probability inputs are from basic failure-data sources, AFM 66-1 and 65-110. The sensitivity estimates are derived by the following process:

a. Systematic analysis of aircraft functions to determine those essential to flight safety

b. Identification of the hardware required to perform these functions

c. Evaluation of the safety significance of the hardware in performing these essential aircraft functions.

The criticality values resulting from this approach provide a relative ranking of all malfunctions with respect to their safety significance. Figure 1-1 is a simplified example of how three equipment items would be ranked on the combined basis of their failure probability and safety sensitivity. This figure illustrates an example in which item A has the highest failure probability, but due to the low sensitivity value is ranked below item B in criticality.

The methodology has the ability to rank malfunction problems currently and continuously by their accident potential. This ranking, based on criticality assessment, can provide the basic parameters necessary for:

a. Identifying equipment items whose failure history and application pose a threat to aircraft safety

b. Quantifying the degree of threat associated with each equipment item

c. Evaluating and tracking the effectiveness of modifications to the aircraft

d. Assessing safety benefits versus the cost of proposed aircraft modifications, changes in maintenance or flight operations, or alternative aircraft designs.

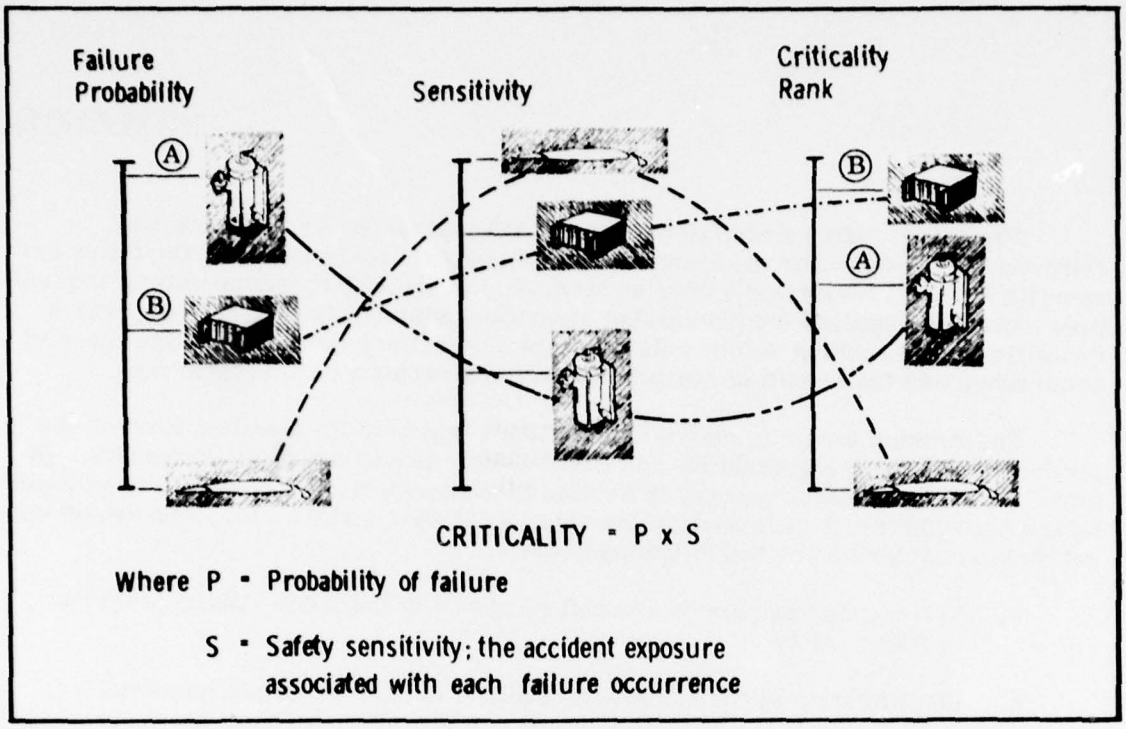


Figure 1-1. Example of Criticality Ranking Process

In this report, Section 4 and Appendix D pertain specifically to the T-39A aircraft. The remainder of the document provides support information that will make the T-39A data, and the method by which the data were obtained, more meaningful to the general reader.

Section 2 presents an overview of the development and utilization of the Flight Safety Prediction Technique; Section 3 discusses the steps associated with generating a safety model for calculating the safety criticality of various equipments of an aircraft; and Section 4 describes how the safety models for the T-39A aircraft were developed. Appendix A summarizes the contractual history of the development of the FSPT; Appendix B discusses mathematical considerations underlying the technique; Appendix C discusses FSPT documentation methods; and Appendix D presents functional relationship diagrams for a listing of keypunch cards that comprise the safety model documentation for the T-39A aircraft.

2
METHODOLOGY UNDERLYING FSPT

This section discusses the basic definitions and mathematical concepts associated with the Flight Safety Prediction Technique.

2.1 DEFINITION OF SAFE AIRCRAFT

To develop a relative measure of aircraft safety degradation resulting from specific equipment malfunctions, it is first necessary to define a "safe" aircraft. For purposes of the FSPT assessments, an aircraft is assumed to be in a safe condition if it is operating within its prescribed performance limits. Conversely, an aircraft operating (or about to operate) outside these limits is considered to be unsafe – in a condition where property damage and personal injury may result.

The safety prediction methodology does not attempt to assess the extent of possible personal injury or aircraft damage resulting from an unsafe condition. Neither does the concept consider ejection capability, parachutes, life rafts, etc., which do not make an aircraft safer per se but provide for the survivability of the aircrew when the aircraft is unsafe. Collision is also excluded from consideration because of the complexity of the interrelationships between pilot, aircraft equipment, ground surveillance, and traffic density.

2.2 MATHEMATICAL BASIS OF FSPT

The probability of an accident caused by the failure of an element can be expressed as the probability of the element failing multiplied by the conditional probability that the failure of the element will cause an accident. Stated in equation form:

$$P(\mathcal{A}, j) = P(j)P(\mathcal{A}|j) \tag{1}$$

where

$P(\mathcal{A}, j)$ = Probability of an accident due to failure of just the j^{th} element*

$P(j)$ = Probability that element j fails

$P(\mathcal{A}|j)$ = Probability of an accident given that the j^{th} element fails.

This equation reflects the basic relationships addressed in the FSPT where:

a. The criticality of the j^{th} element is an estimate of $P(\mathcal{A}, j)$

b. The sensitivity of the j^{th} element is an estimate of $P(\mathcal{A}|j)$

*In this and subsequent discussions, unless otherwise stated, expressions such as "failure of the j^{th} element" should be interpreted to mean: failure of only the j^{th} element, assuming all other elements are not failed.

Because an element's effect on safety may depend on the mission phase (see Section 3.2.1), the above model can be expanded to:

$$P(A, j) = \sum_{k=1}^{N} P_{j,k} \, P(A \mid j, k) \qquad (2)$$

where

N = Number of mission phases

$P_{j,k}$ = Probability that the j^{th} element is failed in the k^{th} phase

$P(A \mid j, k)$ = The j^{th} element's sensitivity in the k^{th} phase.

To identify the importance of discrete elements to aircraft safety, a flight profile consisting of nine distinct phases was defined. The phases are discussed in Section 3.2.1.

To utilize equation 2, it was necessary to develop a method for obtaining the values of $P(A \mid j,k)$, the probability that a malfunction in element j during mission phase k will result in an accident. This method in turn requires the estimation of two parameters: the probability of accident if a major function is not available during each mission phase, and the dependence of the major function on subfunctions and elements during each such phase*. Each function and equipment item thus derives its sensitivity value from its relationship to the major function(s) dependent upon it.

2.3 SENSITIVITY ASSIGNMENTS

A great deal of information is available on the causes of aircraft accidents, but little exists from which to make the sensitivity assignments [$P(A \mid j)$]. These assignments are therefore largely subjective, based on the analyst's knowledge of the system and any information he may have on previous accident history. The sensitivity assigments are reviewed (and revised as necessary) by an Air Force/contractor team working on a particular model to ensure that consistent criteria have been followed. The team review and negotiation of sensitivity assignments is the mechanism by which the value becomes sufficiently objective for use with the model. This negotiation considers all of those top level functions as a group and reassigns sensitivity values as necessary to assure that the most objective proportionality is attained for the particular aircraft model. The same major-function sensitivity values are used for major functions on all aircraft models where configuration and mission profiles permit.

The development of criticality rankings for the various elements (j's) is dependent upon the ability to quantify the failure probability [$P(j)$] and the element sensitivity [$P(A \mid j)$] for each element. Since the intent of the concept is to provide a relative safety ranking of all malfunctions, it is not necessary to develop absolute

*For a more detailed discussion of the mathematics of the FSPT, see Appendix B.

values for $P(A|j)$. If the sensitivity values developed are correct relative to each other, a proper criticality ranking will be established. It is intended that criticality be an index proportional to $P(A,j)$ and therefore provide the same relative rank ordering of elements. The major reasons for proportionality, rather than equality, are:

a. The FSPT does not account for the effect of extraordinary pilot intervention to prevent an accident in case of equipment malfunction.

b. Criticality quantification was limited in its treatment of simultaneous occurrence of independent, primary failures.

c. Operational and malfunction data yield only a proportional estimate of the required information.

While strict proportionality cannot be mathematically proven, it is believed that the criticality rankings provide reasonable relative measures of equipment problem potential.

3
MODEL DEVELOPMENT

Figure 3-1 summarizes the approach to the assessment of flight-safety criticality of aircraft equipment. The first contractor activity is the identification of all functions the aircraft is expected to perform and the determination of their interrelationships. Next, each functional relationship is documented; and then sensitivity assignments are made at the major functional levels (below these levels, link dependency values are estimated; see discussion, Section 3.2.2). This process is carried out until each work unit code associated with a major function has been identified with respect to the function performed and dependencies have been estimated. Computer processing calculates the safety sensitivity for each work unit coded item, combines these values with the operation and failure data input by the Air Force, and produces the equipment criticality ranking.

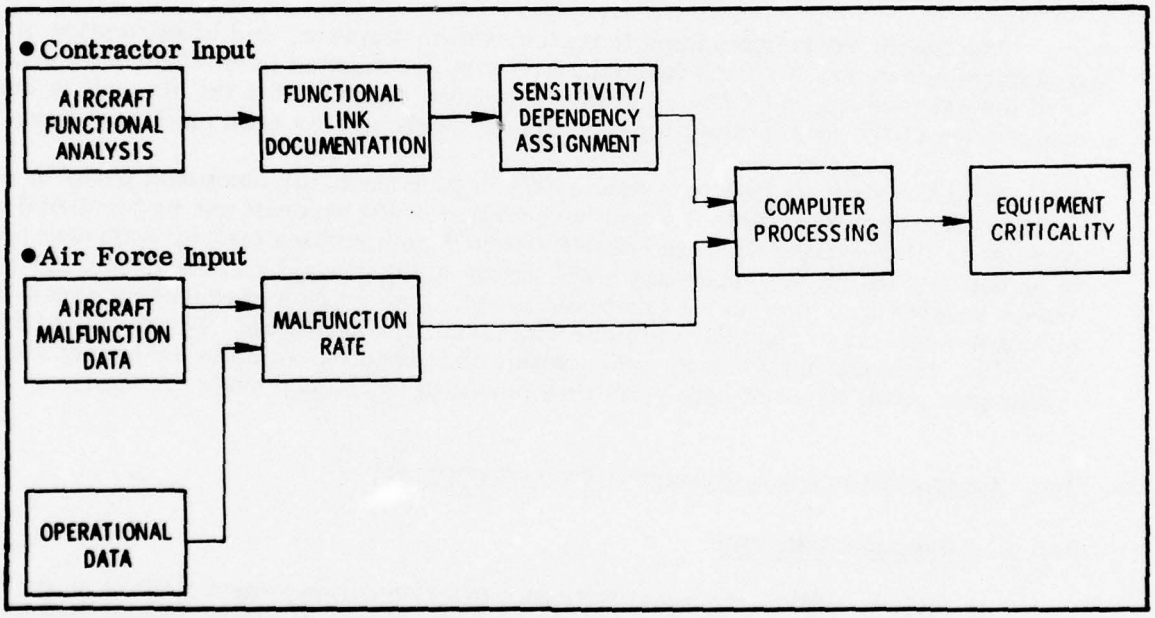


Figure 3-1. Activities and Data Inputs to Flight Safety Criticality Assessment

The steps in this process are discussed in greater detail in the following sections.

3.1 FUNCTIONAL ANALYSIS

Functional analysis entails the systematic identification of the relationships of hardware to the functions performed by the aircraft and documented in the aircraft technical orders. Tabulated for each aircraft function are the equipments necessary for its performance as well as all outputs required for other systems. The complexity of the functional interdependencies of an aircraft requires the use of a systematic

accounting procedure, as discussed below, to assure that all relationships have been identified and that no functional paths have been overlooked.

Certain top-level functions (comprised of both "primary" and "major" functions) have been defined as applicable to all aircraft types, and serve as the starting point for a safety analysis. Figure 3-2 lists these top level functions with the primary function of Flight Control expanded to show its typical major functions. Below the major function level, differences in aircraft types result in function identification and structuring specifically suited to each aircraft. In Figure 3-2, for instance, the major function Roll Control is subdivided into Left Roll and Right Roll, and further into aileron and spoiler actuation subfunctions. This structure is that applicable to an F-4 aircraft, in which ailerons have an extremely limited upward travel and lift is primarily lost through spoiler operation. Finally, each item in the aircraft WUC ("-06") manual is identified with respect to the function it performs.*

Every function and every WUC included in the model receives an "alpha designator" unique to that aircraft model. Due to the large number of alpha designators required in a model, an indenturing system is utilized to prevent duplication. However, the location in the hierarchical structure and the number of characters in the alpha designators are often independent, since such correlation is not necessary for subsequent computer processing.

The functional relationships from the system diagram, and identification of the equipment necessary for each function, are next documented in an 80-column punchcard format (see Appendix C). The total functional diagram for the aircraft is then a compilation of the system diagrams, with one punchcard for each functional link.

With the aircraft functions completely documented, the functional paths by which a piece of equipment contributes to the operation of the aircraft can be identified by computer. Performing the path-identification/documentation task by computer proves to be not only useful but necessary – the human analyst could neither keep track of nor assign sensitivity values to all functional paths. The machine processing capability allows the analyst to consider only one functional link at a time. The ability to follow all of the functional interrelationships within the aircraft, which is necessary for meaningful assessment of safety, is then provided by the computer.

3.2 MAJOR-FUNCTION SENSITIVITY ASSIGNMENT

3.2.1 Assignment Method

As stated earlier, the sensitivity of a function or equipment item is an estimate of the probability that its failure will cause an accident. From functional analysis of the aircraft under consideration, major functions are identified and are assigned sensitivity values for each phase of the mission.

*Certain WUC items in the "-06" manual may not be included in the safety model, these items being either 1) eliminated by TCTOs; 2) purely structural items in the 11000 series; 3) necessary only for survivability or ejection; 4) of lower indenture than the LRU level, where computer data screening eliminates failure reports.

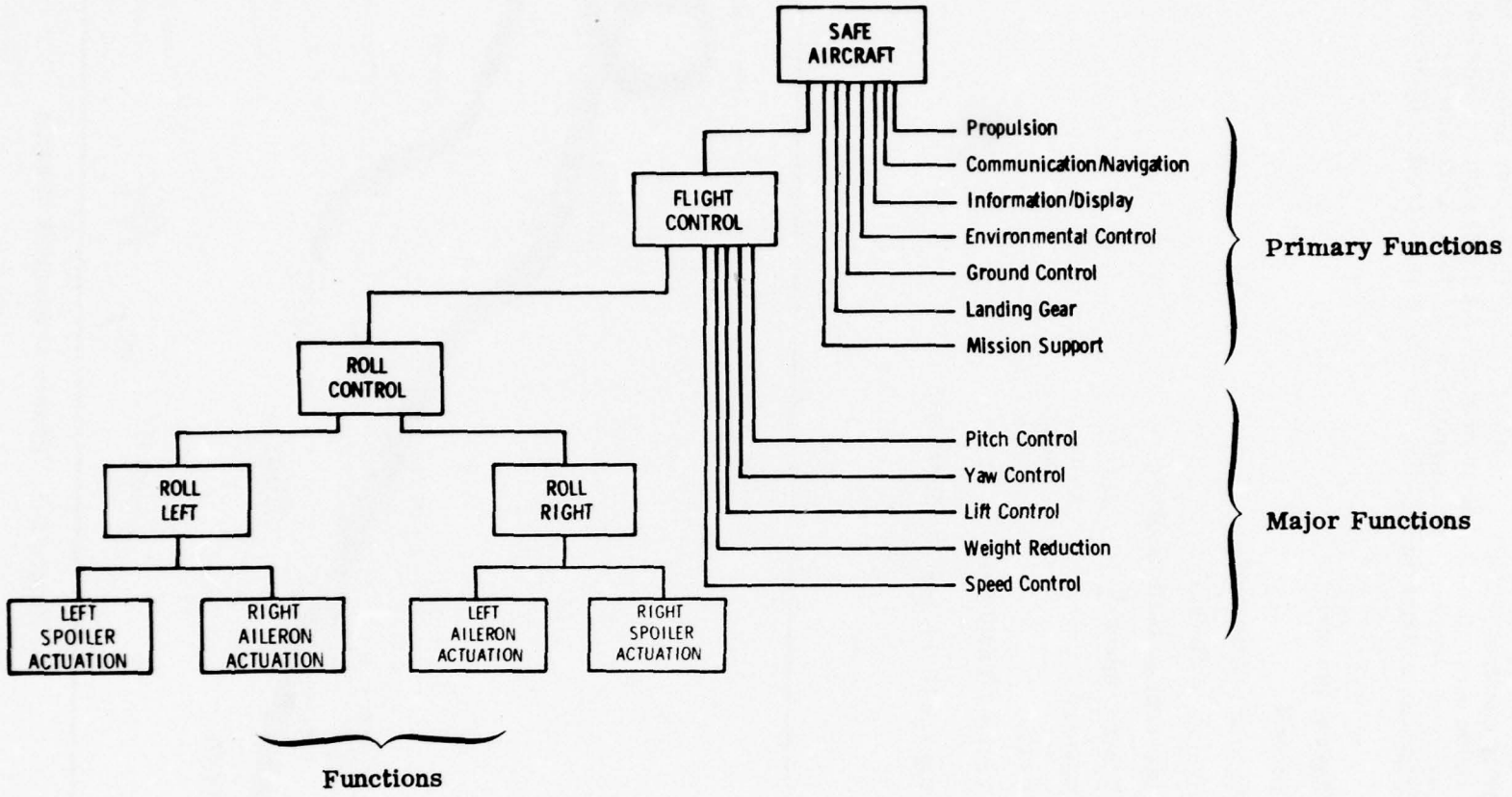


Figure 3-2. Hierarchical Structure of Aircraft Functions

The relative importance of primary functions, major functions, and functions is not necessarily constant throughout a flight. The failure, for example, of one engine of a multi-engine aircraft is far more critical on takeoff than it is during the rest of the flight, and is of relatively little importance during startup and taxi. To accommodate this variability of importance, the mission of an aircraft is divided into nine flight phases:

1. Startup and taxi
2. Takeoff
3. Ascend (climb-out)
4. Cruise, outbound
5. Intercept or tactical phase
6. Cruise, inbound
7. Descend
8. Land
9. Taxi and shutdown

These phases are illustrated in Figure 3-3.

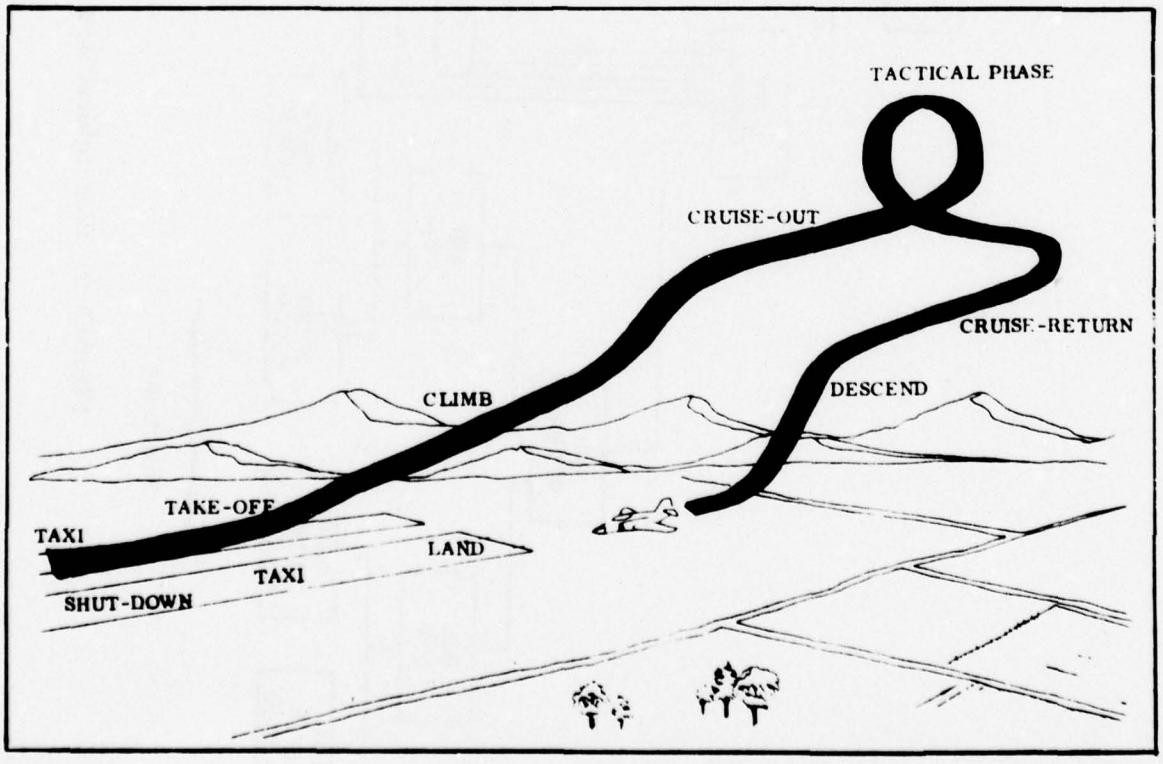


Figure 3-3. Phases of Aircraft Mission

A sensitivity value is assigned for each of the phases, and represents the best estimate of the likelihood that the aircraft will enter a hazardous mode if the function is not present in that phase. The numerical values assigned are proportional rather than absolute, and range from 0.0 to 1.0. The keypunch card format limits this assignment to increments of 0.1. Increments smaller than 0.1, when required, were assigned by defining a quasi-function for insertion between the major function and its dependent primary function.

3.2.2 Link Dependency Assignment

"Link dependency" is defined as the probability that the loss of a function will result in the loss of a dependent function. (For a more detailed discussion of this term, see Appendix B.) The assignment of link dependency values requires knowledge of the operation of specific aircraft because it is concerned only with functional levels below the "major" category. At this lower level, no evaluation is made of the impact on flight safety of the loss of functions. Instead, the effect of the loss of one function on the performance of another function becomes the evaluation criterion. Like sensitivities, link dependency values are assigned in increments of 0.1. Additionally, the method of attenuation used in assigning sensitivity values can also be applied to link dependencies.

3.2.3 Provisory Factors

The sensitivity of major functions with respect to aircraft safety, and at the lower levels the link dependency between functions, can be dependent on external influences and aircraft operating conditions. To accommodate these external influences, a set of provisory factors has been identified. An example would be a windshield anti-ice system, which has a safety sensitivity close to 1.0 during landing under icing conditions but a negligible effect on a dry, warm day.

Under such circumstances, the procedure is to assign the "worst case" value (assuming the condition exists). During model exercise the likelihood that the condition exists can be "read-in", thereby allowing the sensitivity value to be assigned by the computer based on the likelihood of the condition and the probability that the higher level function will therefore be lost. Table 3-1 lists the standard provisory factors used in FSPT models.

3.2.4 Computer Processing

Documentation of a flight safety analysis by ARINC Research thus consists of functional diagrams, coded functional tabulations, a functional data processing card deck, and a machine-prepared printout of the card deck data. Under this contract, the documentation is then sent to San Antonio Air Logistics Center for review by MMER personnel and representatives of the Air Logistics Center responsible for the particular aircraft (if other than SA/ALC).

SA/ALC processes the functional data card deck utilizing a number of computerized operations. First, a functional deck edit is accomplished to identify certain format or logic errors that may exist. Next, a path identification/documentation run is made that traces all possible paths associated with each function and calculates the numerical sensitivities by flight phase down to the WUC level. Then, a path combination run is made taking into account the dependence of more than one major function on a particular WUC. Finally, failure information from the 66-1 data system and numerical factors for provisory conditions are input and a WUC criticality list by rank order is generated by the computer.

TABLE 3-1. PROVISORY FACTOR CODES

Code	Provisory Condition
A	Icing conditions
B	Adverse speed/altitude operations (Helicopter)
C	Runway stopping distance/confined area (Helicopter)
D	Night operation
E	IFR conditions
F	Supersonic flight
G	Rain
H	Solo flight
I	Loss of function for which indication is provided
K	Normal system failed
T	Flame-out
X	Fire
Y	Cold weather
2	One of three available units is required
3	Two of three available units are required
4	One of four available units is required
5	Two of four available units are required
6	Three of four available units are required
8	Four of eight available units are required

An additional product generated by the computer is a two-part criticality trend analysis. Part I contains the criticality rankings and linear regression analysis by WUC for the previous 12 months. Part II contains plots of the criticalities and regression lines for the 25 WUCs top-ranked according to safety criticality.

3.2.5 Model Maintenance

Each time an aircraft type for which a safety model has been developed undergoes a modification, the effects of the changes on the model must be evaluated. Technical order and WUC revisions must be incorporated into the model. Removal of existing hardware, the installation of new hardware, or design improvements may change link dependencies and sensitivity assignments. The update procedure should follow the same general steps as outlined for the initial analysis effort.

Existing block diagrams and a printout of the functional card deck form the baseline for change identification. Functional relationships should be reviewed to determine the impact of changes on the documented safety analysis. Diagrams should be revised to reflect functional differences, WUC changes should be noted, and all differences listed on a flight-safety functional tabulation sheet. The functional deck printout can be used for manual indication of what the changes are and where they occur. New data cards are prepared and the functional deck updated by the removal of obsolete cards and the insertion of new cards. From this point on, the computer is again utilized to edit the functional deck, perform path identification/documentation, and calculate sensitivities for each WUC.

Block diagrams and other affected portions of the specific aircraft safety analysis report should be updated and revised pages issued that reflect these changes. Maintaining an accurate and updated model is important to obtaining an accurate assessment of the safety significance of hardware failures.

4
T-39A MODEL DEVELOPMENT

The FSPT model for the T-39A aircraft was begun in September 1975. The total aircraft documentation was submitted for "GO-95" computer edit at SA/ALC in August 1976.

The aircraft flight manual and maintenance technical orders provided the information on aircraft system operation. The model developed represents T-39A aircraft configured to the latest time compliance technical orders (TCTOs) documented in the manuals supplied by SA/ALC. Table 4-1 lists the manuals and their revision status applicable to the developed model. As noted in the table, two technical manuals (1T-39A-2-3 and 2-4) were not received in their entirety. However, SA/ALC supplied reproduction copies of applicable sections from the manuals which were used for model development. The reproduction copies are assumed to be the most recent revisions, which occurred during 1975.

TABLE 4-1. T-39A SYSTEM DOCUMENTATION

Nomenclature	Title	Revision/Date
1T-39A-1	Flight Manual	Change 1, 31 January 1975
1T-39A-2-3	Engines and Related System	Circa 1975*
1T-39A-2-3-1	Power Plant Ground Operation and Conditioning	Change 18, 2 June 1975
1T-39A-2-4	Flight Control and Hydraulically Operated Systems	Circa 1975*
1T-39A-2-5	Instruments and Electrical Systems	Change 17, 19 February 1974
1T-39A-2-6	Radio Communication and Navigation Systems	Change 21, 30 April 1975
1T-39A-06	Work Unit Code Manual	Basic, 1 April 1975

*See discussion, Section 4.

Because of the vulnerability of the functional logic/sensitivity documentation to such errors as omission of links, duplication of cards, and incorrect keypunching, quality reviews were conducted at various critical points in the model development. In addition to keypunch verification, each card was checked against the functional link shown on the original rough draft and the final functional diagram and the diagrammed link was checked off. Missing or duplicated functional links were thus identified. Work unit codes used in the model were checked off against the WUC manual to assure completeness.

The quality reviews were first conducted prior to computer verification of the aircraft deck by SA/ALC. Following computer verification, a second quality review was performed by representatives of Warner Robins ALC and ARINC Research. Finally, the first criticality printout obtained from application of actual aircraft data was reviewed to identify any terms whose sensitivity appeared to be unreasonable. In such cases the paths were traced manually and changes made if an erroneous relationship was found.

Appendix C presents the methods and standard used in documenting an FSPT aircraft model. Appendix D presents the FSPT documentation for the T-39A aircraft.

APPENDIX A

HISTORICAL SUMMARY OF FSPT

HISTORICAL SUMMARY OF FSPT

In 1965, the desirability and practicability of quantifying the significance of specific equipment malfunctions relative to flight safety was explored in a feasibility study conducted by ARINC Research Corporation for the Air Force. The feasibility of a safety-quantification approach, which has subsequently become known as Flight Safety Prediction Technique (FSPT), was demonstrated; and the method was developed and refined in a series of studies, as follows:

Study Phase	Subject/Date	Sponsor*/Publication No.
I	Feasibility Study, September 1965 to June 1967 (Phase I)	Sacramento Air Materiel Area (SMNE), Contract AF09(603)62335, SM-37-2; publication 705-01-1-777
II-A	Technique Development, October 1967 to July 1968 (Phase II-A)	San Antonio Air Materiel Area (SANEW), Contract AF09(603)-67-A-0267-SA01; publication 734-01-1-895
II-B	Technique Development, July 1968 to July 1969 (Phase II-B)	San Antonio Air Materiel Area (SANEW), Contract F09(603)-68-A-0317-SA01; publication 754-01-1-985 (Revision 1)
	FSPT System Documentation for the F-4C and T-37 Aircraft, October 1970 to June 1971	San Antonio Air Materiel Area (MMER) Contract F41608-71-C-0576; publication 697-01-1-1118

In the Phase II-B study, the FSPT was applied to the F-106 aircraft. Concurrent with Phase II-B, the U.S. Naval Safety Center contracted ARINC Research to extend the methodology to produce a flight safety criticality model for the F-4J aircraft. The results of this effort are documented in ARINC Research Publication 753-01-3-982 (Revision 1).

