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THE THREE-LEVEL EQUIPMENT INVENTORY PROGRAM

by

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FOREST FIRE RESEARCH INSTITUTE
OTTAWA, ONTARIO

INFORMATION REPORT
FF-X-53

January 1975

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ERRATA

1. "Section 8" on page 4 should read "Section VIII".

2. "ISRPMIN" on the diagram on page 9 should read "ISRMIN".

3. In the first NOTE on page 10, "service level" should read "status level".

4. The sixth line on page 13 should read: "ISTAT = 04; Fixed Wing Aircraft and Helicopters".

5. In error number 3 on page 33 the last line should read: "(1>JSTART>25,1>JEND>25,JSTART>JEND)".

6. The title on page 53 should read: "Ontario Fixed Wing Aircraft and Helicopter List".

Abstract

A description and user's manual for a forest fire resource equipment inventory program is presented. The program can be used to maintain a running tabulation of the current location and status of up to seventy-four categories of ground equipment, forty-two fixed-wing aircraft, and twenty helicopters. The program produces reports for three administrative levels - division, subregion, and region - and provides summarized data as higher levels are reported. A general overview of the program can be obtained by reading sections 1 (Introduction), 6 (Test Problems), and examining Schedule 8, Appendix A (Sample Outputs).

Acknowledgements

The cooperation and assistance of Mr. L. Sleeman, Mr. Robert Elliot, Mr. John Goodman, and Mr. Harold Redding, all officers of the Ontario Ministry of Natural Resources, is gratefully acknowledged. Without their advice and assistance, this research program would neither have been undertaken nor accomplished.

TABLE OF CONTENTS

I. INTRODUCTION

This report describes the three-level Equipment Inventory Program (3EIP) developed at the Forest Fire Research Institute in cooperation with the Ontario Ministry of Natural Resources. It includes a user's manual, several examples of program set-up and costs, and a set of test problems designed to familiarize users with program operation.

The 3EIP was designed for use under a three-level administrative fire control structure such as that shown in Appendix A, Schedule 5, and used in Ontario in 1972 (Sleeman, 1972). The objectives of the program include:

1) establishment and maintenance of a data base giving current availability and location of fire control resources in a large area

2) provision of additional distributional information useful in management decisions

3) provision of information necessary to other programs in the Fire Management Centre (Maloney and Potter, 1974).

The 3EIP was extensively tested and costed on realistic but hypothetical data supplied by the Ontario Ministry of Natural Resources. However, before the program could be applied in the field, the administrative structure of the Ministry was changed substantially. A new two-level EIP which takes advantage of the economies made possible by the administrative changes is now in development at the Forest Fire Research Institute. However, the 3EIP remains potentially useful to other fire management agencies operating under a structure similar to that previously used in Ontario.

A deck listing and a list of modifications necessary if the program is to be used in areas other than Ontario is included as Appendix B to this report. Consultative assistance to bring the program on line is available from the Forest Fire Research Institute.

II. GENERAL PROGRAM CHARACTERISTICS

Resource Types and Status Levels:

3EIP handles three distinct resource types:

1) Ground force resources (including manpower) (74 categories)
2) Fixed-wing aircraft (42 aircraft)
3) Helicopters (20 helicopters)

Each resource unit (e.g., one power pump) may be in any one of five status levels:

1) Ministry-owned, serviceable, not on fire
2) Ministry-owned, in use on fire
3) Ministry-owned, unserviceable, breakdown
4) Ministry-owned, not available, being retrieved
5) Non-Ministry owned, serviceable and available

Resource Locations:

Resources may be located at any of fifty divisions. At present, these divisions are grouped into five sub-regions and the sub-regions are aggregated into three regions.

Each of the five sub-regions is also allowed up to five special areas - temporary locations (e.g. a large fire) at which resources may be located. All resources located at a special area are assumed to be in use on fire (See Schedule 7, Appendix A, Status Level for Special Areas).

Minimum Requirements:

Users are allowed to designate any number of specific ground force resource units located at any division as the minimum requirement for that division. If requested, the program will then flag those locations at which dispatches have reduced resource levels below those specified as minimum requirements for that location. Minimum requirements may not be specified for fixed-wing aircraft or for helicopters.

Aggregation:

Normally reports desired at the sub-region or region level will not contain as much detail as would a complete division level report. An aggregation function which combines certain categories of ground force resources and generates less detailed sub-regional and regional level reports is built into 3EIP. The Ontario aggregation rules are shown in Schedules 1, 2, and 3 of Appendix A.

Input/Updating:

New information can be entered into the inventory data base or old information can be modified using either alphanumeric or straight numeric codes. The update section of the program checks for 55 common input errors and, if an error is found, prints an appropriate message describing and locating the error.

Reports Generated:

Reports can be generated for any subset of resource types and for any subset of resource locations. Reports can be generated in several forms:

1)	Numerical by divisions and/or special areas, sub-regions, regions.	Listing of specified resource categories at specified locations (all resource types).
2)	Percentage by divisions and/or sub-regions, regions.	Listing of the number of resource units in a given category and status level at the specified location(s) as a percent of the total number of resource units in the category in all status levels at that location (Ground force resources only).
3)	Minimum Requirements by divisions and/or sub-regions, regions.	Listing of resource units in status level 1 (serviceable, not on fire), by specified location, in excess or deficit of minimum requirements set for that location (Ground force resources only).

Computer Systems:

3EIP has been tested and run on the following computer systems:

1) Univac 1108 with EXEC II and EXEC VIII.
2) Univac 1108 with CSCX using both RJE and CRJE.
3) IBM 370/165 with OS

Security:

Several security rules are observed in 3EIP. Divisions have access only to data associated with that division. Sub-regions may obtain data concerning any division or special area within the sub-region. Regions may obtain data concerning any division, special area, or sub-region in the region. Finally, the Provincial head offices may obtain data concerning any location or area in the Province.

A set of Pass Numbers is defined by the user to enforce these security rules. Any division pass number allows the program to present data concerning that division only. Sub-regional and regional pass numbers work in a similar fashion and the Provincial pass number opens the entire data base for retrieval. Any invalid pass number or any valid pass number being used to extract data not allowed under that number stops the program and causes an error message to be printed.

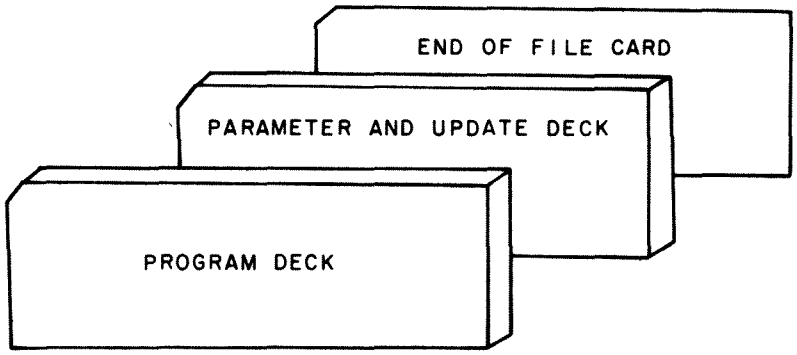
Error Messages:

A variety of input errors - spelling, placement, coding, etc. - are possible with 3EIP. Such errors are spotted by the program and an appropriate error message is printed. However, a single error or even a string of errors is not necessarily fatal; the program sets the entry in error aside and continues execution with the next identifiable entry. A list of error messages is included in Section 8.

III. THE 3EIP CONTROL DECK

General:

The sketch below shows the deck structure for any run of 3EIP. If the program is run using a keyboard, magnetic tape, or paper tape terminal, the structure remains the same although the mode of transmission changes.



The PROGRAM deck brings in the program and the data base from a disk or other outside storage unit. It must be written for the computer system on which the user wishes to run 3EIP but, once written, can be maintained as a "canned" deck as long as the system remains the same. The END OF FILE card is also specific to the system being used and is also canned once obtained. Consultation and assistance in preparing the PROGRAM deck is available from the Forest Fire Research Institute.

The PARUP Deck

The PARUP (parameter and update) deck contains the values which specify the options which the user has chosen for the specific run of 3EIP. It includes both mandatory and optional cards as follows:

1) Pass Number Card: (Mandatory) This must be the first card in PARUP any time the program is used and only one Pass number may be specified at any given run.

2) Report Parameter Card: (Mandatory, if reports are desired) This card specifies the report options chosen by the user. Several Report Parameter Cards may be required in a given run to generate all reports required.

3) Single Item Parameter Card: (Optional) If a report on only a single resource item in a single status level at a specific location is desired, this card should be used for efficiency. It must be immediately preceded by a Report Parameter Card or by another Single Item Parameter Card. Up to 99 Single Item Parameter Cards may be used following a single Report Parameter Card.

4) Update Parameter Card: (Mandatory, if updating is done) This card must precede any cards containing new information to be inserted in the program data base and contains the update parameters. A single Update Parameter Card may be followed by any number of Update Cards.

5) Update Cards: (Mandatory, if updating is done) This card or set of cards contains information necessary to update the program data base. It must immediately follow an Update Parameter Card. Update Cards may be in either alphanumeric or numeric format.

6) Delimiter Card: (Mandatory, if updating is done) This card signals that a particular set of updates is complete. There may be several sets of updates in a given run; each set must be followed by a Delimiter Card.

Sample Problems:

Assume these codes:

PN	=	Pass Number Card
RPC	=	Report Parameter Card
SI	=	Single Item Parameter Card
UP	=	Update Parameter Card
UC	=	Update Card
DEL	=	Delimiter Card

Consider the following structures of PARUP decks and decide whether each is correct or in error. Answers are given after the problems.

1.
```
RPC
16 SI's
UP
21 UC's
DEL
RPC
RPC
RPC
```

2.
```
PN
UP
1 UC
RPC
DEL
```

3.
```
PN
RPC
RPC
RPC
2 SI's
UP
10 UC's
DEL
UP
12 UC's
DEL
RPC
RPC
RPC
```

4.
```
PN
RPC
UP
DEL
RPC
UP
2 UC's
DEL
PN
RPC
RPC
```

5.
```
PN
RPC
```

6.
```
PN
UP
1 SI
DEL
RPC
1 UC
DEL
RPC
RPC
RPC
```

Answers:

1. Incorrect; the Pass Number Card is missing.

2. Incorrect; the DEL card must follow the UC card or cards.

3. Correct; Note the multiple RPC cards and the multiple set of updates.

4. Incorrect; 1) A UP card must be followed by one or more UC cards. 2) Only one PN card may be used in any given run.

5. Correct

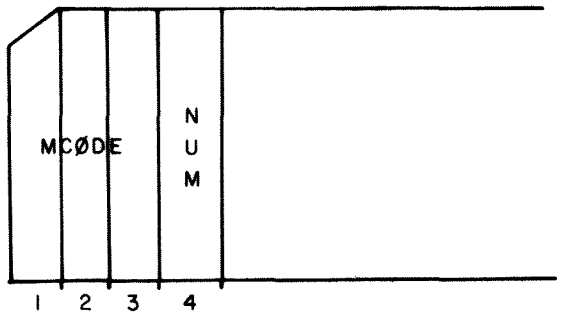
6. Incorrect; 1) SI cards follow RPC cards not UP cards. 2) UC cards follow UP cards not RPC cards.

More detailed examples of PARUP deck setups are given in the Detailed Examples of Program Deck and Test Problem sections of this paper. All PARUP card coding starts in card column one.

IV. DETAILED DESCRIPTIONS OF THE PARUP CARDS

Pass Number Card:

This card must be present and it must be the first card in PARUP any time the program is used. As shown in the sketch below, the card contains two fields called MCØDE and NUM. MCØDE occupies the first three columns of the card and NUM occupies column 4. Both fields are Integer format.



CODES:

MCØDE - is the pass number.
- one number is assigned to each division, sub-region, region, and one to the province.

NUM - specifies the type of update format to expect. (either alphanumeric or numeric)
- one (punched 1) signifies numeric format.
- any other number or a blank signifies alphanumeric.

NOTE: - if no updating is being done the NUM field may be left blank.

Examples:

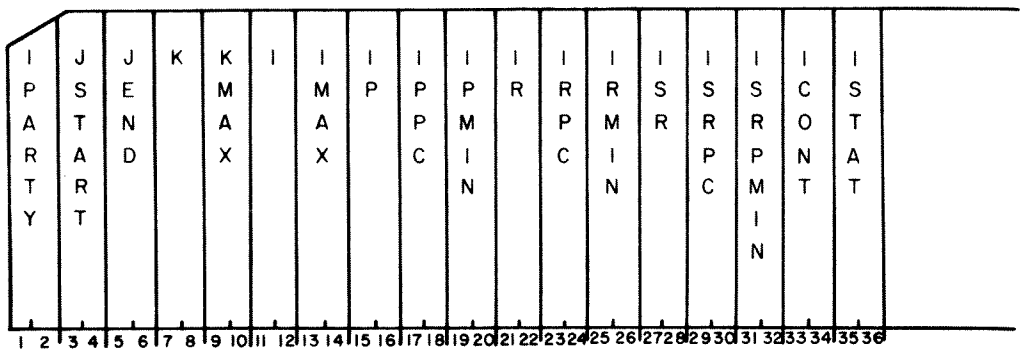
Col. 1-4

1. 0001 - this says location with pass number 000 is accessing the program and if there is any updating it will be in numeric form.

2. 000Ø - pass number 000 is accessing the program and if there is any updating, it will be in alphanumeric format.
   - Ø symbolizes a blank.

Report Parameter Card:

This card specifies what reports are to be generated and the locations, resource types, and status levels to be reported. There are eighteen possible integer parameters in fields of two columns each:



Codes:

1. IPARTY - This parameter denotes the card status (Report or Update Parameter Card) and specifies the type of locations to be considered.

   IPARTY = 2: Report Parameter card dealing with regular locations (Divisions, Sub-Regions, or Regions)

   IPARTY = 4: Report Parameter Card dealing with special areas.

   NOTE: See Update Parameter Card description for remaining values of IPARTY.

2. JSTART/JEND - The numbers of the divisions at which the report(s) is to start and end, respectively.

   EXAMPLE: JSTART = 10; JEND=20.

   The report will start with division 10 and end with division 20. If JSTART=JEND, only one division will be reported.

   NOTE: The values of JSTART and JEND must fall within the range specified for the Pass Number used or an error message will result and the program run will end. JSTART/JEND codes for Ontario are shown in Appendix A, Schedule 5.

3. K/KEND - The numbers of the status levels at which the report(s) is to start and end, respectively.

EXAMPLE: K=1, KEND=2.

The report generated will include resource items in status levels 1 (serviceable, not on fire) and 2 (in use on fire).

NOTE: If K=KEND only one service level will be reported. K=KEND=1 for special areas. The values of K/KEND codes are given in Schedule 7, Appendix A.

4. I/IMAX - The numbers of the resource categories with which the report is to begin and end, respectively.

EXAMPLE: I=25, IMAX=60.

The report generated will encompass resource categories 25 through 60.

NOTE: The permissable I/IMAX ranges depend on the resource type to be considered and must be coordinated with the parameter ISTAT, described below. Sample resource type codes for Ontario are shown in Appendix A, Schedule 1 and Schedule 4 for Ground Resources, Fixed-Wing Aircraft, and Helicopters, respectively.

5. IP - Produces numeric region level reports.

6. IPPC - Produces percentage region level reports.

7. IPMIN - Produces minimum requirement regional level reports.

8. IR - Produces numeric sub-region level reports.

9. IRPC - Produces percent sub-region level reports.

10. IRMIN - Produces miminum level sub-region level reports.

11. ISR - Produces numeric division level reports.

12. ISRPC - Produces percent division level reports.

13. ISRMIN - Produces minimum requirement division level reports.

NOTE: For parameters IP through ISRMIN, all reports are for ground resources only. The variable is set at 01 if the report is desired and at 00 if it is not desired. All these variables may be set at 01 on a single Report Parameter Card.

14. ICONT - Gives the number of Single Item Parameter cards which follow. Must be set from 00 to 99.

15. ISTAT - Specifies the type of resource to be reported.

ISTAT=1: Ground Resources
ISTAT=2: Fixed-Wing Aircraft
ISTAT=3: Helicopters
ISTAT=4: Fixed-Wing Aircraft and Helicopters.

NOTE: Maximum and minimum values for I/IMAX are affected by ISTAT. The Ontario figures are given as an example:

ISTAT=1: Ground Resources. (74 types) I=1(min.) and IMAX=74(max.).

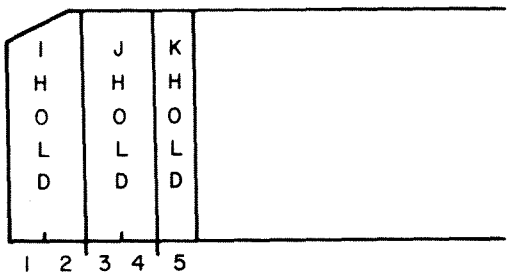
ISTAT=2: Fixed-wing Aircraft (42 types). I=1(min.), IMAX=42 (max.).

ISTAT=3: Helicopters (20 types). There are 20 helicopters allowed but they are part of the general aircraft table. Thus, I=43 (min.) and IMAX=62(max.).

ISTAT=4: Fixed-Wing and Helicopters (62 types). I=1(min.) and IMAX=62 (max.). However, I must be less than 43 and IMAX greater than 42 or ISTAT should be set to 2 or 3, since both tables are not desired.

Single Item Parameter Card:

This card or set of cards immediately follows the Report Parameter Card. The card contains three fields; two fields of 2 columns each and one of one column, all in integer format.



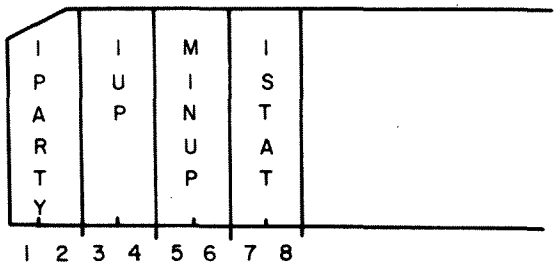
Codes:

IHØLD - specifies the resource category (number) to be reported.
JHØLD - specifies the division the equipment is in.
KHØLD - specifies the status level of the equipment.

NOTE: The effect of IPARTY and ISTAT on the related Report Parameter Card remains for the single item Parameter Card, i.e., IHØLD must fall within the equipment category range for the value of ISTAT on the Report Parameter Card. Thus, if ISTAT is 2, IHØLD must be between 1 and 42. ISTAT equal to 4 is not allowed if Single Item Parameter Cards are being used.

Update Parameter Card:

This card informs the program that update cards follow and which table the cards update. The card has four integer parameters in two column fields:



Codes:

IPARTY - (used also on the REPØRT PARAMETER CARD) specifies if the card is a REPØRT or UPDATE card and if it deals with regular areas or special areas.

IPARTY=1; specifies update regular areas.
IPARTY=3; specifies update special areas.

IUP - specifies if update to a non-minimum requirement table follows:

IUP=01; updates follow
IUP=00; no updates follow

MINUP - specifies if minimum requirements table updates follow.

MINUP=01; updates follow

MINUP=00; no updates follow

ISTAT - specifies which table is to be updated by resource type:

ISTAT=01; Ground Forces
ISTAT=02; Fixed-Wing Aircraft
ISTAT=03; Helicopters
ISTAT=04; Fixed-Wing and Helicopters.

NOTE: IUP and MINUP cannot both be 1 or 0. In other words, you can only update either a non-minimum or minimum requirements table at one time, not both at the same time. If both are zero then the UPDATE card is not needed since no updates are specified.

Alphanumeric Update Card

Update Cards specify the type and number of resource units to be modified and the status level and location of those resources. Up to 99 Update Cards may be included in a single program run and each card can contain a number of entries.

A single alphanumeric update entry consists of:

1) a three-letter abbreviation, followed by a comma, showing the division or special area in which the resources are located (Schedules 5 and 6, Appendix A).

2) a six-letter code denoting the resource type (Schedules 1 and 4, Appendix A).

3) a single letter code denoting status level (Schedule 7, Appendix A).

4) a one-to-four character number (either positive or negative) giving the change or update for the resource type. This value is used to modify the appropriate data base entry.

5) either a comma or period depending on whether or not further updates follow for that location.

Examples:

A) Single update: Kenora (KEN) dispatches five power pumps (PØPUMP) to a fire (status B) from reserves (status A):

KEN,PØPUMPA-5.

B) Multiple updates at a single location: Kenora dispatches the power pumps as in example A, receives twenty five axes (AXEXES) for its reserves (status A), and dispatches a 100 gallon helicopter bucket (HELBU1) from reserves to a fire:

KEN,PØPUMPA-5,AXEXESA25,HELBU1A-1.

Note: the location name is entered only once for a series of

updates at that location. A plus sign need not be entered for incoming resources.

C) Multiple updates, multiple locations: Kenora dispatches and receives as in example B. Dryden (DRY) dispatches two unit crews (FCØMUC) from reserves to a fire. All dispatches go to Atikokan division (ATI) and go on fire.

```
KEN,PØPUMPA-5,AXEXESA25,HELBU1A-1.DRY,FCØMUCA-2.
ATI,PØPUMPB5,HELBU1B1,FCØMUCB2.
```

Numeric Update Card

Numeric Update Cards serve the same purpose as alphanumeric Update Cards. Numeric and alphanumeric cards may not be mixed in the same program run. The entry structure for numeric update is:

1) a three digit code giving location and entered on a separate card which immediately precedes the update information for that location.

2) a three digit resource type code

3) a one digit status level code

4) a five digit number giving the change or update for the resource type.

5) a comma or period used as in the alphanumeric Update Card.

Note: Items 2 through 5, above, appear on the same card and are repeated as often as necessary. The length of all codes in a single entry is fixed at ten columns including the comma or period which marks the end of the entry. The Ontario numeric codes for locations, resource types, status levels, etc. are given in the same Schedules as were the Ontario alphanumeric codes.

Examples: The examples correspond to those given in the alphanumeric Update Card discussion.

A)

Card No.	Entry	Meaning
1	001	Kenora Division
2	0011-0005.	As in Example A, page 13

B)

Card No.	Entry	Meaning
1	001	Kenora Division
2	0011-0005,008100025,0201-0001.	As in Example B, page 13

C)

Card No.	Entry	Meaning
1	001	Kenora Division
2	0011-0005,008100025,0201-0001.	As in Example C, page 14
3	002	Dryden Division
4	0601-0001.	As in Example C, page 14
5	008	Atikokan Division
6	001200005,020200001,060200002.	As in Example C, page 14

Update Cards - General Rules:

1) Regular areas (divisions) and special areas cannot be updated in a single set of Update Cards following a single Update Parameter Card. Separate sets with separate Update Cards must be prepared.

2) Minimum requirement tables and non-minimum requirement tables cannot be updated in a single set of update cards.

3) Ground resources, fixed-wing aircraft, and helicopters cannot be updated in a single set of update cards. Fixed-wing aircraft and helicopters can be updated in a single set of update cards.

Delimiter Card:

The Delimiter Card is a single card with the number 9 punched in columns 1 through 40. A delimiter Card must follow each set of Update Cards.

V. DETAILED EXAMPLES OF PROGRAM DECK

In all examples, the pass number is 000. The Ontario codes for resource types, locations, and status levels are in Schedules 1-7, Appendix A. The prior codes for PARUP cards (page 6) will be used; PD will be Program Deck and EØF will be End of File Card.

Examples of Report Generation:

A) Generate both numeric and percent reports on ground resource items blankets, single through lights, head for all divisions in the Northeastern Region and for status levels serviceable resources not on fire and resources in use on fire.

PARUP Card#	Card Coding	Card Type
1	000	PN
2	021736010230390000000000000101000001	RPC

Card 1: Pass number of the Northeastern Region or of the Province. No other numbers would be able to access the information for divisions 17 through 36.

Card 2: Establishes the parameters to generate the report requested.

Deck Structure:
PD
PN
RPC
EØF

B. Generate the numeric report requested in Example A for all special areas in the Northeastern Region (No percent reports are given for special areas and there is only one status level; resources in use on fire).

PARUP Card#	Card Coding	Card Type
1	000	PN
2	041120010130390000000000000100000001	RPC

Card 1: Same as Example A.

Card 2: Reports the resources requested for special areas 11 through 20.

Deck Structure: Same as Example A.

C. Generate a fixed-wing aircraft and helicopter report for Otter ODQ through Turbo-Beaver OEN and for Otter ODY, Beaver OBS, helicopter AOOOMS, and helicopter EOIOCM. Otter ODY and helicopter EOIOCM are at Thunder Bay in status level 1. Beaver OBS and helicopter AOOOMS are at Geraldton in status level 3. All other aircraft are at various divisions and at unknown status levels in the Northwestern Region.

PARUP Card#	Card Coding	Card Type
1	000	PN
2	0201160105030800000000000000000202	RPC
3	01091	SI
4	35123	SI
5	0201160105000000000000000000000203	RPC
6	43123	SI
7	47091	SI

Card 1: As in Example B.

Card 2: Generates fixed-wing aircraft reports.

Cards 3-4: Generate Single Item reports for fixed wing aircraft.

Card 5: Specifies helicopter single item requests follow.

Cards 6-7: Generate Single Item reports for helicopters.

Deck Structure:

```
PD
PN
RPC
SI
SI
RPC
SI
SI
EØF
```

D. Generate ground resources, fixed-wing aircraft, and helicopter reports for all items in the Province at both regular and special areas. Include numeric, percent, and minimum requirements tables for all report levels (region, sub-region, division) where applicable.

Note: This deck structure produces all possible reports except for single-item requests. It may be canned and used repeatedly for Provincial requests for general information.

PARUP Card#	Card Coding	Card Type
1	000	PN
2	0201500105017401010101010101010001	
3	0201500105016200000000000000000000004	
4	0401050101017400000000000000000000001	RPC's
5	0406100101017400000000000000000000001	
6	0411150101017400000000000000000000001	
7	0416200101017400000000000000000000001	
8	0421250101017400000000000000000000001	
9	0401050101014200000000000000000000002	
10	0406100101014200000000000000000000002	
11	0411150101014200000000000000000000002	
12	0416200101014200000000000000000000002	
13	0421250101014200000000000000000000002	
14	0401050101436200000000000000000000003	
15	0406100101436200000000000000000000003	
16	0411150101436200000000000000000000003	
17	0416200101436200000000000000000000003	
18	0421250101436200000000000000000000003	

Card 1: would be pass number for the province. The province is the only body with the authority to call information from all fifty divisions.

Card 2: reports all ground force resources for all divisions at all status levels for regular areas. Region, sub-region, and division level reports are in numeric, percent and resources in excess of minimum requirement values.

Card 3: reports all fixed-wing and helicopter aircraft for all divisions at all status levels for regular areas. Region and sub-region levels are shown as totals on Division level report. Percent and resources in excess of minimum requirements do not apply to aircraft tables.

Cards 4-8: report on all ground forces in all special areas. The special areas are in five groups of five areas with one group per sub-region. Only numeric values and status level, resources, in use on fire, apply to special area reports.

Cards 9-13: report on all fixed-wing aircraft in special areas.

Cards 14-18: report on all helicopters in special areas.

Example of Update procedures:

E. Kenora division has dispatched helicopter D011ML with two unit crews to special area 5. Dryden has dispatched one unit crew to Kenora as backup in status level 1 and has activated a company crew from status 5 to status 1. The alphanumeric update cards are:

PARUP Card#	Card Coding	Card Type
1	0000	PN
2	01010001	UPC
3	KEN,FCØMUCA-2,FCØMUCA1.DRY,FCOMUCA-1,FCOEFFA1, FCØEFFE-1.	UP
4	9999....9999	DEL
5	01010003	UPC
6	KEN,DO11MLA-1.	UP
7	9999....9999	DEL
8	03010001	UPC
9	005,FCØMUCA2.	UP
10	9999....9999	DEL
11	03010003	UPC
12	005,DO11MLA1	UP
13	9999....9999	DEL

Card 1: Pass number card

Card 2: UPC for ground resources dispatch - regular areas.

Card 3: UP card for these dispatches

Card 4: Delimiter Card

Cards 5-7: UPC, UP, and DEL cards for helicopter dispatch from regular area.

Cards 8-10: UPC, UP, and DEL cards for ground resource dispatch to a special area.

Cards 11-13: UPC, UP, and DEL cards for helicopter dispatch to special area.

Deck Structure: As shown with PD preceeding and EØF following.

Examples of reports and updates:

F. Enter the updates shown and generate the reports indicated:

1) Move 5 power pump units from status level: resources in use on fire to level: serviceable resources not on fire in Kenora.

2) Move 6 power saws from status level: unserviceable resources due to breakdown to level: serviceable resources not on fire in Kenora.

3) Add 20 axes to: serviceable resources, not on fire in Dryden.

4) Move helicopter DO11ML from: serviceable resources, not on fire in Ignace, to the same status level in Sioux Lookout.

5) Report on appropriate ground resources in Kenora and Dryden.

6) Report on helicopters at Ignace and Sioux Lookout.

Card#	Card Coding	Card Type
1	0000	PN
2	01010001	UPC
3	KEN,PØPUMPB-5,POPUMPA5,PØWSAWC-6,PØWSAWA6.DRY, AXEXESA20.	UC
4	999 ---------- 999	DEL
5	01010003	UPC
6	IGN,DØllMLA-1.SIØ,DØllMLA1.	UC
7	999 ---------- 999	DEL
8	02010201030108000000000000100000001	RPC
9	02030601014646000000000000000000003	RPC

Card 1: Dryden subregion, Northwestern region or provincial pass number.

The fourth 0 could be left out for it represents alpha update which is the default option.

Card 2: updates for ground forces, non-minumum requirements table follow.

Card 3: performs ground forces updates requested.

Card 4: delimiter.

Card 5: updates for helicopters follow.

Card 6: performs helicopter updates requested.

Card 7: delimiter.

Card 8: reports ground forces table, numeric values, at division level for Kenora and Dryden divisions, equipment: power pump units, through axes and status levels: serviceable resources, not on fire, through: unserviceable resources, due to breakdown.

Card 9: reports helicopter table, for divisions Sioux Lookout, through Ignace for helicopter DOllML at status level: serviceable resources, not on fire.

G. Perform example F using numeric format.

Card#	Card Coding	Card Type
1	0001	PN
2	01010001	UPC
3	001	UC (site)
4	0012-0005,001100005,0053-0006,005100006.	UC
5	002	UC (site)
6	008100020.	UC

```
 7       999 --------- 999                                        DEL
 8       01010003                                                 UPC
 9       003                                                      UC (site)
10       046100001.                                               UC
11       006                                                      UC (site)
12       0461-0001.                                               UC
13       999 --------- 999                                        DEL
14       020102010301080000000000000100000001                    RPC
15       020306010146460000000000000000000003                    RPC
```

Card 1: same as example F except the 1 specifies that update will be in numeric format.

Card 2: same as example F.

Card 3: specifies site KENØRA to be updated.

Card 4: specifies updates at KENØRA.

Card 5: specifies site DRYDEN to be updated.

Card 6: updates at DRYDEN.

Card 7: end of ground forces updates.

Card 8: same as card #5, example F.

Cards 9-13: updates to Sioux Lookout and Ignace plus end of helicopter updates.

Cards 14-15: same as cards #8 and 9 in example F.

VI. Test Problems:

The suggested answers to the test problems are given following the problems. Use pass number 000 for all problems.

Problem 1:

Geraldton Division wants a report on manpower categories: Fire Crews - Organized Ministry Unit Crews through Ministry Overhead - Crew Boss. It wants the information for status levels 1 and 2. It also wants status level reports on the two aircraft in the division (Twin Otter ØEQ and Otter ØDJ). Generate the reports.

Problem 2:

Sudbury Sub-Region has set up special area 011 near a large fire. Sudbury is sending one D-4 and one D-8 bulldozer to this special area and Espanola is sending twin Otter ØPI. The sub-region wants an updated report on the special area ground forces and fixed-wing aircraft along with a report on the number of mess gear base camp kits, large tents, and coleman stoves which are in status level 1 at Espanola. Use alphanumeric updates and generate the reports requested.

Problem 3:

The Southern Region wishes to decrease the minimum requirements at Bancroft and Lanark Divisions by two 400 gallon and two 300 gallon helicopter buckets. Make the change and report the division, sub-region, and region level resources available in excess of minimum requirements for all ground resources. Use numeric updates.

Answers to Test Problems:

Problem 1:

PARUP Card#	Card Coding	Card Type
1	000	PN
2	02121201026070000000000000000100000001	RPC
3	02121201051820000000000000000000000002	RPC

Problem 2:

PARUP Card#	Card Coding	Card Type
1	000	PN
2	01010001	UPC
3	SUD,BDOZE4A-1,BDOZE8A-1.	UC
4	999999999999999999	DEL
5	03010001	UPC
6	011,BDOZE4A1,BDOZE8A1.	UC
7	999999999999999999	DEL
8	01010002	UPC
9	ESP,TWOOPIA-1.	UC
10	999999999999999999	DEL

11	03010002	UPC
12	011,TWOOPIA1.	UC
13	99999999999999999999	DEL
14	04111101010174000000000000000000000001	RPC
15	04111101010142000000000000000000000002	RPC
16	02172601050174000000000000000000000301	RPC
17	26211	SI
18	36211	SI
19	28211	SI

NOTE:

The order in which the updates are performed, does not matter in this example.

Problem 3

Card#	Card Coding	Card Type
1	0001	PN
2	01000101	UPC
3	049	UC(site)
4	0226-0002,0236-0002.	UC
5	050	UC(site)
6	0226-0002,0236-0002.	UC
7	99999999999999999999	DEL
8	02375001010174000001000001000001000l	RPC

VII. Program Testing and Cost Estimates

Introduction:

The inventory program was tested by generating a number of updates and reports on both the 1108 and IBM 370 computer systems. The cost per run was also estimated.

The following abbreviations are used:

GF	-	Ground force resources
AF	-	Aircraft including fixed-wing and helicopters
FW	-	Fixed-wing aircraft
HEL	-	Helicopters
SA	-	Special areas
CPU	-	Central computer processing unit

Test Sets and Results:

Set 1:

This set gives the largest possible output without duplication of reported items. The province is the only group that is able to access this full report and does so through a three number access code (first 3 numbers in Card# 1). Special Areas are set up in groups of 5 with one group for each subregion. Thus, Card #4 reports on the 5 special areas for Subregion 1.

Card#	Specifications	Purpose
1	NNNN	Provincial Access Code/A or N.
2	02015001050174010101010101010101010001	Report all GF regular areas.
3	02015001050162000000000000000000000004	Report all FW and HEL regular areas.
4	04010501010174000000000000000000000001	Report all GF SA1-SA5.
5	04061001010174000000000000000000000001	Report all GF SA6-SA10.
6	04111501010174000000000000000000000001	Report all GF SA11-SA15.
7	04162001010174000000000000000000000001	Report all GF SA16-SA20.
8	04212501010174000000000000000000000001	Report all GF SA21-SA25.
9	04010501010142000000000000000000000002	Report all FW SA1-SA5.
10	04061001010142000000000000000000000002	Report all FW SA6-SA10.
11	04111501010142000000000000000000000002	Report all FW SA11-SA15.
12	04162001010142000000000000000000000002	Report all FW SA16-SA20.
13	04212501010142000000000000000000000002	Report all FW SA21-SA25.
14	04010501014362000000000000000000000003	Report all HEL SA1-SA5.
15	04061001014362000000000000000000000003	Report all HEL SA6-SA10.
16	04111501014362000000000000000000000003	Report all HEL SA11-SA15.
17	04162001014362000000000000000000000003	Report all HEL SA16-SA20.
18	04212501014362000000000000000000000003	Report all HEL SA21-SA25.

Costs:

1	1108	(a)	C.P.U.	$16.04
		(b)	Cards read	.03
		(c)	Lines printed	19.95

		Total	$36.02
2	370	Total	$41.67

Note:

Due to the complex accounting system for the 370, it is difficult to break the total cost into proper proportions. However, since the 1108 rate is $1.25/1000 lines and the 370 rate is $1.50/1000 lines, the cost of lines printed on the 370 would be higher for the same number of lines.

Set 2:

This set produces a region report of ground forces in regular areas. The remaining cards give detailed allocation of fixed-wing aircraft and helicopters in both regular and special areas as well as ground forces in special areas. Again, Card# 1 is the access code. This time it may be either the provincial code or the region code of the region being reported.

Card#	Specifications	Purpose
1	NNNN	Regular Access Code
2	021736010501740101010000000000000001	Report region, GF, regular area.
3	021736010501620000000000000000000004	Report AF, regular areas.
4	041115010101740000000000000000000001	Report region, GF, special areas.
5	041115010101420000000000000000000002	Report region, FW, special areas.
6	041115010143620000000000000000000003	Report region, HEL, special areas.

Costs:

1	1108	(a)	C.P.U.	$ 5.83
		(b)	Cards read	.03
		(c)	Lines printed	3.30
			Total	$ 9.16
2	370		Total	$11.24

Set 3:

This set generates a sub-region report of ground forces in regular areas, detailed aircraft and ground force reports for special areas and detailed aircraft reports for regular areas. Card one is the subregion, region, or province access code.

Card#	Specifications	Purpose
1	NNNN	Sub-region Access Code
2	02172601050174000000010101000000001	Sub-region GF report, special areas.
3	02172601050162000000010000000000004	Sub-region AF report, special areas.
4	04111501010174000000010101000000001	Sub-region GF report, special areas.
5	04111501010142000000010000000000002	Sub-region FW report, special areas.
6	04111501014362000000000000000000003	Sub-region HEL report, special areas.

Costs:

1	1108	(a)	C.P.U.	$ 5.83
		(b)	Cards read	.03
		(c)	Lines printed	2.85
			Total	$ 8.71
2	370		Total	$10.44

Set 4:

This set reports detailed ground forces and air equipment for a single division. Card one may be the access code for 1) the division itself, 2) the subregion, 3) the region to which the division belongs, or 4) the province.

Card#	Specifications	Purpose
1	NNNN	Division access code
2	02191901050174000000000000101010001	Division GF report, regular area.
3	02191901050162000000000000100000004	Division AF report, regular area.

Costs:

1	1108	(a)	C.P.U.	$5.21
		(b)	Cards read	.02
		(c)	Lines printed	2.55
			Total	$7.78
2	370		Total	$8.97

Set 5: (360 Alphanumeric)

This set updates GF and AF tables and reports the updated table. Access is allowed to division 19, the sub-region and region of which it is a part, and the Province. The zero in card 1 indicates updates will be in alphabetic format. Cards 2,11 and 15 specify that updates will follow for ground resources, fixed-wing aircraft, and helicopters respectively. Cards 3-9, 12 and 16 are the update cards. The card filled with 9's indicates end of updates for a particular table. Cards 18 and 19 report the updated tables.

Cards#	Specifications	Purpose
1	NNNO	Division access code
2	01010001	Updates for regular GF follow.
3-9	KIR,PØPUMPA-2,HØSLINA2,HØSPERA2,..., MØAIRBE-9.	Updates.
10	999 ---------- 999	End updates delimiter
11	01010002	Updates for regular FW follow.
12	KIR,ØTTØDWA-1,ØTTØDQB1,BDUØPHE1.	Updates.
14	999 ---------- 999	End update delimiter
15	01010003	Updates for regular HEL follows.
16	KIR,EO1OCME1.	Update
17	999 ---------- 999	End update delimiter
18	021919010501740000000000000100000001	Report regular GF (div.).
19	021919010501620000000000000000000004	Report regular AF (div.).

Set 5: (1108 Alphanumeric)

This set is the same as Set 5: 360 Alphanumeric.

Card#	Specifications	Purpose
1	NNNO	Same as 360 Set #5
2	01010001	
3-9	KIR,HØSPERA-5,BKPKRGA,...,MSBC15E-2.	
10	999 ---------- 999	
11	01010002	
12	KIR,ØTTODWA-1,ØTTØDWB1,TBRØEZC1.	
13	999 ---------- 999	
14	01010003	
15	KIR,EO1OCME1.	
16	999 ---------- 999	
17	021919010501740000000000000100000001	
18	021919010501620000000000000000000004	

Costs:

1	1108	(a)	C.P.U.	$ 5.21
		(b)	Cards read	.05
		(c)	Lines printed	1.65
			Total	$ 6.91
2	360		Total	$11.11

Set 6:

This set performs the same function as SET #5 with the updates entered in a numeric form instead of alpha. Although the items updated are different, the same number of updates (54) is performed.

Card#	Specifications	Purpose
1	NNN1	Division access code/ numeric
2	01010001	GF updates to follow.
3	019	Division to be updated.
4-10	0091-0006,0191-0005,...,0735-0008.	Updates
11	999----------999	Delimiter
12	01010002	FW to be updated.
13	019	Division to be updated.
14	002100001,001500001,041500001.	Updates
15	999----------999	Delimiter
16	01010003	HEL to be updated.
17	019	Division to be updated.
18	04650001.	Update
19	999----------999	Delimiter
20	021919010501740000000000000100000001	Report GF regular division level.
21	021919010501620000000000000000000004	Report AF regular division level.

Costs:

1	1108	(a)	C.P.U.	$ 5.21
		(b)	Cards read	.05
		(c)	Lines printed	1.65
			Total	$ 6.91
2	360		Total	$ 9.45

Set 7:

A variety of single item reports and general reports are requested.

Card#	Specifications	Purpose
1	NNNN	Access code
2	02010101010102000000000000000001001	Single items, no general report (ground forces).
3	741901	Specifies single items
.		requested. (i.e. #3
.		asks for equip. 74 at
12	580504	Div. 19 in status 1).
13	02010101010101000000000000000000302	Single items and general report (Fixed wing).
14	021901	
15	011901	Single items requested.
16	411905	
17	02010101010101000000000000000000103	Single item (HEL) report will error out.
18	461905	Single item requested.

Cards# 2, 13, and 17 inform the program single item cards follow and the number of single item cards to expect. In #2, no reports are requested while in #13 and 17 reports are requested. The reports are automatic for aircraft and can only be avoided by placing an equipment, division, or status number out of the range for the type of equipment requested, thus getting an error message which can be ignored but which forces the program to terminate (i.e., #17).

Costs:

1	1108	(a)	C.P.U.	$ 2.94
		(b)	Cards read	.03
		(c)	Lines printed	.41
			Total	$ 3.38
2	370		Total	$ 6.08

Set 8:

Twenty-four updates for ground forces in a single division are performed using ALPHA update cards. A report of the updated ground forces table is also generated.

Card#	Specifications	Purpose
1	NNNN	Access code
2	01010001	GF updates to follow.
3-5	KIR,FCØMUCA-2,...,MØFIBØB1.	Updates (24)
6	999 ---------- 999	Delimiter
7	02191901020174000000000000100000001	Report GF for division 19, on and off fire.

Costs:

1	1108	(a)	C.P.U.	$ 4.62
		(b)	Cards read	.02
		(c)	Lines printed	.26
			Total	$ 4.90
2	370		Total	$ 4.87

Set 9:

Same as Test Set #8 using numeric form.

Card#	Specifications	Purpose
1	NNN1	Access code and numeric indicator
2	01010001	GF update cards to follow.
3	019	Division to be updated.
4-6	0031-0005,...,039200003.	Updates (24)
7	9999 ---------- 99	Delimiter
8	021919010201740000000000000100000001	Report (same as Test Set #8)

Costs:

1	1108	(a)	C.P.U.	$ 4.41
		(b)	Cards read	.02
		(c)	Lines printed	.26
			Total	$ 4.69
2	360		Total	$ 4.42

Set 10: (360 Alphanumeric)

Updates are performed and reports are generated for fixed-wing aircraft at 8 divisions and in three status levels using alpha update cards.

Card#	Specifications	Purpose
1	NNN	Access code
2	01010002	FW updates to follow.
3-4	BLI,ØTTØDYA1,...,NØR,TBRØECA1.	Updates (8)
5	999 ---------- 99	Delimiter
6	021724010301420000000000000000000002	Report updated FW table for divisions 17-24.

Set 10: 1108 Alphanumeric

Card#	Specifications	Purpose
1	NNN	Access code
2	01010002	
3-4	SAU,ØTTØDWA1,...,TBRØESA1.	Same as 360 run except
5	999 ----------99	the aircraft updated are
6	02172401030142000000000000000000000002	different.

Costs:

1	1108	(a)	C.P.U.	$ 4.62
		(b)	Cards read	.02
		(c)	Lines printed	.31
			Total	$ 4.95
2	360		Total	$ 4.20

Set 11: 370 Numeric

Same as set 10 with numeric updates.

Card#	Specifications	Purpose
1	NNN1	Access code and numeric indicator.
2	01010002	FW updates follow.
3	017	Division to be updated.
4-8	0141-0001,...,002100001.	Updates and additional divisions.
9	999 ---------- 99	Delimiter
10	02172401030142000000000000000000000002	Report updated FW table.

In cards 4-8 there is more than one division and more than one update for each division. There are 8 updates in all.

Set 11: 1108 Numeric

Same as set 10 with numeric updates.

Card#	Specifications	Purpose
1	NNN1	Same as #11/360
2	01010002	different aircraft are
3	017	updated but the same
4-10	0373-0001,...,0111-0001.	number (8) of updates
11	999---------- 99	are handled.
12	02172401030142000000000000000000000002	

Costs:

1	1108	(a)	C.P.U.	$ 4.83
		(b)	Cards read	.03
		(c)	Lines printed	.31
			Total	$ 5.17
2	370		Total	$ 3.87

Set 12:

Gives a report covering seven divisions for ground forces, fixed-wing aircraft, and helicopters in status levels 1 and 2. It also reports on resources in special areas.

Card#	Specifications	Purpose
1	NNN	Access code.
2	0201070102011000000000000000100010001	Report GF, division level, regular and Minimum Requirements.
3	0201070102355000000000000000100000004	Report FW and HEL., divisions level, regular.
4	0401030101011000000000000000100000001	Report GF, special area.
5	0401030101354200000000000000100000002	Report FW, special area.
6	0401030101435000000000000000100000003	Report HEL , special area.

Costs:

1	1108	(a)	C.P.U.	$ 4.41
		(b)	Cards read	.02
		(c)	Lines printed	.44
			Total	$ 4.87
2	370		Total	$ 5.02

VIII ERROR MESSAGES

1. NNN IS NØT A VALID PASS NUMBER.

   Explanation - the pass number NNN is not among the list of valid pass numbers.

   Correction - probable key punch mistake, check number and replace with valid pass number.

2. DIVISIØN START ØR END PØINT IS ØUTSIDE LIMIT FØR PASS NUMBER.

   Explanation - the division limits of the pass number have been exceeded. That is JSTART or JEND or both are outside range of division(s) that the pass number can access.

   Correction - check if JSTART and JEND on report parameter card(s) are within access limits.
   - check JHØLD on any single item parameter card(s).
   - when one of the above is found, change to proper division limits for access code being used.

3. SPECIAL AREA PARAMETER CARD ERRØR
   DIVISIØN PARAMETERS IN ERRØR.

   Explanation - division starting point is greater than division ending point, division starting or ending point greater than twenty-five; division starting point or division ending point less than one.
   (1 JSTART 25, 1 JEND 25, JSTART JEND)

   Correction - check special area report parameter card(s) for above conditions and correct.

4. PARAMETER CARD ERRØR
   PARAMETER TYPE NØT A 1,2,3,4.

   Explanation - the value given for the parameter card type is not a 1,2,3 or 4. That is IPARTY is not specified correctly.

   Correction - check IPARTY on report and update paramter card(s) and correct those which are not a 1,2,3, or 4.

5. UPDATE PARAMETER CARD ERRØR
   NØ UPDATE REQUESTED.

   Explanation - an update parameter card has been read but it does not specify whether it is to update regular or minimum requirements table.

Correction - check for update parameter card that has IUP and MINUP set to zero. Set the proper specification to one.

6. UPDATE PARAMETER CARD ERRØR
UPDATE ON BØTH REGULAR AND MINIMUM REQUIREMENT TABLES ATTEMPTED.

Explanation - update parameter card specifies both regular and minimum requirement tables at one time.

Correction - check IUP and MINUP on update parameter card(s). If both are set to one, set the one (IUP or MINUP) you are not updating to zero.

7. PARAMETER CARD ERRØR
MINIMUM REQUIREMENT NØT ALLØWED FØR AIRCRAFT.

Explanation - an attempt to report or update has been made on a minimum requirement table for aircraft.

Correction - Change ISTAT from a 2,3 or 4 to a 1 if the minimum requirement table for ground forces is required. Change MINUP to zero if an update parameter card or IPMIN, IRMIN or ISRMIN to zero if a report parameter card and a regular aircraft table(s) is desired.

8. PARAMETER CARD ERRØR
TABLE TYPE MUST BE EITHER 1,2,3,4.

Explanation - an illegal table specification has been given; that is, a table other than ground forces, fixed wing aircraft, helicopter or combined fixed wing and helicopter tables has been requested.

Correction - check ISTAT on update and report parameter card(s) to see if it is not a 1,2,3, or 4. Change card(s) in error.

9. SINGLE ITEM CARD
ISTAT IS SET AT 4 IT SHØULD BE 1,2, or 3.

Explanation - ISTAT on the report parameter card corresponding with the single item card(s) is set at 4 (both fixed wing and helicopter tables); this is not allowed for single items.

Correction - select either fixed wing aircraft or helicopters by setting ISTAT to 2 or 3. If both are required use two report parameter cards with the corresponding single item cards.

10. SINGLE ITEM CARD NN IS ØUTSIDE TABLES I,J,K LIMITS.

Explanation - one of the following has occurred:

1) IHØLD is outside maximums for its associated ISTAT.
If ISTAT = 1: IHØLD must be between 1 and 74.
ISTAT = 2: IHØLD must be between 1 and 42.
ISTAT = 3: IHØLD must be between 43 and 62.

2) JHØLD is outside maximums for its associated IPARTY.
If IPARTY = 2: JHØLD must be between 1 and 50.
IPARTY = 4: JHØLD must be between 1 and 25.

3) KHØLD is outside maximums: KHØLD must be between 1 and 5.

Correction - find single item card NN and find the parameter that exceeds its maximum and correct.

11. NØ REPØRTS REQUESTED.

Explanation - could follow single item request where no reports are asked for, or where the user has put in a report parameter card forgetting to request a report.

Correction - if the message is an error find the report parameter card and punch in the desired report requests.

12. REPØRT PARAMETER CARD ERRØR
DIVISIØN STARTING PØINT GREATER THAN END PØINT.

Explanation - the value for JSTART is greater than the value for JEND.

Correction - find report parameter card and make sure JSTART is not greater than JEND.

13. REPØRT PARAMETER CARD ERRØR
DIVISIØN SPECIFICATIØNS GREATER THAN 50.

Explanation - either JSTART or JEND is greater than 50.

Correction - find report parameter card and reduce division specification to 50 or less.

14. REPØRT PARAMETER CARD ERRØR
DIVISIØN SPECIFICATIØNS LESS THAN ØR EQUAL TO ZERØ.

Explanation - either JSTART or JEND is less than or equal to zero.

Correction - find report parameter card and increase division specification to 1 or more.

15. REPØRT PARAMETER CARD ERRØR
STATUS STARTING PØINT GREATER THAN END PØINT.

Explanation - the value for K is greater than KMAX.

Correction - find report parameter card where this occurs and set K so that it is less than or equal to KMAX.

16. REPØRT PARAMETER CARD ERRØR
STATUS SPECIFICATIØNS GREATER THAN 5.

Explanation - value of K or KMAX is greater than 5. This is illegal for there are only 5 status levels.

Correction - find report parameter card where this occurs and reset status specification to 5 or less.

17. REPØRT PARAMETER CARD ERRØR
STATUS SPECIFICATIØNS LESS THAN ØR EQUAL TØ ZERØ.

Explanation - value of K or KMAX is less than or equal to zero. This is illegal; there must be a status level specified.

Correction - find report parameter card where this occurs and reset status level to 1 or more.

18. REPØRT PARAMETER CARD ERRØR
EQUIPMENT STARTING PØINT GREATER THAN END PØINT.

Explanation - value of I is greater than value of IMAX.

Correction - find report parameter card where this occurs and set I less than or equal to IMAX.

19. REPØRT PARAMETER CARD ERRØR
EQUIPMENT SPECIFICATIØNS LESS THAN ØR EQUAL TØ ZERØ.

Explanation - value of I or IMAX is less than or equal 0. This is illegal for there must be an equipment range specified.

Correction - find report parameter card where this occurs and set equipment specification to one or more.

20. REPØRT PARAMETER CARD ERRØR
EQUIPMENT SPECIFICATIØNS GREATER THAN 74.

Explanation - value of I or IMAX is greater than 74. This is illegal because for any table the maximum number of equipment categories is 74.

Correction - find report parameter card where this occurs. Check ISTAT (table type).

If 1) ISTAT = 1 set equipment specification to less than or equal 74.

2) ISTAT = 2 set equipment specification to less than or equal 42.

3) ISTAT = 3 set equipment specification to less than or equal 62.

4) ISTAT = 4 set I to less than or equal 42 and IMAX to greater than 42 but less than or equal 62.

21. REPØRT PARAMETER CARD ERRØR
REPØRT REQUEST PARAMETERS ARE NØT ZERØ ØR 1.

Explanation - the value of IP, IPPC, IPMIN, IR, IRPC, IRMIN, ISR, ISRPC or ISRMIN has not been set to zero or one.

Correction - find report parameter card where this occurs and set the field(s) where this happens equal to zero if that report is not desired or equal to one if it is.

22. REPØRT PARAMETER CARD ERRØR
EQUIPMENT ENDING PØINT FOR AIRPLANES GREATER THAN 42.

Explanation - value for IMAX is greater than 42 when ISTAT is 2. This is illegal for there are only 42 fixed-wing aircraft.

Correction - find report parameter card where this occurs and set IMAX to 42 or less.

23. REPØRT PARAMETER CARD ERRØR
EQUIPMENT SPECIFICATIØN FØR AIRCRAFT/HELICØPTER REPØRT END IS EITHER GREATER THAN 62 OR LESS THAN 43 ØR START IS GREATER THAN 42.

Explanation - value of I is greater than 42 or IMAX is either greater than 62 or less than 43, when ISTAT is 4. This is not allowed for then only a fixed-wing or helicopter report could be generated, not both.