In 1970, ARINC Research was contracted to develop suitable input data to permit the application of the technique to the T-37 and F-4C aircraft. These data were derived in the form of mathematical model functional documentation as input to the basic computer program developed and applied to the F-106.

In 1972, ARINC Research Corporation was awarded a contract, with the subsequent modifications in 1973 and 1974, to apply the Flight Safety Prediction Technique to 15 aircraft, working jointly with cognizant Air Logistics Centers. Aircraft to which the FSPT has been applied under this latter contract (F09603-72-A-1132-SA01) include:

a. T-38

b. F-111A and FB-111A

*The office symbols of Service Engineering at the Sacramento and San Antonio Air Materiel Areas are now SM/ALC/MME and SA/ALC/MME, respectively.

c. A-7D

d. F-4D, E; RF-4C

e. C-141

f. A-37

g. O-2

h. OV-10

i. B-52G, H

j. C-130E

k. KC-135

l. C-5A

m. T-39

n. F-15

o. UH-1N Helicopter*

*Feasibility study of adaptation of FSPT to rotary-wing aircraft.

APPENDIX B

FORMULATION OF CRITICALITY-ASSESSMENT TECHNIQUE

FORMULATION OF CRITICALITY-ASSESSMENT TECHNIQUE

To implement the basic safety model defined in Section 2.2, it is necessary to develop a submodel for the probability that a malfunction in element j during mission phase k will result in an accident. This submodel in turn requires that we estimate two parameters: the probability of accident if a major function is not available during each mission phase, and the dependence of the major function on element j during each mission phase.

The first parameter is termed "functional sensitivity" and is estimated for each major function. The functional analysis performed in this task established for an aircraft the following hierarchal scheme:

Aircraft

Primary functions

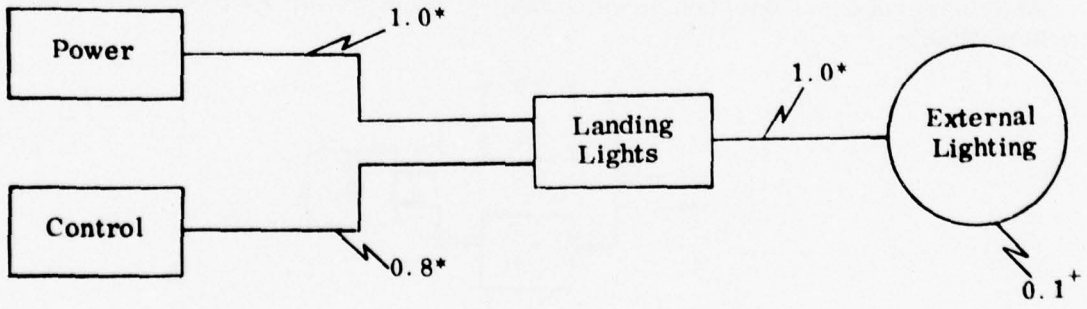
Major functions

Function

Elements (Work Unit Codes)

A primary function would be one such as Flight Control. Major functions under Flight Control would include Pitch Control and Yaw Control.

The second parameter, "link dependency," is a vehicle for showing the influence of each functional-path element on the performance of a major function. For example, if the major function being considered is External Lighting, the following diagram illustrates the nature of functional sensitivity and link dependency values.



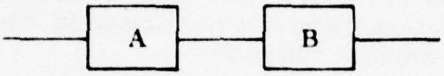
*Link dependencies
+Functional sensitivity

The 0.8 value means that failure of the Control function will result in loss of the Landing Light function 80% of the time. The 0.1 functional sensitivity value denotes that loss of external lighting will result in an accident 10% of the time. The values must be interpreted in a proportional sense, in that the actual accident probability is dependent upon external factors (see Section 3.2.3).

The remainder of this appendix discusses the procedures and model used to obtain element sensitivities; e.g., in the above example, the accident probability given that a Work Unit Code in the Control function malfunctions.

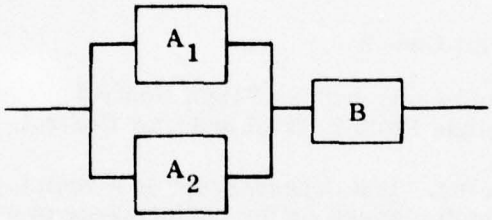
Three principal types of functional relationship--series, redundant, and parallel--were identified as representing the major forms to consider in modeling element sensitivity.

Series Relationship – A function having only one input. Schematically,



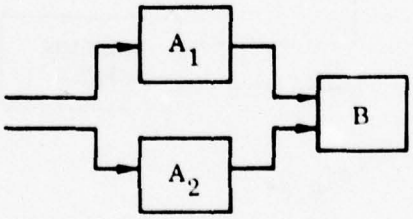
which indicates that outside of its own elements, the success of function B is only affected by the success of function A.

Functional Redundancy – A function having one or more backup functions that can provide the required inputs to successor functions. Schematically,



where A_1 and A_2 represent a functional redundancy in that either may provide the necessary input to B.

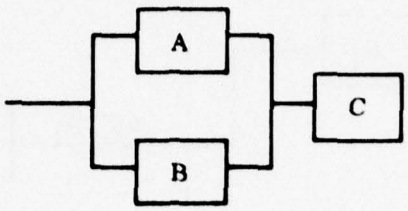
Parallel Functions – Two or more functions independent of each other in terms of functional success, but each of which may be required for a successor function. Schematically,



B will generally require both A_1 and A_2; but A_1 does not depend on A_2, nor does A_2 depend on A_1.

In some cases the distinction between functional redundancy and parallel paths is very slight, and may depend on mission phase. For example the four engines of a plane can be considered to be a redundant configuration providing inputs to the primary propulsion function during cruising, but would generally be considered to be parallel functions during takeoffs requiring full power.

In general, given a schematic relationship of the form,

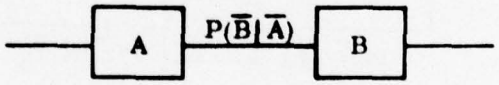


we can say that A and B are in a functionally redundant configuration if the success probability of C is the same if 1) A and B are successful, 2) A only is successful, or 3) B only is successful. If, for example, C is more likely to be successful if both A and B are successful, rather than A or B alone, then the relationship is one of parallel paths.

It is noted that the model will also account for element redundance and parallel elements through inputs such as $P(\overline{A}|i_a)$, representing the probability that the A^{th} function fails given that the i_a^{th} element in A has failed. If i_a is a parallel element, the probability would depend on mission requirements and other parallel-element states.

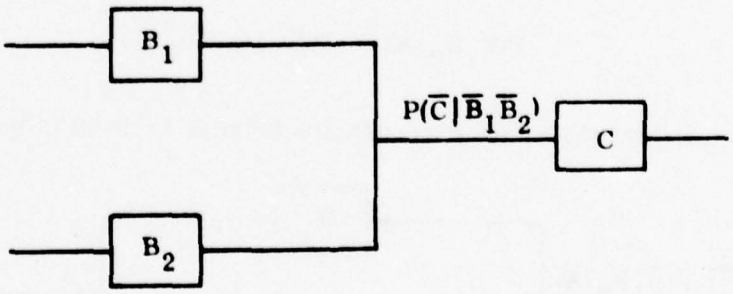
Link dependency is the conditional probability of a functional failure, given the failure of immediate predecessor functions. The link dependencies applicable to the three basic designs defined above are shown below.

Series Relationship

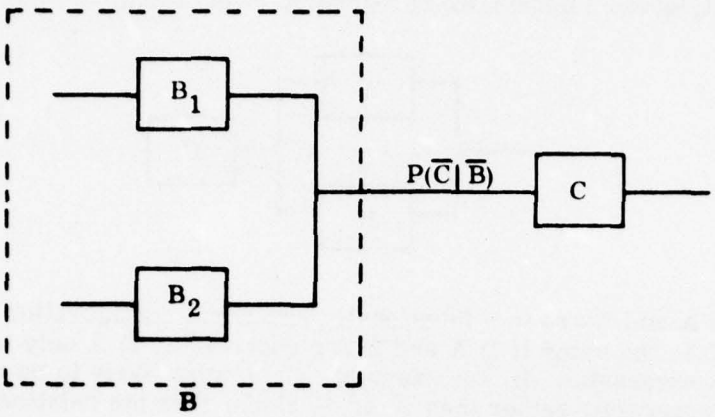


Link dependency = $P(\overline{B}|\overline{A})$ = probability that B fails given that A fails.

Functional Redundancy

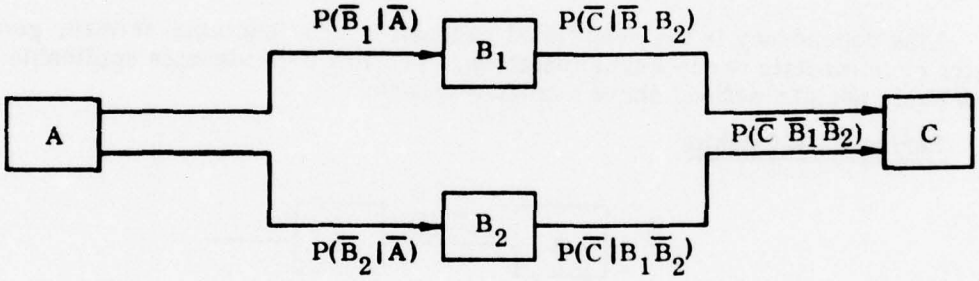


equivalent to



where $\bar{B} = \bar{B}_1\bar{B}_2$

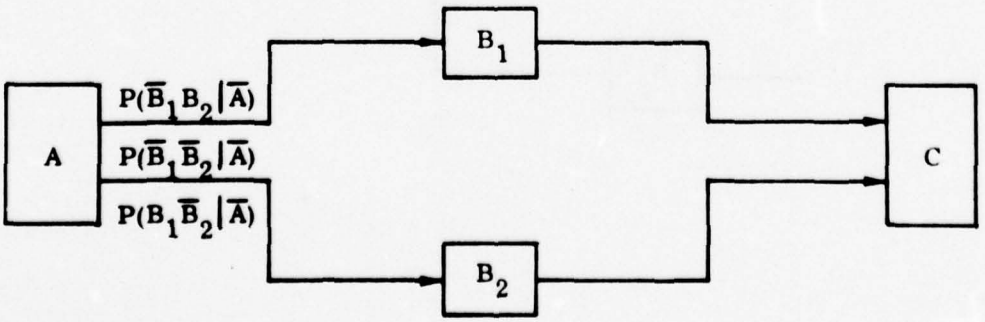
Parallel Functions



We shall generally assume that the dependencies of B_1 with respect to A, and of B_2 with respect to A, are independent of each other, so that

$$P(\bar{B}_1\bar{B}_2|\bar{A}) = P(\bar{B}_1|\bar{A})P(\bar{B}_2|\bar{A})$$

We then can consider three link dependencies from A to B as follows:



noting that

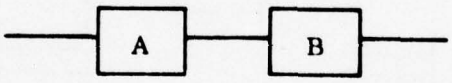
$$P(\overline{B}_1|\overline{A}) = P(\overline{B}_1 B_2|\overline{A}) + P(\overline{B}_1\overline{B}_2|\overline{A})$$

$$P(\overline{B}_2|\overline{A}) = P(B_1\overline{B}_2|\overline{A}) + P(\overline{B}_1\overline{B}_2|\overline{A})$$

Models are shown below for determining the sensitivity of elements within a function for each of the three basic designs. The following basic assumptions apply:

a. Except for cases where an element has a redundant or parallel counterpart or is located in a function with a redundant or parallel function, only the element under consideration shall be assumed to have failed initially. Thus the expression $P(\mathcal{A}|i_a)$, representing the accident probability given failure of the i^{th} Work Unit Code element, is based on the assumption that no other element has failed unless element i is in some redundant or parallel configuration. For cases in which there are redundant or parallel counterparts, failures of such counterpart elements or functions are considered in accordance with their occurrence probabilities.

b. The success of all immediate predecessors ensures the success of a function, provided that the function experiences no element failures. Thus for the series function relationship



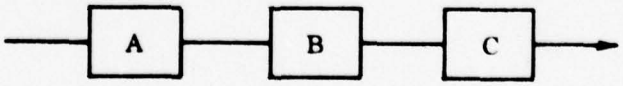
we assume

$$P(\overline{B}|A) = 0,$$

provided B experiences no element failures. If an element in function A is under consideration, the latter provision is always true by assumption "a."

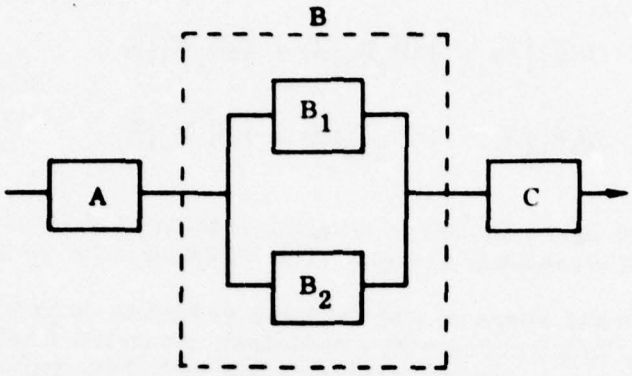
The element sensitivity models are:

<u>Series Relationship</u>



$$P(\mathcal{A}|i_a) = P(\overline{A}|i_a)\,P(\overline{B}|\overline{A})\,P(\overline{C}|\overline{B})\,P(\mathcal{A}|\overline{C})$$

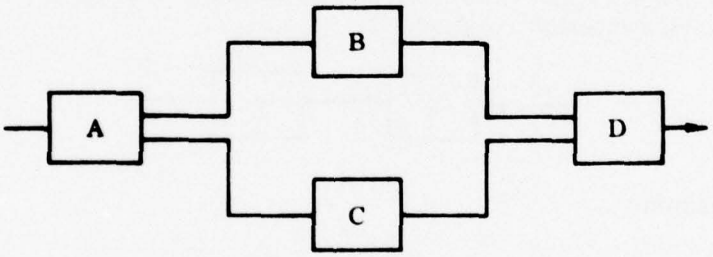
Functional Redundancy



$$P(\mathcal{A}|i_a) = P(\overline{A}|i_a)\,P(\overline{B}|\overline{A})\,P(\overline{C}|\overline{B})\,P(\mathcal{A}|\overline{C})$$

$$P(\mathcal{A}|i_{b1}) = P(\overline{B}_1|i_{b1})\,P(\overline{B}_2)\,P(\overline{C}|\overline{B})\,P(\mathcal{A}|\overline{C})$$

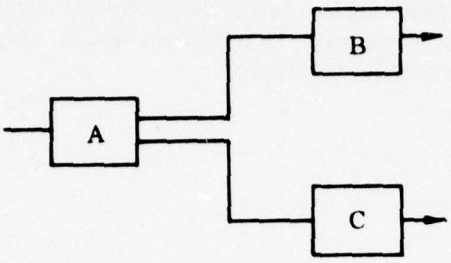
Parallel Functions



$$P(\mathcal{A}|i_a) = P(\overline{A}|i_a)\{P(\overline{B}C|\overline{A})\,P(\overline{D}|\overline{B}C) + P(B\overline{C}|\overline{A})\,P(\overline{D}|B\overline{C}) + P(\overline{B}\overline{C}|\overline{A})\,P(\overline{D}|\overline{B}\overline{C})\}\,P(\mathcal{A}|\overline{D})$$

$$P(\mathcal{A}|i_b) = P(\overline{B}|i_b)\{P(\overline{C}|i_b)\,P(\overline{D}|\overline{B}\overline{C}) + P(C|i_b)\,P(\overline{D}|\overline{B}C)\}\,P(\mathcal{A}|\overline{D})$$

A case not explicitly incuded in the above three basic functional relationships is one for which a function is in two paths, e.g.,



then

$$P(\mathcal{A}|i_a) = P(\overline{C}|i_a)P(B|i_a)P(\mathcal{A}|\overline{C}B) + P(C|i_a)P(\overline{B}|i_a)P(\mathcal{A}|C\overline{B})$$

$$+ P(\overline{C}|i_a)P(\overline{B}|i_a)\{1 - P(\overline{\mathcal{A}}|\overline{C})P(\overline{\mathcal{A}}|\overline{B})\}$$

where it is assumed that the effects of loss of the major functions in accident occurrence are independent of each other.

Use of Numerical Provisory Factors for Partially Redundant Systems

The numerical provisory factors (see Table 3-1) are used where more than two identical functions are involved in a redundancy. For example, aircraft with more than two engines often have identical and independent systems for hydraulic pressurization, and for electrical power generation, one driven by each engine. If the aircraft can be operated safely with one or more of such systems in a failed state, one of the numeric codes is utilized in assigning link dependency values. Consider, for example, the following:

If N identical and independent units* are available and at least M are required for safe operation, where $0<M<N$, then the provisory factor of a given unit, say U_j, is the probability that the failure of U_j will cause the aircraft to enter an unsafe state. This is the probability that exactly M-1 of the remaining N-1 units will be in an unfailed state. This probability can be calculated by the formula for the binomial distribution, and is given by

$$P(U_j) = \binom{N-1}{M-1} p^{(M-1)} q^{(N-M)}$$

where $P(U_j)$ = probability that failure of the j^{th} unit will cause the aircraft to enter an unsafe state, and

M = Number of units required

N = Number of units available

p = Probability that a single unit will be in an unfailed state

q = Probability that a single unit will be in a failed state or (1-p)

*Units may be either elements, element assemblies, or functions.

Assignment of link dependencies to N identical and independent units of which only M are required proceeds as follows. The value assigned to each unit is the dependency of the higher level function on receiving an output from M of the units (usually 1.0). The provisory factor is the appropriate numeric code. In the evaluation of the path sensitivity, the computer is programmed to select the binomial formula that corresponds to the provisory factor listed.

APPENDIX C

FSPT DOCUMENTATION METHODS

FSPT DOCUMENTATION METHODS

Because of the extreme complexity of aircraft, it is necessary to develop a computerized method to identify and document all possible paths associated with each function as well as to determine the safety sensitivity associated with each path. A computer routine has been devised that takes the data from the functional card deck and traces and documents all paths. For each WUC, it also computes the flight-phase sensitivities for each path in which the WUC is present. The resulting computer printout provides a combined functional path sensitivity.

C.1 ALPHA CODING

As each system of the aircraft is functionally diagrammed, the functional blocks are assigned an "alpha code". This code aids the analyst in the bookkeeping tasks of functional diagramming and provides the computer with an identification of the elements to be processed. For standardization among aircraft, nine top-level functions have been defined and each has been assigned an initial or first-alpha designator. Each block in the functional diagram carries the same initial alpha as the top level function. Subsequent letters added to the initial alpha uniquely identify each block.

The only restrictions placed on the assignment of alpha codes are that:

a. All characters in a code must be a letter of the alphabet, and

b. The maximum number of characters in one code is seven.

C.2 ALPHA CODING AND COMPUTER PROGRAM COMPATIBILITY

Additional rules for alpha coding required to obtain the desired results from computer processing include:

a. When a WUC item operates in the same mode to perform more than one function, the same alpha code is used in each application.

b. When a WUC item operates in a different mode to perform each of more than one function, a different alpha designator is assigned for each operating mode.

C.3 FUNCTIONAL TABULATION

The "Flight Safety Functional Tabulation" sheet is used to code the safety model for keypunching. The sheets are coded as follows (refer to Figure C-1) for an example).

a. Columns 1 through 3. Used to identify the aircraft represented by the model. For certain aircraft modeled under this contract more than one model – designation series MDS – was included. For instance, a single functional deck was created for four MDSs of the F-4 aircraft. Cards with "F4b"* in columns 1-3 were common to all aircraft. For example,

*b = blank

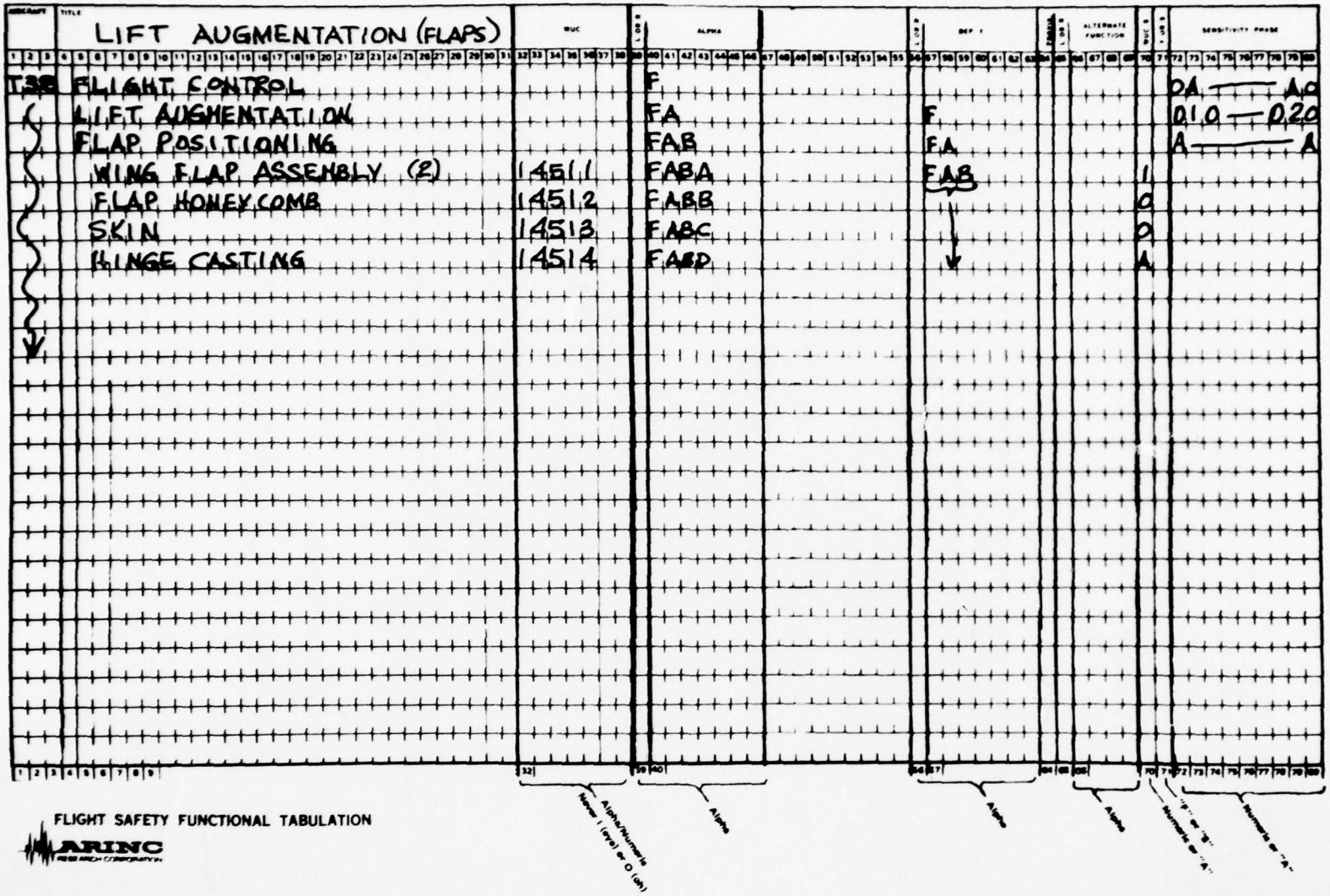


Figure C-1. Flight Safety Functional Tabulation

when these cards are combined with those carrying "F4E" in columns 1-3, then it produces an F-4E FSPT model deck.

b. Columns 4 through 31. Contain the title of the function or the WUC item.

c. Columns 32 through 36. Contain the left-justified WUC number.

d. Columns 37 and 38. Blank

e. Columns 39 through 46. Contain the assigned alpha designator for the function and/or the WUC. Column 39 contains either an L or an R, or is blank. The L and R designate left and right for those instances when the function and/or WUC pertains to the left or right side of the aircraft.

f. Columns 47 and 48. Blank.

g. Columns 49 through 55. Normally left blank, but are used after a deck is operational to substitute the data on a card for that stored in the computer by punching the line record number in this field.

h. Columns 56 through 63. Identify the dependent functions for either the function or specific WUCs being coded. Column 56 may contain L, R or blank for the same purpose as that of column 39.

i. Column 64. Contains the alphanumeric code of the "provisory factor" applicable to the link value assigned.

j. Columns 65 through 69. Contain the alpha designator of a function that is an alternate for the function being coded. (Column 65 is used for "L" or "R" as in Column 39.) The presence of the "alternate alpha" flags the importance of the link dependency as being affected by the success probability of the alternate function.

k. Column 70. Contains the work unit code dependency value (1 = 0.10; 2 = 0.20; ....A = 1.0). This value is applicable to all flight phases.

l. Column 71. Contains special instructions to the computer through the use of letters F, S, or being blank. Cards with an "S" or "blank" in column 71 are used in sensitivity computations. Cards with an "F" document a functional relationships which, although present in the system, would produce an erroneous sensitivity value when combined with other nonindependent paths (having the same function in common at some higher level). The "F" prevents the computer from including the link in the sensitivity calculations.

m. Columns 72 through 80. Contain functional dependencies for each of nine flight phases as described in Section 3.2.1 of the text. Coding is the same as for column 70.

C.4 DIAGRAM CONSTRUCTION

The diagrams produced under the contract document the functional interrelationship of the aircraft systems considered in the model. In the interest of extending the useful life of the diagrams, WUC items are not shown, thereby eliminating the necessity of updating the diagrams with each (and sometimes frequent) change to the WUC manual.

As discussed earlier in this report, the diagrams represent the hierarchal structure of the paths from which the sensitivity values are derived. The diagrams, although consistent with the system schematic and reliability block diagrams, are not equivalent due to this hierarchal method of documentation. In the actual system, signals and/or fluids pass from one component to the next and are thus documented in schematics; conversely, the hierarchal approach only identifies the components that must operate to achieve a given function, independent of the direction and/or sequence of signal flow. This approach directly addresses the system impact of a component failure without the necessity of identifying the intrasystem secondary failures. Each line connecting functions on the diagram is documented by a punchcard, with the lower function providing the "alpha designator" and the higher function's alpha designator indicator as the "dependent function".*

*The card deck also documents functional relationships not shown on the diagram; the work unit codes (mentioned earlier) and the "S" cards discussed in paragraph C.3.1.

APPENDIX D

FSPT DOCUMENTATION OF T-39A AIRCRAFT

FSPT DOCUMENTATION OF T-39A AIRCRAFT

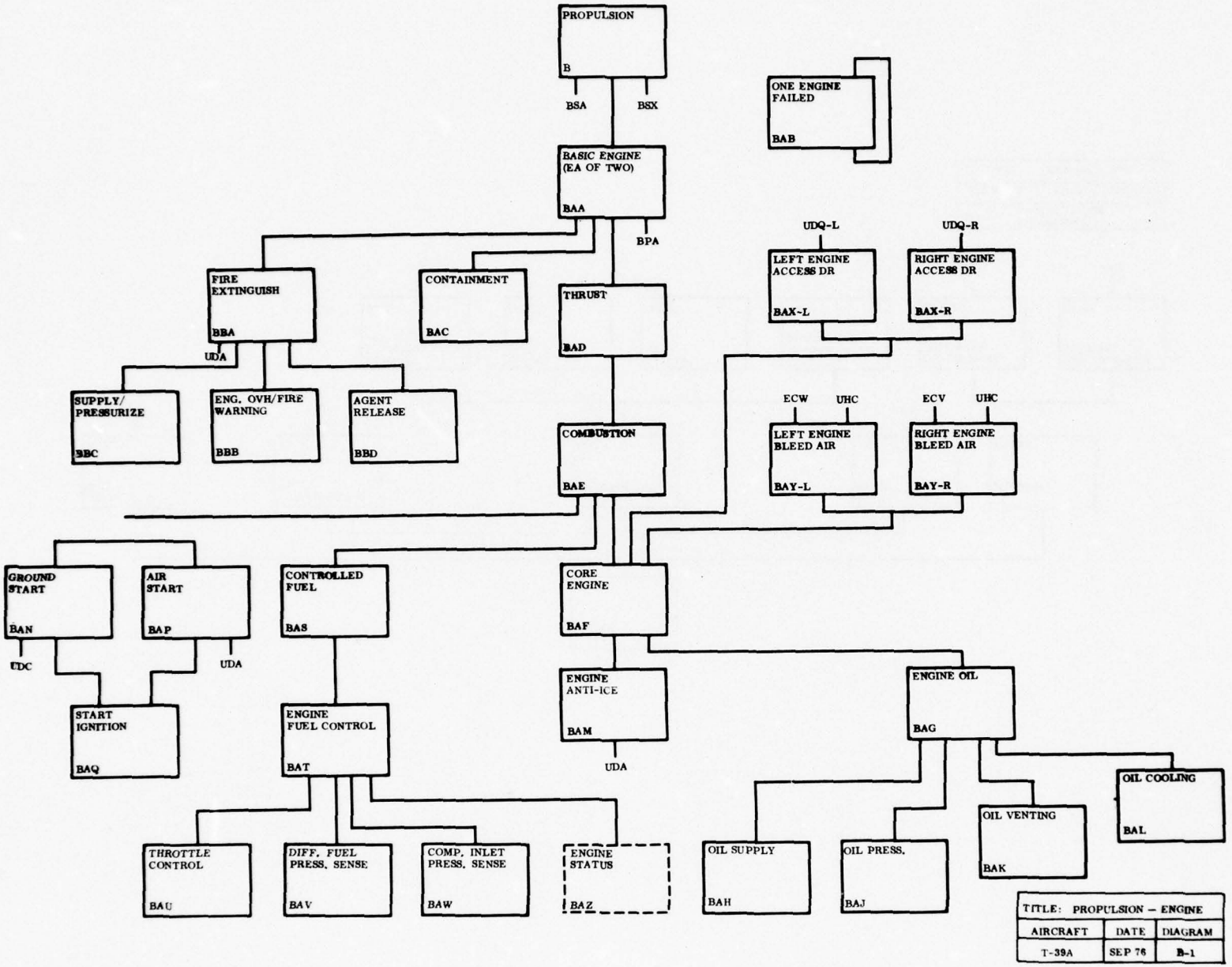
This appendix contains the functional relationship diagrams and a listing of the keypunch cards that comprise the T-39A aircraft FSPT safety model documentation.