Correction - find report parameter card where this occurs and set I less than 43 and IMAX less than 63 but greater than 42.

24. MUST USE STATUS LEVEL 1 FØR MINIMUM REQUIREMENTS TABLE.

Explanation - value of K is not 1. The resources available in excess of minimum requirements table are calculated by subtracting the minimum requirements table from resources in status level 1, therefore, that status level must be specified.

Correction - find report parameter card where this occurs and set K to 1.

25. *ERROR* A SERIES ØF 30 ØR MØRE GARBAGE ØR BLANK CARD CØLUMNS HAVE BEEN FØUND.

Explanation - alpha update card error. Probably left out the period after the last update or a blank card was inserted in the updates. Could also be a parameter card inserted among the updates.

Correction - check update card(s) for above, when found, insert a period or remove a blank or out-of-order parameter card from updates.

26. *ERRØR* NEW SITE GIVEN WITHØUT TERMINATING THE ØLD ØNE.

Explanation - alpha update card error. At the completion of updates for a site the period was not inserted to indicate the end of updates for that site and a new site name was punched.

Correction - find update card where this occurs and place a period at the end of the updates for one site and before the name of the following site (division).

27. *WARNING* THE EQUIPMENT NAME IN THE FOLLØWING ENTRY IS IN ERRØR.

Explanation - alpha update card error. The spelling of an equipment name is wrong. An additional statement will tell which entry is in error.

Correction - check the entry with the code schedules and correct the error.

28. *WARNING* THE EQUIPMENT STATUS CØDE IS INCØRRECT.

Explanation - alpha update card error. Status level code is incorrect.

Correction - correct the status code on the card in error.

29. *WARNING* THE EQUIPMENT STATUS CØDE IS MISSING.

Explanation - alpha update card error. Status level code has been omitted.

Correction - Insert the status code on the card in error.

30. *WARNING** NØ NUMERICAL VALUE FØLLØWS.

Explanation - alpha update card error. The update requested does not have the amount by which the equipment is to be incremented or decreased.

Correction - find update card where this has occurred and insert desired amount.

31. *WARNING* THE VALUE FØR THE FØLLØWING ENTRY IS INCØRRECT.

Explanation - alpha update card error. The numeric value or amount of the update contains a letter(s).

Correction - find update card where this occurs and replace the letter(s) with number(s).

32. *WARNING* LEADING ZERØS IN NUMERICAL VALUES ARE NØT PERMITTED.

Explanation - alpha update card error. The amount of the update contains leading zeros (i.e., 005 - this should be coded as 5).

Correction - find update card in error and delete the leading zeros.

33. *WARNING* THERE IS NØ CØMMA AFTER THE FØLLØWING ENTRY.

Explanation - alpha update card error. There is no comma separating the update entries.

Correction - find update card with this error and separate the entries with a comma.

34. *ERROR* SITE IDENTIFICATIØN IS MISSING ØR MISSPELLED.

Explanation - alpha update card error. The code for the site (division) name is misspelled or has been left out.

Correction - find update card where this occurs and correct the division code.

35. *WARNING* THERE IS A BLANK CØLUMN IN THE DATA.

Explanation - alpha update card error. A blank has been found in the data, this is not allowable.

Correction - find update card where this occurs, check the entry for validity and if correct, repunch the card and omit the blank column.

36. *ERRØR* CØNTINUATIØN EXPECTED BUT NØ DATA FØLLØWS.

Explanation - alpha update card error. Termination of a set of updates has been omitted. This could be caused by omission of a period or by forgetting to add additional updates to data set.

Correction - find update card where this occurs and add a period if necessary or check the cards to see if all the updates desired are present.

37. *ERRØR* THE FØLLØWING ENTRY HAS CAUSED THE CØRRESPØNDING STØRED ENTRY TØ BE EITHER LESS THAN O ØR GREATER THAN 9999.

Explanation - alpha update card error. The amount added or subtracted in the update has caused the amount of equipment to become less than zero in a division or greater than 9999 units (which is the maximum allowed for any category).

Correction - find update card in error. Check this update to see if the amount of the update is correct and if not, insert correct update amount and rerun. If the update amount is correct check the last previous listing of equipment for an update entry that would cause the equipment amount to violate the 0 and 9999 limits. If it should not, check all update runs for errors in update amounts. If all updates in these runs are correct, the Forest Fire Research Institute should be informed and a step by step check of all updates with previous listings should be undertaken. Should the error still not show up, a physical count of the equipment in question should be made.

Note: - It is possible that the 9999 limit may be exceeded and still be correct. In this unlikely event, program changes will be necessary and the Forest Fire Research Institute should be contacted.

- If an error is found in previous update runs this can be corrected by adjusting the equipment amount now stored by the difference between the correct update and the one in error.

38. *ERRØR* TWØ UPDATES ARE NØT PERMITTED ØN THE SAME RUN.

Explanation - update parameter card error. Both IUP and MINUP have been set to 1.

Correction - find update parameter card in error and set either IUP or MINUP to zero. If both tables are to be updated use two update parameter cards, each with its own update data cards.

39. ********* THE ENTRY IN ERRØR IS list of entry.

Explanation - this message lists the entry in error. It accompanies one of the previous update error messages. Use the list of the entry to find the error described in the accompanying error message.

40. ***** THE ERRØR ØCCURRED AT CØLUMN NNN ØF DATA CARD NNN
EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY.

Explanation - specifies the column number and data card number where an error has been found. Accompanies an update error message that describes the error.

41. ***** PRØCESSING IS TERMINATED DUE TØ ABØVE ERRØRS
TERMINATIØN ØCCURRED AT CØLUMN NNN ØF DATA CARD NNN.

Explanation - an error described in an accompanying error message has caused the program to terminate. The error occurred at column number NNN of data card number NNN.

42. NNNNNN ENTRIES WERE UPDATED SUCCESSFULLY THIS RUN.

Explanation - specifies the number of updates completed.

43. ***** NØ UPDATE REQUESTED.

Explanation - message indicates a report parameter card was processed. This message is not an error message.

44. *ERRØR* THERE IS NØ SITE NUMBER NNN.

Explanation - numeric update card error. The site number NNN is not a valid site.

Correction - find the card in error and replace the site number with the proper site number.

45. *ERROR* THERE IS NO EQUIPMENT NUMBER NNNN.

Explanation - numeric update card error. The equipment number NNNN is not a valid number.

Correction - find the card in error and replace the equipment number with the proper number.

46. *WARNING* THE END ØF DATA CARD IS MISSING
ALL ENTRIES HAVE BEEN UPDATED TØ THIS PØINT.

Explanation - the delimiter card has not been placed after the end of the update data set.

Correction - Insert the delimiter card at the end of the update data set.

47. *ERRØR* THE CØMMA ØR SEPARATØR BETWEEN DATA ITEMS IS MISSING.

Explanation - the comma has been left out between an update entry or the period is missing that ends the update entries for a site.

Correction - find numeric update card in error and insert the comma or period required.

48. *ERRØR* THE MINIMUM REQUIREMENTS STATUS LEVEL IS INCØRRECT.

Explanation - numeric update card error. The status level is not set to 6 for update to minimum requirements table.

Correction - find update entry in error and place a 6 in the status level field.

49. *ERRØR* THE STATUS CØDE IS INCØRRECT

Explanation - numeric update card error. The status level is not a 1,2,3,4 or 5 for a non-minimum requirement table

update. If update is to a special area table, the status level must be 1.

Correction - find update entry in error and place proper status level code in the entry.

50. *ERRØR* THE AMØUNT ACCUMULATED FØR EQUIPMENT NUMBER NNNN HAS BECØME TØØ LARGE.

Explanation - numeric update card error.

Correction - see error message 37.

51. *ERRØR* THE AMØUNT ACCUMULATED FØR EQUIPMENT NUMBER NNNN HAS BECØME TØØ SMALL.

Explanation - numeric update card error.

Correction - see error message 37.

52. *ERRØR* AN ERRØR HAS ØCCURRED WHILE READING THE DATA. THE ERRØR ØCCURRED AT CARD NØ. NNNNN.

Explanation - a transmission error has occurred in reading the numeric update cards.

Correction - this is a machine error; rerun the deck.

53. THE ERRØR ØCCURRED AT ENTRY list of the update entry ØF SITE NUMBER NNNN.

Explanation - this message accompanies one of the previous numeric update error messages. It lists the entry in error.

54. ......AT DATA CARD NNNNN.

Explanation - accompanies message 53. Specifies which numeric update card is in error.

55. ***** THE PRØGRAM TERMINATED AT THIS PØINT WITHØUT UPDATING THE ENTRIES IN THIS JØB STEP.

Explanation - if an error has been found in the numeric update entries, no updating will have been done. Correct the errors listed and rerun deck.

The following error messages are not caused by update or report parameter cards. They are storage transfer errors which can occur when using NTRAN. If any of these errors occur, save the listing of the program and the data deck. Do not try any corrections. Run the deck a second time without any changes. If the error persists or the reports (if generated) contain garbage, call the Forest Fire Research Institute.

56. ERRØR IN TRANSFER BETWEEN FASTRAND AND DRUM.

57. TRANSMISSIØN ERRØR CØNTROL NN.

58. DEVICE ERRØR CØNTRL NN.

59. DEVICE ERRØR INPUT WRITE NN.

60. TRANSMISSION ERROR INPUT NN.

61. EOF REACHED NN.

62. DEVICE ERRØR READ NN.

63. TRANSMISSIØN ERRØR ØUT.

64. DEVICE ERRØR ØUT.

Summary

A three-level inventory program (3EIP) is reported in this paper. The program, which has been successfully run on a number of computer systems, provides a variety of information regarding resource locations, quantities, and status levels which is useful to fire managers. Semi-interactive update capability is provided in the program and entries are checked for a number of common errors. A bypass capability insures that minor errors in input will not invalidate an entire run.

Cost estimates were obtained for a number of program uses. The estimates ranged from $41.67 for a full run generating all possible reports on the resources available in an entire Province, down to $3.38 for a series of special reports on single resource items and for limited areas. In view of the anticipated program use as a running inventory tabulator rather than as a generator of Province-wide reports, these costs are not exorbitant.

Technical assistance and consultation is available from the Forest Fire Research Institute for those agencies which wish to further investigate this program. A new version of 3EIP is now under development at the Institute.

Literature Cited

1. Maloney, James E., and M.U. Potter, 1974. The Fire Management System, The Fire Management Centre: Preliminary Results and Design Concepts. Information Report FF-X-48, Forest Fire Research Institute, Ottawa, Ontario.

2. Sleeman, W.L., 1972. Correspondence to J.E. Maloney regarding the Suppression Resources Inventory Program.

Appendix A

SCHEDULE 1

Ontario Ground Force Equipment Categories-Division Level

Numeric Code	Equipment Names	Alpha Code
1	Power pump units	PØPUMP
2	Hose-linen	HØSLIN
3	Hose-lined perco	HØSPER
4	Hose-lined	HØSLYD
5	Power saw	PØWSAW
6	Back pack pumps - rigid	BKPKRG
7	Back pack pumps - bag	BKPBAG
8	Axes	AXEXES
9	Shovels	SHØVEL
10	Pulaskis	PULASK
11	McLeod tools	MCLEØD
12	Fire rakes	FRAKES
13	Swatter	SWATTR
14	Pack sacks, hose laying	PSHØLA
15	Pack boards, other spiked	PBØSPI
16	Pack boards, ordinary	PBØRDI
17	Pack boards, folded hose	PBFØHØ
18	Burn out torches	BRNTCH
19	Harodyke tanks	HARØTA
20	Helicopter buckets - 100 gallons	HELBU1
21	Helicopter buckets - 200 gallons	HELBU2
22	Helicopter buckets - 300 gallons	HELBU3
23	Helicopter buckets - 400 gallons	HELBU4
24	Mess gear, unit crew kits (7 men)	MSUCK7
25	Mess gear, line camp kit (15 men)	MSLC15
26	Mess gear, base camp kit (30 men)	MSBC30
27	Mess gear, base camp supplement (15 men)	MSBC15
28	Stoves, coleman	CØLSTØ
29	Stoves, base camp	BACSTØ
30	Blankets, single	BLANK1
31	Sleeping bags, fireline	SLEBAF
32	Air mattress, fireline	AIRMAF
33	Tents 8 X 10	TN8X10
34	Tents 10 X 12	T10X12
35	Tents 12 X 14	T12X14
36	Tents large	TLARGE
37	Lanterns, coleman	CØLANT
38	Lanterns, battery	BALANT
39	Lights, head	HDLITE
40	Jerry cans, gas	GASJER
41	Jerry cans, water	WATJER
42	Hard hats	HRDHAT
43	Kits, initial F.B.	IFBKIT
44	Kits, base camp office	BCØKIT
45	Kits, plans and records	PARKIT

Numeric Code	Equipment Name	Alpha Code
46	Power units, radio	PØWRAD
47	Power units, base camp	PØWBCA
48	Initial food packs	FØDPKI
49	Parachutes, cargo	PARACA
50	Radio, W/T VHF	RADWTV
51	Radio, line camp VHF	RADLCV
52	Radio, base camp VHF (MIN.)	RABCMV
53	Radio, base camp VHF (A/C)	RABCAV
54	Radio, base camp HF SSB	RABCSV
55	Radio, portable a/c VHF	RAPACV
56	Bulldozer D-4	BDØZE4
57	Bulldozer D-6	BDØZE6
58	Bulldozer D-8	BDØZE8
59	Tractor/float	TRACFL
60	Fire crews, organized MIN. UC	FCØMUC
61	Fire crews, organized MIN. other	FCØMØT
62	Fire crews, organized E.F.F.	FCØEFF
63	Firefighters, unorganized MIN.	FFUMIN
64	Firefighters, unorganized E.F.F.	FFUEFF
65	Ministry overhead, Fire Boss	MØFIBØ
66	Ministry overhead, Supp. Boss	MØSUBØ
67	Ministry overhead, Div. Boss	MØDIBØ
68	Ministry overhead, Air Attack Boss	MØAIRB
69	Ministry overhead, Sector Boss	MØSEBØ
70	Ministry overhead, Crew Boss	MØCRBØ
71	Ministry overhead, Plans & Records Officer	MØPRØF
72	Ministry overhead, Service Boss	MØSVBØ
73	Ministry overhead, Service Supervisior	MØSVSU
74	Ministry overhead, Other	MØTHER

Appendix A

SCHEDULE 2

Ontario Ground Force Equipment Categories - Subregion Level

This schedule contains a list of ground force equipment categories at the subregion level. The corresponding division level category numbers show either the grouping of division level categories into subregion categories or deletions which are made in summarizing. When it is necessary to change the unit of measure of a category, a description of the conversion is given.

Equipment Categories	Division Category Numbers
1. Power pumps	1
2. Hose	2-3-4
3. Power saws	5
4. Pack pumps	6-7
5. Fire line building tools	8-9-10-11-12-13
6. Pack gear	14-15-16-17
Delete items numbered:	18-19
7. Helicopter buckets	20-21-22-23
8. Mess gear: multiply the number of kits by the number of men each kit will service	24-25-26-27
Delete items numbered	28-29
9. Sleeping gear: divide the number of blankets by three and assign one sleeping bag to every three blankets. This gives the number of men that can be equiped with sleeping gear	30-31
Delete item numbered	32

Equipment Categories		Division Category Numbers
10.	Tents: multiply the number of tents by the number of men each tent will sleep. Use 4 men for each 8 ft. X 10 ft. tent Use 6 men for each 10 ft. X 12 ft. tent Use 8 men for each 10 ft. X 14 ft. tent Use 15 men for each large tent	33-34-35-36
	Delete items numbered	37-38-39-40-41-42-43
11.	Kit, base camp office	44
12.	Kit, plans and records	45
13.	Power units, radio	46
14.	Power units, base camp	47
15.	Initial food packs	48
16.	Parachutes	49
17.	Radio, W/T VHF	50
18.	Radio, line camp VHF	51
19.	Radio, base camp VHF	52
20.	Radio, base camp A/C VHF	53
21.	Radio, base camp SSB	54
22.	Radio, portable a/c VHF	55
23.	Bulldozers	56-57-58
24.	Tractor/float	59

Subregion categories 25 through 39 are the same as division categories 60 through 74.

Subregion Codes

Equipment		Alpha Code
1.	Power pumps	PØPUMP
2.	Hose	HØSESR
3.	Power saws	PØWSAW
4.	Pack pumps	PKPUMP
5.	Fire line tools	FLTØØL
6.	Pack gear	PAKGER
7.	Helicopter buckets	HEBUKS
8.	Mess gear	MESGER
9.	Sleeping gear	SLEGER
10.	Tents	TENTSR
11.	Kit, base camp office	BCØKIT
12.	Kit, plans and records	PARKIT
13.	Power units, radio	PØWRAD
14.	Power units, base camp	PØWBCA
15.	Initial food packs	FØDPK1
16.	Parachutes	PARACA
17.	Radio, W/T VHF	RADWTV
18.	Radio, line camp VHF	RADLCV
19.	Radio, base camp VHF	RABCMV
20.	Radio, base camp A/C VHF	RABCAV
21.	Radio, base camp SSB	RABCSV
22.	Radio, portable a/c VHF	RAPACV
23.	Bulldozers	BDØZRS
24.	Tractor/float	TRACFL

Subregion categories 25 through 39 have the same codes as division categories 60 through 74.

NOTE: Only division level codes are used for updating.

Appendix A

SCHEDULE 3

Ontario Ground Force Equipment Categories-Region Level

This schedule contains a list of ground force equipment categories at the region level. The subregion level category numbers show either the grouping of subregion level categories into one region category or the deletion of the subregion level categories in summarizing. When it is necessary to change the unit of measure of a category, a description of the conversion is given.

Equipment Categories	Subregion Category Numbers
1. Power pumps	1
2. Hose	2
Delete item numbered	3
3. Hand tools; divide the number of tools by three. This gives the number of men that can be equiped with hand tools	4-5
Delete items numbered	6-7
4. Mess gear; in terms of the number of men that can be serviced	8
5. Sleeping gear; in terms of the number of men that can be serviced	9
6. Tents; in terms of the number of men that can be serviced	10
Delete items numbered	11-12-13-14-15-16
7. Radio, V/T VHF	17
8. Radio, line camp VHF	18
9. Radio, base camp VHF	19
10. Radio, base camp A/C VHF	20
11. Radio, base camp SSB	21
12. Radio, portable a/c VHF	22
Delete items numbered	23-24

Region categories 13 through 27 are the same as subregion categories 25 through 39.

Region Codes

Equipment		Alpha Code
1.	Power pumps	PØPUMP
2.	Hose	HØSERR
3.	Hand tools	MAN2LS
4.	Mess gear	MESGER
5.	Sleeping gear	SLEGER
6.	Tents	TENTSR
7.	Radio, V/T VHF	RADWTV
8.	Radio, line camp VHF	RADLCV
9.	Radio, base camp VHF	RABCMV
10.	Radio, base camp A/C VHF	RABCAV
11.	Radio, base camp SSB	RABCSV
12.	Radio, portable a/c VHF	RAPACV

Region categories 13 through 27 have the same codes as subregion categories 25 through 39.

NOTE: Only division level codes are used for updating.

Appendix A

SCHEDULE 4

Ontario Fixed Wing and Helicopter List
All Levels

Numeric Code	Aircraft	Registration No.	Alpha Code
1	Otter	ODY	ØTTØDY
2	Turbo Beaver	OPB	TBRØPB
3	Otter	ODQ	ØTTØDQ
4	Turbo Beaver	OEY	TBRØEY
5	Turbo Beaver	OEW	TBRØEW
6	Otter	ODK	ØTTØDK
7	Turbo Beaver	OEH	TBRØEH
8	Turbo Beaver	OEN	TBRØEN
9	Otter	ODX	ØTTØDX
10	Turbo Beaver	OEU	TBRØEU
11	Turbo Beaver	OES	TBRØES
12	Otter	ODU	ØTTØDU
13	Turbo Beaver	OEJ	TBRØEJ
14	Otter	ODW	ØTTØDW
15	Turbo Beaver	OEC	TBRØEC
16	Otter	ODV	ØTTØDV
17	Turbo Beaver	OEZ	TBRØEZ
18	Twin Otter	OEQ	TWØØEQ
19	Otter	ODL	ØTTØDL
20	Otter	ODJ	ØTTØDJ
21	Twin Otter	OPI	TWØØPI
22	Turbo Beaver	OPD	TBRØPD
23	Turbo Beaver	OEO	TBRØEØ
24	Otter	ODP	ØTTØDP
25	Turbo Beaver	OER	TBRØER
26	Turbo Beaver	OEI	TBRØEI
27	Turbo Beaver	OPE	TBRØPE
28	Twin Otter	OPG	TWØØPG
29	Turbo Beaver	OEV	TBRØEV
30	Turbo Beaver	OEM	TBRØEM
31	Turbo Beaver	OET	TBRØET
32	Turbo Beaver	OEP	TBRØEP
33	Turbo Beaver	OEX	TBRØEX
34	Turbo Beaver	OEK	TBRØEK
35	Beaver	OBS	BEVØBS
36	Turbo Beaver	OEB	TBRØED
37	Turbo Beaver	OEE	TBRØEE
38	Turbo Beaver	OEF	TBRØEF
39	Turbo Beaver	OPA	TBRØPA
40	King Air 100	QDI	KIAQDI
41	Beech Duke	OPH	BDUØPH
42	CS2F Tracker	OPZ	TRAØPZ

Numeric Code	Helicopters	Alpha Code
43	Note: At present the helicopter	AOOOMS
44	names are not available.	B111CM
45	Therefore, the Alpha Codes are just	CO11HL
46	temporary examples to be replaced	DO11ML
47	when the program becomes	EO1OCM
48	operational.	FO1OHS
49		GXXXXX
50		HXXXXX
51		IXXXXX
52		JXXXXX
53		KXXXXX
54		LXXXXX
55		MXXXXX
56		NXXXXX
57		OXXXXX
58		PXXXXX
59		QXXXXX
60		RXXXXX
61		SXXXXX
62		TXXXXX

Appendix A

SCHEDULE 5

Ontario Fire Control Organizational Units

Region	Sub-Region	Division	Alpha Code	Numeric Code
Northwestern	Dryden	Kenora	KEN	001
		Dryden	DRY	002
		Sioux Lookout	SIØ	003
		Pickle Lake	PIC	004
		Red Lake	RED	005
		Ignace	IGN	006
		Fort Frances	FØR	007
		Atikokan	ATI	008
	Thunder Bay	Thunder Bay	THU	009
		Shebandowan	SHE	010
		Armstrong	ARM	011
		Geraldton	GER	012
		MacDiarmid	MAC	013
		Terrace Bay	TER	014
		White River	WHR	015
		Wawa	WAW	016
Northeastern	Sudbury	Sault Ste. Marie	SAU	017
		Blind River	BLI	018
		Kirkwood	KIR	019
		Sudbury	SUD	020
		Espanola	ESP	021
		Skead	SKE	022
		North Bay	NOR	023
		Temagami	TEM	024
		Chapleau	CHA	025
		Sultan	SUL	026
	Timmins	Gogama	GØG	027
		Foleyet	FØL	028
		Elk Lake	ELK	029
		Swastika	SWA	030
		Matheson	MAT	031
		Cochrane	CØC	032
		Timmins	TIM	033
		Kapuskasing	KAP	034
		Hearst	HEA	035
		Hornepayne	HØR	036
Southern	Richmond Hill	Pembroke	PEM	037
		Stonecliff	STØ	038
		Whitney	WHN	039
		Powasson	PØW	040
		Parry Sound	PAR	041
		Bracebridge	BRA	042
		Godderham	GØØ	043
		Minden	MIN	044
		Severn	SEV	045

Region	Sub-Region	Division	Alpha Code	Numeric Code
		Bruce	BRU	046
		Tweed	TWE	047
		Dacre	DAC	048
		Bancroft	BAN	049
		Lanark	LAN	050

Appendix A

SCHEDULE 6

Special Areas

The alpha and numeric codes are the same for special areas.

Sub-Region	Code
Dryden	001
	002
	003
	004
	005
Thunder Bay	006
	007
	008
	009
	010
Sudbury	011
	012
	013
	014
	015
Timmins	016
	017
	018
	019
	020
Richmond Hill	021
	022
	023
	024
	025

Appendix A

SCHEDULE 7

Ontario Resource Status Levels

Numeric Code	Alpha Code	Status Levels
1	A	Serviceable resources not on fire.
2	B	Resources in use on fire.
3	C	Unserviceable resources due to breakdown.
4	D	Unserviceable resources being retrieved.
5	E	Non-ministry resources - serviceable and available.
6	F	Minimum requirements.

NOTE: Minimum requirements status level is used only on update cards.

Status Level for Special Areas

Numeric Code	Alpha Code	Status Level
1	A	Resources in use on fire.

Appendix A

SCHEDULE 8

Sample Outputs

The following figures represent the major output types available from the program. All numbers in the reports were randomly generated for testing purposes and are not meant to be representative of real life equipment distributions.

Figures 1, 4, and 5 show the condensing effect as the reports go from division level to sub-region level to region level reports. The sub-region and region reports were generated from the division level information in Figure 1.

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

NUMERICAL VALUES - Table Classification

GROUND RESOURCES - Equipment Type

DIVISION LEVEL BOARD - Level Type

SERVICEABLE RESOURCES NOT ON FIRE - Status Level

		NW REGION						
			DRY				SUB	GRAND
ITEM	KEN	DRY	SIO	PIC	RED	IGN	TOTAL	TOTAL
HOSPER	13	6	7	7	10	14	57	221
HOSLYD	1	7	9	9	3	1	30	214
POWSAW	14	6	12	2	13	7	54	201
BKPKRG	1	5	8	3	6	0	23	179
BKPBAG	1	4	4	12	5	4	30	210
AXEXES	5	0	9	10	2	6	32	184
SHOVEL	6	8	2	2	5	6	29	200
PULASK	13	7	0	3	4	1	28	194
MCLEOD	1	5	7	7	7	13	40	188
FRAKES	14	1	1	1	7	7	31	204
SWATTR	12	11	8	9	7	3	50	187
PSHOLA	8	6	7	2	2	10	35	225
PBOSPI	7	8	5	2	2	0	24	195
PBORDI	4	4	6	6	11	4	35	251
PBFOHO	8	9	2	13	11	7	50	234

Figure 1: Sample Division Level Numerical Report.