D.1 DIAGRAMS

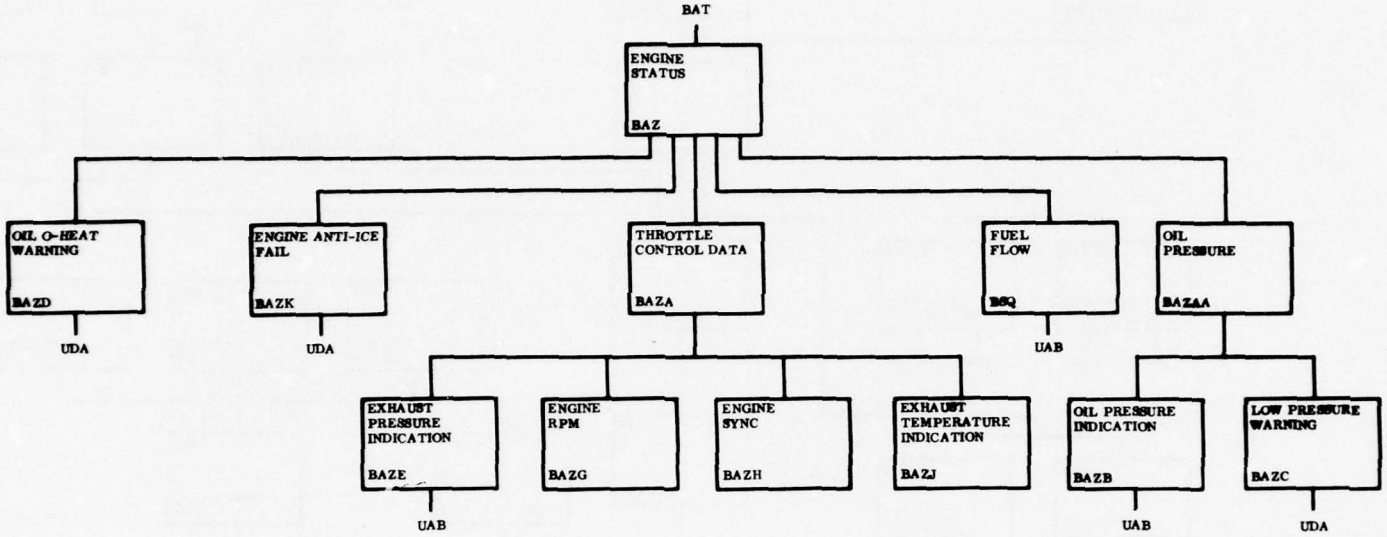
The diagrams illustrating the functional relationships considered in the T-39A safety model will be found on pages D-5 through D-19, and are listed below:

D.2 CARD LISTING

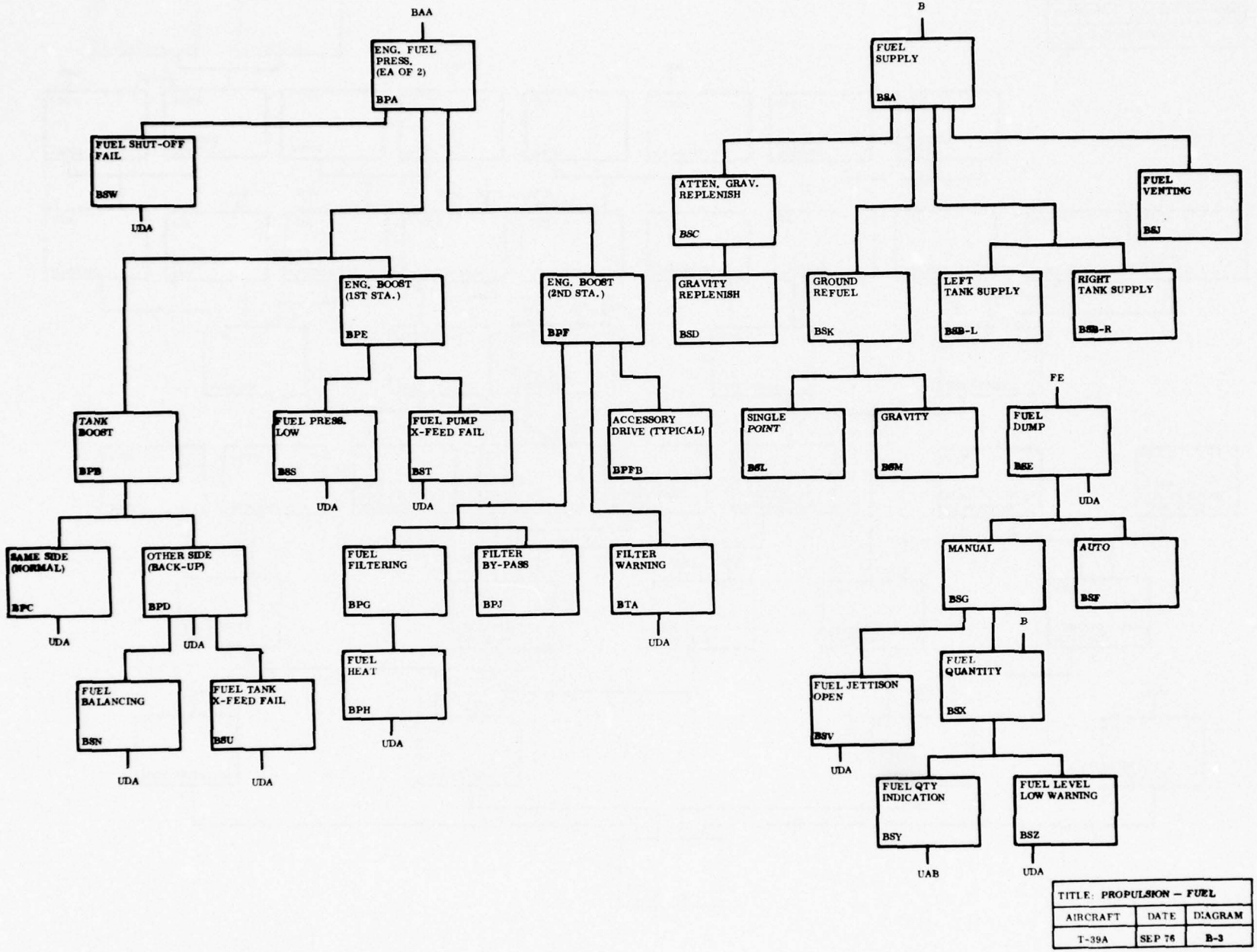
Pages D-21 through D-57 are a reproduction of the punchcard listing. The listing is alphabetical by "alpha designator", and the format is that of the 80-column punchcard itself as described in Appendix C. At the top of each page the card columns are printed vertically; for example, column 34 is printed "$\frac{3}{4}$".



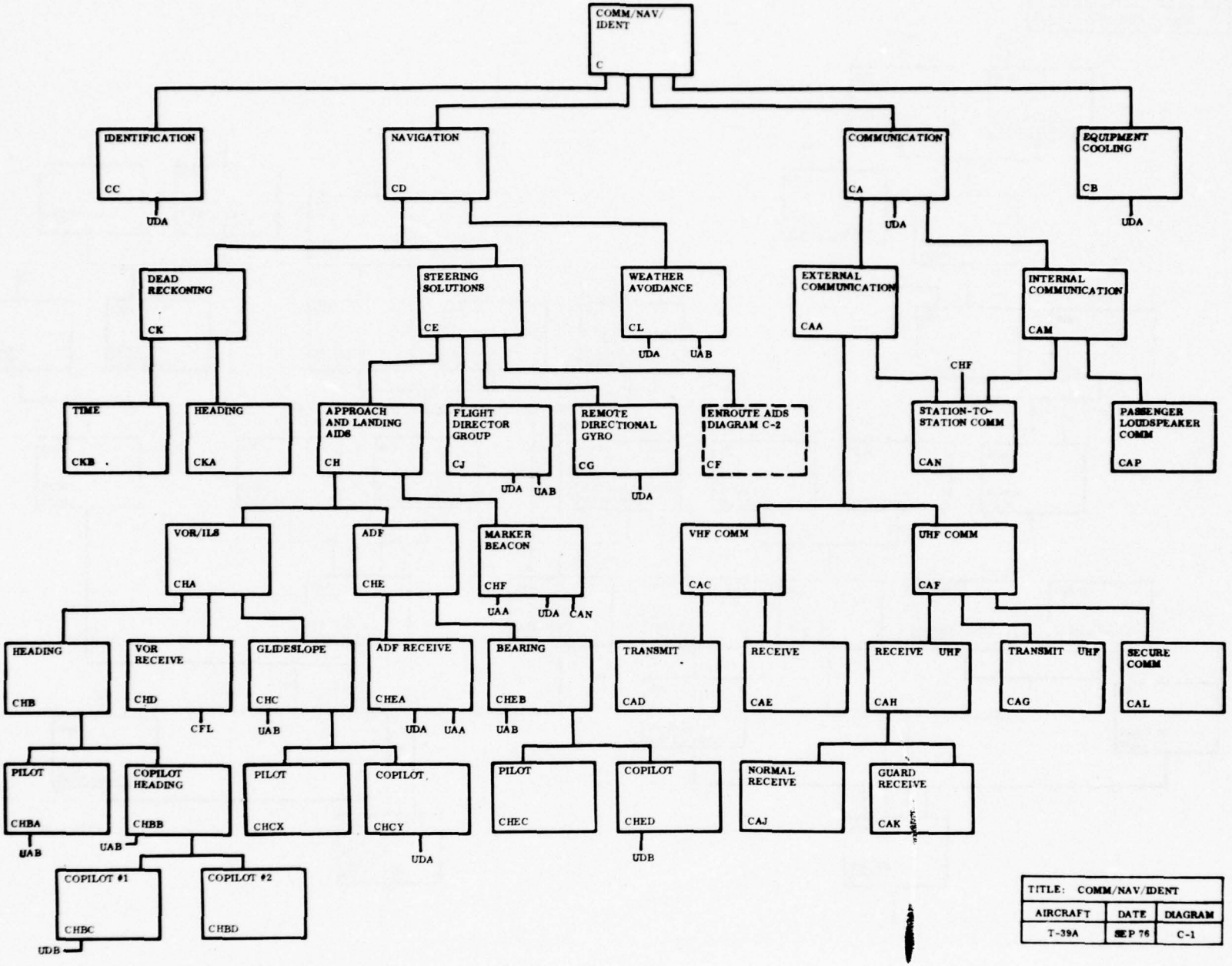
TITLE: PROPULSION – ENGINE		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	B-1



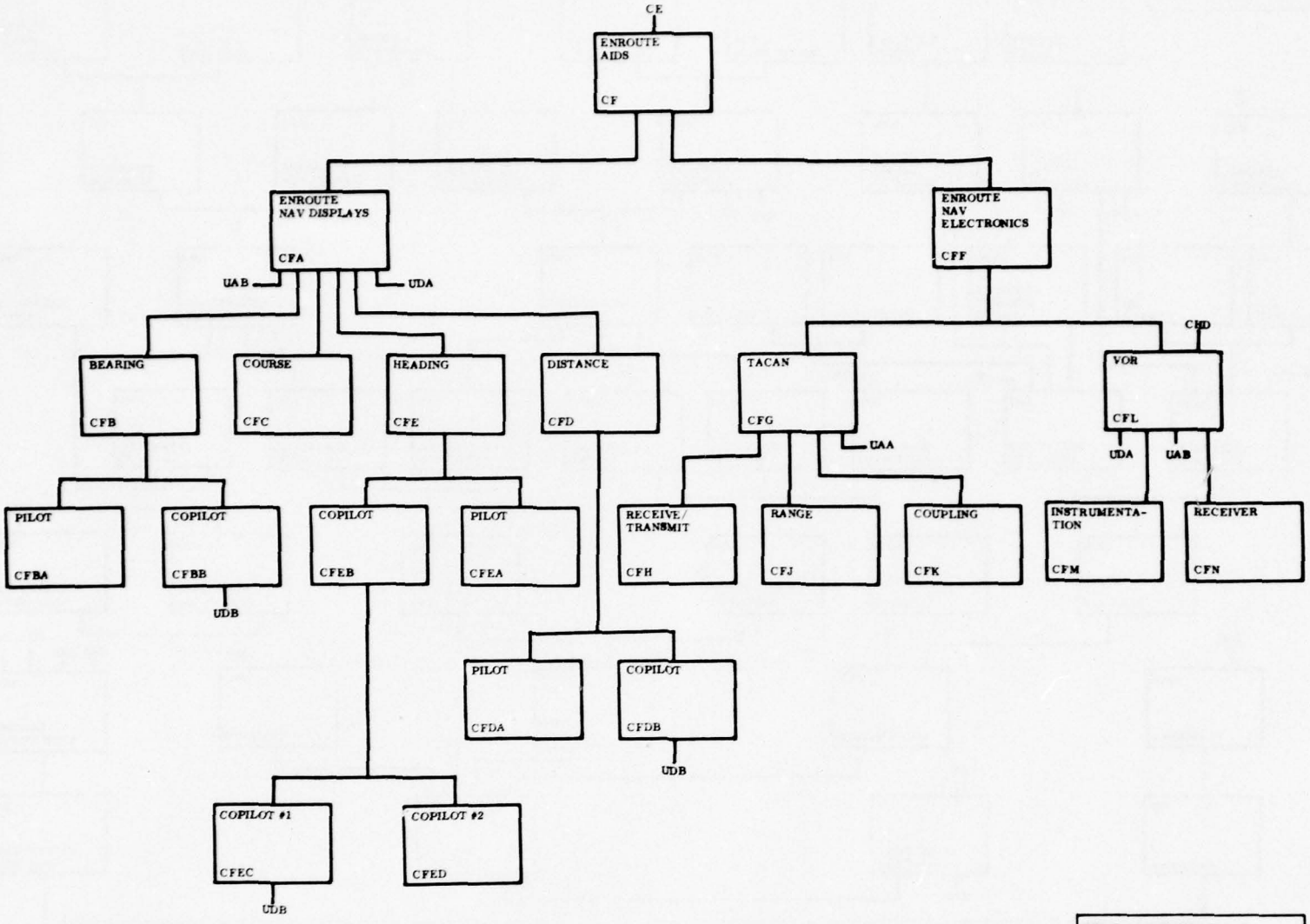
TITLE: PROPULSION – ENGINE STATUS		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	B-2



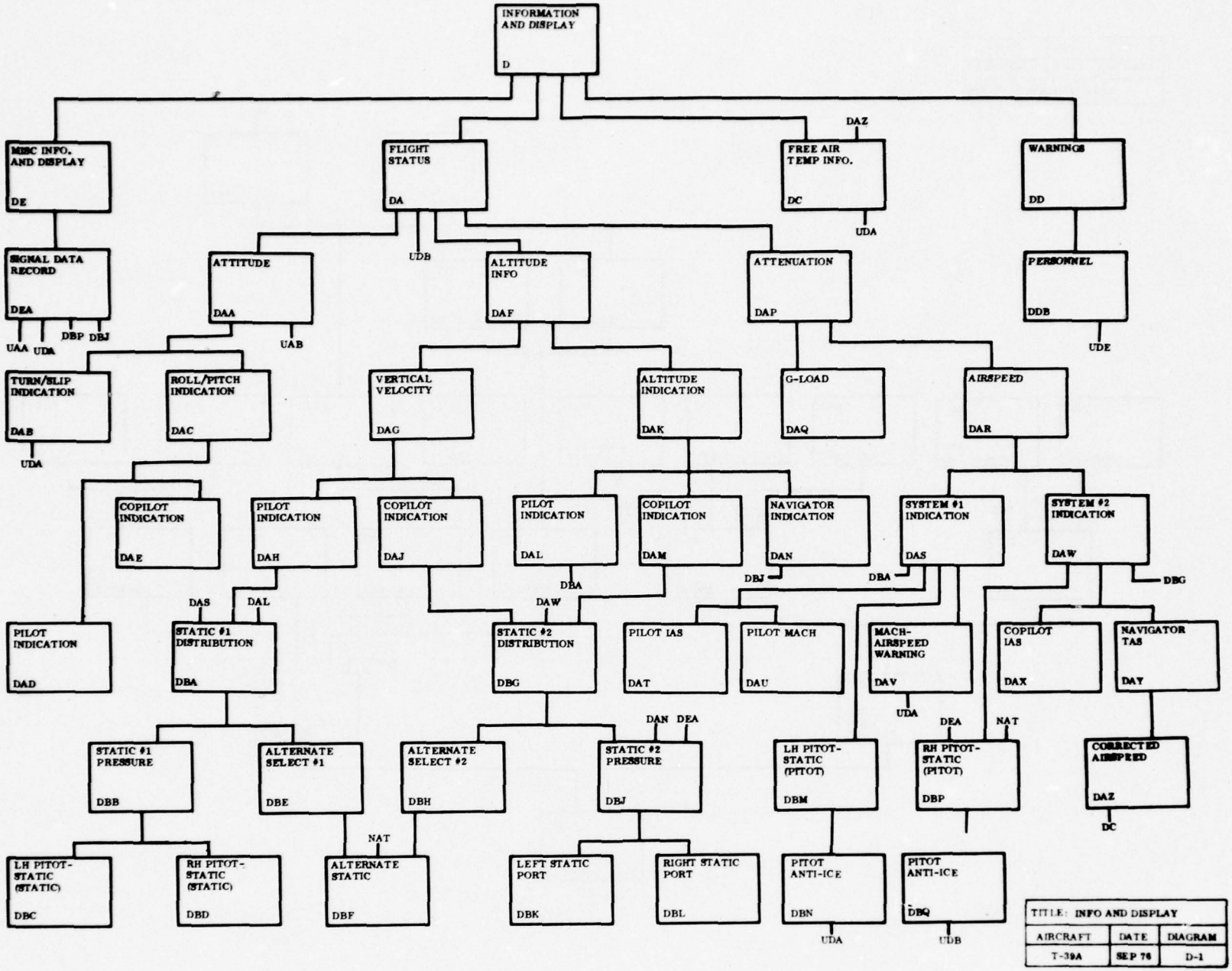
TITLE: PROPULSION — FUEL		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	B-3



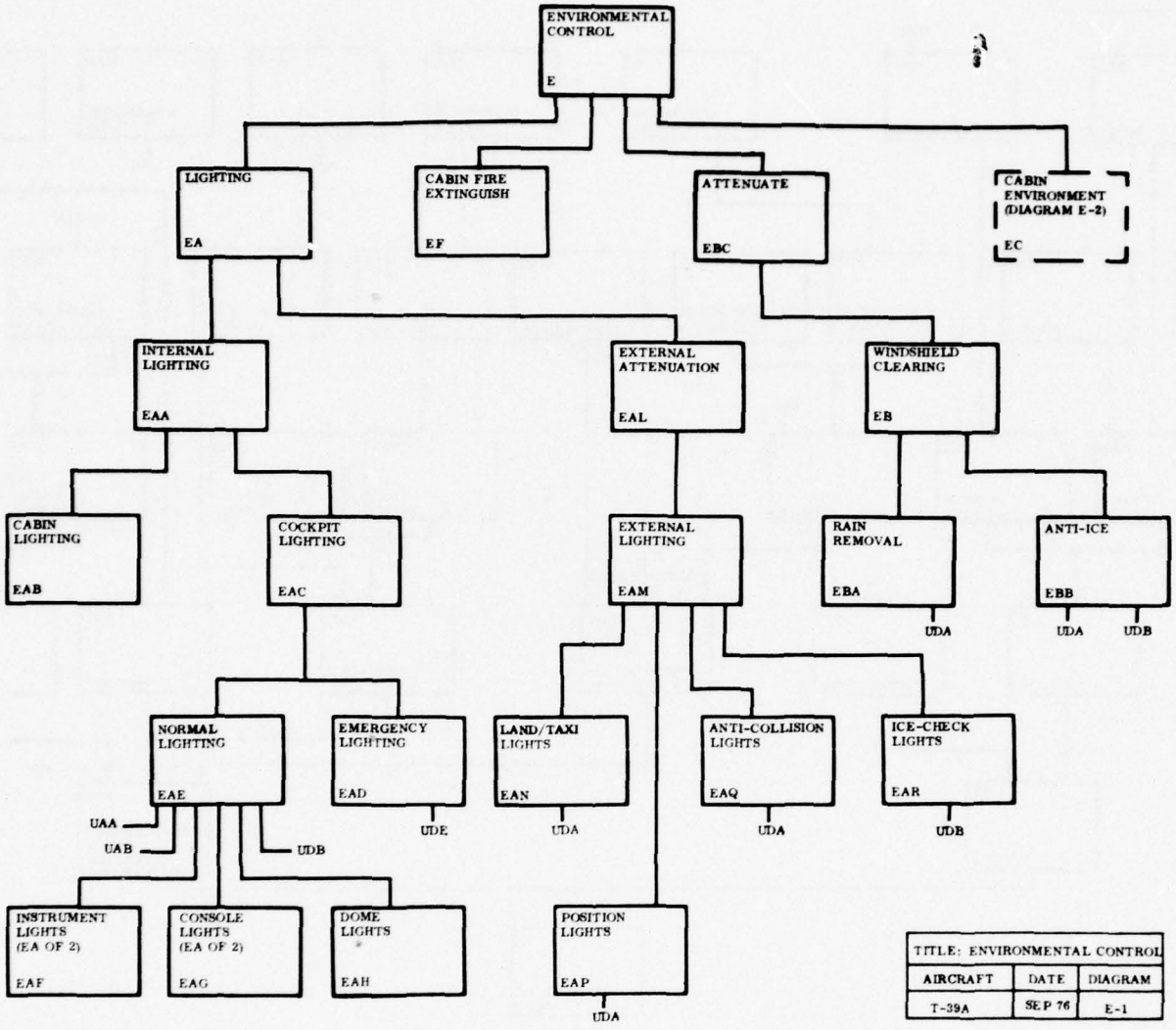
TITLE: COMM/NAV/IDENT		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	C-1



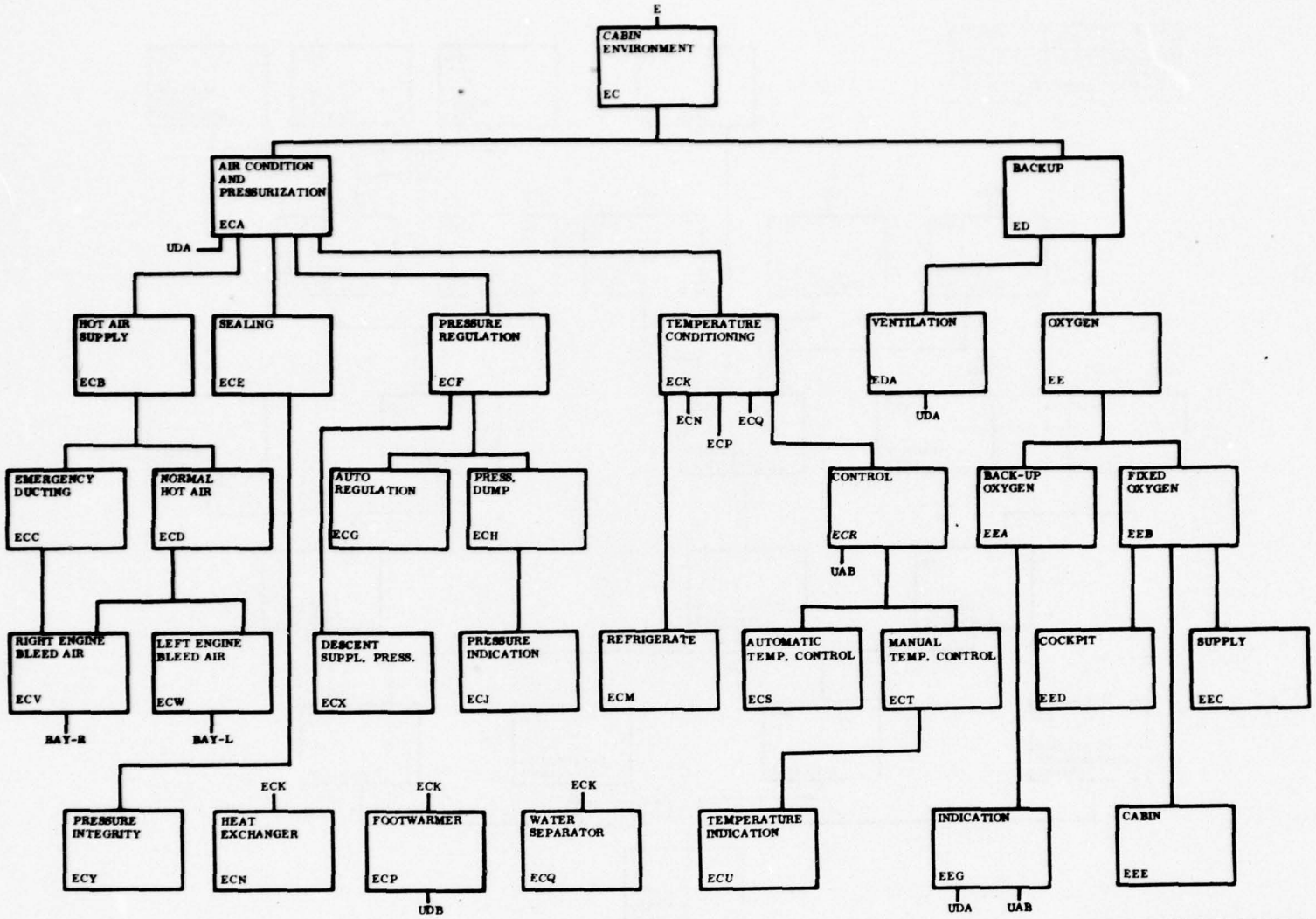
TITLE: COMM/NAV/IDENT		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	C-2



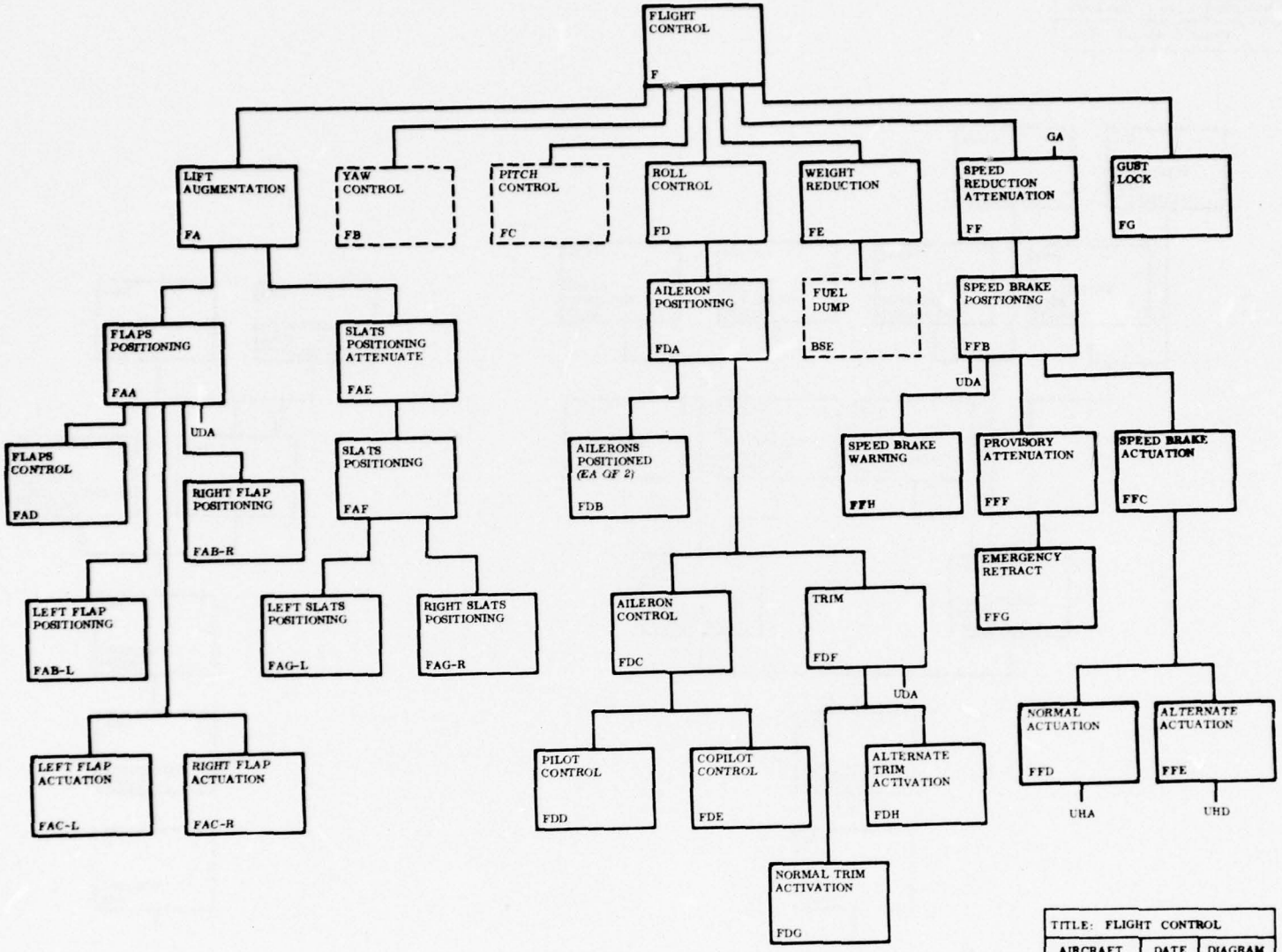
TITLE: INFO AND DISPLAY		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	D-1



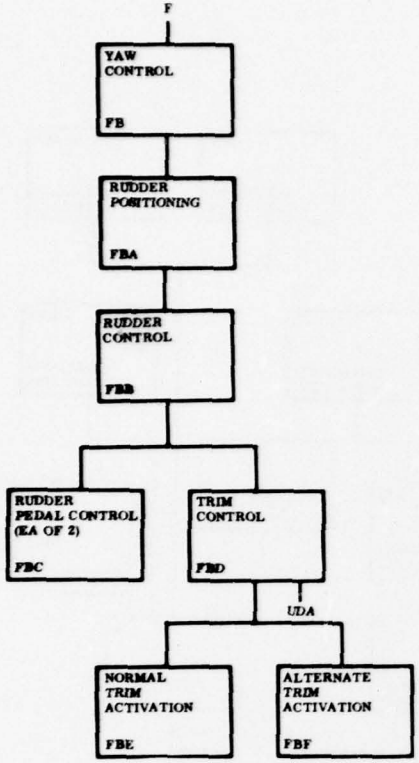
TITLE: ENVIRONMENTAL CONTROL		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	E-1

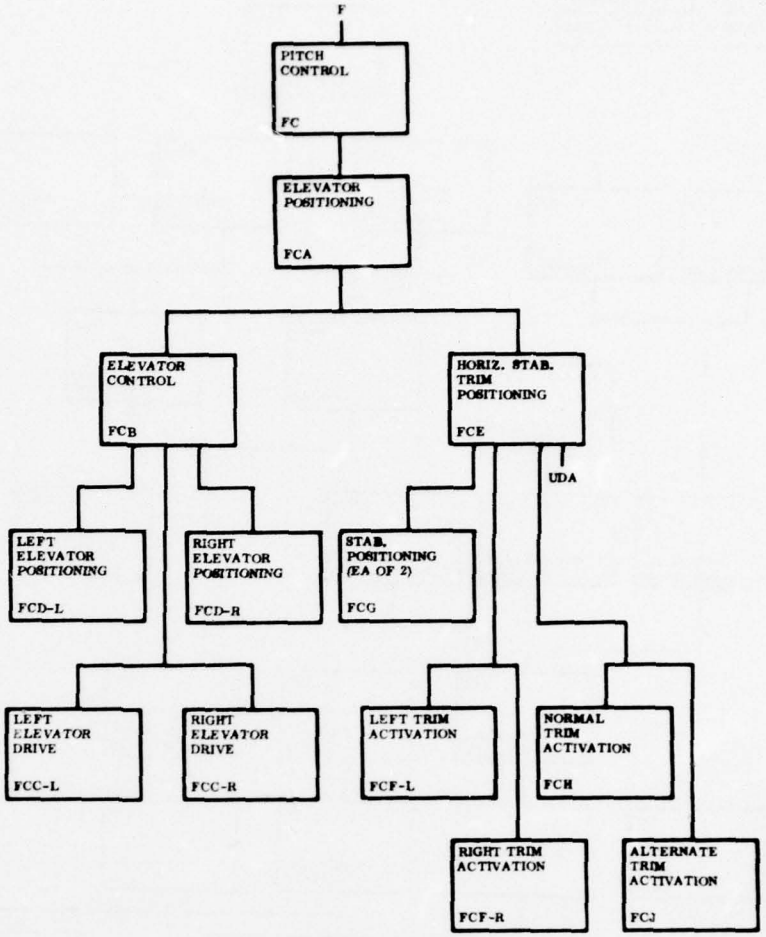


TITLE: ENVIRONMENTAL CONTROL		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	E-2

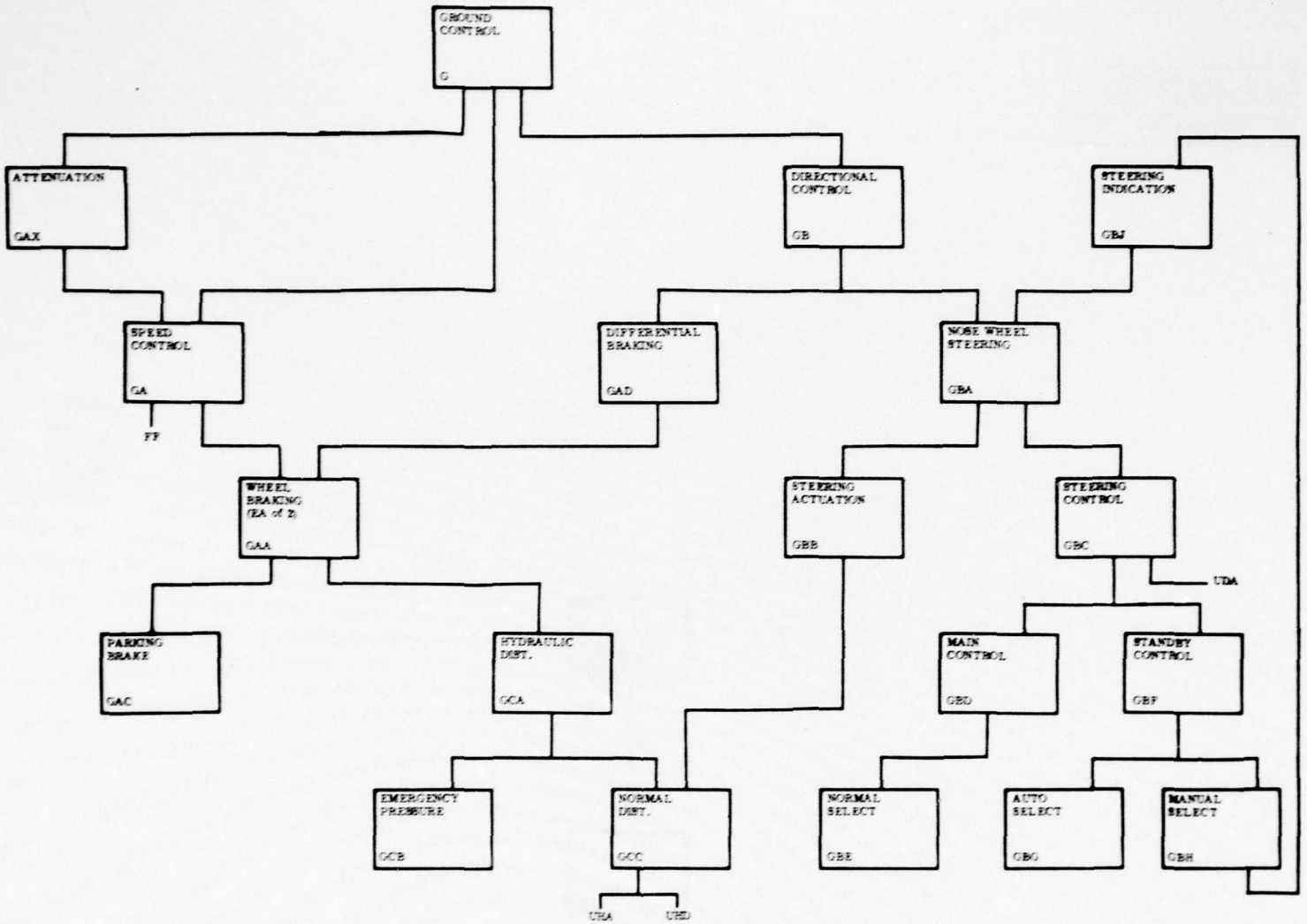


TITLE: FLIGHT CONTROL		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	F-1

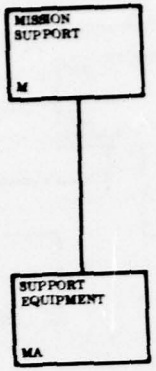




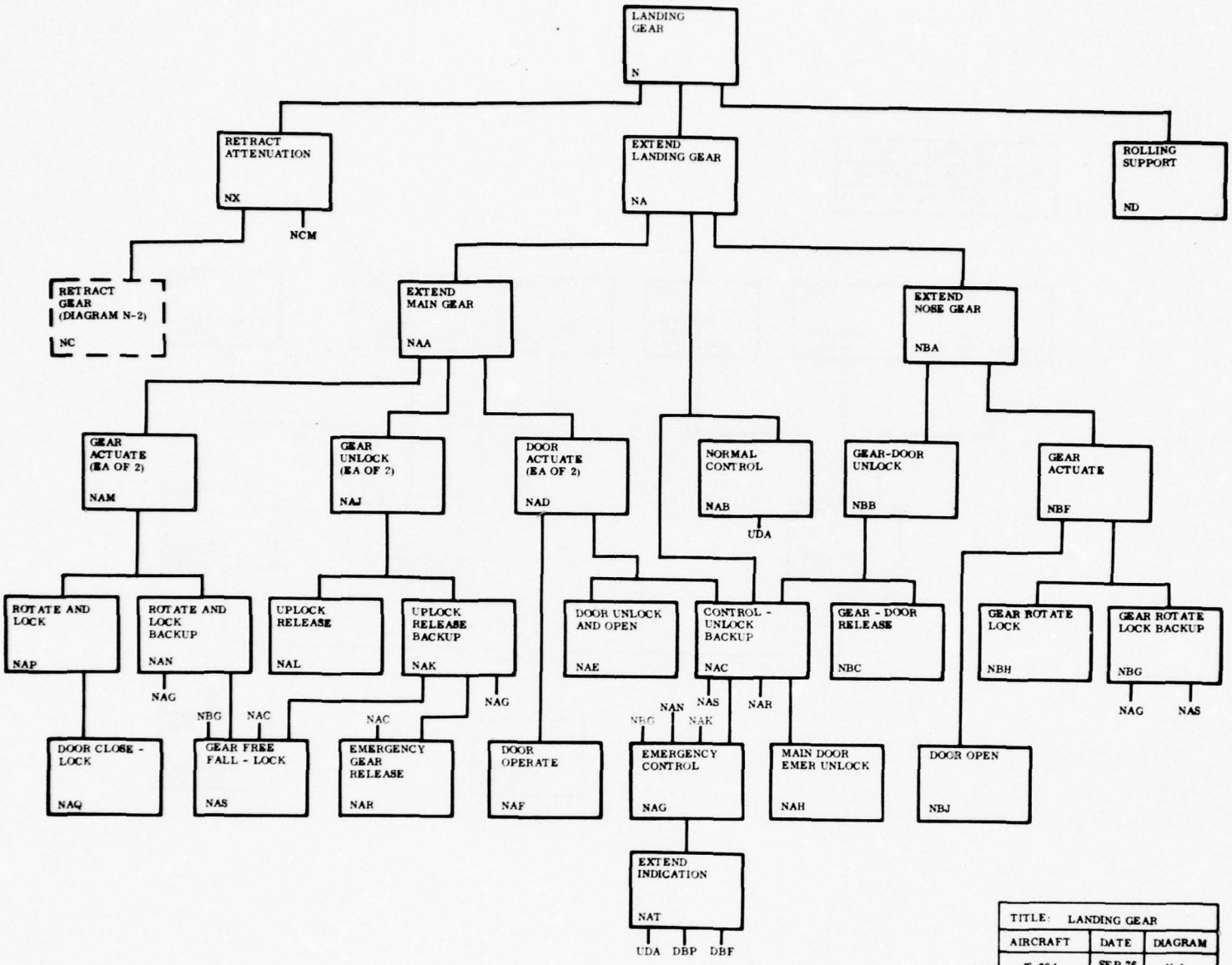
TITLE: FLIGHT CONTROL		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	F-2



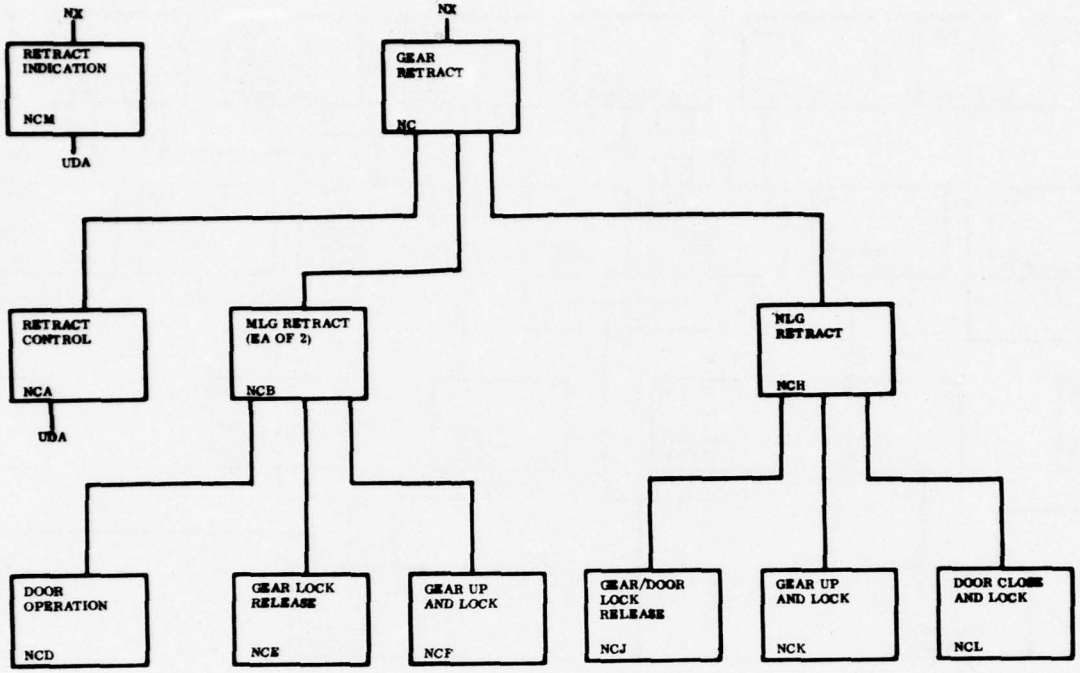
TITLE: GROUND CONTROL		
AIRCRAFT	DATE	DIAGRAM
T-38A	SEP 76	G-1



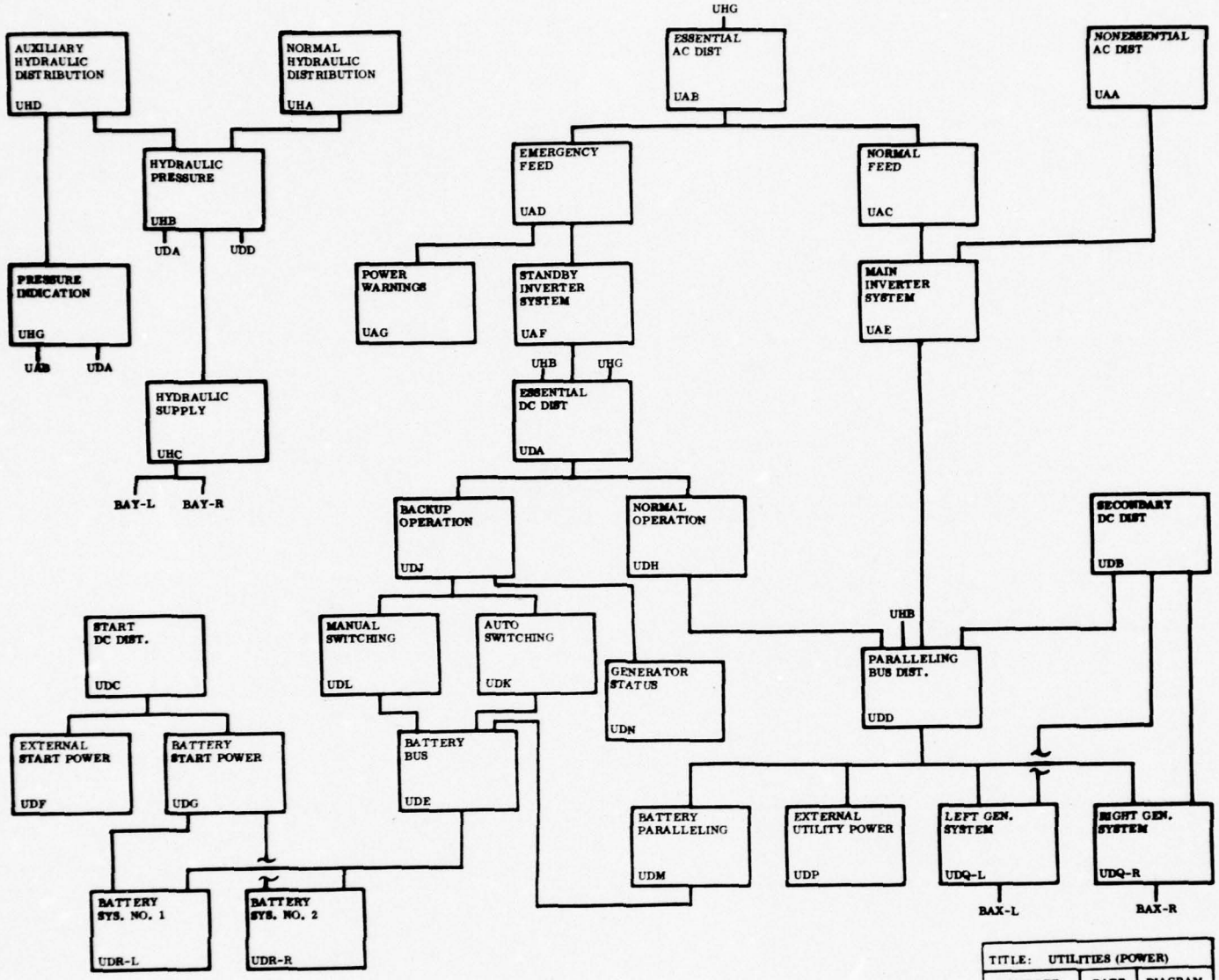
TITLE: MISSION SUPPORT		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEPT 76	M-1