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

PERCENTAGE VALUES

GROUND RESOURCES

DIVISION LEVEL BOARD

SERVICEABLE RESOURCES NOT ON FIRE

	NW REGION						
			DRY				SUB
ITEM	KEN	DRY	SIO	PIC	RED	IGN	TOTAL
HOSPER	33.3	24.0	18.9	17.1	27.8	32.6	25.8
HOSLYD	3.4	23.3	20.9	22.0	6.0	4.8	14.0
POWSAW	28.6	28.6	40.0	10.5	29.5	18.4	26.9
BKPKRG	3.3	20.0	20.0	9.4	18.8	.0	12.8
BKPBAG	4.3	8.0	16.7	27.9	16.1	10.3	14.3
AXEXES	20.8	.0	50.0	22.7	6.7	16.7	17.4
SHOVEL	12.8	26.7	6.3	7.4	16.1	18.2	14.5
PULASK	46.4	15.9	.0	7.5	12.5	4.8	14.4
MCLEOD	3.1	20.8	17.1	25.0	21.2	46.4	21.5
FRAKES	26.4	3.7	3.7	3.3	23.3	18.9	15.2
SWATTR	30.0	37.9	25.8	36.0	20.0	11.1	26.7
PSHOLA	18.6	17.1	21.9	4.8	6.1	25.0	15.6
PBOSPI	19.4	19.5	15.2	7.7	8.0	.0	12.3
PBORDI	12.1	8.3	14.6	14.3	27.5	8.5	13.9
PBFOHO	19.5	25.0	6.5	24.5	22.9	28.0	21.4

Figure 2: Sample Division Level Percentage Report

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

NUMERICAL VALUES

GROUND RESOURCES

DIVISION LEVEL BOARD

RESOURCES AVAILABLE IN EXCESS OF MINIMUM REQUIREMENTS

SERVICEABLE RESOURCES NOT ON FIRE

	NW REGION						
			DRY				SUB
ITEM	KEN	DRY	SIO	PIC	RED	IGN	TOTAL
HOSPER	8.0	5.0	-2.0	3.0	7.0	7.0	28.0
HOSLYD	1.0	1.0	9.0	5.0	-2.0	-1.0	13.0
POWSAW	11.0	-3.0	12.0	.0	6.0	4.0	30.0
BKPKRG	-8.0	5.0	1.0	-4.0	3.0	-5.0	-8.0
BKPBAG	-6.0	.0	1.0	7.0	4.0	-2.0	4.0
AXEXES	2.0	-6.0	4.0	5.0	-6.0	5.0	4.0
SHOVEL	-2.0	3.0	1.0	1.0	.0	3.0	6.0
PULASK	9.0	-2.0	.0	-1.0	-4.0	-3.0	-1.0
MCLEOD	-7.0	3.0	1.0	3.0	2.0	9.0	11.0
FRAKES	11.0	-6.0	-4.0	-4.0	4.0	7.0	8.0
SWATTR	12.0	7.0	8.0	2.0	.0	.0	29.0
PSHOLA	-1.0	4.0	-2.0	-3.0	-7.0	8.0	-1.0
PBOSPI	4.0	8.0	4.0	-1.0	-4.0	-8.0	1.0
PBORDI	3.0	4.0	.0	-3.0	8.0	.0	12.0
PBFOHO	2.0	8.0	.0	11.0	5.0	1.0	27.0

Figure 3: Sample Division Level Report (Resources at Divisions in Excess of Minimum Requirements for the Division).

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

NUMERICAL VALUES

GROUND RESOURCES

SUBREGIONAL LEVEL BOARD

SERVICEABLE RESOURCES NOT ON FIRE

ITEM	NW REG DRY	SUB TOTAL	GRAND TOTAL
HOSESR	87	87	435
POWSAW	54	54	201
PKPUMP	53	53	389
FLTOOL	210	210	1155
PAKGER	144	144	905

Figure 4: Sample Subregion Level Report

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

NUMERICAL VALUES

GROUND RESOURCES

REGIONAL LEVEL BOARD

SERVICEABLE RESOURCES NOT ON FIRE

ITEM	NW REG	TOTAL
HOSERR	87	435
MAN2LS	87	514

Figure 5: Sample Region Level Report

RESOURCES IN SPECIAL AREAS

REGION NUMBER 1

GROUND RESOURCES

ITEM	SA 1	SA 2	SA 3	SA 4	SA 5	TOTAL
BDOZE8	2	2	3	5	4	16
TRACFL	0	4	0	0	4	8
FCOMUC	10	2	4	5	3	24
FCOMOT	5	3	1	2	1	12
FCOEFF	1	0	4	3	4	12
FFUMIN	3	1	0	2	3	9
FFUEFF	4	3	1	2	4	14
MOFIBO	3	4	3	4	1	15

END OF REPORT

Figure 6: Sample Ground Force Special Area Report

RESOURCES IN SPECIAL AREAS

REGION NUMBER 1

HELICOPTERS

ITEM	SA 1	SA 2	SA 3	SA 4	SA 5
AOOOMS	0	1	0	0	0
B111CM	0	0	0	0	0
CO11HL	0	0	0	0	0
DO11ML	0	0	0	1	0
EO1OOM	0	0	0	0	0
FO1OHS	0	0	0	0	0
GXXXXX	0	0	0	0	0
HXXXXX	0	0	0	0	0

TOTALS FOR EACH SPECIAL AREA

0 1 0 1 0

TOTAL FOR SPECIAL AREAS CALLED IN THIS REGION IS 2

Figure 7: Sample Helicopter Special Area Report

PROVINCE OF ONTARIO
RESOURCE STATUS BOARD

NUMERICAL VALUES

FIXED WING AIRCRAFT

NONMINISTRY RESOURCES - SERVICEABLE AND AVAILABLE

	NE REGION			
		SUD		
ITEM	SAU	BLI	KIR	SUD	ESP
OTTODL	0	0	0	0	0
OTTODJ	0	0	0	0	0
TWOOPI	0	0	0	1	0
TBROPD	0	0	0	0	0
TBROEO	0	0	0	0	0
OTTODP	0	0	0	0	0
TBROER	0	0	0	0	0
TBROEI	0	0	0	0	0
TBROPE	0	0	0	0	0
TWOOPG	0	0	0	0	0
TBROEV	0	0	0	0	0
TBROEM	0	0	0	0	0
TBROET	0	0	0	0	0
TBROEP	0	0	0	0	0
TBROEX	0	0	0	0	0
TBROEK	0	0	0	0	0
BEVOBS	1	0	1	0	0
TBROED	0	0	0	0	0
TBROEE	0	0	0	0	0
TBROEF	0	0	0	0	0
TBROPA	0	0	0	0	0
KIAQDI	0	0	0	0	0

TOTAL AIRCRAFT IN EACH DIVISION IN DIVISION CALL SEQUENCE

1 0 1 1 0

TOTAL AIRCRAFT IN SUBREGIONS CALLED

3.

TOTAL AIRCRAFT, IN REGION CALLED 3
END OF REPORT

Figure 8: Sample Fixed-Wing Aircraft Report

```
     5 ENTRIES WERE UPDATED SUCCESSFULLY THIS RUN.
*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS OTTODVAl.
*****THE ERROR OCCURRED AT COLUMN  5 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY

*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS TWOOEQAl,
*****THE ERROR OCCURRED AT COLUMN 14 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY

*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS TBROERAl.
*****THE ERROR OCCURRED AT COLUMN 23 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY

*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS TRAODZAl.
*****THE ERROR OCCURRED AT COLUMN 36 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY

*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS BEVOBSAl.
*****THE ERROR OCCURRED AT COLUMN 49 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY

*WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS IN ERROR.
*********  THE ENTRY IN ERROR IS KlAQDIAl.
*****THE ERROR OCCURRED AT COLUMN 58 OF DATA CARD  1
    EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY


    0 ENTRIES WERE UPDATED SUCCESSFULLY THIS RUN.
*ERROR* SITE IDENTIFICATION IS MISSING OR MISSPELLED.
*****PROCESSING IS TERMINATED DUE TO ABOVE ERRORS.
    TERMINATION OCCURRED AT COLUMN  1 OF DATA CARD   1


DATA CARDS ENCOUNTERED BY SYSTEM - IGNORED
03010003


@ EOF
```

Figure 9: Sample Error Messages From Incorrect Update Card.