TITLE: LANDING GEAR		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	N-1



TITLE: LANDING GEAR		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	N-2



TITLE: UTILITIES (POWER)		
AIRCRAFT	DATE	DIAGRAM
T-39A	SEP 76	U-1

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PGG095.J1CC T-39     T39                          1 T39
T39 PROPULSION                                B                                AAAAAAAAA
T39 BASIC ENGINE, EA OF TWO                   BAA              B               041111110
T39 BASIC ENGINE,EA OF TWO                    BAA              B      K BAB    0AAAAAAA0
T39 BASIC ENGINE, EA OF TWO                   BAA              BAB            SAAAAAAAAA
T39 ONE ENGINE FAILED                         BAB              BAB            FAAAAAAAAA
T39 CONTAINMENT                               BAC              BAA             AAAAAAAAA
T39  FLEX MOUNT                  2311A        BACA             BAC           A
T39  STEADY MOUNT                2311B        BACB             BAC           A
T39  DEFLECTOR                   1161C        BACC             BAC           1
T39  TRUNNION MOUNT              1161H        BACD             BAC           1
T39  RETAINER                    23114        BACE             BAC           1
T39  SUPPORT                     23115        BACF             BAC           1
T39  BRACKET                     23116        BACG             BAC           1
T39  TRUNNION                    23117        BACH             BAC           A
T39  TRUNNION SUPPORT            23118        BACJ             BAC           1
T39  SCOOP,RAM AIR               1161E        BACK             BAC           0
T39  DOOR,UPR,FWD,INBRD          11612        BACL             BAC           0
T39  DOOR,UPR,FWD,OUTBRD         11613        BACM             BAC           0
T39  DOOR,UPR,AFT                11614        BACN             BAC           0
T39  DOOR,LOWER                  11615        BACP             BAC           0
T39  LATCH ASSY                  11617        BACQ             BAC           0
T39  SKIN                        11618        BACR             BAC           0
T39  SKIN                        11632        BACS             BAC           0
T39  ACCESS DOOR                 11633        BACT             BAC           0
T39  FRAME                       11634        BACU             BAC           1
T39 THRUST                                    BAD              BAA             AAAAAAAAA
T39  TAIL PIPE                   23176        BADA             BAD           1
T39  TAIL PIPE CLAMP             23177        BADB             BAD           2
T39 COMBUSTION                                BAE              BAD             AAAAAAAAA
T39  CASE ASSY,COMB CHB,INNER    23AEA        BAEA             BAE           A
T39  CBR ASSY,COMB NO 1,5,7      23AEB        BAEB             BAE           A
T39  CBR ASSY,COMB NO 2,4,8      23AEC        BAEC             BAE           A
T39  CHB ASSY,COMB NO 3          23AED        BAED             BAE           A
T39  CHB ASSY,COMB NO 6          23AEE        BAEE             BAE           A
T39  CLAMP ASSY,CHB RETAINING    23AEF        BAEF             BAE           A
T39  CASE ASSY,COMB CHB,OUTER    23AEG        BAEG             BAE           A
T39  NUT ASSY,COMB CHB FIRESEAL  23AEH        BAEH             BAE           A
T39  FUEL DRAIN VALVE            2315C        BAEJ             BAE           1
T39  DUCT ASSY,CMB CHB OUTLET    23AFA        BAEK             BAE           5
T39  SUP ASSY,CHB OUTLET DUCT    23AFC        BAEL             BAE           5
T39 CORE ENGINE                               BAF              BAE             AAAAAAAAA
T39 CORE ENGINE                               BAF            LBAX              FAAAAAAAAA
T39 CORE ENGINE                               BAF            RBAX              FAAAAAAAAA
T39 CORE ENGINE                               BAF            LBAY              FAAAAAAAAA
T39 CORE ENGINE                               BAF            RBAY              FAAAAAAAAA
T39  COMP ROTOR/STATOR ASSY      23AAA        BAFA             BAF           8
T39  COMP INLET CASE             23AAE        BAFB             BAF           8
T39  BRG NO 1                    23AAG        BAFC             BAF           A
T39  SEAL,NO 1 BRG               23AAH        BAFD             BAF           8
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T39  HOUSING,NO 1 BRG              23AAJ   BAFE              BAF          1
T39  VANE,COMP INLET               23AAL   BAFF              BAF          A
T39  VANE/SHROUD ASSY-1ST STA      23AAM   BAFG              BAF          8
T39  VANE/SHROUD ASSY-2ND STA      23AAN   BAFH              BAF          8
T39  VANE/SHROUD ASSY-3RD STA      23AAP   BAFJ              BAF          8
T39  PLATE,COMP VANE,INNER         23AAW   BAFK              BAF          A
T39  VANE,1ST STA                  23AAZ   BAFL              BAF          A
T39  FRONT HUB                     23ABB   BAFM              BAF          8
T39  BLADE,1ST STA                 23ACD   BAFN              BAF          A
T39  BRG,COMP,REAR                 23AC2   BAFQ              BAF          A
T39  SEAL ASSY,COMP RR BRG HSNG    23AC8   BAFR              BAF          8
T39  DIFFUSER CASE                 23ADA   BAFS              BAF          A
T39  VANE AND SHROUD ASSY          23ADD   BAFT              BAF          8
T39  SHROUD ASSY,1ST STA VANE      23AFB   BAFU              BAF          8
T39  CASE ASSY,TURBINE             23AFD   BAFV              BAF          8
T39  SEAL,TB ROTOR,1STA,OUTER      23AFE   BAFW              BAF          8
T39  SPACER,TB ROTOR,1STA SEAL     23AFG   BAFX              BAF          1
T39  SHROUD/SEAL ASSY,TB VANE      23AFH   BAFY              BAF          1
T39  SEAL,TB ROTOR,2ND STA         23AFJ   BAFZ              BAF          8
T39  VANE,TB,1ST STA               23AFM   BAFZA             BAF          A
T39  VANE,TB,2ND STA               23AFN   BAFZB             BAF          A
T39  TURBINE ROTOR                 23AFP   BAFZC             BAF          A
T39  SEAL ASSY,TB BRG              23AFQ   BAFZD             BAF          8
T39  SUPPORT,TB BRG SEAL           23AFS   BAFZE             BAF          1
T39  SHIELD ASSY,TB BRG,HEAT       23AFT   BAFZF             BAF          2
T39  DISK,2ND STA TB               23AFW   BAFZG             BAF          8
T39  RING,RETAINING BRG IN RACE    23AF2   BAFZH             BAF          8
T39  BRG,TURBINE                   23AF3   BAFZJ             BAF          A
T39  BLADE,TB,1ST STA              23AF5   BAFZK             BAF          A
T39  BLADE,TB,2ND STA              23AF6   BAFZL             BAF          A
T39  CASE ASSY,TB EXHAUST          23AF7   BAFZM             BAF          A
T39  CONE AND STRUT ASSY           23AF8   BAFZN             BAF          8
T39  NOSE GUIDE VANE               1161G   BAFZP             BAF          8
T39  AIR INLET DUCT %NOSE ASSY<    11616   BAFZQ             BAF          2
T39 ENGINE OIL DISTRIBUTION                BAG               BAF            0AAAAAAJ0
T39  TUBE-TURBINE BRG TRANSFER     23CAP   BAGA              BAG          8
T39 OIL SUPPLY                             BAH               BAG            AAAAAAAAA
T39  MAIN OIL STRAINER             23CAB   BAHA              BAH          2
T39  SPT ASSY,OIL STRAINER         23CAC   BAHB              BAH          1
T39  OIL TANK ASSY                 23CAE   BAHC              BAH          8
T39  TUBE ASSY,FR BRG-PUMP RTN     23CAH   BAHD              BAH          1
T39  TUBE ASSY,TB BRG EXT RTN      23CAJ   BAHE              BAH          1
T39  STRAINER ASSY,CMP RR BRG      23CAM   BAHF              BAH          1
T39  STRAINER ASSY,TB BRG          23CAN   BAHG              BAH          1
T39  STRAINER SCREEN GEARBX OIL    23AHP   BAHH              BAH          1
T39 OIL PRESSURIZATION                     BAJ               BAG            AAAAAAAAA
T39  MAIN OIL PUMP                 23CAA   BAJA              BAJ          A
T39  OIL PRESS RELIEF VALVE        23CAD   BAJB              BAJ          2
T39  MANF ASSY,PRESS MAIN BRG      23CAK   BAJC              BAJ          8
T39  NOZZLE ASSY,CMP RR BRG        23CAL   BAJD              BAJ          1
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T39  NOZZLE CMP FR BRG          23CAR   BAJE            BAJ          1
T39  SEAL,STARTER/GEN PAD       23AJ5   BAJF            BAJ          1
T39  TUBE ASSY FRONT BEAR PRES  23CAG   BAJG            BAJ          1
T39 VENTING                             BAK             BAG            000000000
T39  MANF ASSY,TANK BREATHER    23CBB   BAKA            BAK          1
T39  MANF ASSY,BREATHER,EXT FR  23CBC   BAKB            BAK          1
T39  TUBE ASSY,CMP FR BRG BRTHR23CBD    BAKC            BAK          1
T39  SEAL BREATHER SHAFT GEAR   23AJG   BAKD            BAK          0
T39 OIL COOLING                         BAL             BAG            004888000
T39  FUEL OIL COOLER            23517   BALA            BAL          8
T39 ENGINE ANTI-ICE                     BAM             BAE     A      888888888
T39  RELAY                      23413   BAMA            BAM          A
T39  ENG INLET DE-ICE VALVE     23417   BAMB            BAM          A
T39  DUCT                       23418   BAMC            BAM          A
T39  CIRCUIT BREAKER            42152   BAMD            BAM          1
T39 GROUND START                        BAN             BAE            000000000
T39  HSHNG,START/GEN DR SHT BRG23AHL    BANA            BAN          1
T39  SHAFT,STARTER/GEN DR       23AJ3   BANB            BAN          A
T39  SUPPORT ASSY,START/GEN BRG23AJ7    BANC            BAN          1
T39  COVER,START/GEN ACCESS DR  23AJ8   BAND            BAN          C
T39  STARTER BUTTON             23312   BANE            BAN          A
T39  STARTER-GENERATOR          42131   BANF            BAN          A
T39  RLY,GENERATOR,MONITOR      4217C   BANG            BAN          A
T39  RLY,GENERATOR,FIELD CONTR  4217D   BANH            BAN          A
T39  RLY,BATTERY START          42171   BANJ            BAN          A
T39  RLY,EXT PWR CUTOUT         42172   BANK            BAN          0
T39  RELAY START CONTROLLER     4217J   BANL            BAN          A
T39  CIRCUIT BREAKER            42152   BANM            BAN          1
T39 AIR START                           BAP             BAE     T      00AAAAA00
T39  SW.,AIR START              23313   BAPA            BAP          A
T39  RELAY                      23314   BAPB            BAP          A
T39  CIRCUIT BREAKER            42152   BAPC            BAP          1
T39 START/IGNITION                      BAQ             BAN            A00000000
T39 START IGNITION                      BAQ             BAP            0AAAAAAA0
T39  EXCITER,IGNITION           23FAB   BAQA            BAQ          A
T39  CABLE,ELEC PWR,EXC-IGN     23FAC   BAQB            BAQ          A
T39  IGNITER PLUG *4EA<         23FAD   BAQC            BAQ          2
T39  CABLE,BRCND,AIRFRAME/ENG   23FAE   BAQD            BAQ          A
T39  SW.,ENGINE MASTER          23131   BAQE            BAQ          A
T39  SW.,FUEL-IGNITION          23311   BAQF            BAQ          A
T39  LIGHT INDICATOR            23318   BAQG            BAQ          0
T39  CIRCUIT BREAKER            23132   BAQH            BAQ          A
T39  CABLE ASSY PN 10 166435    23133   BAQJ            BAQ          8
T39 CONTROLLED FUEL                     BAS             BAE            AAAAAAAAA
T39  MANIFOLD ASSY,FUEL         23BAK   BASA            BAS          A
T39  NOZZLE ASSY,FUEL METERING  23BAN   BASB            BAS          2
T39  CONNECTOR,PRESS VALVE UNK  23BAP   BASC            BAS          0
T39  TUBE,XFER,PRESS VALVE      23BAQ   BASD            BAS          2
T39  TUBE ASSY,FUEL SIGNAL      23BAT   BASE            BAS          A
T39  DRAIN MANIFOLD             2311F   BASF            BAS          0
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T39  DIAPHRAGM                    23112   BASG              BAS          3
T39  DIAPHRAGM SEAL               23113   BASH              BAS          3
T39  FUEL PRESS & DUMP VALVE      23BAR   BASJ              BAS          8
T39  VALVE ASSY,FUEL CHECK        23BAS   BASK              BAS          0
T39 ENGINE FUEL CONTROL                   BAT               BAS            AAAAAAAAA
T39  FUEL CONTROL&ALT 23BABK      23BAA   BATA              BAT          5
T39  FILTER SCREEN & SPRT ASSY    23BAD   BATB              BAT          1
T39  BLEED ACTUATOR ASSY          23BAE   BATC              BAT          3
T39  POWER LEVER X-SHAFT ASSY     23BAF   BATD              BAT          8
T39  SUPPORT,X-SHAFT              23BAG   BATE              BAT          1
T39  ARM/LEVER,X-SHAFT            23BAJ   BATF              BAT          A
T39  GEARSHAFT,FUEL CONTR DR      23AJC   BATJ              BAT          A
T39  BOSS ASSY,FUEL CONTROL       23AJE   BATK              BAT          5
T39 THROTTLE CONTROL                      BAU               BAT            AAAAAAAAA
T39  QUADRANT ASSY                23221   BAUA              BAU          8
T39  FRICTION LOCK                23222   BAUB              BAU          1
T39  ROD ASSY                     23226   BAUC              BAU          8
T39  ROD ASSY,LH                  23227   BAUD              BAU          8
T39  ROD ASSY,RH                  23228   BAUE              BAU          8
T39  TELESCOPIC UNIT              2322C   BAUF              BAU          8
T39  TELEFLEX CABLE               2322A   BAUG              BAU          A
T39 DIFFUSER PRESS SENSE                  BAV               BAT            AAAAAAAAA
T39  PROBE,FUEL CONT PRESS SENS23ADJ      BAVA              BAV          A
T39  TUBE ASSY,DIFF PRESS SENS    23BAU   BAVB              BAV          A
T39 COMP INLET PRESS SENSE                BAW               BAT            AAAAAAAAA
T39  PROBE ASSY,COMP IN PRESS     23AAK   BAWA              BAW          A
T39  TUBE ASSY,COMP IN PRESS      23BAV   BAWB              BAW          8
T39 LEFT ENG ACCESS DR                  LBAX                BPFB          SAAAAAAAAA
T39 LEFT ENG ACCESS DR                  LBAX              LUDQ             AAAAAAAAA
T39 RIGHT ENG ACCESS DR                 RBAX              RUDQ             AAAAAAAAA
T39  CPL,GEAR BOX DR SHAFT        23AGB   LBAXA             LBAX         A
T39  CPL,GEAR BOX DR SHAFT        23AGB   RBAXA             RBAX         A
T39  SPACER,UPR BRG SLEEVE,IN     23AGD   LBAXB             LBAX         1
T39  SPACER,UPR BRG SLEEVE,IN     23AGD   RBAXB             RBAX         1
T39  GEAR BOX                     23AHA   LBAXC             LBAX         8
T39  GEAR BOX                     23AHA   RBAXC             RBAX         8
T39  PLUG,DR SHAFT                23AHC   LBAXD             LBAX         0
T39  PLUG,DR SHAFT                23AHC   RBAXD             RBAX         0
T39  ADPTR,GEAR BOX-POSN BOSS     23AHD   LBAXE             LBAX         0
T39  ADPTR,GEAR BOX-POSN BOSS     23AHD   RBAXE             RBAX         0
T39  HSG ASSY,DR GEARBOX          23AHG   LBAXF             LBAX         1
T39  HSG ASSY,DR GEARBOX          23AHG   RBAXF             RBAX         1
T39  COVER,ENG ACCESS DR          23AJN   LBAXG             LBAX         1
T39  COVER,ENG ACCESS DR          23AJN   RBAXG             RBAX         1
T39  GEAR MAIN COMP DRIVE         23ACW   LBAXH             LBAX         A
T39  GEAR MAIN COMP DRIVE         23ACW   RBAXH             RBAX         A
T39 LEFT ENG BLEED AIR DISTR            LBAY                ECW            AAAAAAAAA
T39 LEFT ENG BLEED AIR DISTR            LBAY                UHC            111111111
T39 RIGHT ENG BLEED AIR DISTR           RBAY                ECV            AAAAAAAAA
T39 RIGHT ENG BLEED AIR DISTR           RBAY                UHC            111111111
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T39  BLEED VALVE & LINKAGE      23DAA   LBAYA          LBAY          A
T39  BLEED VALVE & LINKAGE      23DAA   RBAYA          RBAY          A
T39  STRAP ASSY,COMPRESSOR      23DAB   LBAYB          LBAY          8
T39  STRAP ASSY,COMPRESSOR      23DAB   RBAYB          RBAY          8
T39  CONNECT LINK,BLEED VALVE   23DAC   LBAYC          LBAY          A
T39  CONNECT LINK,BLEED VALVE   23DAC   RBAYC          RBAY          A
T39  ARM,AIR BLEED VALVE        23DAH   LBAYD          LBAY          A
T39  ARM,AIR BLEED VALVE        23DAH   RBAYD          RBAY          A
T39  ROD,VALVE LINKAGE          23DAL   LBAYE          LBAY          A
T39  ROD,VALVE LINKAGE          23DAL   RBAYE          RBAY          A
T39 ENGINE STATUS                       BAZ             BAT            AAAAAAAAA
T39 THROTTLE CONTROL DATA ATTN          BAZA            BAZ            111111111
T39 OIL PRESSURE                        BAZAA           BAZ     1 BAG  AAAAAAAAA
T39 OIL PRESS INDICATION                BAZB            BAZAA          111111111
T39  INDICATOR,OIL PRESSURE     51441   BAZBA           BAZB          A
T39  XMITTER,OIL PRESSURE       51442   BAZBB           BAZB          A
T39  CIRCUIT BREAKER            42231   BAZBC           BAZB          1
T39 LOW PRESS WARNING                   BAZC            BAZAA          111111111
T39  SW.,OIL PRESSURE           51443   BAZCA           BAZC          A
T39  LIGHT PANEL                44241   BAZCB           BAZC          1
T39  LIGHT,MASTER               44242   BAZCC           BAZC          1
T39  LIGHT,INDICATOR            44243   BAZCD           BAZC          2
T39  RELAY,TEST                 44244   BAZCE           BAZC          0
T39  CIRCUIT BREAKER            42152   BAZCF           BAZC          1
T39 OIL OVERHEAT WARNING                BAZD            BAZ     1 BAL  111111111
T39  BULB,OIL TEMP              51426   BAZDA           BAZD          A
T39  LIGHT PANEL                44241   BAZDB           BAZD          1
T39  LIGHT,MASTER               44242   BAZDC           BAZD          1
T39  LIGHT,INDICATOR            44243   BAZDD           BAZD          2
T39  RELAY,TEST                 44244   BAZDE           BAZD          0
T39  CIRCUIT BREAKER            42152   BAZDF           BAZD          1
T39 EXHAUST PRESS IND                   BAZE            BAZA           032222222
T39  INDICATOR,EXHAUST PRESS    51431   BAZEA           BAZE          A
T39  XMITTER,EXHAUST PRESS      51432   BAZEB           BAZE          A
T39  MANIFOLD ASSY,UPPER LEFT   23HAA   BAZEC           BAZE          5
T39  MANIFOLD ASSY,LOWER LEFT   23HAB   BAZED           BAZE          5
T39  MANIFOLD ASSY,LOWER RIGHT  23HAC   BAZEE           BAZE          5
T39  MANIFOLD ASSY,UPPER RIGHT  23HAD   BAZEF           BAZE          5
T39  CIRCUIT BREAKER            42231   BAZEG           BAZE          1
T39 ENGINE RPM                          BAZG            BAZA           111111111
T39  INDICATOR,TACHOMETER       51411   BAZGA           BAZG          A
T39  GENERATOR,TACHOMETER       51412   BAZGB           BAZG          A
T39  GEARSHIFT TACH DRIVE       23AJR   BAZGC           BAZG          8
T39  SEAL TACH DRIVE            23AJV   BAZGD           BAZG          1
T39 ENGINE SYNC                         BAZH            BAZA           000000000
T39  SYNCHROSCOPE               51413   BAZHA           BAZH          A
T39 EXHAUST GAS TEMP INDICATION         BAZJ            BAZA           111111111
T39  INDICATOR,EXHAUST TEMP     51421   BAZJA           BAZJ          A
T39  EXHAUST TEMP RES SPOOL     51422   BAZJB           BAZJ          A
T39  THERMOCOUPLE               23GAA   BAZJC           BAZJ          A
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T39  CABLE ASSY,THERMOCOUPLE   23GAB   BAZJD          BAZJ          1
T39 ENGINE ANTI-ICE FAIL               BAZK           BAZ    K BAM   333333333
T39  RELAY                     23413   BAZKA          BAZK          A
T39  LIGHT PANEL               44241   BAZKB          BAZK          1
T39  LIGHT MASTER              44242   BAZKC          BAZK          1
T39  LIGHT INDICATOR           44243   BAZKD          BAZK          2
T39  RELAY,TEST                44244   BAZKE          BAZK          0
T39  CIRCUIT BREAKER           42152   BAZKF          BAZK          1
T39 ENGINE FIRE EXTINGUISH             BBA            BAA    X       AAAAAAAAA
T39  SHUT-OFF VALVE            46222   BBAA           BBA           A
T39  SW.,ENG MASTER            23131   BBAB           BBA           A
T39  CABLE ASSY PN 10 166435   23133   BBAC           BBA           8
T39  CIRCUIT BREAKER           42152   BBAD           BBA           1
T39 ENGINE OVHT/FIRE WARNING           BBB            BBA           AAAAAAAAA
T39  DETECTOR ELEMENT          49111   BBBA           BBB           A
T39  INDICATOR LIGHT           49112   BBBB           BBB           A
T39  CONTROL UNIT              49113   BBBC           BBB           A
T39  QUICK DISCONNECT          49114   BBBD           BBB           0
T39  LIGHT,PANEL               44241   BBBE           BBB           1
T39  LIGHT,MASTER              44242   BBBF           BBB           1
T39  LIGHT,INDICATOR           44243   BBBG           BBB           2
T39  RELAY,TEST                44244   BBBH           BBB           0
T39 SUPPLY & PRESSURIZATION            BBC            BBA           AAAAAAAAA
T39  CONTAINER ASSY %EA OF TWO<49211   BBCA           BBC           5
T39  INDICATOR,DISCHARGE       49215   BBCB           BBC           0
T39  SW.,SELECTOR              49218   BBCC           BBC           A
T39  VALVE,CHECK               49214   BBCD           BBC           0
T39 AGENT RELEASE                      BBD            BBA           AAAAAAAAA
T39  VALVE,DISCHARGE           49212   BBDA           BBD           A
T39  HANDLE ASSY               49217   BBDB           BBD           A
T39  CARTRIDGE,FIRE EXTINGUISH 97355   BBDC           BBD           A
T39 ONE ENGINE FUEL PRESSURE           BPA            BAA           AAAAAAAAA
T39 TANK BOOST PRESSURE                BPB            BPA    K BPE   AAAAAAAAA
T39  SHUT-OFF VALVE            46222   BPBA           BPB           0
T39  ENGINE MASTER SWITCH      23131   BPBB           BPB           0
T39  CIRCUIT BREAKER           23132   BPBC           BPB           0
T39  CABLE ASSY PN 10 166435   23133   BPBD           BPB           8
T39 SAME SIDE %NORMAL<                 BPC            BPB           111111111
T39  BOOST PUMP                46221   BPCA           BPC           A
T39  RELAY,BOOST               46227   BPCB           BPC           A
T39  MOTOR,BOOST PUMP          46228   BPCC           BPC           A
T39 OTHER SIDE                         BPD            BPB    K BPC   AAAAAAAAA
T39  BOOST PUMP                46221   BPDA           BPD           A
T39  RELAY,BOOST               46227   BPDB           BPD           A
T39  MOTOR,BOOST PUMP          46228   BPDC           BPD           A
T39  CROSS-FEED VALVE %BOOST<  46224   BPDD           BPD           A
T39 FIRST STAGE ENG.BOOST PRES.        BPE            BPA    K BPB   AAAAAAAAA
T39  PUMP,FUEL,ENG DRIVEN      23212   BPEA           BPE           A
T39  CIRCUIT BREAKER           42152   BPEB           BPE           1
T39 ENGINE BOOST %2ND STA<             BPF            BPA           AAAAAAAAA
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T39  PUMP,FUEL,ENG DR            23212   BPFA              BPF          A
T39 ACCESSORY DRIVE,TYPICAL              BPFB              BPF            AAAAAAAAA
T39 FUEL FILTERING                       BPG               BPF            111111111
T39  FILTER ELEMENT              23214   BPGA              BPG          A
T39 FUEL HEAT                            BPH               BPG    Y       AAAAAAAAA
T39  HEATER                      23215   BPHA              BPH          A
T39  AIR VALVE AND TUBE          23EAA   BPHB              BPH          A
T39  VALVE/ACT ASSY,AIR SHUTOFF  23EAB   BPHC              BPH          A
T39  LIGHT,PANEL                 44241   BPHD              BPH          0
T39  LIGHT,MASTER                44242   BPHE              BPH          0
T39  LIGHT,INDICATOR             44243   BPHF              BPH          0
T39  CIRCUIT BREAKER             42152   BPHG              BPH          1
T39 FILTER BYPASS                        BPJ               BPF    K BPG   AAAAAAAAA
T39  FILTER %BY-PASS VALVE<      23213   BPJA              BPJ          A
T39 FUEL SUPPLY                          BSA               B              0AAAAAA50
T39 LEFT TANK SUPPLY                     LBSB              BSA    KRBSB   AAAAAAAAA
T39 RIGHT TANK SUPPLY                    RBSB              BSA    KLBSB   AAAAAAAAA
T39  FUEL CELL,WING INTEGRAL     46110   LBSBA             LBSB         1
T39  FUEL CELL,WING INTEGRAL     46110   RBSBA             RBSB         1
T39  SEALANT                     46115   LBSBB             LBSB         1
T39  SEALANT                     46115   RBSBB             RBSB         1
T39  STAT-O-SEAL                 46116   LBSBC             LBSB         1
T39  STAT-O-SEAL                 46116   RBSBC             RBSB         1
T39  EJECTOR                     46211   LBSBD             LBSB         0
T39  EJECTOR                     46211   RBSBD             RBSB         0
T39  DRAIN VALVE                 46212   LBSBE             LBSB         0
T39  DRAIN VALVE                 46212   RBSBE             RBSB         0
T39  COUPLING                    46213   LBSBF             LBSB         1
T39  COUPLING                    46213   RBSBF             RBSB         1
T39  DRAIN VALVE                 46113   LBSBG             LBSB         0
T39  DRAIN VALVE                 46113   RBSBG             RBSB         0
T39 ATTEN,INT GRAV REPLENISH             BSC               BSA            111111111
T39  INTERNAL GRAV REPLENISH             BSD               BSC            000111000
T39  CELL ASSY                   46121   BSDA              BSD          1
T39  SEAL                        46124   BSDB              BSD          1
T39  DRAIN VALVE                 46127   BSDC              BSD          0
T39  DRAIN LINE                  46128   BSDD              BSD          0
T39  CHECK VALVE                 46414   BSDE              BSD          0
T39 FUEL DUMP                            BSE               FE             111111111
T39  NOZZLE                      46411   BSEA              BSE          1
T39  JETTISON VALVE              46421   LBSEB             BSE          1
T39  JETTISON VALVE              46421   RBSEB             BSE          1
T39  SWITCH,CONTROL              46422   BSEC              BSE          A
T39  VALVE,CROSSFEED             46224   BSED              BSE          0
T39  RELAY,CONTROL               46425   BSEE              BSE          1
T39  RELAY,CONTROL               46425   BSEF              BSE          1
T39  CIRCUIT BREAKER             42152   BSEG              BSE          1
T39 AUTO DUMP                            BSF               BSE            111111111
T39  SWITCH,FLOAT                46423   LBSFA             BSF          5
T39  SWITCH,FLOAT                46423   RBSFA             BSF          5
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T39 MANUAL DUMP                          BSG          BSE    K BSF    AAAAAAAAA
T39 FUEL SYSTEM VENTING                  BSJ          BSA             001111100
T39  VENT VALVE                46112     BSJA         BSJ          0
T39 GROUND REFUEL                        BSK          BSA             000000000
T39 SINGLE POINT REFUEL                  BSL          BSK             111111111
T39  RECEPTACLE,SINGLE POINT   46311     BSLA         BSL          A
T39  CAP ASSY,SP               46312     BSLB         BSL          0
T39  CONTROL & VENT VALVE      46313     BSLC         BSL          A
T39  PACKING                   46314     BSLD         BSL          1
T39  SHUT-OFF VALVE            46315     BSLE         BSL          A
T39  DUEL,INT FUEL CONT VALVE  46317     BSLF         BSL          A
T39 GRAVITY REFUEL                       BSM          BSK             111111111
T39  FILLER CAP,WING           46111     LBSMA        BSM          0
T39  FILLER CAP,WING           46111     RBSMA        BSM          0
T39  FILLER CAP,FUSELAGE       46122     BSMB         BSM          0
T39  DOOR,ACCESS               46126     BSMC         BSM          0
T39 FUEL BALANCING                       BSN          BPD             000011111
T39  VALVE,X-FEED <TANK<       46223     BSNA         BSN          A
T39 FUEL FLOW                            BSQ          BAZ    K BPA    111111111
T39  INDICATOR,FUEL FLOW       51511     BSQA         BSQ          A
T39  XMITTER,FUEL FLOW         51512     BSQB         BSQ          A
T39  TUBE ASSY FUEL CONT-METER 23BAW     BSQC         BSQ          1
T39  TUBE ASSY FUEL CONT-METER 23BAX     BSQD         BSQ          1
T39  CIRCUIT BREAKER           42231     BSQE         BSQ          1
T39 FUEL PRESSURE LOW WARNING            BSS          BPE             011111110
T39  SW.,DIFFERENTIAL PRESS    51513     BSSA         BSS          A
T39  LIGHT,INDICATOR           46225     BSSB         BSS          A
T39  LIGHT PANEL               44241     BSSC         BSS          1
T39  LIGHT,MASTER              44242     BSSD         BSS          1
T39  LIGHT,INDICATOR           44243     BSSE         BSS          2
T39  RELAY,TEST                44244     BSSF         BSS          0
T39 FUEL PUMP X-FEED FAIL                BST          BPE             011111110
T39  LIGHT,INDICATOR           46225     BSTA         BST          A
T39  LIGHT PANEL               44241     BSTB         BST          1
T39  LIGHT,MASTER              44242     BSTC         BST          1
T39  LIGHT,INDICATOR           44243     BSTD         BST          2
T39  RELAY,TEST                44244     BSTE         BST          0
T39 FUEL TANK X-FEED FAIL                BSU          BPD    K BSN    111111111
T39  LIGHT,INDICATOR           46225     BSUA         BSU          A
T39  LIGHT PANEL               44241     BSUB         BSU          1
T39  LIGHT,MASTER              44242     BSUC         BSU          1
T39  LIGHT,INDICATOR           44243     BSUD         BSU          2
T39  RELAY,TEST                44244     BSUE         BSU          0
T39 FUEL JETTISON OPEN                   BSV          BSG             555555555
T39  LIGHT,INDICATOR           46424     BSVA         BSV          A
T39  LIGHT,PANEL               44241     BSVB         BSV          1
T39  LIGHT,MASTER              44242     BSVC         BSV          1
T39  LIGHT,INDICATOR           44243     BSVD         BSV          2
T39  RELAY,TEST                44244     BSVE         BSV          0
T39 FUEL SHUT-OFF FAIL                   BSW          BPA             000000000
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T39  LIGHT,INDICATOR              46225   BSWA          BSW          A
T39  LIGHT PANEL                  44241   BSWB          BSW          1
T39  LIGHT,MASTER                 44242   BSWC          BSW          1
T39  LIGHT,INDICATOR              44243   BSWD          BSW          2
T39  RELAY,TEST                   44244   BSWE          BSW          0
T39  CIRCUIT BREAKER              42152   BSWF          BSW          1
T39 FUEL QUANTITY                         BSX           B      K BSA   000111100
T39 FUEL QUANTITY                         BSX           BSG           AAAAAAAAA
T39 FUEL QTY INDICATION                   BSY           BSX           000111111
T39  INDICATOR,FUEL QTY           51521   LBSYA         BSY          A
T39  INDICATOR,FUEL QTY           51521   RBSYA         BSY          A
T39  TANK UNIT %7 EA<             51522   LBSYB         BSY          1
T39  TANK UNIT %7 EA<             51522   RBSYB         BSY          1
T39  REFENCE CONDENSER            51523   LBSYC         BSY          A
T39  REFENCE CONDENSER            51523   RBSYC         BSY          A
T39  THERMISTOR                   51525   LBSYD         BSY          A
T39  THERMISTOR                   51525   RBSYD         BSY          A
T39  THERMISTOR CONTROL           51526   LBSYE         BSY          A
T39  THERMISTOR CONTROL           51526   RBSYE         BSY          A
T39  TEST SWITCH %SELECTOR<       51524   BSYF          BSY          0
T39  CIRCUIT BREAKER              42231   BSYG          BSY          1
T39 FUEL LEVEL LOW WARING                 BSZ           BSX    K BSY   AAAAAAAAA
T39  LIGHT,PANEL                  44241   BSZA          BSZ          1
T39  LIGHT,MASTER                 44242   BSZB          BSZ          1
T39  LIGHT,INDICATOR              44243   BSZC          BSZ          2
T39 FILTER WARNING                        BTA           BPF    I BPG   111111111
T39  SW.,DIFF PRESSURE            23218   BTAB          BTA          A
T39  LIGHT,PANEL                  44241   BTAC          BTA          1
T39  LIGHT,MASTER                 44242   BTAD          BTA          1
T39  LIGHT,INDICATOR              44243   BTAE          BTA          2
T39  CIRCUIT BREAKER              42152   BTAF          BTA          1
T39 COMM/NAV/IDENT                        C                          AAAAAAAAA
T39 COMMUNICATION                         CA            C      E      011111120
T39 EXTERNAL COMMUNICATION                CAA           CA            111111111
T39 VHF COMMUNICATION                     CAC           CAA    K CAF   AAAAAAAAA
T39  VHF-101                      62100   CACA          CAC          0
T39  STATIC DISCHARGER            6211A   CACB          CAC          0
T39  ANTENNA                      62111   CACC          CAC          8
T39  CONTROL                      62112   CACD          CAC          8
T39  MOUNT                        62116   CACE          CAC          0
T39  WILCOX 807A                  62200   CACF          CAC          0
T39  ANTENNA                      62211   CACG          CAC          8
T39  CONTROL                      62112   CACH          CAC          8
T39  MOUNT                        62216   CACJ          CAC          0
T39  VHF TRANSMIT                         CAD           CAC           333333333
T39  TRANSMITTER                  62118   CADA          CAD          8
T39  TRANSCEIVER                  62217   CADB          CAD          5
T39 VHF RECEIVE                           CAE           CAC           888888888
T39  RECEIVER                     62117   CAEA          CAE          8
T39  TRANSCEIVER                  62217   CAEB          CAE          5
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T39 UHF COMMUNICATION                          CAF          CAA      CAC    111111111
T39  CONTROL PANEL %C1057B<      6311A    CAFA          CAF              1
T39  AMPLIFIER OSCILLATOR        6311B    CAFB          CAF              1
T39  CONTROL MONITOR             6311C    CAFC          CAF              1
T39  CABINET ELECT EQUIP         6311D    CAFD          CAF              1
T39  DYNAMOTOR %DY-103<          6311E    CAFE          CAF              1
T39  MODULATOR RADIO             6311F    CAFF          CAF              1
T39  SELECTOR CONTROL            6311G    CAFG          CAF              1
T39  ANTANNA UPPER               63112    CAFH          CAF              1
T39  ANTENNA LOWER               63113    CAFJ          CAF              1
T39  ANTENNA SWITCH              63114    CAFK          CAF              1
T39  RELAY ANTENNA CHANGE OVER   63115    CAFL          CAF              1
T39  COAXIAL CABLE               63116    CAFM          CAF              1
T39  CIRCUIT BREAKER             63117    CAFN          CAF              1
T39  POWER SUPPLY %PP-1990<      6311K    CAFP          CAF              1
T39  MOUNT ASSEMBLY              63118    CAFQ          CAF              0
T39  CONTROL PANEL-WIDE BAND     6311L    CAFR          CAF              1
T39  CABINET ELECT EQUIP         6311N    CAFS          CAF              1
T39  MODULATOR RADIO WIDE BAND   6311P    CAFT          CAF              1
T39 UHF TRANSMIT                               CAG          CAF                333333333
T39  RECEIVER TRANS RT463A       63111    CAGA          CAG              1
T39  RECEIVER TRANS-WIDE BAND    6311M    CAGB          CAG              1
T39 UHF RECEIVE                                CAH          CAF                888888888
T39 NORMAL RECEIVE                             CAJ          CAH                111111111
T39  RECEIVER TRANS-WIDE BAND    6311M    CAJA          CAJ              1
T39  RECEIVER TRANS RT463A       63111    CAJB          CAJ              1
T39  RECEIVER IF-AF R-568        6311H    CAJC          CAJ              1
T39  RECEIVER IF-AF WIDE BAND    6311Q    CAJD          CAJ              1
T39 GUARD RECEIVE                              CAK          CAH    K CAJ       AAAAAAAAA
T39  RECEIVER GUARD R-567        6311J    CAKA          CAK              8
T39 SECURE SPEECH                              CAL          CAF                000000000
T39  KEYER DY28                  6311R    CALA          CAL              8
T39 INTERNAL COMMUNICATION                     CAM          CA                 000000000
T39 STATION TO STATION COMM                    CAN          CAA                111111111
T39 STATION TO STATION COMM                    CAN          CAM               FAAAAAAAAA
T39 STATION TO STATION COMM                    CAN          CHF                111111111
T39  CIRCUIT BREAKER 3 EACH      6411A    CANA          CAN              1
T39  HEADSET 3 EACH              6411B    CANB          CAN              1
T39  U92 PLUG 3 EACH             6411C    CANC          CAN              1
T39  CORDAGE 3 EACH              6411D    CAND          CAN              1
T39  CONTROL PANEL 3 EACH        64111    CANE          CAN              1
T39  MICROPHONE 3 EACH           64114    CANF          CAN              1
T39  AUDIO AMPLIFIER 3 EACH      64113    CANG          CAN              1
T39  RELAY CABIN MIKE 3 EACH     64118    CANH          CAN              1
T39  SWITCH MICROPHONE           64115    CANJ          CAN              1
T39 PAX LOUDSPEAKER COMM                       CAP          CAM                111111111
T39  CONTROL PANEL 3 EACH        64111    CAPA          CAP              1
T39  LOUD SPEAKER 2 EACH         64112    CAPB          CAP              1
T39  SPEAKER AMPLIFIER 2 EACH    64116    CAPC          CAP              1
T39 EQUIPMENT COOLING                          CB           C                  000000000
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T39  ELECT EQUIP COOLING SHELF 7111A  CBA          CB          1
T39  BLOWERS                   41410  CBB          CB          0
T39  ELECT COMPT GRD BLOWER    41411  CBC          CB          0
T39  ELECT SHELF BLOWER        41412  CBD          CB          1
T39  HEAT EXCHANGER BLOWER     41416  CBE          CB          1
T39 IDENTIFICATION                    CC           C                 000000000
T39  AN/APX-72 SYSTEM          65A00  CCA          CC          0
T39  SWITCHING UNIT SA-1474 A  65AAA  CCB          CC          8
T39  MOUNT MT-94817            65AAB  CCC          CC          0
T39  COMPUTER KIT 1A/TSEC      65AAC  CCD          CC          1
T39  MOUNT MT-3949A/U          65AAD  CCE          CC          0
T39  ANTENNA UPPER/LOWER       65AAE  CCF          CC          1
T39  CO-AXIAL CABLE            65AAF  CCG          CC          1
T39  CONTROL XPONDER SET       65AAG  CCH          CC          8
T39  REC-XMITTER RT-859        65AB0  CCJ          CC          8
T39  PROCESSOR A1              65ABA  CCK          CC          8
T39  DECODER A2                65ABB  CCL          CC          8
T39  MODE 4 A3                 65ABC  CCM          CC          8
T39  ENCODER CLOCK             65ABD  CCN          CC          8
T39  ENCODER CONTROL           65ABE  CCP          CC          8
T39  ENCODER GATING            65ABF  CCQ          CC          8
T39  POWER SUPPLY PSI          65ABG  CCR          CC          8
T39  MOUNT MT-3509             65ABH  CCS          CC          0
T39  RF ASEMBLY                65ABJ  CCT          CC          8
T39  XPONDER TEST SET TS1843A  65AC0  CCU          CC          0
T39  MAIN FRAME ASSY A1        65ACA  CCV          CC          0
T39  COMPARATOR/DECODER A4     65ACB  CCW          CC          0
T39  MOUNT MT-3513             65ACC  CCX          CC          0
T39  XPONDER TEST SET TS1843B  65AD0  CCY          CC          0
T39  SIGNAL GENERATOR/RECEIVER 65ADA  CCZ          CC          0
T39  DIRECTIONAL COUPLER       65ADB  CCZA         CC          0
T39 NAVIGATION                        CD           C     F           001111140
T39 STEERING SOLUTIONS                CE           CD                005555580
T39  CIRCUIT BREAKER           71115  CEA          CE          1
T39  SWITCH RADIO INST MASTER  71118  CEB          CF          1
T39 ENROUTE AIDS                      CF           CF                008888800
T39 ENROUTE NAV DISPLAYS              CFA          CF                AAAAAAAAA
T39  INDICATOR SWITCHING UNIT  71111  CFAA         CFA         5
T39  COURSE SELECTOR SWITCH    71116  CFAB         CFA         1
T39  COURSE SEL FAIL LIGHT     71117  CFAC         CFA         0
T39 BEARING                           CFB          CFA               888888888
T39 PILOT BEARING                     CFBA         CFB   K CFBB      AAAAAAAAA
T39  HORIZ SITUATION IND       51317  CFBAA        CFBA        8
T39  CIRCUIT BREAKER           42231  CFBAB        CFBA        1
T39 COPILOT BEARING                   CFBB         CFB   K CFBA      AAAAAAAAA
T39  BEARING-DIST-HEAD IND     51314  CFBBA        CFBB        8
T39  CIRCUIT BREAKER           42152  CFBBB        CFBB        1
T39 COURSE                            CFC          CFA               111111111
T39  OMNIMAG COURSE IND        51312  CFCA         CFC         8
T39  CIRCUIT BREAKER           42231  CFCB         CFC         1
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T39 DISTANCE                              CFD                CFA              000111000
T39 PILOT DISTANCE                        CFDA               CFD    K CFDB    AAAAAAAAA
T39  HORIZ SITUATION IND        51317     CFDAA              CFDA          8
T39  CIRCUIT BREAKER            42231     CFDAB              CFDA          1
T39 COPILOT DISTANCE                      CFDB               CFD    K CFDA    AAAAAAAAA
T39  BEARING-DIST-HEAD IND      51314     CFDBA              CFDB          8
T39  CIRCUIT BREAKER            42152     CFDBB              CFDB          1
T39 HEADING                               CFE                CFA              444444444
T39 PILOT HEADING                         CFEA               CFE    K CFEB    AAAAAAAAA
T39  ATTITUDE DIRECT IND        51232     CFEAA              CFEA          8
T39  CIRCUIT BREAKER            42231     CFEAB              CFEA          1
T39 COPILOT HEADING                       CFEB               CFE    K CFEA    AAAAAAAAA
T39 COPILOT 1                             CFEC               CFEB             111111111
T39  BEARING-DIST-HEAD IND      51314     CFECA              CFEC          8
T39  CIRCUIT BREAKER            42152     CFECB              CFEC          1
T39 COPILOT 2                             CFED               CFEB             111111111
T39  OMNIMAG COURSE IND         51312     CFEDA              CFED          8
T39  CIRCUIT BREAKER            42231     CFEDB              CFED          1
T39 ENROUTE NAV ELECTRONICS               CFF                CF               AAAAAAAAA
T39 TACAN                                 CFG                CFF              111111111
T39  MODULATOR MD-359           7121A     CFGA               CFG           8
T39  AZIMUTH GATE  TD-273       7121B     CFGB               CFG           8
T39  AMPLIFIER AM-2212          7121D     CFGC               CFG           8
T39  RT UNIT RF-98              7121E     CFGD               CFG           8
T39  POWER SUPPLY PP-2331       7121F     CFGE               CFG           8
T39  VIDEO DECODER KY-290       7121G     CFGF               CFG           8
T39  PRESELECTOR Z108           7121K     CFGG               CFG           0
T39  CHANNEL SELECTOR C-2875    7121L     CFGH               CFG           8
T39  CRYSTAL SELECTOR TG-68     7121M     CFGJ               CFG           A
T39  CIRCUIT BREAKER            42231     CFGK               CFG           1
T39 REC/TRANSMIT                          CFH                CFG              AAAAAAAAA
T39  ANTENNA                    7121N     CFHA               CFH           A
T39  REC/XMITTER RT-220C        71211     CFHB               CFH           8
T39  CONTROL PANEL C-1763       71212     CFHC               CFH           8
T39  MOUNT ASSY MT-928          71216     CFHD               CFH           0
T39  SHOCK ASSY                 71217     CFHE               CFH           0
T39  RADIO INST MASTER RELAY3/4 71114     CFHF               CFH           1
T39 RANGE                                 CFJ                CFG              000111000
T39  RANGE CONTROL              7121C     CFJA               CFJ           8
T39  RANGE GATE TD-272          7121H     CFJB               CFJ           8
T39 COUPLING                              CFK                CFG              888888888
T39  TACAN COUPLER              71220     CFKA               CFK           8
T39  IND COUPLER                71221     CFKB               CFK           8
T39  RANGE MODULE               71222     CFKC               CFK           1
T39  AZIMUTH MODULE             71223     CFKD               CFK           8
T39  PHASE DETECTOR             71224     CFKE               CFK           8
T39  MOUNTING                   71225     CFKF               CFK           0
T39 VOR                                   CFL                CFF              111111111
T39 VOR                                   CFL                CHD              AAAAAAAAA
T39  CONTROL PANEL              71512     CFLA               CFL           8
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T39  INST MASTER RELAYS 3 AND 571114   CFLB            CFL          1
T39  CIRCUIT BREAKER          42152    CFLC            CFL          1
T39 INSTRUMENTATION                    CFM             CFL            AAAAAAAAA
T39  INSTRUMENTATION UNIT     71514    CFMA            CFM          8
T39  POWER SUPPLY AC 516A-1   71515    CFMB            CFM          8
T39  POWER SUPPLY AC 516B-3   71516    CFMC            CFM          8
T39  RF-IF AMP MODULE 51X2B   71517    CFMD            CFM          8
T39  IF AND AUDIO MODULE      71518    CFME            CFM          8
T39  500KC FILTER MODULE      7151A    CFMF            CFM          3
T39  CIRCUIT BREAKER          42231    CFMG            CFM          1
T39 RECEIVE                            CFN             CFL            AAAAAAAAA
T39  REF AMP MODULE 344B1     7151B    CFNA            CFN          8
T39  VARIABLE AMP MODULE      7151C    CFNB            CFN          8
T39  CONVERT DISCRIM MODULE   7151E    CFNC            CFN          8
T39  BEARING SERVO MODULE     7151F    CFND            CFN          8
T39  VOR FLAG CONT MODULE     7151H    CFNE            CFN          1
T39  BEARING MECHANISM MODULE 7151J    CFNF            CFN          8
T39  AC POWER SUPPLY MODULE   7151K    CFNG            CFN          8
T39  CHASSIS ASSY MODULE      7151L    CFNH            CFN          1
T39  MOUNT ASSY               7151M    CFNJ            CFN          0
T39  RECEIVER                 71511    CFNK            CFN          8
T39  ANTENNA                  71513    CFNL            CFN          A
T39 REMOTE DIRECTIONAL GYRO            CG              CE             888888888
T39  RELAY                    7171A    CGA             CG           1
T39  REPEATER AMP A5          7171B    CGB             CG           3
T39  REPEATER MECHANISM MOD A-67171C   CGC             CG           8
T39  DIRECTIONAL GYRO         71712    CGD             CG           A
T39  COMPASS AMPLIFIER        71714    CGE             CG           8
T39  SHOCK MOUNT              71715    CGF             CG           0
T39  SERVO AMP A1             71716    CGG             CG           8
T39  PRE AMP A2               71717    CGH             CG           8
T39  POWER SUPPLY A3          71718    CGJ             CG           8
T39  GYRO                     71912    CGK             CG           A
T39  COUPLER                  71914    CGL             CG           8
T39  MOUNT                    71915    CGM             CG           0
T39  SLAVING AMP              71916    CGN             CG           8
T39  POWER SUPPLY             71917    CGP             CG           8
T39  MECHANISM COMPASS        71918    CGQ             CG           8
T39  REMOTE MAG FLUX DETECT   51315    CGR             CG           3
T39  GYRO MODE SELECT SWITCH  51322    CGS             CG           5
T39 APPROACH AND LANDING AIDS          CH              CE             000000080
T39 VOR/ILS                            CHA             CH             111111111
T39 HEADING                            CHB             CHA            AAAAAAAAA
T39 PILOT HEADING                      CHBA            CHB    K CHBB  111111111
T39 ATTITUDE DIRECTOR IND     51232    CHBAA           CHBA         8
T39 CIRCUIT BREAKER           42231    CHBAB           CHBA         1
T39 COPILOT HEADING                    CHBB            CHB    K CHBA  AAAAAAAAA
T39 COPILOT 1                          CHBC            CHBB           111111111
T39  BEARING-DIST-HEAD IND    51314    CHBCA           CHBC         8
T39  CIRCUIT BREAKER          42152    CHBCB           CHBC         1
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12345678901234567890123456789012345678901234567890123456789012345678901234567890
T39 COPILOT 2                          CHBD      CHBB              111111111
T39  OMNIMAG COURSE IND          51312 CHBDA     CHBD         8
T39  CIRCUIT BREAKER             42231 CHBDB     CHBD         1
T39 GLIDESLOPE                         CHC       CHA               AAAAAAAAA
T39  POSER SUPPLY 51V-3          7141A CHCA      CHC          8
T39  RF OSCILLATOR               7141E CHCB      CHC          8
T39  POSER SUPPLY DGS-20         7141F CHCC      CHC          8
T39  TONE FILTER                 7141H CHCD      CHC          1
T39  RECEIVER                    71411 CHCE      CHC          8
T39  ANTENNA                     71412 CHCF      CHC          A
T39  CONTROL PANEL               71413 CHCG      CHC          8
T39  MOUNT ASSY                  71414 CHCH      CHC          0
T39 PILOT GLIDESLOPE                   CHCX      CHC    K CHCY    AAAAAAAAA
T39  ATTITUDE DIRECTOR IND       51232 CHCXA     CHCX         8
T39  CIRCUIT BREAKER             42231 CHCXB     CHCX         1
T39 COPILOT GLIDESLOPE                 CHCY      CHC    K CHCX    AAAAAAAAA
T39  OMNIMAG COURSE IND          51312 CHCYA     CHCY         8
T39  CIRCUIT BREAKER             42231 CHCYB     CHCY         1
T39 VOR RECEIVE                        CHD       CHA               AAAAAAAAA
T39  LOCALIZER OUTPUT MODULE     7151G CHDA      CHD          8
T39 ADF                                CHE       CH     K CHA      AAAAAAAAA
T39 ADF RECEIVE                        CHEA      CHE               AAAAAAAAA
T39  ANTENNA                     71811 CHEAA     CHEA         A
T39  CONTROL                     71812 CHEAB     CHEA         8
T39  INDICATOR                   71813 CHEAC     CHEA         1
T39  DYNAMOTOR                   71814 CHEAD     CHEA         A
T39  RECEIVER                    71815 CHEAE     CHEA         8
T39  MOUNT                       71818 CHEAF     CHEA         0
T39  CIRCUIT BREAKER             42152 CHEAG     CHEA         1
T39  CIRCUIT BREAKER             42231 CHEAH     CHEA         1
T39 BEARING                            CHEB      CHE               AAAAAAAAA
T39 PILOT BEARING                      CHEC      CHEB   K CHED     AAAAAAAAA
T39  HORIZ SITUATION IND         51317 CHECA     CHEC         8
T39  CIRCUIT BREAKER             42231 CHECB     CHEC         1
T39 COPILOT BEARING                    CHED      CHEB   K CHEC     AAAAAAAAA
T39  BEARING-DIST-HEAD IND       51314 CHEDA     CHED         8
T39  CIRCUIT BREAKER             42152 CHEDB     CHED         1
T39 MARKER BEACON                      CHF       CH                000000000
T39  RJ AND IF MODULE 51Z2       7161A CHFA      CHF          8
T39  AMPLIFIER MODULE 51Z2       71618 CHFB      CHF          8
T39  RECEIVER                    71611 CHFC      CHF          8
T39  ANTENNA                     71612 CHFD      CHF          A
T39  SENSITIVITY SWITCH          71613 CHFE      CHF          1
T39  INDICATOR LIGHT             71614 CHFF      CHF          1
T39  SWITCH TEST                 71615 CHFG      CHF          0
T39  DIM AND TEST RELAY BOX      71112 CHFH      CHF          0
T39 FLIGHT DIRECTOR GROUP              CJ        CF                111111111
T39  COMPUTER                    71311 CJA       CJ           8
T39  FLT DIRECTOR SELECT SW      71312 CJB       CJ           5
T39  MOUNT ASSY                  71313 CJC       CJ           0
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123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
T39 DEAD RECONING                          CK              CD      K CE      00AAAAAA0
T39 HEADING                                CKA             CK                AAAAAAAAA
T39  STANDBY COMPASS                51311  CKAA            CKA             1
T39  COMPASS CORRECTION CARD        51324  CKAB            CKA             0
T39  SEXTANT                        51316  CKAC            CKA             1
T39  SEXTANT MOUNT                  51318  CKAD            CKA             0
T39 TIME                                   CKB             CK                AAAAAAAAA
T39  CLOCK                          51321  CKBA            CKB             0
T39 WEATHER AVOIDANCE                      CL              CD                000000000
T39  MODULATOR                      7221A  CLA             CL              8
T39  REC-XMITTER RT-1018-28         72221  CLB             CL              8
T39  INDICATOR IN-112               72212  CLC             CL              8
T39  ANTENNA AT-113                 72213  CLD             CL              A
T39  MOUNT MT-104AH                 72214  CLE             CL              0
T39 INFO AND DISPLAY                       D                                 AAAAAAAAA
T39 FLIGHT STATUS                          DA              D                 011111130
T39 ATTITUDE                               DAA             DA        E       0000000A0
T39  CIRCUIT BREAKER                42231  DAAA            DAA             1
T39  INST PANEL VIBRATOR 2 EA       51111  DAAAA           DA              0
T39  SHOCK MOUNT                    51112  DAAAB           DA              0
T39  CKT BKR VIBRATOR               51113  DAAAC           DA              0
T39 TURN-SLIP INDICATION                   DAB             DAA       K DAC   AAAAAAAAA
T39  INSTR PANEL COPILOT OUTBD      12112  DABA            DAB             1
T39  RATE GYRO TRANSMITTER          5123A  DABB            DAB             8
T39  TURN AND SLIP INDICATOR        51233  DABC            DAB             A
T39  CIRCUIT BREAKER                42152  DABD            DAB             1
T39 ROLL-PITCH                             DAC             DAA               999999999
T39 PILOT INDICATION                       DAD             DAC       K DAE   AAAAAAAAA
T39  INSTR PANEL PILOT OUTBRD       12111  DADA            DAD             1
T39  ATTITUDE DIR INDICATOR         51232  DADB            DAD             A
T39  VERTICAL GYRO MD1              51234  DADC            DAD             A
T39  RATE SWICHING GYRO MC1         51235  DADD            DAD             A
T39 COPILOT INDICATION                     DAE             DAC       K DAD   AAAAAAAAA
T39  INSTR PANEL COPILOT OBRD       12115  DAEA            DAE             1
T39  ATTITUDE INDICATOR             51231  DAEB            DAE             A
T39  VERTICAL GYRO MD1              51234  DAEC            DAE             A
T39  RATE SWITCHING GYRO MC1        51235  DAED            DAE             A
T39 ALTITUDE INFO                          DAF             DA        E       00A111AA0
T39 VERTICAL VELOCITY                      DAG             DAF               0000000010
T39 PILOT INDICATION                       DAH             DAG       K DAJ   AAAAAAAAA
T39  INSTR PANEL PILOT OUTBRD       12111  DAHA            DAH             1
T39  VERT VELOCITY INDICATOR        51224  DAHB            DAH             A
T39 COPILOT INDICATION                     DAJ             DAG       K DAH   AAAAAAAAA
T39  INSTR PANEL COPLT OUTBRD       12115  DAJA            DAJ             1
T39  VERT VELOCITY INDICATOR        51224  DAJB            DAJ             A
T39 ALTITUDE INDICATION                    DAK             DAF               AAAAAAAAA
T39  COMMUTER CPU-46A B26           5123B  DAKA            DAK             0
T39  MOUNT                          5123C  DAKB            DAK             0
T39  COMPUTER CPU 46A/A             5123D  DAKC            DAK             0
T39 PILOT INDICATION                       DAL             DAK       K DAM   AAAAAAAAA
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12345678901234567890123456789012345678901234567890123456789012345678901234567890
T39  INSTR PANEL PILOT OUTBRD   12111   DALA              DAL          1
T39  ALTIMETER                  51223   DALB              DAL          A
T39  ALTIMETER AAU 19A          51227   DALC              DAL          A
T39  ALTIMETER AAU 19AA         51228   DALD              DAL          A
T39 COPILOT INDICATION                  DAM               DAK    K DAL   AAAAAAAAA
T39  INST PANEL COPLT OUTBRD    12115   DAMA              DAM          1
T39  ALTIMETER                  51223   DAMB              DAM          A
T39  ALTIMETER AAU 19A          51227   DAMC              DAM          A
T39  ALTIMETER AAU 19AA         51228   DAMD              DAM          A
T39 NAVIGATOR INDICATION                DAN               DAK          000000000
T39  ALTIMETER                  51223   DANA              DAN          A
T39  ALTIMETER                  51227   DANB              DAN          A
T39  ALTIMETER                  51228   DANC              DAN          A
T39 ATTENUATION                         DAP               DA           111111111
T39 G-LOAD                              DAQ               DAP          000000000
T39  INSTR PANEL COPLT OUTBRD   12115   DAQA              DAQ          1
T39  ACCELEROMETER              51211   DAQB              DAQ          A
T39 AIRSPEED                            DAR               DAP          0A10001A0
T39 SYSTEM NO 1 INDICATION              DAS               DAK    K DAW   AAAAAAAAA
T39  INSTR PANEL PILOT OUTBRD   12111   DASA              DAS          1
T39 PILOT INDICATED AIR SPEED           DAT               DAS          111111111
T39  AIRSPEED INICATOR          51221   DATA              DAT          A
T39 PILOT MACHMETER                     DAU               DAS          111111111
T39  MACHMETER                  51222   DAUA              DAU          A
T39 MACH-AIRSPEED WARNING               DAV               DAS          000000000
T39  CIRCUIT BREAKER            42152   DAVA              DAV          1
T39  HORN MACH AIRSPEED         51212   DAVB              DAV          A
T39  CONTROL MACH AUDIBLE SIG   51213   DAVC              DAV          1
T39  SWITCH AIRSPEED MACH       51248   DAVD              DAV          A
T39 SYSTEM NO 2 INDICATION              DAW               DAR    K DAS   AAAAAAAAA
T39 COPILOT INDICATED AIRSPEED          DAX               DAW          555555555
T39  INSTR PANEL COPLT OUTBRD   12115   DAXA              DAX          1
T39  AIRSPEED INDICATOR         51221   DAXB              DAX          A
T39 NAVIGATOR TRUE AIRSPEED             DAY               DAW    K DAX   AAAAAAAAA
T39  AIRSPEED INDICATOR         51221   DAYA              DAY          A
T39 CORRECTED AIRSPEED                  DAZ               DAY          AAAAAAAAA
T39 STATIC NO 1 DIST                    DBA               DAH          AAAAAAAAA
T39 STATIC NO 1 DIST                    DBA               DAL          AAAAAAAAA
T39 STATIC NO 1 DIST                    DBA               DAS          AAAAAAAAA
T39 STATIC NO 1 PRESSURE                DBB               DBA    DBE   111111111
T39  DRAIN PLUG %2 EA<          51245   DBBA              DBB          0
T39 LH PITOT-STATIC %STATIC<            DBC               DBB          111111111
T39  STATIC PORT                51244   DBCA              DBC          A
T39 RH PITOT-STATIC %STATIC<            DBD               DBB          111111111
T39  STATIC PORT                51244   DBDA              DBD          A
T39 ALTERNATE SELECT NO 1               DBE               DBA    K DBB   AAAAAAAAA
T39  STATIC SELECTOR VALVE      51243   DBEA              DBE          A
T39 ALTERNATE STATIC                    DBF               DBE          AAAAAAAAA
T39 ALTERNATE STATIC                    DBF               DBH          AAAAAAAAA
T39 ALTERNATE STATIC                    DBF               NAT          000000000
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1234567890123456789012345678901234567890123456789012345678901234567890123456789
T39  DRAIN PLUG                  51245   DBFA              DBF          C
T39  STATIC PORT %ALT<           51247   DBFB              DBF          A
T39 STATIC NO 2 DIST                     DBG               DAJ            AAAAAAAAA
T39 STATIC NO 2 DIST                     DBG               DAM            AAAAAAAAA
T39 STATIC NO 2 DIST                     DBG               DAW            AAAAAAAAA
T39 ALTERNATE SELECT NO 2                DBH               DBG    K DBJ   AAAAAAAAA
T39  STATIC SELECTOR VALVE       51243   DBHA              DBH          A
T39 STATIC NO 2 PRESSURE                 DBJ               DAN            AAAAAAAAA
T39 STATIC NO 2 PRESSURE                 DBJ               DBG      DBH   111111111
T39 STATIC NO 2 PRESSURE                 DBJ               DEA            AAAAAAAAA
T39  DRAIN PLUG %2 EA<           51245   DBJA              DBJ          D
T39 LEFT STATIC PORT                     DBK               DBJ            111111111
T39  STATIC PORT                 51244   DBKA              DBK          A
T39 RIGHT STATIC PORT                    DBL               DBJ            111111111
T39  STATIC PORT                 51244   DBLA              DBL          A
T39 LH PITOT-STATIC %PITOT<              DBM               DAS            AAAAAAAAA
T39  PITOT HEAD                  51241   DBMA              DBM          A
T39  DRAIN PLUG                  51245   DBMB              DBM          O
T39 PITOT ANTIICE                        DBN               DBM    A       AAAAAAAAA
T39  CIRCUIT BREAKER             42152   DBNA              DBN          1
T39  HEATING ELEMENT             51242   DBNB              DBN          A
T39 RH PITOT-STATIC %PITOT<              DBP               DAW            AAAAAAAAA
T39 RH PITOT-STATIC %PITOT<              DBP               DEA            AAAAAAAAA
T39 RIGHT PITOT-STATIC PITOT             DBP               NAT            000000000
T39  PITOT HEAD                  51241   DBPA              DBP          A
T39  DRAIN PLUG %2 EA<           51245   DBPB              DBP          1
T39 PITOT ANTIICE                        DBQ               DBP    A       AAAAAAAAA
T39  CIRCUIT BREAKER             42152   DBQA              DBQ          1
T39  HEATING ELEMENT             51242   DBQB              DBQ          A
T39 FREE AIR TEMP INFO                   DC                D              000000000
T39 FREE AIR TEMP INFO                   DC                DAZ            AAAAAAAAA
T39  INSTR PANEL COPLTS OUTBRD   12115   DCA               DC           1
T39  CIRCUIT BREAKER             42152   DCB               DC           1
T39  FREE AIR TEMP INDICATOR     51237   DCC               DC           1
T39  FREE AIR TEMP DETECTOR      51238   DCD               DC           A
T39 WARNINGS                             DD                D              011111110
T39 PERSONNEL WARNING                    DDB               DD             000000000
T39  CIRCUIT BREAKER             42152   DDBA              DDB          1
T39  ALARM BELL                  49311   DDBB              DDB          A
T39 MISC INFO AND DISPLAY                DE                D              000000000
T39 SIGNAL DATA RECORD                   DEA               DE             AAAAAAAAA
T39  CABIN AIR DUMP SAFETY VAL   41212   DEAA              DEA          5
T39 CIRCUIT BREAKER              42152   DEAB              DEA          1
T39  VGH FLIGHT DATA RECORDER    55100   DEAC              DEA          8
T39  RECORDER COMPUTER           55111   DEAD              DEA          A
T39  MAGAZINE                    55112   DEAE              DEA          A
T39  ACCELEROMETER               55113   DEAF              DEA          A
T39 ENVIRONMENTAL CONTROL                E                                AAAAAAAAA
T39 LIGHTING                             EA                F      D       111111121
T39 INTERNAL LIGHTING                    EAA               EA             0AAAAAAAA0
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T39 CABIN LIGHTING                          EAB          EAA                000000000
T39  CONTROL PANEL                 44211    EABA         EAB           1
T39  SWITCH 10 EACH                44212    EABB         EAB           1
T39  LIGHT ASSY 8EA                44215    EABC         EAB           1
T39  LIGHT ASSY SIGN 2EA           44216    EABD         EAB           1
T39 COCKPIT LIGHTING                        EAC          EAA                AAAAAAAAA
T39 EMERGENCY LIGHTING                      EAD          EAC     K EAE      AAAAAAAAA
T39  RELAY CONTROL                 4421B    EADA         EAD             A
T39  POWER UNIT-EMERGENCY          4421E    EADB         EAD             A
T39  LIGHT ASSY 3EA                44215    EADC         EAD           1
T39 NORMAL LIGHTING                         EAE          EAC       EAD      111111111
T39  CIRCUIT BREAKER DC            42152    EAEA         EAE           1
T39  CIRCUIT BREAKER AC            42231    EAEB         EAE           1
T39 INSTRUMENT LIGHTS EA OF 2               EAF          EAE                111111111
T39  RESISTOR DIMMING              4421C    EAFA         EAF           1
T39  CONTROL PANEL                 44211    EAFB         EAF           1
T39  LIGHT ASSY FLOOD              44215    EAFC         EAF           1
T39  LIGHT ASSY INSTR              44231    EAFD         EAF           1
T39 CONSOLE LIGHTS EA OF 2                  EAG          EAE                000000000
T39  RESISTOR DIMMING              4421C    EAGA         EAG           1
T39  CONTROL PANEL                 44211    EAGB         EAG           1
T39  LIGHT ASSY                    44215    EAGC         EAG           1
T39 DOME LIGHTS                             EAH          EAF                000000000
T39  RESISTOR DIMMING 2EA          4421C    EAHA         EAH           1
T39  CONTROL PANEL                 44211    EAHB         EAH           1
T39  SWITCH 2EA                    44212    EAHC         EAH           1
T39  LIGHT ASSY                    44215    EAHD         EAH           1
T39 EXTERNAL ATTENUATION                    EAL          EA                 111111121
T39 EXTERNAL LIGHTING                       EAM          EAL                111111111
T39  CIRCUIT BREAKER               42152    EAMA         EAM           1
T39 LAND/TAXI LIGHTS                        EAN          EAM                100000051
T39  CONTROL PANEL                 44112    EANA         EAN           1
T39  LANDING AND TAXI LT ASSY      44113    EANB         EAN           5
T39  LAND AND TAXI LT BRACKET      44117    EANC         EAN           1
T39  SWITCH                        44118    EAND         EAN           5
T39 POSITION LIGHTS                         EAP          EAM                000000000
T39  CONTROL PANEL                 44112    EAPA         EAP           1
T39  POSITION LIGHT ASSY 6EA       44114    EAPB         EAP           1
T39  SWITCH                        44118    EAPC         EAP           5
T39 ANTI-COLLISION LIGHT                    EAQ          EAM                000000000
T39  CONTROL PANEL                 44112    EAQA         EAQ           1
T39  ANTI-COLLISION LT ASSY 2EA    44115    EAQB         EAQ           1
T39  SWITCH                        44118    EAQC         EAQ           5
T39 ICE CHECK LIGHTS                        EAR          EAM                000000000
T39  CONTROL PANEL                 44112    EARA         EAR           1
T39  ICE CHECK LIGHT ASSY 2EA      44116    EARB         EAR           1
T39  SWITCH                        44118    EARC         EAR           5
T39  CIRCUIT BREAKER               42152    EARD         EAR           1
T39 WINDSHIELD CLEARING                     EB           EBC                0A00000A0
T39 RAIN REMOVAL                            EBA          EB      G          010000010
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1234567890123456789012345678901234567890123456789012345678901234567890123456789
T39  BLADE 2EA                    49411   EBAA              EBA          1
T39  ARM ASSY 2EA                 49412   EBAB              EBA          1
T39  CONVERTER ASSY               49413   EBAC              EBA          8
T39  FLEX DRIVE                   49414   EBAD              EBA          A
T39  MOTOR ASSY                   49415   EBAE              EBA          8
T39  CIRCUIT BREAKER              42152   EBAF              EBA          1
T39 ANTI-ICE                              EBB               EB      A      010000010
T39  WINDSHIELD HEAT              41530   EBBA              EBB          0
T39  HEATING ELEMENT 6EA          41531   EBBB              EBB          1
T39  SENSING ELEMENT 5EA          41532   EBBC              EBB          1
T39  OVERHEAT THERMOSWITCH        41533   EBBD              EBB          5
T39  CONTROLLER                   41535   EBBE              EBB          3
T39  SWITCH                       41536   EBBF              EBB          A
T39  AC GENERATOR SYSTEM          42210   EBBG              EBB          0