Appendix B

SCHEDULE 1

Program Listing

```
CC I 000376 IST1      0000 I 000345 ISW       0000 I 000303 ISWIT     0000 I 000341 IT        0(
CC I 000347 ITAKE1    0000 I 000300 ITURN     0000 I 000334 IUP       0000 I 000013 IVRT      0(
CC I 000035 IVRTP     0000 I 000374 IW        0000 I 000332 J         0000 I 0003C7 JEND      0(
CC I 000355 JI        0000 I 000356 JII       0000 I 000354 JJ        0000 I 000362 JJJ       0(
CC I 000306 JSTART    0000 I 000352 JSTEND    0000 I 000310 K         0000 I 000344 KHOLD     0(
CC I 000401 KVAR      0000 I 000263 L         0000 I 000255 LAIR      0000 I 000273 LC        0(
CC I 000256 LCP       0000 I 000336 LC1       0000 I 000253 LDIV      0000 I 000260 LDR       0(
CC I 000261 LFA       0000 I 000251 LFW       0000 I 000245 LGF       0000 I 000254 LHE       0(
CC I 000357 LJ        0000 I 000404 LK        0000 I 000371 LL        0000 I 000405 LLL       0(
CC I 000257 LRP       0000 I 000246 LS        0000 I 000250 LSA       0000 I 000402 LSTART    0(
CC I 000301 LTYPE     0000 I 000365 LVAR      0000 I 000366 LVAR1     0000 I 000264 L1        0(
CC I 000267 MCODE     0000 I 000266 MID       0000 I 000276 MINCOD    0000 I 000333 MINUP     0(
CC I 000274 N         0000 I 000327 NEND      0000 I 000272 NHOLD     0000 I 000337 NMAX      0(
CC I 000361 NOSR      0000 I 000270 NUM       0002 R 053732 PASS      0002   053713 REGAIR    0(
02   053662 SUBAIR    0002 R 000000 TAB       0000 R 000360 VAR       0000 R 000370 Z0
```

```
    1*      C.... THIS PROGRAM PRODUCES 3 TYPES OF REPORT FIGURES,NAMELY STANDARD
    2*      C.... INVENTORY FIGURES,PERCENT INVENTORY FIGURES AND MINIMUM REQUIREMENT
    3*      C.... INVENTORY FIGURES.THESE FIGURES ARE USED TO CALCULATE INVENTORY
    4*      C.... VALUES FOR 3 REPORT LEVELS,REGIONAL,SUBREGIONAL AND DIVISIONAL.
    5*      C.... THE PROGRAM RECEIVES DIVISIONAL LEVEL FIGURES IN THE ARRAY
    6*      C.... TAB(I,J,K) WITH I REPRESENTING THE EQUIPMENT J THE DIVISIONS AND
    7*      C.... K THE STATUS LEVELS.MINIMUM REQUIREMENT FIGURES ARE IN THE ARRAY
    8*      C.... AMIN(I,J,K).THERE IS ONLY ONE STATUS LEVEL IN AMIN.
    9*      C.... IRE AND ISRE CONTAIN REGIONAL AND SUBREGIONAL END VALUES WHICH CAN
   10*      C.... BE CHANGED AS REQUIRED.
   11*      C
   12*            COMMON TAB(74,50,5),AMIN(74,50,1),AIRHOL(1,50,5),SUBAIR(1,5,5),REG
   13*           $AIR(1,3,5),PASS(74,5,5),RPASS(74,3,5),AITEM(74,3,5),ALL(74,3),LDRU
   14*           $M(17,2)
   15*            DIMENSION IRE(3),ISRE(5),IRESR(3)
   16*      C
   17*      C.... IVRT CONTAINS THE CONVERSION RULE FOR ADJUSTING THE NUMBER OF
   18*      C.... EQUIPMENT ITEMS IN THE COMPACTING ROUTINE FOR SUBREGIONS.
   19*      C....IVRTP CONTAINS CONVERSION RULE FOR REGIONS
   20*      C.... IDIB CONTAINS COMPACTING RULE FOR SUBREGIONS
   21*      C.... IDIP CONTAINS COMPACTING RULE FOR REGIONS
   22*      C
   23*            DIMENSION IVRT(9,2),IVRTP(2,2),IDIB(39,2),IDIP(27,2)
   24*            DATA IRE/16,36,50/
   25*            DATA ISRE/8,16,26,36,50/
   26*      C
   27*      C.... LDRUM CONTAINS ADDRESSES AND ARRAY LENGTHS FOR NTRAN I/O ON FASTRAND
   28*      C
   29*            DATA LDRUM/0,195,345,495,939,1383,19883,38383,42083,45783,49483,49
```

```
      1783,50227,50461,50623,50875,50995,195,150,150,444,444,18500,18500,
      23700,3700,3700,300,444,234,162,252,120,250/
C
C.... IRESR CONTAINS REGION END INDICATOR FOR THE SUBREGION END TABLE ISRE.
C
       DATA IRESR/2,4,5/
       DATA IVRT/24,25,26,27,30,33,34,35,36,07,15,30,15,03,04,06,08,15/
       DATA IVRTP/4,5,3,3/
       DATA IDIB/1,2,5,6,8,14,20,24,30,33,44,45,46,47,48,49,50,51,52,53,5
      $4,55,56,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,1,4,5,7,13
      $,17,23,27,31,36,44,45,46,47,48,49,50,51,52,53,54,55,58,59,60,61,62
      $,63,64,65,66,67,68,69,70,71,72,73,74/
       DATA IDIP/1,2,4,8,9,10,17,18,19,20,21,22,25,26,27,28,29,30,31,32,3
      $3,34,35,36,37,38,39,1,2,5,8,9,10,17,18,19,20,21,22,25,26,27,28,29,
      $30,31,32,33,34,35,36,37,38,39/
       DATA LGF,LS,LR,LSA,LFW,LHEL,LDIV,LHE,LAIR,LCP,LRP/74,5,3,25,42,62,
      150,63,43,39,27/
C.... LDR IS DRUM UNIT NO. TO CHANGE,CHANGE HERE AND IN CONTRL,INPUT,
C.... AND OUTPUT
       LDR=8
C.... LFA IS FASTRAND OR TAPE UNIT NO. JUST CHANGE HERE
       LFA=13
C.... READ FROM FASTRAND OR TAPE AND WRITE ON DRUM
       CALL NTRAN(LFA,10)
       CALL NTRAN(LDR,10)
       DO 91252 I=1,17
       CALL NTRAN(LFA,2,LDRUM(I,2),TAB,L)
91253  IF(L+1)91254,91253
       CALL NTRAN(LDR,1,L,TAB,L1)
91255  IF(L1+1)91254,91255,91252
91252  CONTINUE
       IDONE=0
       MID=0
C
C.... READ PASS NUMBER CARD
       READ 4000,MCODE,NUM
 4000  FORMAT(I3,I1)
       IF(NUM.NE.1.AND.NUM.NE.0)NUM=0
 5506  LSTAT=0
       NHOLD=0
       LC=0
       N=0
       IVRTCD=0
       MINCOD=0
       LCODE=0
       ITURN=0
       LTYPE=1
       IERR=0
       ISWIT=0
       ISIN=0
C
C.... READ PARAMETER CARD.
C.... IF IPARTY EQUALS 1 THE PARAMETER CARD SPECIFIES UPDATE REGULAR AREAS
C.... IF IPARTY EQUALS 2 THE PARAMETER CARD SPECIFIES REPORT REGULAR AREAS
C.... IF IPARTY EQUALS 3 THE PARAMETER CARD SPECIFIES UPDATE SPECIAL AREAS
C.... IF IPARTY EQUALS 4 THE PARAMETER CARD SPECIFIES REPORT SPECIAL AREAS
C.... FOR IPARTY EQUAL 02
C.... JSTART IS THE DIVISION STARTING POINT JEND IS THE END POINT
C.... K IS STATUS LEVEL STARTING POINT KMAX IS END POINT
C.... I IS EQUIPMENT NUMBER STARTING POINT IMAX IS END POINT
```

```
C.... IP,IPPC,IPMIN SPECIFIES IF REGION LEVEL REPORTS ARE DESIRED FOR
C.... REGULAR,PERCENT,OR MINIMUM REQUIREMENTS
C.....IR,IRPC,IRPMIN SPECIFIES IF SUBREGIONAL REPORTS ARE DESIRED
C.... ISR,ISRPC,ISRMIN SPECIFIES IF DIVISIONAL REPORTS ARE DESIRED
C.... IF A REPORT IS DESIRED PLACE A 1 IN APPROPRIATE LOCATION,IF
C.... IT IS NOT REQUIRED PLACE A ZERO IN THE POSTION
C.... ICONT INDICATES IF SINGLE DIVISIONAL VALUES ARE TO BE PRINTED. THE
C.... VALUES FOR ICONT ARE 0 THRU 99,0 INDICATING NO SINGLE VALUES OR
C.... 1-99 INDICATING THE NUMBER OF SINGLE VALUES DESIRED.
C.... ISTAT DETERMINES IF GROUND,FIXED WING,OR HELICOPTER REPORTS
C.... ARE DESIRED.1 IS GROUND,2 IS FIXED WING,3 IS HELICOPTER,AND
C.... 4 IS BOTH FIXED WING AND HELICOPTER
C
 5507 READ(5,1,END=10000)IPARTY,JSTART,JEND,K,KMAX,I,IMAX,IP,IPPC,IPMIN,
     $IR,IRPC,IRMIN,ISR,ISRPC,ISRMIN,ICONT,ISTAT
    1 FORMAT(18I2)
      IF(IDONE .GE. 1)IDONE=IDONE+1
      IF(IPARTY .EQ. 99 .AND. JSTART .EQ. 99)GO TO 5507
      CALL NTRAN(LOR,10)
      IPOS=0
      IF(IPARTY .EQ. 1 .OR. IPARTY .EQ. 3)GO TO 568
      CALL CONTRL(IPARTY,MCODE,JSTART,JEND,NEND,IDONE,IPOS)
      IF(NEND .EQ. 1)GO TO 10000
      IF(ISTAT .NE. 1 .OR. IPARTY .NE. 2)GO TO 568
      II=I
      IK=K
      DO 5 I=1,LGF
      DO 5 J=1,LS
      DO 5 K=1,5
    5 PASS(I,J,K)=0
      DO 6 I=1,LGF
      DO 6 K=1,5
      DO 6 J=1,LR
    6 RPASS(I,J,K)=0
      I=II
      K=IK
C.... IF DELIMETER CARD GO READ ANOTHER PARAMETER CARD.
  568 IF(IPARTY .EQ. 2 .OR. IPARTY .EQ. 1)GO TO 5502
      IF(IPARTY .NE. 3 .AND. IPARTY .NE. 4)GO TO 562
      IF(IPARTY .NE. 3)GO TO 563
      MINUP=0
      IUP=3
      ISTAT=K
  563 IF(IPARTY .NE. 4)GO TO 5555
      K=1
      KMAX=1
      IUP=4
      MINUP=0
      IF(JSTART .EQ. 0 .AND. ICONT .NE. 0)ISIN=1
      IF(ISIN .EQ. 1)GO TO 5555
      IF(JSTART .GT. JEND)IERR=1
      IF(JSTART .GT. LSA .OR. JEND .GT. LSA)IERR=1
      IF(JSTART .LE. 0 .OR. JEND .LE. 0)IERR=1
      IF(IERR .EQ. 1)GO TO 573
      AB=JEND
      LC=AB/5+.9999
      AB=JSTART
      LC1=AB/5+.9999
      IF(LC .EQ. LC1)GO TO 573
      IERR=1
```

```
150*       573 IF(IERR .EQ. 1)PRINT 574
151*       574 FORMAT(10X,34H SPECIAL AREA PARAMETER CARD ERROR,/,33H     DIVISIO
152*          $N PARAMETERS IN ERROR)
153*           IF(IERR .EQ. 1)GO TO 10000
154*           GO TO 5555
155*       562 PRINT 5501
156*      5501 FORMAT(10X,21H PARAMETER CARD ERROR,/,36H     PARAMETER TYPE NOT A
157*          $ 1,2,3,OR 4)
158*     C.... END RUN
159*           GO TO 10000
160*     C.... DETERMINE PARAMETER CARD TYPE
161*      5502 IF(IPARTY .EQ. 2)GO TO 5503
162*     C.... SET UPDATE PARAMETERS AND EDIT
163*           IUP=JSTART
164*           MINUP=JEND
165*           IF(IUP .NE. 0 .AND. IUP .NE. 1)GO TO 5120
166*           IF(MINUP .NE. 0 .AND. MINUP .NE. 1)GO TO 5120
167*           ISTAT=K
168*           IF(ISTAT .NE. 1 .AND. MINUP .EQ. 1)PRINT 1598
169*           IF(ISTAT .NE. 1 .AND. MINUP .EQ. 1)GO TO 10000
170*           IF(IUP .EQ. 0 .AND. MINUP.EQ. 0)PRINT 5596
171*      5596 FORMAT(10X,28H UPDATE PARAMETER CARD ERROR,/,24H     NO UPDATE REQ
172*          $UESTED)
173*           IF(IUP .EQ. 0 .AND. MINUP.EQ. 0)GO TO 10000
174*           IF(IUP .NE. 1 .OR. MINUP .NE. 1)GO TO 5555
175*           PRINT 5505
176*      5505 FORMAT(10X,28H UPDATE PARAMETER CARD ERROR,/,59H     UPDATE ON BOT
177*          $H REGULAR AND MIN. REQ. TABLES ATTEMPTED)
178*           GO TO 10000
179*      5503 IUP=0
180*           MINUP=0
181*     C.... MIN. REQ. TABLE REQUIRED FOR REPORTS SET INDICATOR
182*           IF(IPMIN .EQ. 1 .OR. IRMIN .EQ. 1)MINUP=2
183*           IF(ISRMIN .EQ. 1)MINUP=2
184*           IF(ISTAT .NE. 1 .AND. MINUP .EQ. 2)PRINT 1598
185*           IF(ISTAT .NE. 1 .AND. MINUP .EQ. 2)GO TO 10000
186*      1598 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,39H     MIN. REQ. NOT
187*          $ ALLOWED FOR AIRCRAFT)
188*      5504 NMAX=IMAX
189*           IKMAX=KMAX
190*      5555 IF(ISTAT .EQ. 1 .OR. ISTAT .EQ. 2)GO TO 11
191*           IF(ISTAT .EQ. 4 .OR. ISTAT .EQ. 3)GO TO 11
192*           PRINT 2232
193*      2232 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,35H REPORT TYPE MUST
194*          $BE EITHER 1,2,3,4)
195*           GO TO 10000
196*     C.... CALL INPUT TO BRING IN TAB,AMIN, AND UPDATE IF REQUIRED
197*        11 CALL INPUT(MINUP,IUP,ISTAT,NEND,IPARTY,MCODE,IDONE,IPOS,NUM)
198*      9542 IF(NEND .EQ. 1)GO TO 10000
199*     C.... IF IPARTY IS UPDATE GO READ ANOTHER PARAMETER CARD
200*           IF(IPARTY .EQ. 1 .OR. IPARTY .EQ. 3)GO TO 5507
201*     C.... TEST IF SINGLE ITEMS WANTED
202*           IF(ICONT .EQ. 0)GO TO 13
203*     C.... READ IN SINGLE ITEM TABLE INDEXES AND CHECK FOR SIZE ERRORS
204*           DO 10 IT=1,ICONT
205*           READ 2,IHOLD,JHOLD,KHOLD
206*         2 FORMAT(3I2)
207*           CALL CONTRL(IPARTY,MCODE,JHOLD,JHOLD,NEND,IDONE,IPOS)
208*           IF(NEND .EQ. 1)GO TO 10000
209*           IF(ISTAT .NE. 1)GO TO 5508
```

```
210*            IF(IHOLD .GT. LGF .OR. IHOLD .LE. 0)IERR=1
211*         5508 IF(ISTAT .NE. 2)GO TO 5509
212*            IF(IHOLD .GT. LFW .OR. IHOLD .LE. 0)IERR=1
213*         5509 IF(ISTAT .NE. 3)GO TO 5510
214*            IF(IHOLD .GT. LHEL .OR. IHOLD .LE. LFW)IERR=1
215*         5510 IF(ISTAT .EQ. 4)PRINT 5511,IT
216*         5511 FORMAT(5X,22H SINGLE DIVISION CARD ,I2,/,43H     ISTAT IS SET AT 4
217*             $ IT SHOULD BE 1,2,OR3)
218*            IF(ISTAT .EQ. 4)GO TO 10000
219*            IF(IPARTY .NE. 4)GO TO 637
220*            IF(JHOLD .GT. LSA .OR. JHOLD .LT. 1)PRINT 2139
221*            IF(JHOLD .GT. LSA .OR. JHOLD .LT. 1)GO TO 10000
222*            KHOLD=1
223*            AB=JHOLD
224*            N=AB/5+.9999
225*            N=N*4
226*            GO TO 2138
227*          637 N=1
228*            IF(JHOLD .GT. LDIV .OR. JHOLD .LE. 0)IERR=1
229*            IF(KHOLD .GT. 5 .OR. KHOLD .LE. 0)IERR=1
230*         C.... IF SIZE ERROR END RUN
231*            IF(IERR .NE. 1)GO TO 2138
232*            PRINT 2139,IT
233*         2139 FORMAT(10X,22H SINGLE DIVISION CARD  ,I2,30H IS OUTSIDE TABLE I,J,
234*             $K LIMITS)
235*            GO TO 10000
236*         C.... PASS SINGLE VALUES TO OUTPUT
237*         2138 CALL OUTPUT(JHOLD,JHOLD,IHOLD,IHOLD,KHOLD,KHOLD,N,1,ISTAT,0,MID)
238*            IF(N .EQ. 1)N=0
239*            MID=1
240*           10 CONTINUE
241*         C.....DETERMINE HIGHEST REPORT LEVEL
242*           13 IF(IPARTY .EQ. 4 .AND. ISIN .EQ. 1)GO TO 22
243*            IF(ISTAT .GT. 1 .OR. IPARTY .NE. 2)GO TO 12
244*            IF(ISR .EQ. 1 .OR. ISRPC .EQ. 1)LCODE=1
245*            IF(IR .EQ. 1 .OR. IRPC .EQ. 1)LCODE=2
246*            IF(IP .EQ. 1 .OR. IPPC .EQ. 1)LCODE=3
247*            IF(LCODE .NE. 0)ISWIT=LCODE
248*            IF(ISRMIN .EQ. 1)LCODE=1
249*            IF(IRMIN .EQ. 1)LCODE=2
250*            IF(IPMIN .EQ. 1)LCODE=3
251*            IF(ISWIT .EQ. 0)GO TO 1016
252*            LCODE=ISWIT
253*            GO TO 1018
254*         C.... SET INDICATOR TO SHOW ONLY MIN. REQ. REPORTS DESIRED
255*         1016 IF(LCODE .NE. 0)ITURN=1
256*            IF(ITURN .EQ. 1)GO TO 12
257*            GO TO 22
258*         1018 IF(LCODE .EQ. 3)ISW=600
259*            IF(LCODE .EQ. 2)ISW=500
260*            IF(LCODE .EQ. 1)ISW=40
261*            GO TO 12
262*         C.... JUST UPDATING REQUIRED
263*           22 PRINT 16
264*           16 FORMAT(1H1,////,10X,20HNO REPORTS REQUESTED)
265*            GO TO 10001
266*         C.....EDIT PARAMETER CARD
267*           12 IF(JSTART .LE. JEND)GO TO 5111
268*            PRINT 2222
269*         2222 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,51H     DIVISION STAR
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```
270*          $TING POINT GREATER THAN END POINT)
271*           IERR=1
272*         5111 IF(JSTART .LE. LDIV .AND. JEND .LE. LDIV)GO TO 5112
273*           PRINT 2223
274*         2223 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,44H      DIVISION SPEC
275*          $IFICATIONS GREATER THAN 50)
276*           IERR=1
277*         5112 IF(JSTART .GT. 0 .AND. JEND .GT. 0)GO TO 5113
278*           PRINT 2224
279*         2224 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,55H      DIVISION SPEC
280*          $IFICATIONS LESS THAN OR EQUAL TO ZERO)
281*           IERR=1
282*         5113 IF(K .LE. KMAX)GO TO 5114
283*           PRINT 2225
284*         2225 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,49H      STATUS STARTI
285*          $NG POINT GREATER THAN END POINT)
286*           IERR=1
287*         5114 IF(K .LE. 5 .AND. KMAX .LE. 5)GO TO 5115
288*           PRINT 2226
289*         2226 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,41H      STATUS SPECIF
290*          $ICATIONS GREATER THAN 5)
291*           IERR=1
292*         5115 IF(K .GT. 0 .AND. KMAX .GT. 0)GO TO 5116
293*           PRINT 2227
294*         2227 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,53H      STATUS SPECIF
295*          $ICATIONS LESS THAN OR EQUAL TO ZERO)
296*           IERR=1
297*         5116 IF(I .LE. IMAX)GO TO 5117
298*           PRINT 2228
299*         2228 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,52H      EQUIPMENT STA
300*          $RTING POINT GREATER THAN END POINT)
301*           IERR=1
302*         5117 IF(I .GT. 0 .AND. IMAX .GT. 0)GO TO 5118
303*           PRINT 2229
304*         2229 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,56H      EQUIPMENT SPE
305*          $CIFICATIONS LESS THAN OR EQUAL TO ZERO)
306*           IERR=1
307*         5118 IF(I .LE. LGF .AND. IMAX .LE. LGF)GO TO 5122
308*           PRINT 2230
309*         2230 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,45H      EQUIPMENT SPE
310*          $CIFICATIONS GREATER THAN 74)
311*         5122 IF(IPARTY .EQ. 4)GO TO 5119
312*           IF(IP .NE. 0 .AND. IP .NE. 1)GO TO 5120
313*           IF(IPPC .NE. 0 .AND. IPPC .NE. 1)GO TO 5120
314*           IF(IPMIN .NE. 0 .AND. IPMIN .NE. 1)GO TO 5120
315*           IF(IR .NE. 0 .AND. IR .NE. 1)GO TO 5120
316*           IF(IRPC .NE. 0 .AND. IRPC .NE. 1)GO TO 5120
317*           IF(IRMIN .NE. 0 .AND. IRMIN .NE. 1)GO TO 5120
318*           IF(ISR .NE. 0 .AND. ISR .NE. 1)GO TO 5120
319*           IF(ISRPC .NE. 0 .AND. ISRPC .NE. 1)GO TO 5120
320*           IF(ISRMIN .NE. 0 .AND. ISRMIN .NE. 1) GO TO 5120
321*           GO TO 5119
322*         5120 PRINT 2231
323*         2231 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,48H      REPORT REQUES
324*          $T PARAMETERS ARE NOT ZERO OR 1)
325*           IERR=1
326*         5119 IF(ISTAT .NE. 2)GO TO 5123
327*           IF(IMAX .LE. LFW)GO TO 5123
328*           PRINT 2233
329*         2233 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,57H      EQUIPMENT END
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330*          $INC POINT FOR AIRPLANES GREATER THAN 42)
331*           IERR=1
332*       5123 IF(ISTAT .NE. 3)GO TO 5124
333*           IF(IMAX .LT. LHE .AND. I .GT. LFW)GO TO 5124
334*           PRINT 2234
335*       2234 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,44H      EQUIPMENT SPE
336*          $CIFICATION FOR HELICOPTERS,/,36H      GREATER THAN 62 OR LESS THAN
337*          $43)
338*           IERR=1
339*       5124 IF(ISTAT .NE. 4)GO TO 5125
340*           IF(IMAX .GT. LHEL .AND. I .GE. LAIR)GO TO 5126
341*           IF(IMAX .GT. LFW)GO TO 5125
342*       5126 PRINT 2235
343*       2235 FORMAT(10X,28H REPORT PARAMETER CARD ERROR,/,59H      EQUIPMENT SPE
344*          $CIFICATION FOR AIRCRAFT/HELICOPTER REPORT,/,47H  END IS EITHER GRE
345*          $ATER THAN 62 OR LESS THAN 43,/,32H      OR START IS GREATER THAN 42
346*          $)
347*           IERR=1
348*      C.... IF ERROR DETECTED IN PARAMETER CARD END RUN
349*       5125 IF(IERR .EQ. 1)GO TO 10000
350*           IF(ISTAT .NE. 4)GO TO 1019
351*      C.... SET FOR FIRST LEVEL OF REPORT RUN
352*           IMAX=LFW
353*           ISTAT=2
354*           LSTAT=4
355*       1019 II=I
356*           ITAKE=I
357*           ITAKE1=I
358*           IIII=II
359*           IK=K
360*           JST=JSTART
361*           JSTEND=JEND
362*           IF(IPARTY .EQ. 4)N=4+LC
363*           IF(ISTAT .EQ. 1)GO TO 543
364*      C....  AIRCRAFT REPORT REQUESTED
365*           CALL AIRSUM(II,IMAX,IK,KMAX,JSTART,JEND,LC,N,ISTAT,MID)
366*           GO TO 99999
367*         543 IF(IPARTY .NE. 4)GO TO 544
368*           DO 927 I=II,IMAX
369*           AITEM(I,1,LC)=0
370*           DO 927 J=JSTART,JEND
371*         927 AITEM(I,1,LC)=AITEM(I,1,LC)+TAB(I,J,1)
372*           CALL OUTPUT(JSTART,JEND,II,IMAX,1,1,N,1,1,0,MID)
373*           MID=1
374*           GO TO 10001
375*      C.... IF ONLY MIN REQ REQUESTED GO MIN SET UP
376*         544 IF(ITURN .EQ. 1)GO TO 1600
377*      C.... SELECT STARTING CONVERSION ROUTINE
378*           IF(ISW-500)40,500,600
379*      C.... SET REGIONAL TABLE RPASS INTO REGIONAL TOTALS ON J LIMITS
380*         600 NOREG=LR
381*           JJ=0
382*           JI=0
383*           JSTART=JST
384*           JEND=JSTEND
385*           DO 700 J=1,NOREG
386*           IF(JSTART .GT. IRE(J))GO TO 700
387*           IF(JI .EQ. 0)JII=J
388*           IF(JI .EQ. 0)JI=JSTART
389*           L=IRE(J)
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390*            IF(JEND .LE. IRE(J))JJ=J
391*            IF(JEND .LE. IRE(J))L=JEND
392*            DO 1000 I=II,IMAX
393*            DO 1000 K=1,5
394*            DO 1000 LJ=JI,L
395*            VAR=TAB(I,LJ,K)
396*            IF(MINCOD .EQ. 1)VAR=AMIN(I,LJ,1)
397*       1000 RPASS(I,J,K)=RPASS(I,J,K)+VAR
398*            IF(JJ .NE. 0)GO TO 1001
399*        700 IF(JI .NE. 0)JI=IRE(J)+1
400*       1001 CONTINUE
401*            IF(IRMIN .EQ. 1 .AND. MINCOD .EQ. 1)GO TO 500
402*            IF(IRMIN .EQ. 1 .OR. IRPC .EQ. 1)GO TO 500
403*            IF(IPMIN .EQ. 1 .OR. IPPC .EQ. 1)GO TO 500
404*            IF(IR .NE. 1 .AND. IP .NE. 1)GO TO 777
405*            IF(MINCOD .EQ. 1 .AND. IRMIN .NE. 1)GO TO 777
406*       C.... SET SUBREGIONAL TABLE PASS INTO SUBREGIONAL TOTALS ON J LIMITS
407*        500 NOSR=LS
408*            JJJ=0
409*            IJ=0
410*            JSTART=JST
411*            JEND=JSTEND
412*            DO 800 J=1,NOSR
413*            IF(JSTART .GT. ISRE(J))GO TO 800
414*            IF(IJ .EQ. 0)IJJ=J
415*            IF(IJ .EQ. 0)IJ=JSTART
416*            L=ISRE(J)
417*            IF(JEND .LE. ISRE(J))JJJ=J
418*            IF(JEND .LE. ISRE(J))L=JEND
419*            DO 900 I=II,IMAX
420*            DO 900 K=1,5
421*            DO 900 LJ=IJ,L
422*            VAR=TAB(I,LJ,K)
423*            IF(MINCOD .EQ. 1)VAR=AMIN(I,LJ,1)
424*        900 PASS(I,J,K)=PASS(I,J,K)+VAR
425*            IF(JJJ .NE. 0)GO TO 850
426*        800 IF(IJ .NE. 0)IJ=ISRE(J)+1
427*       C.... IF NOT GROUND TABLE DO NOT CONVERT TABLES ON I LEVEL
428*        850 IF(ISTAT .NE. 1)GO TO 777
429*       C.... CONVERT TABLE VALUES TO SUBREGIONAL VALUES FOR PASS IF IVRTCD IS
430*       C.... ZERO,FOR RPASS IF IVRTCD IS 1.
431*        914 IF(IVRT(9,1) .LT. II)GO TO 396
432*            DO 461, I=1,9
433*            LVAR=IJJ
434*            LVAR1=JJJ
435*            IF(IVRTCD .EQ. 0)GO TO 950
436*            LVAR=JII
437*            LVAR1=JJ
438*        950 DO 464 J=LVAR,LVAR1
439*        951 DO 463 K=1,5
440*            IF(IVRT(I,1) .GT. IMAX)GO TO 396
441*            IF(IVRT(I,1) .LT. II)GO TO 461
442*            III=IVRT(I,1)
443*            VAR=PASS(III,J,K)
444*            IF(IVRTCD .EQ. 1)VAR=RPASS(III,J,K)
445*            IF(I .EQ. 5)GO TO 462
446*            VAR=VAR*IVRT(I,2)
447*            IF(IVRTCD .NE. 1)PASS(III,J,K)=VAR
448*            IF(IVRTCD .EQ. 1)RPASS(III,J,K)=VAR
449*            GO TO 463
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*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  450*        462 IF(VAR .NE. 0)VAR=VAR/IVRT(I,2)
  451*            IF(IVRTCD .NE. 1)PASS(III,J,K)=VAR
  452*            IF(IVRTCD .EQ. 1)RPASS(III,J,K)=VAR
  453*        463 CONTINUE
  454*        464 CONTINUE
  455*        461 CONTINUE
  456*        396 ITAKE=0
  457*      C.... CONGREGATE I VALUES TO SUBREGIONAL TOTALS ON I LEVEL FOR PASS IF
  458*      C.... IVRTCD IS ZERO,FOR RPASS IF IVRTCD IS 1
  459*            LVAR=IJJ
  460*            LVAR1=JJJ
  461*            IF(IVRTCD .EQ. 0)GO TO 952
  462*            LVAR=JII
  463*            LVAR1=JJ
  464*        952 DO 491 J=LVAR,LVAR1
  465*        953 DO 481 K=1,5
  466*            DO 471 I=1,LCP
  467*            IF(IDIB(I,2) .LT. II)GO TO 471
  468*            IF(IDIB(I,1) .GT. IMAX)GO TO 599
  469*            III=IDIB(I,2)-IDIB(I,1)
  470*            IF(III .EQ. 0)GO TO 472
  471*            ZO=0
  472*            LL=IDIB(I,1)
  473*            MM=IDIB(I,2)
  474*            IF(IDIB(I,1) .LT. II)LL=II
  475*            IF(IDIB(I,2) .GT. IMAX)MM=IMAX
  476*            IF(ITAKE .EQ. 0)ITAKE=I
  477*            DO 473 IQ=LL,MM
  478*            VAR=PASS(IQ,J,K)
  479*            IF(IVRTCD .EQ. 1)VAR=RPASS(IQ,J,K)
  480*            IF(IQ.NE.31)GO TO 3269
  481*            IF(VAR.LT.ZO)ZO=VAR
  482*            GO TO 473
  483*       3269 ZO=ZO+VAR
  484*        473 CONTINUE
  485*            IF(IVRTCD .NE. 1)PASS(I,J,K)=ZO
  486*            IF(IVRTCD .EQ. 1)RPASS(I,J,K)=ZO
  487*            GO TO 471
  488*        472 IW=IDIB(I,1)
  489*            IF(ITAKE .EQ. 0)ITAKE=I
  490*            IF(IVRTCD .NE. 1)PASS(I,J,K)=PASS(IW,J,K)
  491*            IF(IVRTCD .EQ. 1)RPASS(I,J,K)=RPASS(IW,J,K)
  492*            IF(I .EQ. LCP)IST=LCP
  493*        471 CONTINUE
  494*            GO TO 481
  495*        599 IST=I-1
  496*        481 CONTINUE
  497*        491 CONTINUE
  498*        912 IF(IP .EQ. 1 .OR. IPPC .EQ. 1)GO TO 915
  499*            IF(IPMIN .NE. 1)GO TO 40
  500*            IF(MINCOD .NE. 1)GO TO 40
  501*        915 IF(IVRTCD .EQ. 1)GO TO 913
  502*            IVRTCD=1
  503*            GO TO 914
  504*      C.... CONVERT TABLE VALUES TO REGIONAL VALUES FOR RPASS
  505*        913 DO 561 I=1,2
  506*            DO 561 J=JII,JJ
  507*            DO 561 K=1,5
  508*            IF(ITAKE .GT. 5)GO TO 397
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  509*            IF(IVRTP(I,1) .GT. IST)GO TO 397
  510*            III=IVRTP(I,1)
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  511*            IF(RPASS(III,J,K) .NE. 0)RPASS(III,J,K)=RPASS(III,J,K)/IVRTP(I,2)
  512*          561 CONTINUE
  513*        C.... CONGREGATE I VALUES FOR REGIONAL TOTALS ON I LEVEL FOR RPASS
  514*          397 ITAKE1=0
  515*              DO 591 J=JII,JJ
  516*              DO 581 K=1,5
  517*              DO 571 I=1,LRP
  518*              IF(IDIP(I,2) .LT. ITAKE)GO TO 571
  519*              IF(IDIP(I,1) .GT. IST)GO TO 598
  520*              III=IDIP(I,2)-IDIP(I,1)
  521*              IF(III .EQ. 0)GO TO 572
  522*              ZO=0
  523*              LL=IDIP(I,1)
  524*              MM=IDIP(I,2)
  525*              IF(IDIP(I,1) .LT. ITAKE)LL=ITAKE
  526*              IF(IDIP(I,2).GT. IST)MM=IST
  527*              IF(ITAKE1 .EQ. 0)ITAKE1=I
  528*              DO 4111 IQ=LL,MM
  529*         4111 ZO=ZO+RPASS(IQ,J,K)
  530*              RPASS(I,J,K)=ZO
  531*              GO TO 571
  532*          572 IW=IDIP(I,1)
  533*              IF(ITAKE1 .EQ. 0)ITAKE1=I
  534*              RPASS(I,J,K)=RPASS(IW,J,K)
  535*              IF(I .EQ. LRP)IST1=LRP
  536*          571 CONTINUE
  537*              GO TO 581
  538*          598 IST1=I-1
  539*          581 CONTINUE
  540*          591 CONTINUE
  541*          777 IF(ISTAT .EQ. 1)GO TO 40
  542*              IST=IMAX
  543*              IST1=IMAX
  544*           40 IF(LCODE .EQ. N .AND. MINCOD .EQ.1)GO TC 666
  545*          667 N=N+1
  546*              IF(NHOLD .NE. 1)GO TO 692
  547*              IF(N .EQ. 4 .AND. ISRMIN .NE. 1)GO TO 667
  548*              IF(N .EQ. 5 .AND. IRMIN .NE. 1)GO TO 667
  549*              IF(N .EQ. 6 .AND. IPMIN .NE. 1)GO TO 10001
  550*              IF(N .EQ. 6 .AND. IPMIN .EQ. 1)N=3
  551*        C.... SET I AND J LIMITS ACCORDING TO REPORT LEVEL BEING WORKED ON.
  552*          692 II=IIII
  553*              IIVAR=IMAX
  554*              IF(N .EQ. 1)GO TO 41
  555*              IF(N .EQ. 5) N=2
  556*              IF(N .NE. 2)GO TO 39
  557*              JSTART=IJJ
  558*              JEND=JJJ
  559*              IIVAR=IST
  560*              II=ITAKE
  561*              GO TO 41
  562*           39 IF(N .NE. 3)GO TO 42
  563*              JSTART=JII
  564*              JEND=JJ
  565*              II=ITAKE1
  566*              IIVAR=IST1
  567*              IF(NHOLD .EQ. 1)GO TO 2100
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      GO TO 533
   42 JSTART=JST
      JEND=JSTEND
   41 DO 50 I=II,IIVAR
      DO 82 J=1,LR
   82 ALL(I,J)=0
      DO 51 K=1,5
      DO 64 J=1,LR
   64 AITEM(I,J,K)=0
      L=1
      IREG=0
      IF(N .EQ. 1)IREG=1
      IF(N .EQ. 2)IREG=2
      IF(N .EQ. 4)IREG=1
      DO 52 J=JSTART,JEND
      IF(N .EQ. 1)VAR=TAB(I,J,K)
      IF(N .EQ. 2)VAR=PASS(I,J,K)
      IF(N .LT. 4)GO TO 532
      VAR=AMIN(I,J,1)
  532 IF(IREG .EQ. 1)KVAR=IRE(L)
      IF(IREG .EQ. 2)KVAR=IRESR(L)
      IF(J .GT. KVAR)GO TO 531
      IF(J .EQ. JSTART)LSTART=L
C.... CALCULATE SUBTOTALS FOR REGIONS
   44 AITEM(I,L,K)=AITEM(I,L,K)+VAR
      GO TO 52
  531 L=L+1
      GO TO 532
   52 CONTINUE
   51 CONTINUE
      DO 62 J=LSTART,L
      DO 63 K=1,5
C.... CALCULATE GRAND TOTALS FOR REGIONS
   63 ALL(I,J)=ALL(I,J)+AITEM(I,J,K)
   62 CONTINUE
   50 CONTINUE
      GO TO 70
  533 DO 534 I=II,IIVAR
      DO 534 J=JSTART,JEND
      ALL(I,J)=0
      DO 534 K=1,5
C.... CALCULATE GRAND TOTAL FOR REGION LEVEL REPORT
  534 ALL(I,J)=ALL(I,J)+RPASS(I,J,K)
C.... IF MIN. REQ. REPORT REQUESTED GO TO SET UP AMIN
   70 IF(IPMIN .EQ. 1 .AND. MINCOD .NE. 1)GO TO 1600
      IF(IRMIN .EQ. 1 .AND. MINCOD .NE. 1)GO TO 1600
      IF(ISRMIN .EQ. 1 .AND. MINCOD .NE. 1)GO TO 1600
C.... IF STANDARD REPORT REQUIRED GO TO OUTPUT
   71 IF(NHOLD .EQ. 1)GO TO 2000
      IF(IP .EQ. 1 .AND. N .EQ. 3)GO TO 2000
      IF(IR .EQ. 1 .AND. N .EQ. 2)GO TO 2000
      IF(ISR .EQ. 1 .AND. N .EQ. 1)GO TO 2000
      IF(ISR .EQ. 1 .AND. N .EQ. 4)GO TO 2000
C.... IF PERCENT REPORT REQUIRED GO TO PERCENT CALCS.
 2050 IF(ISRPC .EQ. 1 .AND. N .EQ. 1)GO TO 2500
      IF(IRPC .EQ. 1 .AND. N .EQ. 2)GO TO 2500
      IF(IPPC .EQ. 1 .AND. N .EQ. 3)GO TO 2500
C.... NO REPORTS REQUIRED AT THIS N LEVEL
      GO TO 40
C.... IF HIGHEST REPORT GO TO FINAL REPORT SET UP
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 628*      2000 IF(N .EQ. LCODE)GO TO 2100
 629*     C.... DETERMINE REPORT AND PASS TO OUTPUT
 630*           IF(N .EQ. 4 .AND. LCODE .EQ. 1)GO TO 2100
 631*           IF(N .EQ. 4 .AND. ISRMIN .EQ. 1)GO TO 139
 632*           IF(N .NE. 1)GO TO 614
 633*       139 CALL OUTPUT(JSTART,JEND,II,IIVAR,IK,KMAX,1,LTYPE,ISTAT,NHOLD,MID)
 634*           MID=1
 635*       614 IF(N .EQ. 2 .AND. IRMIN .EQ. 1)GO TO 613
 636*           IF(NHOLD .EQ. 1)GO TO 667
 637*       613 IF(N .EQ. 2)CALL OUTPUT(JST,JSTEND,II,IIVAR,IK,KMAX,N,LTYPE,ISTAT,
 638*          $NHOLD,MID)
 639*           MID=1
 640*     C.... IF ON MIN. REQ. SECTION GO CALCULATE NEXT LEVEL
 641*       787 IF(NHOLD .EQ. 1)GO TO 667
 642*           GO TO 2050
 643*     C.... HIGHEST REPORT LEVEL OUTPUT
 644*      2100 IF(N .EQ. 2)GO TO 2159
 645*           IF(N .NE. 1 .AND. N .NE. 4)GO TO 2152
 646*           CALL OUTPUT(JSTART,JEND,II,IIVAR,IK,KMAX,1,LTYPE,ISTAT,NHOLD,MID)
 647*           MID=1
 648*           GO TO 2111
 649*      2152 IF(NHOLD .EQ. 1 .AND. IPMIN .NE. 1)GO TO 99999
 650*           CALL OUTPUT(JST,JSTEND,II,IIVAR,IK,KMAX,N,LTYPE,ISTAT,NHOLD,MID)
 651*           MID=1
 652*           GO TO 2111
 653*      2159 IF(NHOLD .EQ. 1 .AND. IRMIN .NE. 1)GO TO 99999
 654*           CALL OUTPUT(JST,JSTEND,II,IIVAR,IK,KMAX,N,LTYPE,ISTAT,NHOLD,MID)
 655*           MID=1
 656*      2111 IF(NHOLD .EQ. 1)GO TO 99999
 657*     C.... IF PER CENT REQUESTED GO TO PER CENT CALCS.
 658*      2593 IF(ISRPC .EQ. 1 .AND. N .EQ. 1)GO TO 2500
 659*           IF(IRPC .EQ. 1 .AND. N .EQ. 2)GO TO 2500
 660*           IF(IPPC .EQ. 1 .AND. N .EQ. 3)GO TO 2500
 661*           GO TO 9999
 662*      2500 IF(NHOLD .EQ. 1 .AND. N .EQ. 3)GO TO 99999
 663*           LTYPE=2
 664*     C.... CALCULATE PER CENT TABLES
 665*           DO 2503 I=II,IIVAR
 666*           DO 2503 J=JSTART,JEND
 667*           AREA=0
 668*           DO 2502 K=1,5
 669*           IF(N .EQ. 1)VAR=TAB(I,J,K)
 670*           IF(N .EQ. 2)VAR=PASS(I,J,K)
 671*           IF(N .EQ. 3)VAR=RPASS(I,J,K)
 672*      2502 AREA=AREA+VAR
 673*           DO 2501 LK=IK,KMAX
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 674*           IF(AREA .EQ. 0)GO TO 2501
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 675*           IF(N .EQ. 1 .AND. TAB(I,J,LK) .NE. 0)TAB(I,J,LK)=TAB(I,J,LK)/AREA*
 676*          $100
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 677*           IF(N .EQ. 2 .AND. PASS(I,J,LK) .NE. 0)PASS(I,J,LK)=PASS(I,J,LK)/AR
 678*          $EA*100
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 679*           IF(N .EQ. 3 .AND. RPASS(I,J,LK) .NE. 0)RPASS(I,J,LK)=RPASS(I,J,LK)
 680*          $/AREA*100
 681*      2501 CONTINUE
 682*      2503 CONTINUE
 683*           IF(N .EQ. 3)GO TO 2517
```

```
 684*      C.... CALCULATE PERCENT SUBTOTALS
 685*            DO 2505 I=II,IIVAR
 686*            DO 2505 J=LSTART,L
 687*            DO 2505 K=IK,KMAX
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 688*            IF(ALL(I,J) .EQ. 0)GO TO 2505
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
 689*            IF(AITEM(I,J,K) .NE. 0)AITEM(I,J,K)=AITEM(I,J,K)/ALL(I,J)*100
 690*       2505 CONTINUE
 691*      C.... DETERMINE REPORT LEVEL AND OUTPUT
 692*       2517 IF(N .EQ. 1 .OR. N .EQ. 4)CALL OUTPUT(JSTART,JEND,II,IIVAR,IK,KMAX
 693*           $,1,LTYPE,ISTAT,NHOLD,MID)
 694*            IF(N .EQ. 2 .OR. N .EQ. 3)CALL OUTPUT(JST,JSTEND,II,IIVAR,IK,KMAX,
 695*           $N,LTYPE,ISTAT,NHOLD,MID)
 696*            MID=1
 697*            LTYPE=1
 698*            IF(N .NE. 1 .OR. MINCOD .NE. 1)GO TO 1611
 699*      C.... IF HIGHEST REPORT SETUP FOR MIN. REQ. REPORTS
 700*            IF(LCODE .EQ. 1)GO TO 666
 701*       1611 IF(LCODE .EQ. N)GO TO 9999
 702*            IF(N .EQ. 4)GO TO 9999
 703*      C.... GO TO NEXT REPORT
 704*            GO TO 40
 705*      C.... CALCULATE MIN REQ TABLE
 706*       1600 IF(IK .NE. 1)PRINT 1607
 707*       1607 FORMAT(1DX,51HMUST USE STATUS LEVEL 1 FOR MIN. REQUIREMENTS TABLE)
 708*            IF(IK .NE. 1)GO TO 99999
 709*      C.... CALCULATE MIN. REQ. TABLE
 710*         19 DO 66 LLL=II,IMAX
 711*            DO 67 M=JST,JSTEND
 712*            AMIN(LLL,M,1)=TAB(LLL,M,1)-AMIN(LLL,M,1)
 713*         67 CONTINUE
 714*         66 CONTINUE
 715*            MINCOD=1
 716*            IF(ITURN .EQ. 0)GO TO 71
 717*            ITURN=0
 718*            N=LCODE
 719*      C.... SET UP FOR MIN. REQ. CALCS.
 720*       9999 IF(MINCOD .NE. 1)GO TO 99999
 721*            IF(NHOLD .EQ. 1)GO TO 667
 722*            KMAX=IK
 723*            II=IIII
 724*            IVRTCD=0
 725*            DO 9991 I=II,IMAX
 726*            DO 9991 J=1,LS
 727*            DO 9991 K=IK,KMAX
 728*       9991 PASS(I,J,K)=0
 729*            DO 9992 I=II,IMAX
 730*            DO 9992 J=1,LR
 731*            DO 9992 K=IK,KMAX
 732*       9992 RPASS(I,J,K)=0
 733*      C.... DETERMINE REPORT LEVEL TO RETURN TO.
 734*            IF(IPMIN .EQ. 1)GO TO 600
 735*            IF(IRMIN .EQ. 1)GO TO 500
 736*            GO TO 40
 737*      C.... SETUP FOR DIVISION LEVEL MIN. REQ. REPORT
 738*         666 N=3
 739*            NHOLD=1
 740*            KMAX=IK
 741*            GO TO 667
```

```
742*      C.... SET FOR SECOND PART OF FIXED WING AIRCRAFT AND HELICOPTER REPORT
743*      99999 IF(ISTAT .EQ. 3)GO TO 10001
744*            IF(LSTAT.NE.4)GO TO 10001
745*            N=0
746*            IMAX=NMAX
747*            I=LAIR
748*            ISTAT=3
749*            KMAX=IKMAX
750*            K=IK
751*            NHOLD=0
752*            JSTART=JST
753*            JEND=JSTEND
754*            MINCOD=0
755*            GO TO 1019
756*      10001 PRINT 733
757*        733 FORMAT(10X,14H END OF REPORT)
758*      C.... GO READ ANOTHER PARAMETER CARD
759*            GO TO 5506
760*      10000 IF(IERR .GT. 0 .OR. NEND .GT. 0)GO TO 11111
761*            CALL NTRAN(LFA,10)
762*            CALL NTRAN(LDR,10)
763*      C.... WRITE FILES FROM DRUM TO FASTRAND
764*            DO 91256 I=1,17
765*            IPOS=LDRUM(I,2)
766*            CALL NTRAN(LDR,2,IPOS,TAB,L)
767*      91257 IF(L+1)91254,91257
768*            CALL NTRAN(LFA,1,IPOS,TAB,L)
769*      91258 IF(L+1)91254,91258
770*      91256 CONTINUE
771*            GO TO 11111
772*      91254 PRINT 91259
773*      91259 FORMAT(10X,'ERROR IN TRANSFER BETWEEN FASTRAND AND DRUM')
774*      11111 CALL NTRAN(LFA,10)
775*            CALL NTRAN(LDR,10)
776*            STOP
777*            END

END OF COMPILATION:          8 DIAGNOSTICS.
```

```
SI .AIRSUM
CE1-10/01/74-11:09:52 (.0)

BROUTINE AIRSUM     ENTRY POINT 000447

ORAGE USED: CODE(1) 000556; DATA(0) 000074; BLANK COMMON(2) 064300

TERNAL REFERENCES (BLOCK, NAME)

003    OUTPUT
004    NERR3$

ORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

001    000242 101L       0001    000052 116B       0001    000053 121B       0001    000063 127B       0(
001    000074 140B       0001    000075 143B       0001    000107 151B       0001    000110 154B       0(
001    000140 173B       0001    000217 211B       0001    000220 214B       0001    000254 232B       0(
001    000334 253B       0001    000404 271B       0001    000376 5L         0001    000233 70L        0(
001    000347 80L        0001    000356 85L        0002 R  053270 AIRHOL     0002    061552 AITEM      0(
002    044104 AMIN       0000 I  000017 I          0000 I  000030 IJ         0000 I  000031 IJJ        0(
000 I  000000 IRE        0000 I  000003 ISRE       0000 I  000015 J          0000 I  000022 JI         0(
000 I  000021 JJ         0000 I  000027 JJJ        0000 I  000016 K          0000 I  000024 L          0(
002    064236 LDRUM      0000 I  000025 LJ         0000 I  000014 LQ         0000 I  000010 LR         0(
000 I  000013 LW         0000 I  000020 NOREG      0000 I  000026 NOSR       0002    053732 PASS       0(
002    057424 RPASS      0002 R  053662 SUBAIR     0002 R  000000 TAB

     1*            SUBROUTINE AIRSUM(II,IMAX,IK,KMAX,JSTART,JEND,LC,N,ISTAT,MID)
     2*      C
     3*      C.... CALCULATE AIRCRAFT TOTALS BY DIVISION,SUBREGION,REGION
     4*      C
     5*            COMMON TAB(74,50,5),AMIN(74,50,1),AIRHOL(1,50,5),SUBAIR(1,5,5),REG
     6*           $AIR(1,3,5),PASS(74,5,5),RPASS(74,3,5),AITEM(74,3,5),ALL(74,3),LDRU
     7*           $M(17,2)
     8*            DIMENSION IRE(3),ISRE(5)
     9*            DATA IRE/16,36,50/
    10*            DATA ISRE/8,16,26,36,50/
    11*            DATA LR,LS,LDIV/3,5,50/
    12*            DO 1 LW=1,LDIV
    13*            DO 1 LQ=1,5
    14*          1 AIRHOL(1,LW,LQ)=0
    15*            DO 2 LW=1,LS
    16*            DO 2 LQ=1,5
    17*          2 SUBAIR(1,LW,LQ)=0
    18*            DO 3 LW=1,LR
    19*            DO 3 LQ=1,5
    20*          3 REGAIR(1,LW,LQ)=0
    21*            DO 4 J=JSTART,JEND
    22*            DO 4 K=IK,KMAX
    23*            DO 4 I=II,IMAX
    24*      C.... DIVISION TOTAL
    25*          4 AIRHOL(1,J,K)=AIRHOL(1,J,K)+TAB(I,J,K)
    26*            IF(LC .NE. 0)GO TO 5
    27*         10 NOREG=LR
```

```
      JJ=0
      JI=0
      DO 70 J=1,NOREG
      IF(JSTART .GT. IRE(J))GO TO 70
      IF(JI .EQ. 0)JII=J
      IF(JI .EQ. 0)JI=JSTART
      L=IRE(J)
      IF(JEND .LE. IRE(J))JJ=J
      IF(JEND .LE. IRE(J))L=JEND
      DO 100 K=IK,KMAX
      DO 100 LJ=JI,L
C.... REGION TOTAL
  100 REGAIR(1,J,K)=REGAIR(1,J,K)+AIRHOL(1,LJ,K)
      IF(JJ .NE. 0)GO TO 101
   70 IF(JI .NE. 0)JI=IRE(J)+1
  101 NOSR=LS
      JJJ=0
      IJ=0
      DO 80 J=1,NOSR
      IF(JSTART .GT. ISRE(J))GO TO 80
      IF(IJ .EQ. 0)IJJ=J
      IF(IJ .EQ. 0)IJ=JSTART
      L=ISRE(J)
      IF(JEND .LE. ISRE(J))JJJ=J
      IF(JEND .LE. ISRE(J))L=JEND
      DO 90 K=IK,KMAX
      DO 90 LJ=IJ,L
C.... SUBREGION TOTAL
   90 SUBAIR(1,J,K)=SUBAIR(1,J,K)+AIRHOL(1,LJ,K)
      IF(JJJ .NE. 0)GO TO 85
   80 IF(IJ .NE. 0)IJ=ISRE(J)+1
   85 CALL OUTPUT(JSTART,JEND,II,IMAX,IK,KMAX,1,1,ISTAT,0,MID)
      MID=1
      GO TO 8
    5 DO 6 J=JSTART,JEND
C.... REGION TOTAL SPECIAL AREAS
    6 REGAIR(1,LC,1)=REGAIR(1,LC,1)+AIRHOL(1,J,1)
C.... OUTPUT AIRCRAFT REPORT
      CALL OUTPUT(JSTART,JEND,II,IMAX,IK,KMAX,N,1,ISTAT,0,MID)
      MID=1
    8 RETURN
      END
```