T39  GENERATOR ENG DRIVEN 2EA     42211   EBBH              EBB          1
T39  ADAPTER QAD                  42212   EBBJ              EBB          8
T39  LIGHT PANEL                  44241   EBBK              EBB          1
T39  LIGHT MASTER                 44242   EBBL              EBB          1
T39  LIGHT INDICATOR              44243   EBBM              EBB          1
T39  CIRCUIT BREAKER              42152   EBBN              EBB          1
T39 ATTENUATION                           EBC               E                 010000020
T39 CABIN ENVIRONMENT                     EC                E                 111111111
T39 AIR COND AND PRESSURIZATION           ECA               EC        ED      001111100
T39  COCKPIT AIR OUTLET 4EA       41116   ECAA              ECA          0
T39  CABIN AIR OUTLET 12EA        41117   ECAB              ECA          0
T39  CAB GRD AIR COND FIT-CK V    41215   ECAC              ECA          0
T39  CIRCUIT BREAKER 7EA          42152   ECAD              ECA          1
T39  CABIN AIR DUMP MAN CONT VL   41213   ECAE              ECA          0
T39 HOT AIR SUPPLY                        ECB               ECA               AAAAAAAAA
T39 EMERGENCY DUCTING                     ECC               ECB    K ECD      AAAAAAAAA
T39  EMER PRESS BLED SHTOFF VAL   4111E   ECCA              ECC          A
T39  PRESS DUCTFAIL SWITCH        9941B   ECCB              ECC          1
T39  DUCT FAIL LIGHT              44242   ECCC              ECC          1
T39 NORMAL HOT AIR                        ECD               ECB      ECC      111111111
T39  BLEED AIR FLO LIMIT VALV     4111C   ECDA              ECD          1
T39  DUCTING                      41114   ECDB              ECD          1
T39 SEALING                               ECE               ECA               111111111
T39  REV FLO CK VALV 2EA          4111F   ECEA              ECE          1
T39  DOOR SEAL PRESS RESERVOIR    41311   ECEB              ECE          1
T39  PNEUMATIC PRESS CK VALV      41312   ECEC              ECE          1
T39  ESCAPE HATCH SEAL            41313   ECED              ECE          3
T39  ESCAPE HATCH SEAL NIPPLE     41315   ECEE              ECE          0
T39  ENTRANCE DOOR SEAL           41316   ECEF              ECE          3
T39  REGULATOR ASSY DOOR SEAL     41317   ECEG              ECE          8
T39  RAIN SEAL ENTRANCE DOOR      11215   ECEM              ECE          1
T39 PRESSURE REGULATION                   ECF               ECA               333333333
T39 AUTO REGULATION                       ECG               ECF      ECH      111111111
T39  CAB AIR PRESS REG            41211   ECGA              ECG          A
T39 PRESSURE DUMP                         ECH               ECF    K ECG      AAAAAAAAA
T39  CAB AIR DUMP-SAFTY VALV      41212   ECHA              ECH          1
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1234567890123456789012345678901234567890123456789012345678901234567890123456789
T39  PNEUMATIC RELAY              41218   ECHC              ECH          1
T39  CAB AIR DUMP SOL CONT VAL    41221   ECHD              ECH          1
T39 PRESSURE INDICATION                   ECJ               ECH            111111111
T39  INST PANEL COPLT INBRD       12114   ECJA              ECJ          1
T39  INST PANEL COPLT OUTBRD      12115   ECJB              ECJ          1
T39  CAB PRESS FAIL SWITCH        41126   ECJC              ECJ          1
T39  WARNING HORN                 41223   ECJD              ECJ          1
T39  LIGHT PANEL CAUTION          44241   ECJE              ECJ          1
T39  LIGHT MASTER CAUTION         44242   ECJF              ECJ          1
T39  LIGHT INDICATOR              44243   ECJG              ECJ          1
T39  CAB ALTIMETER DIFF PRES ID   51225   ECJH              ECJ          1
T39  CAB RATE OF CLIMB ID         51226   ECJJ              ECJ          0
T39 TEMPERATURE CONDITIONING              ECK               ECA            222222222
T39  CAB COOL AIR SUPP CK VALV    41113   ECKA              ECK          0
T39  CAB AIR SUPPLY CK VALVE      41214   ECKB              ECK          0
T39 REFRIGERATION                         ECM               ECK            005555000
T39  REFRIGERATION UNIT           41111   ECMA              ECM          8
T39  TURBINE                      41118   ECMB              ECM          A
T39 HEAT EXCHANGER                        ECN               ECK            333333333
T39  RAM AIR SCOOP                1151J   ECNA              ECN          0
T39  DUCT RAM AIR                 1151K   ECNB              ECN          1
T39 FOOTWARMER                            ECP               ECK            000000000
T39  FOOTWARMER MANIFOLD 2EA      41115   ECPA              ECP          1
T39  CAB TEMP SENSOR BLOWER       4112D   ECPB              ECP          0
T39  CIRCUIT BREAKER 2EA          4112E   ECPC              ECP          1
T39  HEATER CAB FLOOR FT WARM     4112G   ECPD              ECP          0
T39  FAN PLT AND COPLT FT WARM    4112H   ECPE              ECP          1
T39  HEATER PLT-COPLT FT WARM     4112J   ECPF              ECP          1
T39 WATER SEPERATOR                       ECQ               ECK            111111000
T39  WATER SEP SCREEN ASSY        4111A   ECQA              ECQ          8
T39  WATER SEP CONDENSER ASSY     4111B   ECQB              ECQ          8
T39  WATER SEP ASSY               41112   ECQC              ECQ          8
T39  WATER SEP ANTI-ICE VALVE     41121   ECQD              ECQ          1
T39  WATER SEP PRESS DIFF SENS    41122   ECQE              ECQ          1
T39 CONTROL                               ECR               ECK            AAAAAAAAA
T39  CIRCUIT BREAKER              42231   ECRA              ECR          1
T39  CAB AIR ISO CONT-GRD TEST    41216   ECRB              ECR          0
T39  HOT AIR MIX VALVE            41126   ECRC              ECR          1
T39 AUTOMATIC TEMP CONTROL                ECS               ECR      ECT   111111111
T39  DUCT AIR TEMP SENSOR         4112B   ECSA              ECS          A
T39  CAB AIR TEMP SENSOR          4112C   ECSB              ECS          A
T39  CAB TEMP SENSOR VALVE        41124   ECSC              ECS          8
T39  CAB TEMP CONTROL BOX         41125   ECSD              ECS          A
T39 MANUAL TEMP CONTROL                   ECT               ECR    K ECS   AAAAAAAAA
T39  PEDESTAL                     12116   ECTA              ECT          1
T39  SWITCH 2EA                   4112F   ECTB              ECT          5
T39 TEMP INDICATION                       ECU               ECT            111111111
T39  CAB AIR SUPP OHEAT THEM SW   41123   ECUA              ECU          1
T39  LIGHT PANEL CAUTION          44241   ECUB              ECU          1
T39  LIGHT MASTER                 44242   ECUC              ECU          1
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12345678901234567890123456789012345678901234567890123456789012345678901234567890
T39  LIGHT INDICATOR                44243   ECUD            ECU             1
T39 RIGHT ENGINE BLEED AIR                  ECV             ECC               AAAAAAAAA
T39 RIGHT ENGINE BLEED AIR                  ECV             ECD     K ECW     AAAAAAAAA
T39  ENG BLEED SHUTOFF VALVE        4111D   ECVA            ECV             5
T39  REVERSE FLO CK VALV            4111F   ECVB            ECV             1
T39 DUCTING                         41114   ECVC            ECV             1
T39 LEFT ENGINE BLEED AIR                   ECW             ECD     K ECV     AAAAAAAAA
T39  ENGINE BLEED SHUTOFF VALVE41110        ECWA            ECW             5
T39  REV FLOW CHECK VALVE           4111F   ECWB            ECW             1
T39  DUCTING                        41114   ECWC            ECW             1
T39 DESCENT SUPP PRESSURE                   ECX             ECF               000000100
T39  CAB FLOOD FLOW VALVE           41127   ECXA            ECX             A
T39 PRESSURE INTEGRITY                      ECY             ECE               111111111
T39  PILOTS SLIDING WINDOW ASSY11120        ECYA            ECY             8
T39  COCKPIT WINDOW ASSY            11140   ECYB            ECY             0
T39  CABIN WINDOW ASSY              11170   ECYC            ECY             0
T39  ENTRANCE DOOR ASSY             11210   ECYD            ECY             8
T39  EMER ESCAPE INNER DR ASSY      11310   ECYE            ECY             3
T39  EMER ESCAPE OUTER DR ASSY      11320   ECYF            ECY             3
T39  EMER ESCAPE JETTISON SYST      11330   ECYG            ECY             0
T39 BACKUP                                  ED              EC      K ECA     00AAAAAA00
T39 VENTILATION                             EDA             ED                333333333
T39  EMERG RAM AIR SUPPLY VALV      41222   EDAA            EDA             A
T39  CIRCUIT BREAKER                42152   EDAB            EDA             1
T39  RAM AIR INLET VALVE            41520   EDAC            EDA             A
T39  HEATING ELEMENT                41521   EDAD            EDA             0
T39  BIRD STOPPER FLAPPER DOOR      41522   EDAE            EDA             1
T39 OXYGEN                                  EE              ED                AAAAAAAAA
T39 BACKUP   OXYGEN                        EEA             EE      K EEB     AAAAAAAAA
T39  RECHARGER HOSE ASSY            4711M   EEAA            EEA             0
T39  PORTABLE OXYGEN CYLINDER       47211   EEAB            EEA             A
T39  GAGE                           47212   EEAC            EEA             0
T39  SUPPORT BRACKET                47213   EEAD            EEA             0
T39  REGULATOR                      47214   EEAE            EEA             8
T39 FIXED OXYGEN                            EEB             EE        EEA     222222222
T39 SUPPLY                                  EEC             EEB               AAAAAAAAA
T39  MANIFOLD                       4711P   EECA            EEC             3
T39  OXYGEN CYLINDER                47112   EECB            EEC             A
T39  FILLER VALVE                   47113   EECC            EEC             1
T39  PRESSURE REDUCER               47115   EECD            EEC             1
T39 COCKPIT OXYGEN                          EED             EEB               AAAAAAAAA
T39  REGULATOR PILOTS 2EA           4711D   EEDA            EED             1
T39  MASK 2EA                       4711F   EEDB            EED             1
T39  AIR BREATHING VALVE 2EA        4711G   EEDC            EED             1
T39  MASK-TO-REG HOSE 2EA           4711J   EEDD            EED             1
T39 CABIN OXYGEN                            EEE             EEB               000000000
T39  REGULATOR PASSENGER 4EA        4711E   EEEA            EEE             1
T39  MASK 7EA                       4711F   EEEB            EEE             1
T39  AIR BREATHING VALVE 4EA        4711G   EEEC            EEE             1
T39  IN-USE-VALVE 7EA               4711H   EEED            EEE             1
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T39  MASK-TO-REG HOSE 7EA        4711J   EEEE              EEE          1
T39  COMPARTMENT DOORS 7EA       4711K   EEEF              EEE          0
T39  OXYGEN SHUTOFF VALVE        4711A   EEEG              EEF          A
T39  OXYGEN CONTROL VALVE        47118   EEEH              EEE          A
T39 INDICATION                           EEG               EEA            111111111
T39  CIRCUIT BREAKER             42152   EEGA              EEG          1
T39  CIRCUIT BREAKER             42231   EEGB              EEG          1
T39  PRESSURE SWITCH             4711B   EEGC              EEG          A
T39  INDICATOR LIGHT             4711C   EEGD              EEG          1
T39  FLOW INDICATOR 2EA          4711N   EEGE              EEG          1
T39  PRESSURE TRANSMITTER        47116   EEGF              EEG          1
T39  PRESSURE GAGE               47117   EEGG              EEG          1
T39 CABIN FIRE EXTINGUISH                EF                E       X      AAAAAAAAA
T39  PORTABLE SYSTEM             49230   EFA               EF           8
T39  BRACKET ASSY                49231   EFB               EF           0
T39  GAGE                        49232   EFC               EF           0
T39  EXTINGUISHER                49233   EFD               EF           8
T39 FLIGHT CONTROL                       F                              AAAAAAAAA
T39 LIFT AUGMENTATION                    FA                F            010000030
T39 FLAPS POSITIONING                    FAA               FA           AAAAAAAAA
T39  INDICATOR,POSITION          51611   FAAA              FAA          0
T39  XMITTER,POSITION            51612   FAAB              FAA          0
T39  CIRCUIT BREAKER             42152   FAAC              FAA          1
T39 LEFT FLAP POSITIONING                LFAB              FAA            AAAAAAAAA
T39 RIGHT FLAP POSITIONING               RFAB              FAA            AAAAAAAAA
T39  WING FLAP ASSY              14610   LFABA             LFAB         1
T39  WING FLAP ASSY              14610   RFABA             RFAB         1
T39  SKIN                        14612   LFABB             LFAB         0
T39  SKIN                        14612   RFABB             RFAB         0
T39  HONEYCOMB                   14613   LFABC             LFAB         0
T39  HONEYCOMB                   14613   RFABC             RFAB         0
T39  FRAME STRUCTURE             14615   LFABD             LFAB         1
T39  FRAME STRUCTURE             14615   RFABD             RFAB         1
T39  INBOARD ROLLER ASSY         14616   LFABE             LFAB         3
T39  INBOARD ROLLER ASSY         14616   RFABE             RFAB         3
T39  OUTBOARD ROLLER ASSY        14617   LFABF             LFAB         3
T39  OUTBOARD ROLLER ASSY        14617   RFABF             RFAB         3
T39  TRACK ASSY                  14631   LFABG             LFAB         3
T39  TRACK ASSY                  14631   RFABG             RFAB         3
T39 LEFT FLAP ACTUATION                  LFAC               FAA    KRFAC    00AAAAAAA
T39 RIGHT FLAP ACTUATION                 RFAC               FAA    KLFAC    00AAAAAAA
T39  ACTUATOR                    14635   LFACA             LFAC         A
T39  ACTUATOR                    14635   RFACA             RFAC         A
T39  FLEX SHAFT                  14632   FACB              LFAC         A
T39  FLEX SHAFT                  14632   FACB              RFAC         A
T39  INTERCONNECT                14634   FACC              LFAC         A
T39  INTERCONNECT                14634   FACC              RFAC         A
T39 FLAPS CONTROL                        FAD               FAA            00AAAAAAA
T39  SW.,FLAPS                   9914A   FADA              FAD          A
T39 SLATS POSITIONING ATTENUATE          FAE               FA             111111111
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T39 SLATS POSITIONING                          FAF          FAE          111111111
T39 LEFT SLATS POSITIONING                     LFAG         FAF          111111111
T39 RIGHT SLATS POSITIONING                    RFAG         FAF          111111111
T39  LEADING EDGE SLAT ASSY      14710         LFAGA        LFAG          1
T39  LEADING EDGE SLAT ASSY      14710         RFAGA        RFAG          1
T39  SKIN                        14717         LFAGB        LFAG          0
T39  SKIN                        14717         RFAGB        RFAG          0
T39  TRACK                       1471C         LFAGC        LFAG          5
T39  TRACK                       1471C         RFAGC        RFAG          5
T39  ROLLERS                     1471D         LFAGD        LFAG          5
T39  ROLLERS                     1471D         RFAGD        RFAG          5
T39  SLAT,INBOARD                14712         LFAGE        LFAG          1
T39  SLAT,INBOARD                14712         RFAGE        RFAG          1
T39  SLAT,INB,INTERMEDIATE       14713         LFAGF        LFAG          1
T39  SLAT,INB,INTERMEDIATE       14713         RFAGF        RFAG          1
T39  SLAT,INTERMEDIATE           14714         LFAGG        LFAG          1
T39  SLAT,INTERMEDIATE           14714         RFAGG        RFAG          1
T39  SLAT,OUTB,INTERMEDIATE      14715         LFAGH        LFAG          1
T39  SLAT,OUTB,INTERMEDIATE      14715         RFAGH        RFAG          1
T39  SLAT OUTBOARD               14716         LFAGJ        LFAG          1
T39  SLAT OUTBOARD               14716         RFAGJ        RFAG          1
T39  FITTING,INTERCONNECT        1471B         LFAGK        LFAG          1
T39  FITTING,INTERCONNECT        1471B         RFAGK        RFAG          1
T39 YAW CONTROL                                FB           F                010000030
T39 RUDDER POSITIONING                         FBA          FB               AAAAAAAAA
T39  RUDDER ASSY                 14510         FBAA         FBA           1
T39  ROOT RIB                    1451A         FBAB         FBA           0
T39  SKIN                        14512         FBAC         FBA           0
T39  HINGE SUPPORT               14515         FBAD         FBA           2
T39  ACCESS DOOR                 14517         FBAE         FBA           0
T39 RUDDER CONTROL                             FBB          FBA              AAAAAAAAA
T39  TORQUE TUBE                 14522         FBBA         FBB           8
T39  LINKAGE                     14525         FBBB         FBB           8
T39  CABLE                       14526         FBBC         FBB           A
T39  FAIRLEAD                    14527         FBBD         FBB           0
T39  BUNGEE                      14528         FBBE         FBB           1
T39 RUDDER PEDAL CONTROL,EA OF2                FBC          FBB              111111111
T39  PEDALS                      14521         FBCA         FBC           8
T39 TRIM CONTROL                               FBD          FBB              000000000
T39  TRIM TAB                    14518         FBDA         FBD           1
T39  ACTUATOR                    14543         FBDB         FBD           A
T39  SW.,TRIM SELECTOR           14117         FBDC         FBD           8
T39  RUDDER TRIM INDICATOR       51623         FBDD         FBD           0
T39  RUDDER POSITION XMITTER     51624         FBDE         FBD           0
T39  CIRCUIT BREAKER             42152         FBDF         FBD           1
T39 NORMAL TRIM ACTIBATION                     FBE          FBD       FBF    111111111
T39  SW.,TRIM %NORMAL<           14541         FBEA         FBE           A
T39  SW.,EMER DISCONNECT %2EA<   14116         FBEB         FBE           1
T39 ALTERNATE TRIM ACTIVATION                  FBF          FBD    K FBE     AAAAAAAAA
T39  SW.,TRIM %ALTERNATE<        14542         FBFA         FBF           A
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T39 PITCH CONTROL                          FC              F                 0AAAAAAAA0
T39 ELEVATOR POSITIONING                   FCA             FC                AAAAAAAAA
T39 ELEVATOR CONTROL                       FCB             FCA               094444490
T39  PILOT CONT WHEEL/COLUMN    14111      FCBA            FCB          1
T39  COPILOT CONT WHEEL/COLUMN  14112      FCBB            FCB          1
T39  806 WEIGHT BUNGEE          14436      FCBC            FCB          0
T39  TORQUE TUBE                14437      FCBD            FCB          8
T39 LEFT ELEVATOR DRIVE                    LFCC            FCB    KRFCC     AAAAAAAAA
T39 RIGHT ELEVATOR DRIVE                   RFCC            FCB    KLFCC     AAAAAAAAA
T39  CABLE                      14434      LFCCA           LFCC         A
T39  CABLE                      14434      RFCCA           RFCC         A
T39  LINKAGE                    14433      LFCCB           LFCC         8
T39  LINKAGE                    14433      RFCCB           RFCC         8
T39  HORN                       14438      LFCCC           LFCC         1
T39  HORN                       14438      RFCCC           RFCC         1
T39 LEFT ELEVATOR POSITIONING              LFCD            FCB               AAAAAAAAA
T39 RIGHT ELEVATOR POSITIONING             RFCD            FCB               AAAAAAAAA
T39  ELEVATOR ASSY              14410      LFCDA           LFCD         1
T39  ELEVATOR ASSY              14410      RFCDA           RFCD         1
T39  SKIN                       14412      LFCDB           LFCD         0
T39  SKIN                       14412      RFCDB           RFCD         0
T39  HINGE SUPPORT              14415      LFCDC           LFCD         2
T39  HINGE SUPPORT              14415      RFCDC           RFCD         2
T39 HOR STAB TRIM POSITIONING              FCE             FCA               011000110
T39  TORQUE TUBE                14326      FCEA            FCE          8
T39  STAB POS INDICATOR         51625      FCEB            FCE          0
T39  STAB POS XMITTER           51626      FCEC            FCE          0
T39  CENTER SECTION BEAM        14325      FCED            FCE          8
T39  BIAS BUNGEE                14435      FCEE            FCE          1
T39  FLEX SHAFT ASSY            14324      FCEF            FCE          A
T39  CIRCUIT BREAKER            42152      FCEG            FCE          1
T39 LEFT TRIM ACTUATION                    LFCF            FCE    KRFCF     AAAAAAAAA
T39 RIGHT TRIM ACTUATION                   RFCF            FCE    KLFCF     AAAAAAAAA
T39  ACTUATOR TRIM              14322      LFCFA           LFCF         A
T39  ACTUATOR TRIM              14322      RFCFA           RFCF         A
T39 STABILIZER POSITIONING EA 2            FCG             FCE               AAAAAAAAA
T39  HOR STAB ASSY              14310      FCGA            FCG          1
T39  SKIN                       14312      FCGB            FCG          0
T39 NORMAL TRIM ACTIVATION                 FCH             FCE      FCJ      111111111
T39  SW.,TRIM SELECTOR          14117      FCHA            FCH          A
T39  SW.,TRIM %NORMAL< %2EA<    14113      FCHB            FCH          1
T39  SW.,EMER DISCONNECT%2EA<   14116      FCHC            FCH          1
T39 ALTERNATE TRIM                         FCJ             FCE    K FCH     AAAAAAAAA
T39  SW.,TRIM SELECTOR          14117      FCJA            FCJ          A
T39  SW.,TRIM %ALTERNATE<       14115      FCJB            FCJ          A
T39 ROLL CONTROL                           FD              F                 0AAAAAAAA0
T39 AILERON POSITIONING                    FDA             FD                AAAAAAAAA
T39 AILERONS POSITIONED,EA OF 2            FDB             FDA               021111120
T39  AILERON ASSY               14210      FDBA            FDB          1
T39  SKIN                       14212      FDBB            FDB          0
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T39  HONEYCOMB                    14213   FDBC            FDB          0
T39  CABLE                        14235   FDBD            FDB          A
T39  PUSH ROD                     14232   FDBE            FDB          A
T39  BELLCRANK                    14231   FDBF            FDB          7
T39 AILERON CONTROL                       FDC             FDA          AAAAAAAAA
T39  BELLCRANK                    14231   FDCA            FDC          A
T39  LINKAGE                      14234   FDCB            FDC          A
T39 PILOT CONTROL                         FDD             FDC    K FDE AAAAAAAAA
T39  CONTROL WHEEL/COLUMN         14111   FDDA            FDD          A
T39 COPILOT CONTROL                       FDE             FDC    K FDD AAAAAAAAA
T39  CONTROL WHEEL/COLUMN         14112   FDEA            FDE          A
T39 TRIM                                  FDF             FDA          000000000
T39  TRIM TAB                     14214   FDFA            FDF          A
T39  TAB ACCESS DOOR              14218   FDFB            FDF          0
T39  TRIM ACTUATOR                14236   FDFC            FDF          A
T39  AILRON TRIM INDICATOR        51621   FDFD            FDF          0
T39  AILRON POSITION XMITTER      51622   FDFE            FDF          0
T39  SW.,TRIM SELECTOR            14117   FDFF            FDF          A
T39  CIRCUIT BREAKER              42152   FDFG            FDF          1
T39 NORMAL TRIM ACTIVATION                FDG             FDF     FDH  111111111
T39  SW.,TRIM%NORMAL<%2EA<        14113   FDGA            FDG          1
T39  SW.,EMER DISCONNECT%2EA<     14116   FDGB            FDG          1
T39 ALTERNATE TRIM ACTIVATION             FDH             FDF    K FDG AAAAAAAAA
T39  SW.,TRIM%ALTERNATE<          14115   FDHA            FDH          A
T39 WEIGHT REDUCTION                      FE              F      K BAB  000000010
T39 SPEED REDUCTION ATTENUATION           FF              F            111111111
T39 SPEED REDUCTION ATTN                  FF              GA           111111111
T39 SPEED BRAKE POSITIONING               FFB             FF           000000100
T39  SPEED BRAKE DOOR ASSY        14810   FFBA            FFB          1
T39  SKIN                         14813   FFBB            FFB          0
T39  HINGE                        14815   FFBC            FFB          A
T39  SUPPORT                      14816   FFBD            FFB          1
T39  CIRCUIT BREAKER              42152   FFBE            FFB          1
T39 SPEED BRAKE ACTUATION                 FFC             FFB          AAAAAAAAA
T39  ACTUATOR %2 EA<              14821   FFCA            FFC          1
T39  VALVE,SELECTOR               14823   FFCB            FFC          5
T39  VALVE,SHUTTLE %2 EA<         14825   FFCC            FFC          1
T39  SELECTOR SWITCH              14831   FFCD            FFC          A
T39 NORMAL ACTUATION                      FFD             FFC     FFE  111111111
T39  VALVE,THERMAL RELIEF         14822   FFDA            FFD          2
T39  VALVE,CHECK                  14827   FFDB            FFD          0
T39 ALTERNATE ACTUATION                   FFE             FFC    K FFD AAAAAAAAA
T39  VALVE,CHECK                  14827   FFEA            FFE          0
T39  VALVE,EMER SELECTOR          14824   FFEB            FFE          A
T39 PROVISORY ATTENUATION                 FFF             FFB    T     AAAAAAAAA
T39 EMER RETRACT                          FFG             FFF    K FFC AAAAAAAAA
T39  VALVE,DUMP                   14828   FFGA            FFG          A
T39  SW.,EMER DUMP                9914H   FFGB            FFG          A
T39  SW.,SELECTOR                 14831   FFGC            FFG          A
T39 SPEED BRAKE WARNING                   FFH             FFB    K FFC 0A0000000
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T39  SW.,LIMIT                    14832   FFHA              FFH          A
T39  LIGHT,WARNING                14834   FFHB              FFH          1
T39  LIGHT,PANEL                  44241   FFHC              FFH          1
T39  LIGHT,MASTER                 44242   FFHD              FFH          1
T39  LIGHT,INDICATOR              44243   FFHE              FFH          1
T39  RLY,TEST                     44244   FFHF              FFH          0
T39 GUST LOCK                             FG                F                 000000000
T39  GUST LOCK ASSY               14911   FGA               FG           1
T39  TELEFLEX CABLE SYSTEM        14913   FGB               FG           1
T39 GROUND CONTROL                        G                                   AAAAAAAAA
T39 SPEED CONTROL                         GA                G      C            000000AA0
T39 SPEED CONTROL                         GA                GAX                 500000005
T39 WHEEL BRAKING %EA OF 2<               GAA               GA                  AAAAAAAAA
T39 WHEEL BRAKING %EA OF 2<               GAA               GAD                 AAAAAAAAA
T39  ROD ASSY                     13611   GAAA              GAA          8
T39  BELL CRANK                   13612   GAAB              GAA          A
T39  BRAKE ASSY                   13621   GAAC              GAA          8
T39  BRAKE CONTROL VALVE          13622   GAAD              GAA          A
T39  SHUTTLE VALVE                13623   GAAE              GAA          5
T39  PRESSURE PLATE               13626   GAAF              GAA          A
T39  BRAKE DISC                   13627   GAAG              GAA          A
T39  BACK PLATE                   13628   GAAH              GAA          A
T39  DUAL VALVE ASSY              13647   GAAJ              GAA          1
T39  PEDAL %2EA<                  14521   GAAK              GAA          1
T39 PARKING BRAKE                         GAC               GAA               000000000
T39  PARKING BRAKE                13640   GACA              GAC          8
T39  TELEFLEX ASSY                13642   GACB              GAC          8
T39  DUAL VALVE ASSY              13647   GACC              GAC          8
T39 DIFFERENTIAL BRAKING                  GAD               GB     K GBA      0A000000AA
T39 ATTENUATION                           GAX               G                 111111111
T39 DIRECTIONAL CONTROL                   GB                G                 110000011
T39 NOSE WHEEL STEERING                   GBA               GB       GAD      110000011
T39 NOSE WHEEL STEERING                   GBA               GBJ             FAAAAAAAAA
T39  LINKAGE %2EA<                13511   GBAA              GBA          1
T39  BELLCRANK %2EA<              13512   GBAB              GBA          1
T39  ROD ASSY  %2EA<              13513   GBAC              GBA          1
T39  LOCKING LEVER                13514   GBAD              GBA          0
T39  PEDAL %4EA<                  14521   GBAE              GBA          1
T39 STEERING ACTUATION                    GBB               GBA               AAAAAAAAA
T39  CONTROL VALVE                13521   GBBA              GBB          A
T39  SWIVEL VALVE                 13522   GBBB              GBB          5
T39  ACTUATING CYLINDER           13523   GBBC              GBB          8
T39  CONTROL VALVE FILTER         13524   GBBD              GBB          0
T39  CHECK/THERMAL RELIEF VALV    13525   GBBE              GBB          1
T39 STEERING CONTROL                      GBC               GBA               AAAAAAAAA
T39  CIRCUIT BREAKER              42152   GBCA              GBC          1
T39  LOAD SWITCH MLG EA. OF 2     13244   GBCB              GBC          1
T39 MAIN CONTROL                          GBD               GBC    K GBF      AAAAAAAAA
T39  LOAD SWITCH NOSE GEAR        13443   GBDA              GBD          A
T39  CONT WHEEL/COLUMN PILOT      14111   GBDB              GBD          1
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T39  CONT WHEEL/COLUMN COPILOT 14112   GBDC          GBD            1
T39 NORMAL SELECT                      GBE           GBD              AAAAAAAAA
T39  PEDESTAL                  12116   GBEA          GBE            1
T39 STANDBY CONTROL                    GBF           GBC    K GBD     AAAAAAAAA
T39 AUTO SELECT                        GBG           GBF      GBH     111111111
T39  CONTROL BOX               13531   GBGA          GBG            8
T39  FEED BACK POT             13532   GBGB          GBG            A
T39  COMMAND POT               13533   GBGC          GBG            A
T39  CONTROL RELAY             13534   GBGD          GBG            5
T39  HOLD RELAY                13535   GBGE          GBG            5
T39 MANUAL SELECT                      GBH           GBF    K GBF     AAAAAAAAA
T39  PEDESTAL                  12116   GBHA          GBH            1
T39 STEERING INDICATION                GBJ           GBH              333333333
T39  MONITOR SWITCH            13536   GBJA          GBJ            0
T39  LIGHT PANEL               44241   GBJB          GBJ            1
T39  LIGHT MASTER              44242   GBJC          GBJ            1
T39  LIGHT INDICATOR           44243   GBJD          GBJ            1
T39 HYDRAULIC DIST                     GCA           G               S110000011
T39 HYDRAULIC DIST                     GCA           G      C        S000000080
T39 HYDRAULIC DIST                     GCA           GAA             FAAAAAAAAA
T39  THERMAL RELIEF VALVE      13624   GCAA          GCA            1
T39 EMERGENCY PRESSURE                 GCB           GCA    K GCC     AAAAAAAAA
T39  RESERVOIR                 13625   GCBA          GCB            A
T39  EMERGENCY BRAKE           13630   GCBB          GCB            8
T39  HANDLE ASSY               13631   GCBC          GCB            8
T39  TELEFLEX ASSY             13632   GCBD          GCB            8
T39 NORMAL DIST                        GCC           GBB             FAAAAAAAAA
T39 NORMAL DIST                        GCC           GCA      GCB    111111111
T39 MISSION SUPPORT                    M                             AAAAAAAAA
T39 SUPPORT EQUIPMENT                  MA            M               000000000
T39  FLOOR                     1211A   MAA           MA             0
T39  INERTIA REEL              1211B   MAB           MA             0
T39  UPHOLSTERY                1211D   MAC           MA             0
T39  SEAT COCKPIT              12130   MAL           MA             1
T39  WELD ASSY                 12132   MAM           MA             1
T39  SAFETY BELT               12133   MAN           MA             1
T39  BAGGAGE COMPARTMENT GEN   12200   MAP           MA             0
T39  CABIN COMPARTMENT GEN     12300   MAQ           MA             0
T39  SEAT CABIN                1233C   MAR           MA             0
T39  SEAT PAN                  12332   MAS           MA             0
T39  SEAT BELT                 12336   MAT           MA             1
T39  CHURCH KEY                9912X   MAV           MA             A
T39 LANDING GEAR                       N                               AAAAAAAAA
T39 EXTEND GEAR                        NA            N                 000000040
T39 EXTEND MAIN GEAR                   NAA           NA                AAAAAAAAA
T39 NORMAL CONTROL                     NAB           NA       NAC      111111111
T39  INST PANEL PILOT INBRD    12112   NABA          NAB            1
T39  GEAR AND DOOR CONT VALVE  13111   NABB          NAB            A
T39  GEAR CONTROL HANDLE       13112   NABC          NAB            A
T39  DOWNLOCK SWITCH 2EA       13242   NABD          NAB            A
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123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
T39  AFT RELAY PANEL              9913A   NABE              NAB            1
T39  CIRCUIT BREAKER              42152   NABG              NAB            1
T39 CONTROL UNLOCK BACKUP                 NAC               NA      K NAB    AAAAAAAAA
T39 CONTROL UNLOCK BACKUP                 NAC               NAD     K NAE    AAAAAAAAA
T39 CONTROL UNLOCK BACKUP                 NAC               NBB     K NBC    AAAAAAAAA
T39 DOOR ACTUATE EA OF 2                  NAD               NAA              AAAAAAAAA
T39  TORQUE TUBE FAIRING DOOR     11242   NADA              NAD            A
T39  LOCK ROLLER FAIRING DOOR     11246   NADB              NAD            A