END OF COMPILATION: NO DIAGNOSTICS.

```
ST .CONTRL
E1-10/01/74-11:09:58 (.0)

BROUTINE CONTRL     ENTRY POINT 000232

ORAGE USED: CODE(1) 000263; DATA(0) 000370; BLANK COMMON(2) 000000

ERNAL REFERENCES (BLOCK, NAME)

003    NTRAN
004    NPRT$
005    NIO2$
006    NERR3$

ORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

001    000170 10L        0001    000102 12L        0001    000073 126G       0001    000172 156G       00
001    000212 18L        0001    000112 20L        0000    000334 21F        0000    000343 22F        00
000    000316 31F        0001    000041 40L        0001    000023 78L        0001    000221 99L        00
000 I  000000 ICODE      0000    000354 INJP$      0000 I  000304 L         0000 I  000303 LDR


     1*           SUBROUTINE CONTRL(IPARTY,MCODE,JSTART,JEND,NEND,IDONE,IPOS)
     2*     C
     3*     C.... CHECK PASS NUMBER FOR VALIDITY
     4*     C
     5*           DIMENSION ICODE(65,3)
     6*           LDR=8
     7*           NEND=0
     8*           IF(IDONE .GE. 1)GO TO 40
     9*           CALL NTRAN(LDR,10)
    10*     C.... READ IN PASSNUMBER TABLE
    11*           CALL NTRAN(LDR,2,195,ICODE,L)
    12*        78 IF(L .EQ. -1)GO TO 78
    13*           IF(L .EQ. -2)GO TO 17
    14*           IF(L .EQ. -3)GO TO 18
    15*           IDONE=1
    16*        40 IF(IPARTY .EQ. 3 .OR. IPARTY .EQ. 4)GO TO 10
    17*           IF(IPARTY .NE. 1.AND. IPARTY .NE. 2)GO TO 99
    18*     C.... CHECK PASSNUMBER CODES FOR REGULAR AREAS
    19*           DO 5 I=1,59
    20*           IF(MCODE .EQ. ICODE(I,1))GO TO 20
    21*         5 CONTINUE
    22*        12 PRINT 30,MCODE
    23*        30 FORMAT (1H1,///,10X,I3,27H IS NOT A VALID PASS NUMBER)
    24*           NEND=1
    25*           GO TO 99
    26*        20 IF(JSTART .LT. ICODE(I,2) .OR. JSTART .GT. ICODE(I,3))NEND=1
    27*           IF(JEND .LT. ICODE(I,2) .OR. JEND .GT. ICODE(I,3))NEND=1
    28*           IF(NEND .NE. 1)GO TO 99
    29*           PRINT 31,MCODE
    30*        31 FORMAT(1H1,///,10X,61H DIVISION START OR END POINT IS OUTSIDE LIMI
    31*          $T FOR PASSNUMBER ,I3)
    32*           GO TO 99
```

```
33*      C.... CHECK PASSNUMBER CODES FOR SPECIAL AREAS
34*         10 DO 6 I=60,65
35*            IF(MCODE .EQ. ICODE(I,1))GO TO 20
36*          6 CONTINUE
37*            GO TO 12
38*         17 PRINT 21,IPOS
39*         21 FORMAT(10X,'TRANSMISSION ERROR CONTRL ',I5)
40*            NEND=1
41*            GO TO 99
42*         18 PRINT 22,IPOS
43*         22 FORMAT(10X,'DEVICE ERROR CONTRL ',I5)
44*            NEND=1
45*         99 RETURN
46*            END

END OF COMPILATION:        NO  DIAGNOSTICS.
```

```
000 I 002771 NN          0000 I 002744 NNTRAN     0000 I 003000 NP          0000 I 002750 NPASS      00
000 I 002753 NSITE       0000 I 002754 NSITES     0000 I 002761 NST         0000 I 002756 NSTM       00
000 I 002755 NSTR        0002   053732 PASS       0000 R 002730 Q           0002   053713 REGAIR     00
000 R 002731 S           0000 R 001604 SIO        0000 R 000016 STAT        0002   053662 SUBAIR
```

```
 1*            SUBROUTINE INPUT(MINUP,IUP,ISTAT,NEND,IPARTY,MCODE,IDONE,IPOS,NUM)
 2*      C
 3*      C.... READS IN DATA FILES AND PROCESSES ALPHA UPDATES
 4*      C
 5*            DIMENSION ANM(10),NM(4),STAT(6),A(800),DATA(80)
 6*            DIMENSION SIO(50,3),E(74,6)
 7*            COMMON ENT(74,50,5),AMIN(74,50,1),AIRHOL(1,50,5),SUBAIR(1,5,5),REG
 8*           $AIR(1,3,5),PASS(74,5,5),RPASS(74,3,5),AITEM(74,3,5),ALL(74,3),LDRU
 9*           $M(17,2)
10*            DATA BL/' '/,C/'.'/,Q/'+'/,S/'$'/,STAT/'A','B','C','D','E','F'/
11*            DATA ANM/'1','2','3','4','5','6','7','8','9','0'/,AM/'-'/
12*            LDR=8
13*            LR=5
14*            LP=6
15*      C     CHECK FOR TWO UPDATES WITHIN THE SAME RUN
16*            IF(MINUP.EQ.1.AND.IUP.EQ.1)GO TO 110
17*      C
18*      C     K1 IS THE LENGTH IN CHARACTERS OF THE SITE ID
19*      C     K2 IS THE LENGTH OF THE EQUIPMENT NAME
20*      C     K3 IS THE NO. OF DIGITS IN THE EQUIPMENT NUMBER
21*      C     K4 IS THE SIZE OF ANM
22*      C     K5 IS THE SIZE OF THE SCAN FIELD ON THE DATA CARDS
23*      C     K6 IS THE SIZE OF THE SCAN FIELD IN ERROR PHASE
24*      C
25*            K1=3
26*            K2=6
27*            K3=4
28*            K4=10
29*            K5=30
30*            K6=30
31*      C     NO. OF ENTRIES UPDATED
32*            NNTRAN=0
33*      C     BRANCHING INDICATOR
34*            MS=0
35*            NEND=0
36*            LKT=0
37*      C     JADJ IS AN ADJUTMENT FACTOR USED IN CALCULATING THE CARD COLUMN
38*            JADJ=0
39*            NPASS=0
40*            L1=1
41*            L2=800
42*      C     TABLE READING ROUTINE
43*      C
44*      C     NUMBER OF SITES
45*            NSITE=50
46*      C     SPECIAL AREAS SITES
47*            NSITES=25
48*      C     REGULAR STATUS LEVEL
49*            NSTR=5
50*      C     MINIMUM REQUIREMENTS STATUS LEVEL....ALSO FOR SPECIAL AREAS
51*            NSTM=1
52*      C     SIZE OF GROUND EQUIPMENT
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```
53*           NEQG=74
54*     C     SIZE OF AIR EQUIPMENT
55*           NEQA=62
56*           IPOS=LDRUM(2,1)
57*           IF(IUP.LT.3.OR.IUP.GT.4)GO TO 120
58*           IPOS=LDRUM(3,1)
59*           NSITE=NSITES
60*           NST=NSTM
61*           NEQ=NEQG
62*           LD=17
63*           GO TO 121
64*       120 NST=NSTR
65*           NEQ=NEQG
66*           IF(NUM.GT.0)GO TO 300
67*       121 CALL NTRAN(LDR,10)
68*           CALL NTRAN(LDR,6,IPOS)
69*      1101 CALL NTRAN(LDR,2,150,SIO,L)
70*      1102 IF(L .EQ. -1)GO TO 1102
71*           IF(L .EQ. -2)GO TO 1103
72*           IF(L .EQ. -3)GO TO 1104
73*           IF(ISTAT.GT.1)NEQ=NEQA
74*     C     EQ NAMES READ
75*           IPOS=LDRUM(4,1)
76*           IF(ISTAT .GT. 1)IPOS=LDRUM(5,1)
77*           CALL NTRAN(LDR,10)
78*           CALL NTRAN(LDR,6,IPOS)
79*      1105 CALL NTRAN(LDR,2,444,E,L)
80*      1106 IF(L .EQ. -1)GO TO 1106
81*           IF(L .EQ. -2)GO TO 1103
82*           IF(L .EQ. -3)GO TO 1104
83*       300 IPOS=LDRUM(6,1)
84*           IF(ISTAT.GT. 1)IPOS=LDRUM(7,1)
85*           IF(IUP.LT.3.OR.IUP.GT.4)GO TO 123
86*           IPOS=LDRUM(8,1)
87*           IF(ISTAT .GT. 1)IPOS=LDRUM(9,1)
88*           CALL NTRAN(LDR,10)
89*           CALL NTRAN(LDR,6,IPOS)
90*           CALL NTRAN(LDR,2,3700,AMIN,L)
91*      1108 IF(L .EQ. -1)GO TO 1108
92*           IF(L .EQ. -2)GO TO 1103
93*           IF(L .EQ. -3)GO TO 1104
94*           DO 1109 I=1,74
95*           DO 1109 J=1,50
96*      1109 ENT(I,J,1)=AMIN(I,J,1)
97*           GO TO 106
98*       123 CALL NTRAN(LDR,10)
99*           CALL NTRAN(LDR,6,IPOS)
100*     1107 CALL NTRAN(LDR,2,18500,ENT,L)
101*     1110 IF(L .EQ. -1)GO TO 1110
102*          IF(L .EQ. -2)GO TO 1103
103*          IF(L .EQ. -3)GO TO 1104
104*    C     NO UPDATES REQUESTED
105*      106 IF(IUP.EQ.4)GO TO 206
106*          IF(NUM.EQ.0)GO TO 302
107*          IF(IUP.NE.3)GO TO 303
108*      306 CALL NUMBER(NSITE,NST,NEQ,NEND,NNTRAN,IPARTY,MCODE,IDONE,MINUP,LR,
109*         1LP)
110*          GO TO 100
111*      302 IF(IUP.EQ.3)GO TO 16
112*      303 IF(IUP.EQ.0.AND.MINUP.EQ.0)GO TO 206
```

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  113*            IF(NUM.EQ.C)GO TO 304
  114*            IF(MINUP.EQ.C)GO TO 306
  115*            IF(ISTAT.GT.1)GO TO 306
  116*            GO TO 305
  117*          304 IF(MINUP.EQ.0)GO TO 16
  118*            IF(ISTAT.GT.1)GO TO 16
  119*          305 IPOS=LDRUM(10,1)
  120*            NST=NSTM
  121*            CALL NTRAN(LDR,10)
  122*            CALL NTRAN(LDR,6,IPOS)
  123*            CALL NTRAN(LDR,2,3700,AMIN,L)
  124*         1111 IF(L .EQ. -1)GO TO 1111
  125*            IF(L .EQ. -2)GO TO 1103
  126*            IF(L .EQ. -3)GO TO 1104
  127*        C     NO MIN REQ UPDATE REQUESTED
  128*          216 IF(MINUP.EQ.2)GO TO 206
  129*            IF(NUM.EQ.1)GO TO 306
  130*           16 DO 25 I=L1,L2
  131*            A(I)=0
  132*           25 CONTINUE
  133*            KT=0
  134*        C     ROUTINE FOR READING INPUT DATA
  135*        C
  136*        C     LOAD IS THE SIZE INDEX OF THE DATA ARRAY
  137*            LOAD=L1
  138*        C     DATA IS READ IN BLOCKS OF 10 EIGHTY COLUMN RECORDS
  139*            DO 101 J=1,10
  140*        C     INPUT DATA READ
  141*            READ(LR,2,END=1)     (DATA(L),L=1,80)
  142*            2 FORMAT (80A1)
  143*        C     CHECK FOR END OF DATA
  144*            DO 103 L=1,10
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  145*            IF(DATA(L).NE.ANM(9))GO TO 104
  146*          103 CONTINUE
  147*            GO TO 1
  148*        C     LOADING DATA ARRAY
  149*          104 DO 105 L=1,80
  150*            A(LOAD)=DATA(L)
  151*            LOAD=LOAD+1
  152*          105 CONTINUE
  153*          101 CONTINUE
  154*            1 NPASS=NPASS+1
  155*            IF(NPASS.EQ.1)GO TO 23
  156*            KT=1
  157*            GO TO 26
  158*        C
  159*        C     SITE SEARCH
  160*        C
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  161*           23 IF(A(KT+1).NE.BL)GO TO 28
  162*            MS=1
  163*            GO TO 14
  164*           10 MS=0
  165*            KT=KT-1
  166*           28 DO 21 J=1,NSITE
  167*            DO 20 I=1,K1
  168*            NN=I
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  169*            IF(A(KT+I).NE.SIO(J,I))GO TO 21
```

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  170*          20 CONTINUE
  171*      C      SITE IDENTIFIER
  172*             IS=J
  173*             KT=KT+4
  174*             CALL CONTRL(IPARTY,MCODE,IS,IS,NEND,IDONE,IPOS)
  175*             IF(NEND.EQ.1)GO TO 500
  176*             GO TO 24
  177*          21 CONTINUE
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  178*             IF(A(KT+1).NE.BL)GO TO 44
  179*             MS=1
  180*             GO TO 44
  181*          42 LKT=0
  182*          24 IF(KT+40.LE.L2)GO TO 26
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  183*             IF(A(L2).EQ.0)GO TO 26
  184*      C
  185*      C      END ROUTINE
  186*      C
  187*          15 J=0
  188*             DO 17 I=KT,L2
  189*             J=J+1
  190*             A(J)=A(I)
  191*          17 CONTINUE
  192*             JADJ=J
  193*             L1=J+1
  194*             GO TO 16
  195*      C      IF MS IS 1, CONTROL RETURNS TO SITE ID.
  196*          26 IF(MS.EQ.1)GO TO 10
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  197*             IF(A(KT).EQ.0)GO TO 50
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  198*             IF(A(KT).NE.S)GO TO 61
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  199*             IF(A(KT+1).EQ.0)GO TO 100
  200*             GO TO 23
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  201*          61 IF(A(KT).EQ.BL)GO TO 46
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  202*             IF(A(KT).EQ.C.AND.MS.EQ.2)MS=0
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  203*             IF(A(KT).EQ.C)GO TO 27
  204*      C      IF MS IS 2, CONTROL RETURNS TO NAME ID
  205*             IF(MS.EQ.2)GO TO 18
  206*      C      SKIP FOR COMMA ROUTINE
  207*          14 KT=KT+1
  208*             LKT=LKT+1
  209*             IF(LKT.GT.K5)GO TO 30
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  210*             IF(A(KT).EQ.0.AND.MS.EQ.1)GO TO 100
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  211*             IF(A(KT).EQ.0)GO TO 50
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  212*             IF(A(KT).EQ.C.OR.A(KT).EQ.S)GO TO 42
  213*             GO TO 14
  214*      C
  215*      C       NAME ROUTINE
  216*      C
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  217*          27 IF(A(KT+1).EQ.C)GO TO 14
```

```
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  218*           IF(A(KT+1).EQ.0)GO TO 50
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  219*           IF(A(KT+1).NE.S)GO TO 22
  220*           KT=KT+1
  221*           GO TO 23
  222*        18 MS=0
  223*           KT=KT-1
  224*        22 DO 5 J=1,NEQ
  225*           DO 4 I=1,K2
  226*           NN=I
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  227*           IF(A(KT+I).EQ.E(J,I))GO TO 4
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  228*           IF(A(KT+I).NE.BL)GO TO 5
  229*           IF(I.GT.1)GO TO 46
  230*           MS=2
  231*           GO TO 14
  232*         4 CONTINUE
  233*           NE=J
  234*           KT=KT+7
  235*           GO TO 6
  236*         5 CONTINUE
  237*           GO TO 32
  238*     C
  239*     C     STATUS CODE ROUTINE
  240*     C
  241*         6 IF(MINUP.NE.1)GO TO 3
  242*     C     STATUS CODE FOR MIN REQ ENTRIES IS F
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  243*           IF(A(KT).NE.STAT(6))GO TO 108
  244*           NS=1
  245*           GO TO 8
  246*         3 NST=NSTR
  247*           DO 7 I=1,NST
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  248*           IF(A(KT)  .NE.STAT(I))GO TO 7
  249*           NS=I
  250*           GO TO 8
  251*         7 CONTINUE
  252*       108 KT=KT-7
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  253*           IF(A(KT)  .EQ.C)GO TO 52
  254*           GO TO 34
  255*     C
  256*     C     NUMBER ROUTINE
  257*     C     MSUB IS 0  ADD ENTRY
  258*     C     MSUB IS 1  SUBTRACT ENTRY
  259*         8 MSUB=0
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  260*           IF(A(KT+1).EQ.AM)MSUB=1
  261*           IF(MSUB.EQ.1)KT=KT+1
  262*           DO 12 I=1,K3
  263*           IF(I.EQ.1)GO TO 60
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  264*           IF(A(KT+I).EQ.C.OR.A(KT+I).EQ.S)GO TO 29
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  265*           IF(A(KT+I).NE.BL)GO TO 71
  266*           KT=KT-7-MSUB
  267*           GO TO 46
```

```
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  268*         71 IF(A(KT+I).EQ.Q)GO TO 29
  269*         60 DO 11 K=1,K4
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  270*            IF(A(KT+I).NE.ANM(K))GO TO 11
  271*            NM(I)=K
  272*            IF(K.EQ.10)NM(I)=0
  273*            NN=I
  274*            GO TO 12
  275*         11 CONTINUE
  276*            KT=KT-7-MSUB
  277*            IF(I.EQ.1)GO TO 36
  278*            GO TO 38
  279*         12 CONTINUE
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  280*         29 IF(A(KT+1+NN).EQ.C)GO TO 9
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  281*            IF(A(KT+1+NN).EQ.S)GO TO 9
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  282*            IF(A(KT+1+NN).EQ.Q)GO TO 9
  283*            KT=KT-7-MSUB
  284*            GO TO 40
  285*      C
  286*      C      TRANSLATION TO NUMBERS
  287*      C
  288*          9 KT=KT+NN+1
  289*      C     NSTORE IS TEMPORARY STORAGE FOR NT AMOUNTS
  290*            NSTORE=0
  291*            DO 13 I=1,NN
  292*            IF(I.EQ.1.AND.NM(I).LE.0)GO TO 68
  293*            IF(NM(I).LE.0)GO TO 13
  294*            NP=NN-I
  295*            NSTORE=NSTORE+NM(I)*10**NP
  296*         13 CONTINUE
  297*            IF(MSUB.EQ.1)NSTORE=-NSTORE
  298*            IF(IUP.EQ.1)ENT(NE,IS,NS)=ENT(NE,IS,NS)+NSTORE
  299*            IF(IUP.EQ.3)ENT(NE,IS,NS)=ENT(NE,IS,NS)+NSTORE
  300*            IF(MINUP.EQ.1)AMIN(NE,IS,NS)=AMIN(NE,IS,NS)+NSTORE
  301*            IF(IUP.EQ.0.OR.IUP.EQ.4)GO TO 114
  302*            IF(ENT(NE,IS,NS).LT.0.0)GO TO 112
  303*            IF(ENT(NE,IS,NS).GT.9999.0)GO TO 112
  304*        114 IF(MINUP.NE.1)GO TO 115
  305*            IF(AMIN(NE,IS,NS).LT.0.0)GO TO 112
  306*            IF(AMIN(NE,IS,NS).GT.9999.0)GO TO 112
  307*        115 NNTRAN=NNTRAN+1
  308*            GO TO 24
  309*         68 KT=KT-NN-8
  310*            GO TO 69
  311*      C
  312*      C     DIAGNOSTIC MESSAGES AND ROUTINES
  313*      C
  314*         30 IF(MS.EQ.1)GO TO 100
  315*      C     END SCAN FOR INPROPER TERMINATION
  316*            DO 74 I=1,K5
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  317*            IF(A(KT+NN+I).EQ.BL)GO TO 74
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  318*            IF(A(KT+NN+I).EQ.Q)GO TO 50
  319*            WRITE(LP,31)
  320*         31 FORMAT(' *ERROR* A SERIES OF 30 OR MORE GARBAGE OR BLANK CARD COLU
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321*           1MNS HAVE BEEN FOUND.*)
322*              GO TO 95
323*         74 CONTINUE
324*              GO TO 95
325*         32 DO 65 J=1,NSITE
326*              DO 66 I=1,K1
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
327*              IF(A(KT+I).NE.SIO(J,I))GO TO 65
328*         66 CONTINUE
329*              WRITE(LP,67)
330*         67 FORMAT ( ' *ERROR* NEW SITE GIVEN WITHOUT TERMINATING THE OLD ONE'
331*           1)
332*              GO TO 95
333*         65 CONTINUE
334*              WRITE(LP,33)
335*         33 FORMAT (' *WARNING* THE EQUIPMENT NAME IN THE FOLLOWING ENTRY IS I
336*           1N ERROR.')
337*              GO TO 90
338*         34 WRITE(LP,35)
339*         35 FORMAT(' *WARNING* THE EQUIPMENT STATUS CODE IS INCORRECT')
340*              GO TO 90
341*         52 WRITE(LP,53)
342*         53 FORMAT (' *WARNING* THE EQUIPMENT STATUS CODE IS MISSING')
343*              GO TO 90
344*         36 WRITE(LP,37)
345*         37 FORMAT (' *WARNING** NO NUMERICAL VALUE FOLLOWS ')
346*              GO TO 90
347*         38 WRITE(LP,39)
348*         39 FORMAT (' *WARNING* THE VALUE FOR THE FOLLOWING ENTRY IS INCORRECT
349*           1')
350*              GO TO 90
351*         69 WRITE(LP,70)
352*         70 FORMAT  (' *WARNING* LEADING ZEROES IN NUMERICAL VALUES ARE NOT PE
353*           1RMITTED')
354*              GO TO 90
355*         40 WRITE(LP,41)
356*         41 FORMAT (' *WARNING* THERE IS NO COMMA AFTER THE FOLLOWING ENTRY')
357*              GO TO 90
358*         44 WRITE(LP,45)
359*         45 FORMAT (' *ERROR* SITE IDENTIFICATION IS MISSING OR MISSPELLED.')
360*              GO TO 95
361*         46 WRITE(LP,47)
362*         47 FORMAT (' *WARNING* THERE IS A BLANK COLUMN IN THE DATA.')
363*              GO TO 90
364*         50 KT=KT-1
365*              WRITE(LP,51)
366*         51 FORMAT (' *ERROR* CONTINUATION IS EXPECTED BUT NO DATA FOLLOWS.')
367*              GO TO 95
368*        112 WRITE(LP,113)
369*        113 FORMAT (' *ERROR* THE FOLLOWING ENTRY HAS CAUSED THE CORRESPONDING
370*           1 STORED ENTRY TO BE EITHER LESS THAN 0 OR GREATER THAN 9999.')
371*              GO TO 95
372*        110 WRITE(LP,111)
373*        111 FORMAT  (' *ERROR* TWO UPDATES ARE NOT PERMITTED ON THE SAME RUN.'
374*           1)
375*              GO TO 500
376*      C
377*      C     RECOVERY AFTER ERROR ROUTINE
378*      C
379*         95 NEND=1
```

```
  380*          90 NCD=KT/80+(NPASS-1)*10 +1
  381*             KAD=KT-JADJ
  382*             NCOL=KAD-(KAD/80)*80+1
  383*             IF(KT.LT.80)NCOL=KT+1
  384*             IF(NEND.GT.0)GO TO 91
  385*             DO 62 I=1,K6
  386*             NN=I
*DIAGNOSTIC*   THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  387*             IF(A(KT+I).EQ.C)GO TO 63
*DIAGNOSTIC*   THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  388*             IF(A(KT+I).EQ.S)GO TO 63
*DIAGNOSTIC*   THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  389*             IF(A(KT+I).EQ.Q)GO TO 63
  390*          62 CONTINUE
  391*          63 WRITE(LP,64)  (A(KT+I),I=1,NN)
  392*          64 FORMAT (' *********  THE ENTRY IN ERROR IS ',80A1)
  393*             KT=KT+NN
  394*             WRITE(LP,48) NCOL,NCD
  395*          48 FORMAT (' *****THE ERROR OCCURRED AT COLUMN',I3,' OF DATA CARD',
  396*            1I3,/ '      EXECUTION WILL CONTINUE AT THE NEXT LEGITIMATE ENTRY'/)
  397*             LKT=0
*DIAGNOSTIC*   THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
  398*             IF(A(KT).EQ.BL)GO TO 14
  399*             GO TO 24
  400*       C
  401*       C     TERMINATION OF EXECUTION ROUTINE
  402*       C
  403*          91 WRITE(LP,49) NCOL,NCD
  404*          49 FORMAT (    ' *****PROCESSING IS TERMINATED DUE TO ABOVE ERRORS.'
  405*            1/'      TERMINATION OCCURRED AT COLUMN',I3,' OF DATA CARD',I4)
  406*             IF(NEND.EQ.1)GO TO 500
  407*         100 WRITE(LP,72) NNTRAN
  408*          72 FORMAT (///1X,I6,' ENTRIES WERE UPDATED SUCCESSFULLY THIS RUN.')
  409*       C
  410*       C    WRITE ROUTINE FOR TABLES
  411*       C
  412*             IF(IUP.EQ.3)GO TO 122
  413*             IPOS=LDRUM(6,1)
  414*             NEQ=NEQG
  415*             NST=NSTR
  416*             IF(ISTAT.GT.1)NEQ=NEQA
  417*             IF(ISTAT.GT.1)IPOS=LDRUM(7,1)
  418*             IF(IUP.LE.0)GO TO 107
  419*             CALL NTRAN(LDR,10)
  420*             CALL NTRAN(LDR,6,IPOS)
  421*             CALL NTRAN(LDR,1,18500,ENT,L)
  422*         1119 IF(L .EQ. -1)GO TO 1119
  423*             IF(L .EQ. -2)GO TO 1117
  424*             IF(L .EQ. -3)GO TO 1118
  425*             GO TO 500
  426*          122 DO 1115 I=1,74
  427*             DO 1115 J=1,50
  428*         1115 AMIN(I,J,1)=ENT(I,J,1)
  429*             IPOS=LDRUM(8,1)
  430*             IF(ISTAT .GT. 1)IPOS=LDRUM(9,1)
  431*             CALL NTRAN(LDR,10)
  432*             CALL NTRAN(LDR,6,IPOS)
  433*             CALL NTRAN(LDR,1,3700,AMIN,L)
  434*         1116 IF(L .EQ. -1)GO TO 1116
  435*             IF(L .EQ. -2)GO TO 1117
```

```
436*            IF(L .EQ. -3)GO TO 1118
437*            IF(IUP.EQ.3)GO TO 500
438*        107 IF(MINUP.NE.1)GO TO 500
439*            IF(ISTAT.GT.1)GO TO 500
440*            NST=NSTM
441*            IPOS=LDRUM(10,1)
442*            CALL NTRAN(LDR,10)
443*            CALL NTRAN(LDR,6,IPOS)
444*            CALL NTRAN(LDR,1,3700,AMIN,L)
445*       1120 IF(L .EQ. -1)GO TO 1120
446*            IF(L .EQ. -2)GO TO 1117
447*            IF(L .EQ. -3)GO TO 1118
448*            GO TO 500
449*        206 WRITE(LP,207)
450*        207 FORMAT (' *****NO UPDATE REQUESTED.')
451*            GO TO 500
452*       1117 PRINT 1131,IPOS
453*       1131 FORMAT(10X,'EOF REACHED ',I5)
454*            NEND=1
455*            GO TO 500
456*       1118 PRINT 1132,IPOS
457*       1132 FORMAT(10X,'DEVICE ERROR INPUT WRITE ',I5)
458*            NEND=1
459*            GO TO 500
460*       1103 PRINT 1133,IPOS
461*       1133 FORMAT(10X,'TRANSMISSION ERROR INPUT ',I5)
462*            NEND=1
463*            GO TO 500
464*       1104 PRINT 1134,IPOS
465*       1134 FORMAT(10X,'DEVICE ERROR READ ',I5)
466*            NEND=1
467*        500 RETURN
468*            END

END OF COMPILATION:          37 DIAGNOSTICS.
```

```
;I .NUM
:E1-10/01/74-11:10:21 (.0)

'ROUTINE NUMBER     ENTRY POINT 000456

'RAGE USED: CODE(1) 000526; DATA(0) 000316; BLANK COMMON(2) 064236

'ERNAL REFERENCES (BLOCK. NAME)

:03    CONTRL
:04    NRDU$
:05    NI02$
:06    NI01$
:07    NWDU$
:10    NERR3$

)RAGE ASSIGNMENT  (BLOCK. TYPE. RELATIVE LOCATION. NAME)

)00    000052 1F          0001    000315 10L         0001    000444 100L        0000    000057 11F         00
)01    000076 127G        0000    000066 13F         0001    000334 14L         0001    000112 141G        00
)01    000143 154G        0001    000342 16L         0000    000120 17F         0001    000350 18L         00
:00    000054 2F          0001    000356 20L         0000    000145 21F         0001    000364 22L         00
)01    000373 24L         0000    000174 25F         0001    000402 26L         0000    000213 27F         00
'01    000414 30L         0000    000234 31F         0001    000435 32L         0000    000256 33F         00
)01    000130 42L         0001    000001 5L          0001    000066 50L         0001    000206 6L          00
)01    000263 8L          0001    000303 9L          0002    053270 AIRHOL      0002    061552 AITEM       00
)02 R  044104 AMIN        0000 R  000041 C           0000 R  000020 ENO         0002 R  000000 ENT         00
)00 I  000000 IEQ         0000    000301 INJP$       0000 I  000045 IPOS        0000 I  000043 IS          00
)00 I  000010 IST         0000 I  000047 K           0000 I  000042 NCARD       0000 I  000050 NE          00
)02    053732 PASS        0002    053713 REGAIR      0002    057424 RPASS       0000 R  000040 S           00
)02    053662 SUBAIR
```

```
      1*            SUBROUTINE NUMBER (NSITE,NST,NEQ,NEND,NTRAN,IPARTY,MCODE,IDONE,
      2*           1MINUP,LR,LP)
      3*      C
      4*      C     SUBROUTINE NUMBER ALLOWS THE INPUT OF DATA IN NUMERICAL FORM.
      5*      C
      6*            DIMENSION IEQ(8),IST(8),ENO(8),SEP(8)
      7*            COMMON ENT(74,50,5),AMIN(74,50,1),AIRHOL(1,50,5),SUBAIR(1,5,5),REG
      8*           $AIR(1,3,5),PASS(74,5,5),RPASS(74,3,5),AITEM(74,3,5),ALL(74,3)
      9*            DATA S/'.'/,C/','/
     10*      C     NCARD COUNTS THE NO OF CARDS READ
     11*            NCARD=0
     12*      C     SITE READ
     13*          5 READ (LR,1,END=100,ERR=26)  IS,ISS
     14*          1 FORMAT (I3,I1)
     15*            NCARD=NCARD+1
     16*      C
     17*      C     CHECK SITE
     18*      C
     19*            IF(IS.EQ.999.AND.ISS.EQ.9)RETURN
     20*            IF( IS.LE.0.OR. IS.GT.NSITE)GO TO 10
     21*            IF(MCODE .NE. 211)CALL CONTRL(IPARTY,MCODE,IS,IS,NEND,IDONE,IPOS)
```

```
      C
      C     DATA READ
      C
   50 READ (LR,2,END=14, ERR=26) (IEQ(I),IST(I),ENO(I),SEP(I),I=1,8)
    2 FORMAT (8(I3,I1,F5.0,A1))
      NCARD=NCARD+1
      C
      C     PRE-SCAN OF DATA CARD
      C
      DO 41 I=1,8
      K=I
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
      IF(SEP(I).EQ.C)GO TO 41
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
      IF(SEP(I).NE.S)GO TO 16
      GO TO 42
   41 CONTINUE
   42 DO 3 I=1,8
      K=I
      C    CHECK FOR END OF JOB
      IF(IEQ(I).EQ.999.AND.IST(I).EQ.9)GO TO 100
      IF(IEQ(I).LT.0.OR.IEQ(I).GT.NEQ)GO TO 12
      IF(MINUP.NE.1)GO TO 6
      IF(IST(I).NE.6)GO TO 18
      GO TO 7
    6 IF(IST(I).LT.1.OR.IST(I).GT.5)GO TO 20
      C
      C     EQUIPMENT NAME
    7 NE=IEQ(I)
      C
      C    STATUS CODE
      NS=IST(I)
      IF(NS.EQ.6)NS=1
      IF(MINUP.EQ.1)GO TO 8
      ENT(NE,IS,NS)=ENT(NE,IS,NS)+ENO(I)
      IF(ENT(NE,IS,NS).GT.9999)GO TO 22
      IF(ENT(NE,IS,NS).LT.0)GO TO 24
      GO TO 9
    8 AMIN(NE,IS,NS)=AMIN(NE,IS,NS)+ENO(I)
      IF(AMIN(NE,IS,NS).GT.9999)GO TO 22
      IF(AMIN(NE,IS,NS).LT.0)GO TO 24
      C     TOTAL OF ENTRIES UPDATED
    9 NTRAN=NTRAN+1
      C
      C     CHECK FOR END OF DATA
      C
*DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
      IF(SEP(I).EQ.S)GO TO 5
    3 CONTINUE
      GO TO 50
      C
      C     DIAGNOSTICS
      C
   10 WRITE(LP,11)  IS
   11 FORMAT  (' *ERROR* THERE IS NO SITE NUMBER',I4)
      GO TO 32
   12 WRITE(LP,13)  IEQ(K)
   13 FORMAT  (' *ERROR* THERE IS NO EQUIPMENT NUMBER',I4)
      GO TO 30
   14 WRITE(LP,15)
```

```
 15 FORMAT (' *WARNING* THE END OF DATA CARD IS MISSING. '/
1 11X,'ALL ENTRIES HAVE BEEN UPDATED TO THIS POINT.')
    GO TO 100
 16 WRITE(LP,17)
 17 FORMAT  (' *ERROR* THE COMMA OR SEPARATOR BETWEEN DATA ITEMS IS MI
1SSING')
    GO TO 30
 18 WRITE(LP,19)
 19 FORMAT  (' *ERROR* THE MINIMUM REQ. STATUS IS INCORRECT')
    GO TO 30
 20 WRITE(LP,21)
 21 FORMAT  (' *ERROR* THE STATUS CODE IS INCORRECT')
    GO TO 30
 22 WRITE(LP,23)  NE
 23 FORMAT  (' *ERROR* THE AMOUNT ACCUMULATED FOR EQUIPMENT NUMBER',
1I4,' HAS BECOME TOO LARGE')
    GO TO 30
 24 WRITE(LP,25)  NE
 25 FORMAT  (' *ERROR* THE AMOUNT ACCUMULATED FOR EQUIPMENT NUMBER',
1I4,' HAS BECOME TOO SMALL')
    GO TO 30
 26 NCARD=NCARD+1
    WRITE(LP,27)  NCARD
 27 FORMAT  (' *ERROR* AN ERROR HAS OCCURRED WHILE READING THE DATA'/
1   8X,'THE ERROR OCCURRED AT CARD NO.',I5)
    GO TO 32
 30 WRITE(LP,31)  IEQ(K),IST(K),ENO(K),SEP(K),IS
 31 FORMAT (/ 9X,'THE ERROR OCCURRED AT ENTRY',I4,I1,F5.0,A1,' OF SITE
1 NUMBER',I4)
    WRITE(LP,28) NCARD
 28 FORMAT  (/9X,'....AT DATA CARD ',I5)
 32 WRITE(LP,33)
 33  FORMAT(//   ' *****THE PROGRAM TERMINATED AT THIS POINT WITHOUT UP
1DATING THE ENTRIES IN THIS JOB STEP.')
 40 NEND=1
100 RETURN
    END

END OF COMPILATION:          3 DIAGNOSTICS.
```

```
:01    003467 5015L      0001    000245 5016L      0001    000270 5017L      0001    000313 5018L      0(
:01    001020 511G       0000    016137 5125F      0000    016122 527F       0000    016125 528F       0(
:01    001170 546G       0001    001201 5546       0001    001315 570G       0001    001316 573G       0(
:01    005567 6002L      0001    005574 6003L      0001    001327 601G       0001    000222 6015L      0(
:01    005600 6124L      0001    001412 613G       0001    001413 616G       0001    001574 660G       0(
:01    002345 690L       0001    003467 691L       0001    003233 692L       0001    002345 696L       0(
:01    001014 700L       0001    001016 702L       0001    001722 717G       0001    001730 724G       0(
:01    000631 737L       0001    000650 738L       0001    001760 742G       0001    000706 750L       0(
:01    000720 752L       0001    000725 753L       0001    000732 754L       0001    000736 755L       0(
:01    000501 778L       0001    000505 779L       0001    000515 780L       0001    000522 781L       0(
:01    000534 783L       0001    000544 784L       0001    000563 785L       0001    000606 786L       0(
:01    001236 789L       0001    001441 790L       0001    001364 791L       0001    000674 797L       0(
:01    001076 802L       0001    002754 925L       0001    002454 926L       0001    003215 928L       0(
:01    002307 941L       0001    002133 959L       0001    002633 971L       0001    003047 973L       0(
:01    003445 977L       0001    002127 990L       0001    001510 993L       0001    002056 997L       0(
:01    002051 999L       0002 R  053270 AIRHOL     0002 R  061552 AITEM      0002 R  063700 ALL        0(
:00 R  015036 ASA        0000 R  013334 ASHDG      0000 R  015014 BETIT      0000 R  015443 BLAK       0(
:00 R  000512 DIVTIT     0000 R  011624 DSHDG      0000 R  013730 HSHDG      0000 I  015501 I          0(
:00 I  015470 IBEG       0000 I  015471 IBIG       0000 I  015440 IBME       0000 I  015532 IBSIB      0(
:00 I  015506 IEN        0000 I  015530 IFAK       0000 I  015564 IFKO       0000 I  011266 IGVEC      0(
:00 I  015527 IJOB       0000 I  015514 IKAZ       0000 I  015516 IKY        0000 I  015462 ILEWRD     0(
:00    016176 INJP$      0000 I  015466 IPOS       0000 I  015537 IPRAT      0000 I  015455 IREGNO     0(
:00 I  015520 IRPMAX     0000 I  015463 ISANO      0000 I  015464 ISAWRD     0000 I  015456 ISRENO     0(
:00 I  010730 ISVEC      0000 I  015522 ITEMP      0000 I  015531 ITOT       0000 I  015533 ITYT       0(
:00 I  015477 JJ         0000 I  015500 JJJ        0000 I  015523 JKAZ       0000 I  015521 JKK        0(
:00 I  015511 JSTAB      0000 I  015473 K          0000 I  015557 KAHSO      0000 I  015507 KATOO      0(
:00 I  015454 KBLUMP     0000 I  015515 KBOO       0000 I  015524 KBOP       0000 I  015526 KCTLYN     0(
:00 R  000000 KDLTO      0000 I  015550 KDOLT      0000 I  015436 KDOP       0000 I  015442 KELE       0(
:00 I  015546 KINDER     0000 I  015504 KISON      0000 I  015503 KISSOF     0000 I  015475 KK         0(
:00 I  015562 KOOPL      0000 I  015542 KOWBY      0000 I  015513 KPAS       0000 I  015467 KPUS       0(
:00 I  01543C KRAKR      0000 R  000244 KRBN       0000 I  015552 KRCTR      0000 I  015543 KRDE       0(
:00 R  000030 KRON       0000 I  015536 KROY       0000 R  000136 KRTN       0000 I  015563 KRUDDY     0(
:00 I  015561 KSALCT     0000 I  015544 KSIN       0000 I  015547 KSOUP      0000 R  000014 KSRTO      0(
:00 I  015452 KSUB       0000 I  015510 KTOE       0000 R  000352 KTOPR      0000 I  015555 KUPCT      0(
:00 I  015435 KZOP       0000 I  015545 KZOT       0000 I  015534 KZUU       0000 I  015472 L          0(
:02 I  064236 LDRUM      0000 I  015446 LLAST      0000 I  015553 LROO       0000 I  015444 LRTO       0(
:00 I  015556 LSTOPR     0000 I  015441 MLLE       0000 I  015502 MST        0000 I  015437 MXPT       0(
:00 I  015447 NOREG      0000 I  015450 NOSR       0002 R  053732 PASS       0002 R  053713 REGAIR     0(
:00 R  001166 RELYN      0000 I  000374 REND       0000 R  000410 RETIT      0000 R  001530 REWORD     0(
:02 R  057424 RPASS      0000 I  000405 RSEND      0000 R  013072 RSHDG      0000 R  001522 RUPPR      0(
:00 I  000377 SRE        0000 R  001274 SRELYN     0000 R  000454 SRETIT     0000 R  012520 SSHDG      0(
:02 R  000000 TAB        0000 R  001510 WORD
```

```
      1*            SUBROUTINE OUTPUT(JSTART,JEND,ISTART,IEND,KSTART,KEND,LEVIND,LTYPE
      2*           1,LTABLE,MREQ,MAL)
      3*      C
      4*      C.... OUTPUT HANDLES REPORT WRITING
      5*      C
      6*            REAL KDLTO,KSRTO,KRON,KRTN,KRBN,KTOPR
      7*             INTEGER REND,SRE,RELE,RSEND
      8*            DIMENSION RETIT(3,12),SRETIT(5,6),DIVTIT(50,6),RELYN(70),SRELYN(70
      9*           1),DIVLYN(70),REND(3),SRE(5),KDLTO(12),KSRTO(12),WORD(6),RSEND(3),K
     10*           2RON(70),KRTN(70),RNME(4),RUPPR(3,2),REWORD(12),IMATR(74,50),ISVEC(
     11*           374,3),IGVEC(74,3),DSHDG(74,6),SSHDG(39,6),RSHDG(27,6),ASHDG(42,6),
     12*           4HSHDG(20,6),SDHDG(74,6)
     13*            DIMENSION KRBN(70),KTOPR(3,6),BETIT(3,6)
     14*            DIMENSION ASA(25,10)
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```
      DIMENSION KRAKR(5)
      COMMON TAB(74,50,5),AMIN(74,50,1),AIRHOL(1,50,5),SUBAIR(1,5,5),REG
     $AIR(1,3,5),PASS(74,5,5),RPASS(74,3,5),AITEM(74,3,5),ALL(74,3),LDRU
     $M(17,2)
      DATA KZOP,KDOP,MXPT,IBME,MLLE,RELE,KELE/6,6,68,6, 9,12,6/
      DATA BLAK,LRTO,LRUP,LLAST/' ',4,2,12/
      DATA NOREG,NOSR,NODIV,KSUB,KFLD,KBLUMP/3, 5,50,12,12,8/
      DATA REND/16,36,50/
      DATA SRE/8,16,26,36,50/
      DATA RSEND/2,4,5/
      DATA IREGNO,ISRENO,IDIVNO,IAIRNO,IHELNO,ILEWRD/27,39,74,42,20,6/
      DATA ISANO,ISAWRD/25,10/
      DATA KSRTO/' ','S','U','B',' ',' ',' ','G','R','A','N','D'/
      DATA KDLTO/' ','T','O','T','A','L',' ','T','O','T','A','L'/
      DATA RETIT/' ',' ',' ','N','N','S','W','E','O',' ',' ',' ',' ',' ',
     1,' ','R','R','R','E','E','E','G','G','G','I','I','I','O','O','O',
     2N','N','N',' ',' ',' ',' '/
      DATA BETIT/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ','R','R','R','E','E'
     1,'E','G','G','G'/
      DATA KTOPR/' ',' ',' ',' ',' ',' ',' ',' ',' ','N','N','S','W','E'
     1,'O',' ',' ',' '/
      DATA SRETIT/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',
     1 ',' ',' ','D','T','S','T','R','R','H','U','I','I','Y','U','D','M','C'
     2/
      DATA RNME/' ','R','E','G'/
      DATA RUPPR/'N','N','S','W','E','O'/
      DATA REWORD/' ',' ','G','D',',',',',' ','T','O','T','A','L','S'/
      DATA WORD/'I','T','E','M',' ',' '/
      LDR=8
      IPOS=LDRUM(11,1)
      KPUS=0
      IBEG=ISTART
      IBIG=IEND
      IF(MAL .NE. 0)GO TO 5
C
C.... READ IN SIDEHEADING AND TITLE DATA FILES
C
      CALL NTRAN(LDR,10)
      CALL NTRAN(LDR,6,IPOS)
      CALL NTRAN(LDR,2,300,DIVTIT,L)
 5009 IF(L .EQ. -1)GO TO 5009
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,444,DSHDG,L)
 5014 IF(L .EQ. -1)GO TO 5014
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,234,SSHDG,L)
 6015 IF(L .EQ. -1)GO TO 6015
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,162,RSHDG,L)
 5016 IF(L .EQ. -1)GO TO 5016
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,252,ASHDG,L)
 5017 IF(L .EQ. -1)GO TO 5017
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,120,HSHDG,L)
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 5018 IF(L .EQ. -1)GO TO 5018
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
      CALL NTRAN(LDR,2,250,ASA,L)
 5019 IF(L .EQ. -1)GO TO 5019
      IF(L .EQ. -2)GO TO 6002
      IF(L .EQ. -3)GO TO 6003
    5 DO 1001 K=KSTART,KEND
      KPUS=KPUS+1
      IF(LEVIND .GE. 5)GO TO 4000
C
C.... REGULAR AREA REPORT SECTION
C
      DO 599 J = 1,70
      SRELYN(J) = BLAK
      KRBN(J)=BLAK
  599 RELYN(J) = BLAK
      DO 598 J = 2,70
  598 DIVLYN(J) = BLAK
      KK = 0
      KKK = 0
      JJ = 0
      JJJ = 0
C.... PRINT FIXED TITLES
      PRINT 260
      PRINT 270
C.... PRINT NUMERIC OR PERCENTAGE TITLE
      GO TO (777,778),LTYPE
  777 PRINT 271
      GO TO 779
  778 PRINT 272
C.... PRINT RESOURCE TYPE TITLE,THEN GO TO SIDE HEADING SET UP
  779 GO TO (780,781,782),LTABLE
  780 PRINT 273
      GO TO 783
  781 PRINT 274
      GO TO 737
  782 PRINT 275
      GO TO 738
C
C.... DETERMINE IF DIVISION,SUBREGION OR REGION LEVEL SIDEHEADINGS
C.... ARE TO BE USED.THEN SET UP SIDEHEADING FOR THE GROUND FORCE REPORT
C
  783 GO TO (784,785,786),LEVIND
  784 PRINT 276
      DO 730 I =1,IDIVNO
      DO 730 J =1,ILEWRD
C.... SET UP DIVISION LEVEL SIDEHEADING
  730 SDHDG(I,J) = DSHDG(I,J)
      GO TO 787
  785 PRINT 277
      DO 731 I =1,ISRENO
      DO 731 J =1,ILEWRD
C.... SET UP SUBREGION LEVEL SIDEHEADING
  731 SDHDG(I,J) = SSHDG(I,J)
      GO TO 787
  786 PRINT 278
      DO 732 I = 1,IREGNO
      DO 732 J =1,ILEWRD
C.... SET UP REGION LEVEL SIDEHEADING
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      732 SDHDG(I,J) = RSHDG(I,J)
          GO TO 787
      737 DO 733 I=1,IAIRNO
          DO 733 J =1,ILEWRD
C.... SET UP FIXED WING SIDEHEADING
      733 SDHDG(I,J) = ASHDG(I,J)
          GO TO 787
      738 DO 734 I =1,IHELNO
          DO 734 J = 1,ILEWRD
C.... SET UP HELICOPTER SIDEHEADING
      734 SDHDG(I,J) = HSHDG(I,J)
      787 CONTINUE
          IF(MREQ .NE. 1)GO TO 797
C.... PRINT MINIMUM REQUIREMENTS TITLE
          PRINT 285
      797 CONTINUE
C.... PRINT STATUS LEVEL TITLE
          GO TO (750,751,752,753,754),K
      750 PRINT 280
          GO TO 755
      751 PRINT 281
          GO TO 755
      752 PRINT 282
          GO TO 755
      753 PRINT 283
          GO TO 755
      754 PRINT 284
      755 CONTINUE
C
C.... DETERMINE FIRST AND LAST REGION FOR A GIVEN REPORT AND PLACE THE REGION
C.... NUMBER IN KK AND JJ RESPECTFULLY
C
          DO 700 I = 1,NOREG
          IF(KK .GT. 0) GO TO 1800
           IF(I .EQ. 1)MST = 0
          IF(I .GT. 1)MST = REND(I-1)
          IF(JSTART .GT. MST .AND. JSTART .LE. REND(I))KK=I
          IF(KK .EQ. 0) GO TO 700
     1800 IF(JEND .LE. REND(I))JJ = I
          IF(JJ .NE. 0)GO TO 702
      700 CONTINUE
      702 CONTINUE
C
C.... DETERMINE FIRST AND LAST SUBREGION FOR A GIVEN REPORT AND PLACE THE
C.... SUBREGION NUMBER IN KKK AND JJJ RESPECTFULLY
C
          DO 800 J = 1,NOSR
          IF(KKK .GT. 0) GO TO 1810
          IF(J .EQ. 1)MST= 0
           IF(J .GT. 1)MST = SRE(J-1)
          IF(JSTART .GT. MST .AND. JSTART .LE. SRE(J))KKK = J
          IF(KKK .EQ. 0)GO TO 800
     1810 IF(JEND .LE. SRE(J))JJJ = J
          IF(JJJ .NE. 0)GO TO 802
      800 CONTINUE
      802 CONTINUE
          KISSOF=KKK
          KISON=KK
          IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 790
          IF(LEVIND .GT. 1)GO TO 789
```

```
C.... SETUP THE BODY AND TOTALS FOR A DIVISION LEVEL REPORT
      DO 760 I=IBEG,IBIG
      DO 761 J = JSTART,JEND
      IMATR(I,J) = TAB(I,J,K)
  761 CONTINUE
      DO 765 J = KK,JJ
      ISVEC(I,J) = AITEM(I,J,K)
  765 IGVEC(I,J) = ALL(I,J)
  760 CONTINUE
      GO TO 790
  789 CONTINUE
      IF(LEVIND .GT. 2)GO TO 791
C.... SET UP THE BODY AND TOTALS FOR A SUBREGION LEVEL REPORT
      DO 792 I = ISTART,IEND
      DO 793 J = KKK,JJJ
      IMATR(I,J) = PASS(I,J,K)
  793 CONTINUE
      DO 766 J=KK,JJ
      ISVEC(I,J) = AITEM(I,J,K)
  766 IGVEC(I,J) = ALL(I,J)
  792 CONTINUE
      GO TO 790
  791 CONTINUE
C.... SET UP THE BODY AND TOTALS FOR A REGION LEVEL REPORT
      DO 794 I = ISTART,IEND
      DO 795 J = KK,JJ
      IMATR(I,J) = RPASS(I,J,K)
      IGVEC(I,J) = ALL(I,J)
  795 CONTINUE
  794 CONTINUE
  790 CONTINUE
      IF(LTABLE .NE. 3)GO TO 50
      IF(KPUS .GT. 1)GO TO 50
C.... SET EQUIPMENT INDICES FOR A HELICOPTER REPORT
      ISTA=ISTART
      IEN=IEND
      ISTART=ISTA-IAIRNO
      IEND=IEN-IAIRNO
   50 IF(LEVIND .LE. 3 .AND. LTABLE .GE. 2)GO TO 1101
      GO TO (1101,1102,1102),LEVIND
C
C.... AIRCRAFT AND DIVISION LEVEL GROUND FORCE TITLE SET UPS
C
 1101 CONTINUE
      KAT00 = JSTART
  993 CONTINUE
      KTOE=1
      JSTAB = 0
      JNDTAB = 0
      KPAS = 1
      IKAZ = 0
      KB00 = 1
      IKY = 2
      IRP = 1
      IF(ISTART .EQ. IEND .AND. JSTART .EQ. JEND .AND. KSTART .EQ. KEND)
     $KTOE=0
      DO 999 I = KAT00,JEND
      IF(I .EQ. KAT00 .AND. KB00 .EQ. 0)IKY = KAT00 + 1
      DO 456 J = 1,KOOP
C.... CREATE DIVISION TITLE LINE
```

```
255*            DIVLYN(IRP) = DIVTIT(I,J)
256*          456 IRP = IRP + 1
257*            IRPMAX = IRP
258*            IKY = IKY + 1
259*            IF(I .EQ. SRE(KKK) .OR. I .EQ. JEND)KBOO = 0
260*            IF(KBOO .EQ. 0)GO TO 998
261*            IF(IKY .GT. MLLE)KBOO = 2
262*            IF(KBOO .EQ. 2)GO TO 998
263*            GO TO 999
264*          998 JKK = IKAZ
265*             IF(KPAS .EQ. 1) JKK = JKK + IBME
266*            ITEMP = (I + 1 - KATOO)*KDOP
267*            JKAZ = (ITEMP - KZOP)/2
268*            KBOP = JKAZ + KZOP + JKK
269*            IKAZ = ITEMP + JKK
270*            JKAZ = JKAZ + JKK
271*            JKK = JKK + 1
272*            DO 910 J = 1,IBME
273*          910 SRELYN(J) = BLAK
274*            DO 996 J = JKK,JKAZ
275*          996 SRELYN(J) = BLAK
276*            JKAZ = JKAZ + 1
277*            J = JKAZ
278*            DO 995 KS = 1,KZOP
279*        C.... CREATE SUBREGION TITLE LINE
280*            SRELYN(J) = SRETIT(KKK,KS)
281*          995 J = J + 1
282*            KBOP = KBOP + 1
283*            DO 994 J = KBOP,IKAZ
284*          994 SRELYN(J) = BLAK
285*            JNDTAB = I
286*            IF(KPAS .EQ. 1)JSTAB = KATOO
287*            KCTLYN = (IEND - ISTART) + 1
288*            IJOB = ISTART
289*            IFAK=IJOB
290*            IF(LTABLE .EQ. 3)IFAK=IJOB+42
291*            KATOO = I + 1
292*            IF(IKY .GT. MLLE)GO TO 997
293*            IF(IKY .GT. MLLE)GO TO 997
294*            KPAS = KPAS + 1
295*            KBOO = 1
296*            IF(I .EQ. REND(KK) .OR. I .EQ. JEND)KBOO = 3
297*            IF(KBOO .EQ. 3)GO TO 997
298*          999 CONTINUE
299*          997 CONTINUE
300*            IF(I    .EQ. SRE(KKK))KKK = KKK +1
301*            IF(I .EQ. REND(KK) .OR. I .EQ. JEND)KBOO = 3
302*            IF(KBOO .EQ. 3)GO TO 990
303*            ITOT = (((MLLE - 1)*KZOP) - RELE)/2 + IBME
304*            ITOT = ITOT - 1
305*            GO TO 959
306*          990 ITOT = (IKAZ - RELE)/2
307*          959 DO 960 J = 1,ITOT
308*          960 RELYN(J) = BLAK
309*            I8SI8 = ITOT + RELE
310*            J = ITOT + 1
311*            DO 950 I = 1,RELE
312*        C.... CREATE REGION TITLE LINE
313*            RELYN(J) = RETIT(KK,I)
314*          950 J = J + 1
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315*            ITOT = IBSIB + ITOT
316*            IF(ITOT .GT. 70)ITOT = 70
317*            IBSIB = IBSIB + 1
318*            DO 940 J = IBSIB,ITOT
319*          940 RELYN(J) = BLAK
320*            ITYT = IKY - 1
321*            IF(ITYT  .GT. KBLUMP)GO TO 697
322*            IF(KTOE .EQ. 0)GO TO 696
323*            IF(LTABLE .GE. 2)GO TO 696
324*            IF(LTYPE .NE. 2 .AND. MREQ .NE. 1)GO TO 941
325*            KZUU = 2
326*            KRAH = KFLD/KZUU
327*            KROY = KSUB/KZUU
328*            DO 942 J = 1,KRAH
329*            DIVLYN(IRPMAX) = KDLTO(J)
330*          942 IRPMAX = IRPMAX + 1
331*            IPRAT = IKAZ + 1
332*            DO 943 J = 1,KROY
333*            SRELYN(IPRAT) = KSRTO(J)
334*          943 IPRAT = IPRAT + 1
335*            IKAZ = IPRAT
336*            GO TO 690
337*          941 DO 698 J = 1,KFLD
338*            DIVLYN(IRPMAX) = KDLTO(J)
339*          698 IRPMAX = IRPMAX + 1
340*            IPRAT = IKAZ + 1
341*            DO 699 J =1,KSUB
342*            SRELYN(IPRAT) = KSRTO(J)
343*          699 IPRAT = IPRAT + 1
344*            IKAZ = IPRAT
345*            GO TO 690
346*          697 KVO = 1
347*          696 CONTINUE
348*          690 CONTINUE
349*        C.... PRINT REGION,SUBREGION AND DIVISION TITLE LINES
350*            PRINT 263,(RELYN(J),J = 1,ITOT)
351*            PRINT 263,(SRELYN(J),J = 1,IKAZ)
352*            PRINT 264,(DIVLYN(I),I=1,IRPMAX)
353*            IF(LTABLE .GE. 2)GO TO 926
354*            IF (KTOE .EQ. 0)GO TO 926
355*            IF(KVO .NE. 1 .AND. KATOO .GT. JEND)GO TO 925
356*            IF(KVO .EQ. 1 .AND. KBOO .EQ. 3)GO TO 926
357*            IF(KBOO .EQ. 3)GO TO 925
358*          926 CONTINUE
359*            IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 971
360*            DO 972 KB = 1,KCTLYN
361*        C.... PRINT NUMERIC REPORT SECTION WITHOUT TOTALS,DIVISION LEVEL
362*            PRINT 201,(SDHDG(IJOB,J),J=1,ILEWRD),(IMATR(IFAK,J),J=JSTAB,JNDTAB
363*           1)
364*            IFAK=IFAK+1
365*          972 IJOB = IJOB + 1
366*            IF(LTABLE .LT. 2)GO TO 928
367*            DO 930 J = JSTAB,JNDTAB
368*          930 IGVEC(J,1)=AIRHOL(1,J,K)
369*            DO 5124 J=KK,JJ
370*           5124 KRAKR(J)=REGAIR(1,J,K)
371*            KOWBY=(IEND-ISTART)*(JNDTAB-JSTAB)
372*            IF(KOWBY .EQ. 0)GO TO 691
373*        C.... PRINT DIVISION TOTALS FOR AIRCRAFT REPORT
374*            PRINT 230
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375*            PRINT 231,(IGVEC(J,1),J=JSTAB,JNDTAB)
376*            GO TO 691
377*          971 CONTINUE
378*            IF(MREQ .EQ. 1)GO TO 5000
379*            DO 927 KB = 1,KCTLYN
380*       C.... PRINT PERCENTAGE REPORT SECTION WITHOUT TOTALS,DIVISION LEVEL
381*            PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),(TAB(IFAK,J,K),J=JSTAB,JNDTAB
382*           1)
383*            IFAK=IFAK+1
384*          927 IJOB = IJOB + 1
385*            GO TO 928
386*         5000 DO 5001 KB = 1,KCTLYN
387*       C.... PRINT MINIMUM REQUIREMENTS REPORT SECTION WITHOUT TOTALS,DIVISION LEVEL
388*            PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),(AMIN(IFAK,J,1),J=JSTAB,JNDTA
389*           1B)
390*            IFAK=IFAK+1
391*         5001 IJOB = IJOB + 1
392*            GO TO 928
393*          925 CONTINUE
394*            IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 973
395*            DO 974 KB = 1,KCTLYN
396*       C.... PRINT NUMERIC REPORT SECTION WITH TOTALS,DIVISION LEVEL
397*            PRINT 201,(SDHDG(IJOB,J),J=1,ILEWRD),(IMATR(IFAK,J),J=JSTAB,JNDTAB
398*           1),ISVEC(IFAK,KK),IGVEC(IFAK,KK)
399*            IFAK=IFAK+1
400*          974 IJOB = IJOB + 1
401*            GO TO 928
402*          973 CONTINUE
403*            IF(MREQ .EQ. 1)GO TO 5002
404*            DO 920 KB = 1,KCTLYN
405*       C.... PRINT PERCENTAGE REPORT SECTION WITH TOTALS,DIVISION LEVEL
406*            PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),(TAB(IFAK,J,K),J=JSTAB,JNDTAB
407*           1),AITEM(IFAK,KK,K)
408*            IFAK=IFAK+1
409*          920 IJOB = IJOB + 1
410*            GO TO 928
411*         5002 DO 5003 KB = 1,KCTLYN
412*       C.... PRINT PRINT MINIMUM REQUIREMENT REPORT SECTION WITH TOTALS,DIVISION LEVEL
413*            PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),(AMIN(IFAK,J,1),J=JSTAB,JNDTA
414*           1B),AITEM(IFAK,KK,1)
415*            IFAK=IFAK+1
416*         5003 IJOB = IJOB + 1
417*          928 CONTINUE
418*            IF(KVO .NE. 1) GO TO 691
419*            IF(KATOO .GT. JEND)GO TO 692
420*            IF( KBOO .EQ. 3)GO TO 692
421*            GO TO 691
422*          692 CONTINUE
423*            IF(LTYPE .NE. 2 .AND. MREQ .NE. 1)GO TO 5005
424*            KZUU = 2
425*            KSUB = KSUB/KZUU
426*            KFLD = KFLD/KZUU
427*         5005 CONTINUE
428*       C.... PRINT TOTAL TITLES
429*            PRINT 527,(KSRTO(J),J= 1,KSUB)
430*            PRINT 528,(KDLTO(J),J= 1,KFLD)
431*            IJOB = ISTART
432*            IFAK=IJOB
433*            IF(LTABLE .EQ. 3)IFAK=IJOB+IAIRNO
434*            IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 975
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435*            DO 976 KB = 1,KCTLYN
436*      C.... PRINT NUMERIC REPORT SECTION,TOTALS ONLY,DIVISION LEVEL
437*            PRINT 201,(SDHDG(IJOB,J),J=1,ILEWRD),ISVEC(IFAK,KK),IGVEC(IFAK,KK)
438*            IFAK=IFAK+1
439*          976 IJOB = IJOB + 1
440*            GO TO 977
441*          975 DO 929 KB = 1,KCTLYN
442*      C.... PRINT PERCENTAGE OR MINIMUM REQUIREMENT REPORT SECTION,TOTALS ONLY,
443*      C.... DIVISION LEVEL
444*            PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),AITEM(IFAK,KK,K)
445*            IFAK=IFAK+1
446*          929 IJOB = IJOB + 1
447*          977 CONTINUE
448*            IF(LTYPE .NE. 2 .AND. MREQ .NE. 1)GO TO 5015
449*            KSUB = KSUB*KZUU
450*            KFLD = KFLD*KZUU
451*         5015 CONTINUE
452*          691 CONTINUE
453*            DO 726 J = 2,70
454*          726 DIVLYN(J) = BLAK
455*            DO 727 J = 1,70
456*          727 SRELYN(J) = BLAK
457*            KVO = 0
458*             IF(KBOO.EQ. 3)KK = KK + 1
459*            IF(KATOO .GT. JEND)GO TO 935
460*            PRINT 279
461*            GO TO 993
462*          935 CONTINUE
463*            IF(LTABLE .LT. 2)GO TO 1000
464*            IF(LTABLE .EQ. 3)IFAK=IJOB+IAIRNO
465*            IF(KOWBY .EQ. 0)GO TO 1000
466*      C.... PRINT SUBREGION AND REGION TOTALS FOR AN AIRCRAFT REPORT
467*            PRINT 233
468*            PRINT 234,(SUBAIR(1,J,K),J=KISSOF,JJJ)
469*            PRINT 232,(KRAKR(J),J=KISON,JJ)
470*            GO TO 1000
471*         1102 CONTINUE
472*            KRDE = KKK
473*         1166 CONTINUE
474*            KSIN = 0
475*            DO 1150 J = 1,70
476*            KRON(J) = BLAK
477*         1150 KRTN(J) = BLAK
478*            IF(LEVIND .EQ. 3)GO TO 1103
479*      C
480*      C.... SETUP TITLES,SUBREGION REPORT
481*      C
482*            DO 1104 J = 1,IBME
483*         1104 SRELYN(J) = WORD(J)
484*            KZOT = 1
485*            KATOO = KRDE
486*            IKY = IBME + 1
487*            DO 1105 I = KATOO,JJJ
488*            DO 1106 J = 1,KZOP
489*            SRELYN(IKY) = SRETIT(I,J)
490*            IKY = IKY + 1
491*         1106 CONTINUE
492*            IF(I .GE. JJJ)KSIN = 1
493*            IF(I .GE. RSEND(KK))KINDER = 1
494*            IF(KINDER .EQ. 1)GO TO 1108
```

```
      1105 CONTINUE
      1108 KSOUP = IKY
           KRDE = I + 1
           JSTAB = KATOO
           JNDTAB = I
           KCTLYN = (IEND - ISTART) + 1
           IJOB = ISTART
           IFAK=IJOB
           KDOLT=1
           IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)KDOLT=2
           KSTOP=IKY+KSUB/KDOLT-1
           J = 1
           DO 1109 I = KSOUP,KSTOP
           SRELYN(I) = KDLTO(J)
      1109 J = J + 1
           IF(KZOT .EQ. 1)KRCTR = IBME
           IF(KZOT .GT. 1)KRCTR = KSTOP
           LROO = IKY - 1
           KCTR = (LROO - KRCTR)/2
           KUPCT = KCTR - LRUP/2 + KRCTR + 1
           KCTR = KCTR - LRTO/2 + KRCTR + 1
           LSTOPR = KCTR + LRTO - 1
            I = 1
           DO 1112 J = KCTR,LSTOPR
           KRON(J) = RNME(I)
      1112 I = I + 1
           I = 1
           DO 1113 J = KSOUP,KSTOP
           KRON(J) = KSRTO(I)
      1113 I = I + 1
           LSTOPR = KUPCT + LRUP - 1
           I = 1
           DO 1114 J = KUPCT,LSTOPR
           KRTN(J) = RUPPR(KK,I)
      1114 I = I + 1
           IKY = KSTOP + 1
           KZOT = KZOT + 1
            IF(KINDER .EQ. 1 .OR. KSIN .EQ. 1)GO TO 1160
           GO TO 1161
      1160 KINDER = 0
           IF(KATOO .EQ. KKK) GO TO 1161
           PRINT 279
      1161 CONTINUE
     C.... PRINT REGION AND SUBREGION TITLES FOR A SUBREGION LEVEL REPORT
           PRINT 263,(KRTN(J),J = 1,LSTOPR)
           PRINT 263,(KRON(J),J=1,KSTOP)
           PRINT 263,(SRELYN(J),J=1,KSTOP)
           IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 1140
           DO 1141 KB = 1,KCTLYN
     C.... PRINT NUMERIC REPORT,SUBREGION LEVEL
           PRINT 201,(SDHDG(IJOB,J),J=1,ILEWRD),(IMATR(IFAK,J),J=JSTAB,JNDTAB
          1),ISVEC(IFAK,KK),IGVEC(IFAK,KK)
           IFAK=IFAK+1
      1141 IJOB = IJOB + 1
           GO TO 1142
      1140 DO 1143 KB = 1,KCTLYN
     C.... PRINT PERCENTAGE OR MINIMUM REQUIREMENT REPORT,SUBREGION LEVEL
           PRINT 200,(SDHDG(IJOB,J),J=1,ILEWRD),(PASS(IFAK,J,K),J=JSTAB,JNDTA
          1B),AITEM(IFAK,KK,K)
           IFAK=IFAK+1
```

```
      1143 IJOB = IJOB + 1
      1142 CONTINUE
           IF(KSIN .EQ. 1)GO TO 1000
           KK = KK + 1
           GO TO 1166
      1103 CONTINUE
      C
      C.... SETUP TITLES FOR A REGION LEVEL REPORT
      C
           DO 3000 J = 1,IBME
      3000 KRTN(J) = WORD(J)
           IKY = IBME + 1
           KAHSO = KFLD/2
           DO 3100 J = KK,JJ
           DO 3101 I=1,KELE
           KRBN(IKY) = KTOPR(J,I)
           KRTN(IKY)=BETIT(J,I)
           IKY = IKY + 1
      3101 CONTINUE
           IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 3111
           DO 3110 I = 1,KAHSO
           KRTN(IKY) = KDLTO(I)
           IKY = IKY + 1
      3110 CONTINUE
      3111 CONTINUE
      3100 CONTINUE
           LSTOPR=(((JJ-KK)+1)*KELE)*2)+IBME+1
      C.... PRINT REGION TITLES FOR A REGION LEVEL REPORT
           PRINT 263,(KRBN(J),J=1,LSTOPR)
           PRINT 263,(KRTN(J),J=1,LSTOPR)
           IJOB = ISTART
           IFAK=IJOB
           IF(LTABLE .EQ. 3)IFAK=IJOB+IAIRNO
           JSTAB = KK
           JNDTAB = JJ
           KCTLYN = (IEND - ISTART) + 1
           IF(LTYPE .EQ. 2 .OR. MREQ .EQ. 1)GO TO 3103
           DO 3104 KB = 1,KCTLYN
      C.... PRINT NUMERIC REPORT,REGION LEVEL
           PRINT 202,(SDHDG(IJOB,J),J=1,ILEWRD),(IMATR(IFAK,J),IGVEC(IFAK,J),
          $J=JSTAB,JNDTAB)
           IFAK=IFAK+1
      3104 IJOB = IJOB + 1
           GO TO 3105
      3103 CONTINUE
           IF(MREQ .EQ. 1)GO TO 3112
           DO 3106 KB = 1,KCTLYN
      C.... PRINT PERCENTAGE REPORT,REGION LEVEL
           PRINT 203,(SDHDG(IJOB,J),J=1,ILEWRD),(RPASS(IFAK,J,K),J=JSTAB,JNDT
          1AB)
           IFAK=IFAK+1
      3106 IJOB = IJOB + 1
           GO TO 3105
      3112 DO 3113 KB=1,KCTLYN
      C.... PRINT MINIMUM REQUIREMENT REPORT,REGION LEVEL
           PRINT 204,(SDHDG(IJOB,J),J=1,ILEWRD),(RPASS(IFAK,J,K),J=JSTAB,JNDT
          $AB)
           IFAK=IFAK+1
      3113 IJOB=IJOB+1
      3105 CONTINUE
```

```
      1000 CONTINUE
           GO TO 1001
      4000 CONTINUE
     C.... SET EQUIPMENT INDICES FOR A HELICOPTER REPORT
           IF(LTABLE .EQ. 3)ISTART = ISTART - IAIRNO
           IF(LTABLE .EQ. 3)IEND = IEND - IAIRNO
     C
     C.... SPECIAL AREAS REPORT SECTION
     C
           PRINT 220
           KRENB = LEVIND - 4
     C.... PRINT REGION TITLE
           PRINT 221,KRENB
           DO 4005 I = 1,70
      4005 DIVLYN(I) = BLAK
           DO 4006 I =1,IBME
      4006 DIVLYN(I) = WORD(I)
           KSALCT = IBME + 1
           DO 4007 I = JSTART,JEND
           DO 4007 J = 1,ISAWRD
           DIVLYN(KSALCT) = ASA(I,J)
      4007 KSALCT = KSALCT + 1
           GO TO(4001,4002,4002),LTABLE
     C.... PRINT GROUND FORCE TITLE
      4001 PRINT 222
           KOOPL = KSALCT + 2
           KRUDDY = KSALCT
           DO 4008 I = KRUDDY,KOOPL
           DIVLYN(I) = BLAK
      4008 KSALCT = KSALCT + 1
           KOOPL = KFLD/2
           DO 4009 I = 1,KOOPL
           DIVLYN(KSALCT) = KOLTO(I)
      4009 KSALCT = KSALCT + 1
           KSALCT = KSALCT - 1
     C.... PRINT SPECIAL AREA TITLES
           PRINT 263,(DIVLYN(I),I=1,KSALCT)
           DO 4011 I = ISTART,IEND
           ISVEC(I,KRENB) = AITEM(I,K,KRENB)
           DO 4011 J = JSTART,JEND
           IMATR(I,J) = TAB(I,J,K)
      4011 CONTINUE
           DO 4010 I = ISTART,IEND
     C.... PRINT GROUND FORCE TABLE
           PRINT 225,(DSHDG(I,L),L=1,ILEWRD),(IMATR(I,J),J=JSTART,JEND),ISVEC
          1(I,KRENB)
      4010 CONTINUE
           GO TO 4004
      4002 IF(LTABLE .EQ. 2)GO TO 4012
     C.... PRINT HELICOPTER TITLE
           PRINT 224
           GO TO 4014
     C.... PRINT FIXED WING TITLE
      4012 PRINT 223
      4014 CONTINUE
     C.... SET UP FOR AIRCRAFT REPORT
           DO 4013 I=IBEG,IBI6
           DO 4013 J = JSTART,JEND
      4013 IMATR(I,J) = TAB(I,J,K)
           DO 4019 J = JSTART,JEND
```