T39  LOCK ASSY STRUT DOOR         1125A   NADC              NAD            A
T39  LOCK ROLLER STRUT DOOR       11253   NADD              NAD            A
T39 DOOR UNLOCK AND OPEN                  NAE               NAD       NAC    111111111
T39  DOOR ACTUATING CYLINDER      13234   NAEA              NAE            A
T39  SHUTTLE VALVE                13235   NAEB              NAE            1
T39  CHECK VALVE                  13236   NAEC              NAE            1
T39  RESTRICTOR                   13237   NAED              NAE            1
T39 DOOR OPERATE                          NAF               NAD              AAAAAAAAA
T39  MAIN GEAR DOOR ASSY          11240   NAFA              NAF            8
T39  ROD                          11243   NAFB              NAF            A
T39  HINGE FORWARD                11244   NAFC              NAF            1
T39  HINGE AFT                    11245   NAFD              NAF            1
T39  MG STRUT DOOR ASSY           1125C   NAFE              NAF            8
T39  DOOR ATTACHING               1321D   NAFF              NAF            1
T39  TORQUE LINK                  13214   NAFG              NAF            8
T39 EMERGENCY CONTROL                     NAG               NAC              AAAAAAAAA
T39 EMERGENCY CONTROL                     NAG               NAK              AAAAAAAAA
T39 EMERGENCY CONTROL                     NAG               NAN              AAAAAAAAA
T39 EMERGENCY CONTROL                     NAG               NBG              AAAAAAAAA
T39  INSTR PANEL PLT OUTBRD       12111   NAGA              NAG            1
T39  INSTR PANEL PLT INBRD        12112   NAGB              NAG            1
T39  EMERGENCY SYSTEM             1314C   NAGC              NAG            0
T39  HANDLE ASSY                  13141   NAGD              NAG            A
T39 DOOR EMERG UNLOCK AND OPEN            NAH               NAC              AAAAAAAAA
T39  CABLE ASSY                   13142   NAHA              NAH            A
T39  LINKAGE                      13145   NAHB              NAH            A
T39  LG DUMP VALVE DOOR           13148   NAHC              NAH            5
T39 GEAR UNLOCK  EA OF 2                  NAJ               NAA              AAAAAAAAA
T39  UPLOCK MECHANISM             13216   NAJA              NAJ            A
T39 UPLOCK RELEASE BACKUP                 NAK               NAJ     K NAL    AAAAAAAAA
T39 UPLOCK RELEASE                        NAL               NAJ       NAK    111111111
T39  UPLOCK ACTUATING CYLINDER    13232   NALA              NAL            3
T39  ACTUATOR PIN                 1321F   NALB              NAL            A
T39  DOOR UPLOCK SWITCH           13243   NALC              NAL            A
T39 GEAR ACTUATE  EA OF 2                 NAM               NAA              AAAAAAAAA
T39  DOWNLOCK MECHANISM           13217   NAMA              NAM            A
T39  STRUT ASSY                   13212   NAMB              NAM            8
T39  SIDE BRACE                   13213   NAMC              NAM            A
T39  LINKAGE                      13215   NAMD              NAM            A
T39 ROTATE AND LOCK BACKUP                NAN               NAM     K NAP    AAAAAAAAA
T39 ROTATE AND LOCK                       NAP               NAM       NAN    111111111
T39  ACTUATING CYLINDER           13231   NAPA              NAP            A
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123456789012345678901234567890123456789012345678901234567890123456789012345678890
T39  DOWNLOCK ACTUATING CYL     13233   NAPB            NAP          A
T39  CHECK VALVE                13236   NAPC            NAP          1
T39 DOOR CLOSE AND LOCK                 NAQ             NAP            0000C0000
T39  TORQUE TUBE                11242   NAQA            NAQ          A
T39  LOCK ROLLER                11246   NAQB            NAQ          A
T39  DOOR ACTUATING CYLINDER    13234   NAQC            NAQ          A
T39  DOWNLOCK SWITCH            13242   NAQD            NAQ          A
T39 EMERGENCY GEAR RELEASE              NAR             NAC            AAAAAAAAA
T39 EMERGENCY GEAR RELEASE              NAR             NAK            AAAAAAAAA
T39  CABLE ASSY                 13142   NARA            NAR          A
T39  LINKAGE                    13145   NARB            NAR          A
T39  LG DUMP VALVE GEAR         13148   NARC            NAR          5
T39 GEAR FREE FALL AND LOCK             NAS             NAC            AAAAAAAAA
T39 GEAR FREE FALL AND LOCK             NAS             NAK            AAAAAAAAA
T39 GEAR FREE FALL AND LOCK             NAS             NAN            AAAAAAAAA
T39 GEAR FREE FALL AND LOCK             NAS             NBG            AAAAAAAAA
T39  BUNGEE  2EA                13146   NASA            NAS          5
T39  BUNGEE NOSE                13414   NASB            NAS          5
T39 EXTEND INDICATION                   NAT             NAG            AAAAAAAAA
T39  WARNING SYSTEM             1312C   NATA            NAT          0
T39  POSITION INDICATOR LIGHT   1312A   NATB            NAT          1
T39  CONTROL HANDLE LIGHT       1312B   NATC            NAT          1
T39  DIMMING RESISTOR           1312C   NATD            NAT          0
T39  HORN                       13121   NATE            NAT          1
T39  CUTOUT SWITCH              13122   NATF            NAT          0
T39  THROTTLE POSITION SWITCH   13123   NATG            NAT          0
T39  RELAY                      13124   NATH            NAT          0
T39  SIGNAL GENERATOR           13125   NATJ            NAT          0
T39  RECTIFIER                  13126   NATK            NAT          0
T39  CIRCUIT BREAKER COCKPIT    13128   NATL            NAT          1
T39  DOWNLOCK SWITCH 2EA        13242   NATM            NAT          A
T39  DOOR UPLOCK SWITCH 2EA     13243   NATN            NAT          1
T39  DOWNLOCK SWITCH            13442   NATP            NAT          A
T39  AIRSPEED ALT WARN SWITCH   51246   NATQ            NAT          0
T39 EXTEND NOSE GEAR                    NBA             NA             AAAAAAAAA
T39 GEAR AND DOOR UNLOCK                NBB             NBA            AAAAAAAAA
T39  LOCK NG DOOR               11227   NBBA            NBB          A
T39  UPLOCK MECHANISM           1341D   NBBB            NBB          A
T39 GEAR AND DOOR RELEASE               NBC             NBB      NAC   111111111
T39  TORQUE LINK                13416   NBCA            NBC          A
T39  UPLOCK ACTUATING CYLINDER  13432   NBCB            NBC          A
T39 GEAR ACTUATE                        NBF             NBA            AAAAAAAAA
T39  DOWN LOCK MECHANISM        1341E   NBFA            NBF          A
T39  AXLE CENTERING BLOCK ASSY  1341C   NBFB            NBF          1
T39  STRUT ASSY                 13412   NBFC            NBF          8
T39  DRAG BRACE                 13413   NBFD            NBF          A
T39  TRUNNION                   13415   NBFE            NBF          A
T39  TORQUE LINK                13416   NBFF            NBF          A
T39 GEAR ROTATE AND LOCK BACKUP         NBG             NBF    K NBH   AAAAAAAAA
T39 GEAR ROTATE AND LOCK                NBH             NBF      NBG   111111111
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12345678901234567890123456789012345678901234567890123456789012345678901234567890
T39  ACTUATING CYLINDER GEAR    13431   NBHJ            NBH          A
T39  DOWNLOCK ACTUATING CYL     13433   NBHK            NBH          A
T39  RESTRICTOR                 13434   NBHL            NBH          1
T39 DOOR OPEN                           NBJ             NBF            AAAAAAAAA
T39  NOSE GEAR DOOR ASSY        11220   NBJA            NBJ          1
T39  LINKAGE                    1122A   NBJB            NBJ          2
T39  HINGE FORWARD              11222   NBJC            NBJ          0
T39  HINGE AFT                  11223   NBJD            NBJ          0
T39 RETRACT GEAR                        NC              NX             010000000
T39 RETRACT CONTROL                     NCA             NC             AAAAAAAAA
T39  INST PANEL PILOT INBOARD   12112   NCAA            NCA          1
T39  GEAR AND DOOR CONT VALVE   13111   NCAB            NCA          A
T39  GEAR CONTROL HANDLE        13112   NCAC            NCA          A
T39  UPLOCK SWITCH  2EA         13241   NCAD            NCA          A
T39  LOAD SWITCH 2EA            13244   NCAE            NCA          1
T39  UPLOCK SWITCH NOSE         13441   NCAF            NCA          A
T39  CIRCUIT BREAKER            42152   NCAG            NCA          1
T39  AFT RELAY PANEL            9913A   NCAH            NCA          A
T39 MLG RETRACT  EA OF 2                NCB             NC             AAAAAAAAA
T39 DOOR OPERATION                      NCD             NCB            AAAAAAAAA
T39  MAIN GEAR DOOR ASSY        11240   NCDA            NCD          1
T39  TORQUE TUBE                11242   NCDB            NCD          A
T39  ROD                        11243   NCDC            NCD          A
T39  HINGE FORWARD              11244   NCDD            NCD          A
T39  HINGE AFT                  11245   NCDE            NCD          A
T39  LOCK ROLLER                11246   NCDF            NCD          A
T39  DOOR ACTUATING CYLINDER    13234   NCDG            NCD          8
T39  SHUTTLE VALVE              13235   NCDH            NCD          1
T39  CHECK VALVE                13236   NCDJ            NCD          1
T39  RESTRICTOR                 13237   NCDK            NCD          1
T39  MAIN GEAR STRUT DOOR ASSY  11250   NCDL            NCD          1
T39  LOCK ASSY                  1125A   NCDM            NCD          A
T39  LOCK ROLLER                11253   NCDN            NCD          A
T39  DOOR ATTACHING             1321D   NCDP            NCD          A
T39 GEAR LOCK RELEASE                   NCE             NCB            AAAAAAAAA
T39  TORQUE LINK                13214   NCEA            NCE          A
T39  DOWNLOCK MECHANISM         13217   NCEB            NCE          A
T39  DOWNLOCK ACTUATING CYL     13233   NCEC            NCE          A
T39  CHECK VALVE                13236   NCED            NCE          1
T39  DOOR UPLOCK SWITCH         13243   NCEE            NCE          A
T39 GEAR UP AND LOCK                    NCF             NCB            AAAAAAAAA
T39  ACTUATOR PIN               1321F   NCFA            NCF          A
T39  STRUT ASSY                 13212   NCFB            NCF          8
T39  SIDE BRACE                 13213   NCFC            NCF          A
T39  TORQUE LINK                13214   NCFD            NCF          A
T39  LINKAGE                    13215   NCFE            NCF          A
T39  UPLOCK MECHANISM           13216   NCFF            NCF          A
T39  ACTUATING CYLINDER         13231   NCFG            NCF          A
T39  UPLOCK ACTUATING CYLINDER  13232   NCFH            NCF          A
T39  RESTRICTOR                 13237   NCFJ            NCF          1
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1234567890123456789012345678901234567890123456789012345678901234567890123456890
T39 NLG RETRACT                          NCH              NC                AAAAAAAAA
T39 GEAR AND DOOR LOCK RELEASE           NCJ              NCH               AAAAAAAAA
T39  LOCK NOSE DOOR              11227   NCJA             NCJ            A
T39  DOWNLOCK MECHANISM          1341E   NCJB             NCJ            A
T39  TORQUE LINK                 13416   NCJC             NCJ            A
T39  DOWNLOCK ACTUATING CYL      13433   NCJD             NCJ            A
T39 GEAR UP AND LOCK                     NCK              NCH               AAAAAAAAA
T39  AXLE CENTERING BLOCK ASSY   1341C   NCKB             NCK            1
T39  UPLOCK MECHANISM            1341D   NCKC             NCK            A
T39  STRUT ASSY                  13412   NCKD             NCK            8
T39  DRAG BRACE                  13413   NCKE             NCK            A
T39  TRUNNION                    13415   NCKF             NCK            A
T39  TORQUE LINK                 13416   NCKG             NCK            A
T39  ACTUATING CYLINDER          13431   NCKK             NCK            A
T39  UPLOCK ACTUATING CYLINDER   13432   NCKL             NCK            A
T39  RESTRICTOR                  13434   NCKM             NCK            1
T39 DOOR CLOSE AND LOCK                  NCL              NCH               AAAAAAAAA
T39  LINKAGE                     1122A   NCLA             NCL            A
T39  HINGE FORWARD               11222   NCLB             NCL            1
T39  HINGE AFT                   11223   NCLC             NCL            1
T39  LOCK                        11227   NCLD             NCL            A
T39  RETRACT INDICATION                  NCM              NX       I NC     010000000
T39  WARNING SYSTEM              1312C   NCMA             NCM            0
T39  POSITION INDICATING LIGHT   1312A   NCMB             NCM            1
T39  CONTROL HANDLE LIGHT        1312B   NCMC             NCM            1
T39  DIMMING RESISTOR            1312C   NCMD             NCM            0
T39  RECTIFIER                   13126   NCME             NCM            1
T39  CIRCUIT BREAKER             13128   NCMF             NCM            1
T39  UPLOCK SWITCH 2EA           13241   NCMG             NCM            A
T39  DOOR UPLOCK SWITCH 2EA      13243   NCMJ             NCM            A
T39  UPLOCK SWITCH NOSE          13441   NCMK             NCM            A
T39 ROLLING SUPPORT                      ND               N                 1A0000041
T39  WHEELS                      13700   NDAA             ND             0
T39  MAIN WHEEL 2EA              13711   NDAB             ND             A
T39  NOSE WHEEL 2EA              13731   NDAC             ND             A
T39  TIRES                       13800   NDAD             ND             0
T39  MAIN TIRE RH                13812   NDAE             ND             8
T39  MAIN TIRE LH                13813   NDAF             ND             8
T39  NOSE TIRE 2EA               13821   NDAG             ND             4
T39  AXLE BEARING SEAL           1341A   NDAH             ND             0
T39  AXLE                        13417   NDAJ             ND             A
T39  AXLE BEARING                13418   NDAK             ND             1
T39 RETRACT ATTENUATION                  NX               N                 111111111
T39NON ESSENTIAL AC                      UAA              CFG               AAAAAAAAA
T39NON ESSENTIAL AC                      UAA              CHEA              FAAAAAAAAA
T39NON ESSENTIAL AC                      UAA              CHF               AAAAAAAAA
T39 NONESSENTIAL AC DIST                 UAA              DEA               AAAAAAAAA
T39 NONESSENTIAL AC DIST                 UAA              EAE               111111111
T39 ESSENTIAL AC DISTRIBUTION            UAB              BAZB              AAAAAAAAA
T39 ESSENTIAL AC DISTRIBUTION            UAB              BAZE              AAAAAAAAA
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123456789012345678901234567890123456789012345678901234567890123456789012345678
T39  ESSENTIAL AC DISTRIBUTION          UAB              BSQ              AAAAAAAAA
T39 ESSENTIAL AC DISTRIBUTION           UAB              BSY              AAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CFA              AAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CFL             FAAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CHBA            FAAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CHBB            FAAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CHC              AAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CHEB            FAAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CJ              FAAAAAAAAA
T39 ESSENTIAL AC BUS                    UAB              CL               AAAAAAAAA
T39 ESSENTIAL AC DIST                   UAB              DAA              AAAAAAAAA
T39 ESSENTIAL AC DIST                   UAB              EAE              111111111
T39 ESSENTIAL AC DIST                   UAB              ECR              AAAAAAAAA
T39 ESSENTIAL AC DIST                   UAB              EEG              555555555
T39 ESSENTIAL AC DIST                   UAB              UHG              111111111
T39 NORMAL FEED                         UAC              UAB      UAD     111111111
T39  INVERTER CHANGOVER CONTROL 42232   UACA             UAC          1
T39  RELAY AC TRANSFER          42234   UACB             UAC          1
T39 EMERGENCY FEED                      UAD              UAB    K UAC     AAAAAAAAA
T39  INVERTER CHANGE OVER CONTR 42232   UADA             UAD          A
T39  RELAY AC TRANSFER          42234   UADB             UAD          A
T39 MAIN INVERTER SYSTEM                UAE              UAA              AAAAAAAAA
T39 MAIN INVERTER SYSTEM                UAE              UAC              AAAAAAAAA
T39  INVERTER MAIN              42221   UAEA             UAE          A
T39  SWITCH INVERTER            42224   UAEB             UAE          A
T39  CKT BKRS MAIN INV          42225   UAEC             UAE          A
T39  RELAY MAIN INV POWER       42238   UAED             UAE          A
T39 STANDBY INVERTER SYSTEM             UAF              UAD              AAAAAAAAA
T39  INVERTER STANDBY           42222   UAFA             UAF          A
T39  CKT BKRS,STBY INV          42225   UAFB             UAF          A
T39  SWITCH INVERTER            42224   UAFC             UAF          A
T39 POWER WARNINGS                      UAG              UAD              000000000
T39  CAUTION LIGHT PANEL        44241   UAGA             UAG          1
T39  MASTER CAUTION LIGHT       44242   UAGB             UAG          0
T39  CAUTION LIGHT, INV FAIL    44243   UAGC             UAG          1
T39  CAUTION LIGHT, INST PWROFF 44243   UAGD             UAG          1
T39  RELAY,TEST                 44244   UAGE             UAG          0
T39 ESSENTIAL DC DISTRIBUTION           UDA              BAM              AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BAP              AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BAZC             AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BAZD             AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BAZK             AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BBA              AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BPB             SAAAAAAAAA
T39 ESSENTIAL DC DIST                   UDA              BPC             FAAAAAAAAA
T39 ESSENTIAL DC DIST                   UDA              BPD             FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BPH              AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BSE              AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION           UDA              BSN             FAAAAAAAAA
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123456789012345678901234567890123456789012345678901234567890123456789012345678 90
T39 ESSENTIAL DC DISTRIBUTION          UDA          BSS          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BST          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BSU          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BSV          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BSW           AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BSZ          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          BTA           AAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CA            AAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CB            AAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CC            AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          CE           S008888800
T39 ESSENTIAL DC BUS                   UDA          CFA          FAAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CFL          FAAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CG           FAAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CHCY          AAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CHEA         FAAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CHF           AAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CJ           FAAAAAAAAA
T39 ESSENTIAL DC BUS                   UDA          CL            AAAAAAAAA
T39 ESSENTIAL DC                       UDA          DAB           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          DAV           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          DBN           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          DC            AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          DEA           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EAE           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EAN           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EAP           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EAQ           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EBA           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EBB           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          ECA           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EDA          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          EEG          FAAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          FAA           00AAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          FBD           AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          FCE           AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          FDF           AAAAAAAAA
T39 ESSENTIAL DC DISTRIBUTION          UDA          FFB           AAAAAAAAA
T39 ESSENTIAL DC                       UDA          GBC           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          NAB          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          NAT          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          NCA          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          NCM          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          UAF          FAAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          UHB           AAAAAAAAA
T39 ESSENTIAL DC DIST                  UDA          UHG          F111111111
T39  CKT BKRS ESSENTIAL BUS    42152   UDAA         UDA          1
T39  BOX POWER DIST            42157   UDAB         UDA          1
T39  BOX RELAY                 42158   UDAC         UDA          1
T39  TERMINAL STRIP            4215D   UDAD         UDA          0
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T39 SECONDARY DC BUS                        UDB          CFBB            AAAAAAAAA
T39 SECONDARY DC BUS                        UDB          CFDB           FAAAAAAAAA
T39 SECONDARY DC BUS                        UDB          CFEC           FAAAAAAAAA
T39 SECONDARY DC BUS                        UDB          CHBC           FAAAAAAAAA
T39 SECONDARY DC BUS                        UDB          CHED           FAAAAAAAAA
T39 SECONDARY  DC DIST  VIBRATE             UDB          DA             F000000000
T39 SECONDARY DC DIST                       UDB          DBQ             AAAAAAAAA
T39 SECONDARY DC DIST                       UDB          EAE             111111111
T39 SECONDARY DC DIST                       UDB          EAR             AAAAAAAAA
T39 SECONDARY DC DIST                       UDB          EBB             AAAAAAAAA
T39 SECONDARY DC DIST                       UDB          ECP             AAAAAAAAA
T39  CKT BKRS,SEC BUS          42152        UDBA         UDB           A
T39  BOX POWER DIST            42157        UDBB         UDB           1
T39  BOX RELAY                 42158        UDBC         UDB           1
T39  RELAY SECONDARY BUS       9942B        UDBD         UDB           A
T39  TERMINAL STRIP            4215D        UDBE         UDB           1
T39 STARTER BUS POWER DIST                  UDC          BAN             AAAAAAAAA
T39 PARALELLING BUS                         UDD          UAA            SAAAAAAAAA
T39 PARALELLING BUS                         UDD          UAB            S111111111
T39 PARALELLING BUS                         UDD          UAE            FAAAAAAAAA
T39 PARALELLING BUS                         UDD          UDB            FAAAAAAAAA
T39 PARALELLING BUS                         UDD          UDH             AAAAAAAAA
T39 PARALLELING BUS                         UDD          UHB             AAAAAAAAA
T39  TERMINAL STRIP            4215D        UDDA         UDD           C
T39  BOX POWER DIST            42157        UDDB         UDD           1
T39  BOX RELAY                 42158        UDDC         UDD           1
T39 BATTERY BUS                             UDE          DDB             AAAAAAAAA
T39 BATTERY BUS                             UDE          EAD             AAAAAAAAA
T39 BATTERY BUS                             UDE          UAB    K UDH   SAAAAAAAAA
T39 BATTERY BUS                             UDE          UDJ            SAAAAAAAAA
T39 BATTERY BUS                             UDE          UDK            FAAAAAAAAA
T39 BATTERY BUS                             UDE          UDL            FAAAAAAAAA
T39 BATTERY BUS                             UDE          UDM            FAAAAAAAAA
T39  TERMINAL STRIP            4215D        UDEA         UDE           1
T39  BOX POWER DIST            42157        UDEB         UDE           1
T39  BOX RELAY                 42158        UDEC         UDE           1
T39 EXTERNAL START POWER                    UDF          UDC             100000000
T39  RECEPTACLE EXT START      42154        UDFA         UDF           A
T39  MICROSWITCH               42155        UDFB         UDF           1
T39 BATTERY START POWER                     UDG          UDC             100000000
T39  RELAY BATTERY START       42171        UDGA         UDG           A
T39 NORMAL OPERATION                        UDH          UDA     UDJ     111111111
T39  RELAY ESSENTIAL BUS       42177        UDHA         UDH           A
T39 BACKUP OPERATION                        UDJ          UDA    K UDH    AAAAAAAAA
T39  RELAY ESS BUS EMER K512   9942A        UDJA         UDJ           A
T39  MASTER SWITCH             42156        UDJB         UDJ           A
T39 AUTO SWITCHING                          UDK          UDJ     UDL     111111111
T39  RELAY GEN MONITOR         4217C        UDKA         UDK           A
T39  BATTERY SWITCH            42118        UDKB         UDK           A
T39 MANUAL SWITCHING                        UDL          UDJ    K UDK    AAAAAAAAA
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123456789012345678901234567890123456789012345678901234567890123456789012345678890
T39  BATTERY SWITCH                4211B   UDLA          UDL            A
T39 BATTERY PARALLELING                    UDM           UDD              000000000
T39  RELAY BATTERY                 42176   UDMA          UDM            A
T39 GENERATOR STATUS                       UDN           UDJ              000000000
T39  VOLTMETER                     4213C   UDNA          UDN            1
T39  GEN OFF WARN LIGHT            44243   UDNB          UDN            1
T39  CAUTION LIGHT PANEL           44241   UDNC          UDN            1
T39  MASTER CAUTION LIGHT          44242   UDND          UDN            0
T39  RELAY TEST                    44244   UDNE          UDN            0
T39  GEN LIGHT CKT BKR             42152   UDNF          UDN            1
T39  LOAD SWITCH                   4215F   UDNG          UDN            0
T39  VOLTMETER TEST SWITCH         4213A   UDNH          UDN            1
T39  LOADMETER                     4213B   UDNJ          UDN            1
T39  CKT BKR VOLTMETER             42152   UDNK          UDN            1
T39 EXTERNAL UTILITY POWER                 UDP           UDD              000000000
T39  PLUG DISCONNECT               4215C   UDPA          UDP            0
T39  RECEPTACLE EXT UTIL           42153   UDPB          UDP            8
T39  RELAY EXT PWR CUTOUT          42172   UDPC          UDP            A
T39  RELAY EXT PWR MONITOR         42175   UDPD          UDP            A
T39 LEFT GENERATOR SYSTEM                  LUDQ          UDB              AAAAAAAAA
T39 LEFT GENERATOR SYSTEM                  LUDQ          UDD    KRUDQ     AAAAAAAAA
T39 RIGHT GENERATOR SYSTEM                 RUDQ          UDB              AAAAAAAAA
T39 RIGHT GENERATOR SYSTEM                 RUDQ          UDD    KLUDQ     AAAAAAAAA
T39  STARTER GENERATOR             42131   LUDQA         LUDQ           A
T39  STARTER GENERATOR             42131   RUDQA         RUDQ           A
T39  ADAPTER QAD                   42132   LUDQB         LUDQ           A
T39  ADAPTER QAD                   42132   RUDQB         RUDQ           A
T39  DUCT FLEX COOLING             42135   LUDQC         LUDQ           1
T39  DUCT FLEX COOLING             42135   RUDQC         RUDQ           1
T39  VOLTAGE REGULATOR             42136   LUDQD         LUDQ           A
T39  VOLTAGE REGULATOR             42136   RUDQD         RUDQ           A
T39  RELAY GEN MONITOR             4217C   LUDQE         LUDQ           A
T39  RELAY GEN MONITOR             4217C   RUDQE         RUDQ           A
T39  RELAY GEN FIELD CONTROL       4217D   LUDQF         LUDQ           A
T39  RELAY GEN FIELD CONTROL       4217D   RUDQF         RUDQ           A
T39  CKT BKRS                      42152   LUDQG         LUDQ           A
T39  CKT BKRS                      42152   RUDQG         RUDQ           A
T39  MASTER SWITCH                 42156   LUDQH         LUDQ           A
T39  MASTER SWITCH                 42156   RUDQH         RUDQ           A
T39  REVERSE CURRENT RELAY         9942C   LUDQJ         LUDQ           A
T39  REVERSE CURRENT RELAY         9942C   RUDQJ         RUDQ           A
T39  GEN SWITCH                    9942D   LUDQK         LUDQ           A
T39  GEN SWITCH                    9942D   RUDQK         RUDQ           A
T39 BATTERY SYSTEM NO.1                    LUDR           UDE              555555555
T39 BATTERY SYSTEM NO.1                    LUDR           UDG              AAAAAAAAA
T39 BATTERY SYSTEM NO.2                    RUDR           UDE              555555555
T39 BATTERY SYSTEM NO.2                    RUDR           UDG              AAAAAAAAA
T39  BATTERY                       42111   LUDRA         LUDR           8
T39  BATTERY                       42111   RUDRA         RUDR           8
T39  QUICK DISCONNECT              42114   LUDRB         LUDR           A
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123456789012345678901234567890123456789012345678901234567890123456789012345678900
T39  QUICK DISCONNECT          42114  RUDRB          RUDR          A
T39  CABLE                     42115  LUDRC          LUDR          8
T39  CABLE                     42115  RUDRC          RUDR          8
T39  SUMP JAR                  42116  LUDRD          LUDR          1
T39  SUMP JAR                  42116  RUDRD          RUDR          1
T39  VENT AND DRAIN HOSE       42118  LUDRE          LUDR          0
T39  VENT AND DRAIN HOSE       42118  RUDRE          RUDR          0
T39 NORMAL HYD DISTRIBUTION           UHA            FFD             AAAAAAAAA
T39 NORMAL HYDRAULIC DIST             UHA            GCC     UHD     111111111
T39 NORMAL HYDRAULIC DIST             UHA            NAB             S555555555
T39 NORMAL HYDRAULIC DIST             UHA            NCA             S555555555
T39  CHECK VALVE HYDR 4EA      4531A  UHAA           UHA           1
T39  FILLER VALVE ACCUMULATOR  4521C  UHAB           UHA           1
T39  ACCUMULATOR               45211  UHAC           UHA           1
T39  RELIEF VALVE              45214  UHAD           UHA           1
T39  DUMP VALVE                45215  UHAE           UHA           0
T39  FILTER PRESSURE           45216  UHAF           UHA           1
T39 NORMAL HYD PRESSURE               UHB            UHA             AAAAAAAAA
T39 NORMAL HYD PRESSURE               UHB            UHD             FA00000000
T39  CIRCUIT BREAKER 2EA       42152  UHBA           UHB           1
T39  CHECK VALVE HYDR          4511A  UHBB           UHB           0
T39  PRESSURE SWITCH 2EA       4511F  UHBC           UHB           A
T39  MOTOR HYDRAULIC PUMP      4511L  UHBD           UHB           A
T39  MOTOR DRIVEN PUMP         45111  UHBE           UHB           8
T39  FILTER RETURN             45217  UHBF           UHB           1
T39  HYDRAULIC PUMP SWITCH     9945A  UHBG           UHB           A
T39 HYDRAULIC SUPPLY                  UHC            UHB             AAAAAAAAA
T39  CHECK VALVE AIR           4511B  UHCA           UHC           1
T39  DRAIN VALVE AIR TANK      4511C  UHCB           UHC           0
T39  FILTER AIR                4511D  UHCC           UHC           0
T39  COUPLING EXTERNAL HYD     4511G  UHCD           UHC           0
T39 COUPLING EXTERNAL AIR      4511J  UHCH           UHC           0
T39  CAP AIR COUPLING          4511K  UHCJ           UHC           0
T39  PRESSURE REGULATOR        45114  UHCK           UHC           1
T39  RESERVOIR ASSY            45115  UHCL           UHC           8
T39  TANK AIR                  45116  UHCM           UHC           1
T39  FILLER CAP RESERVOIR      45117  UHCN           UHC           0
T39  DRAIN VALVE RESERVOIR     45118  UHCP           UHC           1
T39 AUXILLIARY HYD DISTRIBUTION       UHD            FFE             AAAAAAAAA
T39 AUXILIARY HYDRAULIC DIST          UHD            GCC     K UHA   AAAAAAAAA
T39  CHECK VALVE NORMAL  4 EA  4511A  UHDA           UHD           1
T39  ACCUMULATOR AUX           45311  UHDB           UHD           A
T39  FILLER VALVE ACCUM AUX    45313  UHDC           UHD           8
T39  RELIEF VALVE AUX          45316  UHDD           UHD           1
T39  DUMP VALVE AUX            45317  UHDE           UHD           0
T39  SHUT OFF VALVE AUX        45318  UHDF           UHD           A
T39  CKT BKR                   42152  UHDG           UHD           0
T39 PRESSURE INDICATION               UHG            UHD             111111111
T39  CIRCUIT BREAKER           42225  UHGA           UHG           1
T39  LIGHT PANEL CAUTION       44241  UHGB           UHG           1
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12345678901234567890123456789012345678901234567890123456789012345678901234567890
T39  LIGHT MASTER CAUTION       44242   UHGC              UHG          1
T39  LIGHT INDICATOR CAUTION    44243   UHGD              UHG          1
T39  GAGE PRESSURE              4521A   UHGE              UHG          1
T39  GAGE ACCUMULATOR NORM      4521B   UHGF              UHG          0
T39  PRESSURE TRANSMITTER NORM  45213   UHGG              UHG          1
T39  GAGE ACCUMULATOR AUX       45312   UHGH              UHG          0
T39  PRESSURE TRANSMITTER AUX   45315   UHGJ              UHG          0
T39  PRESSURE SNUBBER           45212   UHGK              UHG          0
T39  PRESSURE SNUBBER AUX       45314   UHGL              UHG          0

CARD COUNT IS 00001808. CARDS WITH ERRORS 00000000
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