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      4019 ICVEC(J,1)=AIRHOL(1,J,1)
           KRAKR(KRENB)=REGAIR(1,KRENB,1)
           KSALCT = KSALCT - 1
     C.... PRINT SPECIAL AREA TITLES
           PRINT 263,(DIVLYN(I),I=1,KSALCT)
           IF(LTABLE .EQ. 3)GO TO 4016
           DO 4015 I = ISTART,IEND
     C.... PRINT FIXED WING TABLE
      4015 PRINT 225,(ASHDG(I,L),L=1,ILEWRD),(IMATP(I,J),J=JSTART,JEND)
           GO TO 4017
      4016 CONTINUE
           IFKO=IBEG
           DO 4018 I = ISTART,IEND
     C.... PRINT HELICOPTER TABLE
           PRINT 225,(HSHDG(I,L),L=1,ILEWRD),(IMATP(IFKO,J),J=JSTART,JEND)
      4018 IFKO=IFKO+1
     C.... PRINT AIRCRAFT TOTALS BY SPECIAL AREA
      4017 PRINT 227
           PRINT 228,(IGVEC(J,1),J=JSTART,JEND)
     C.... PRINT AIRCRAFT TOTAL FOR A REGION'S SPECIAL AREAS
           PRINT 229,KRAKR(KRENB)
      4004 CONTINUE
           IF(LTABLE .NE. 3)GO TO 1001
           ISTART=ISTART+IAIRNO
           IEND=IEND+IAIRNO
      1001 CONTINUE
         1 FORMAT (40F2.0)
         2 FORMAT (10I2)
         3 FORMAT (78A1)
         6 FORMAT (11I3)
       200 FORMAT (1X,6A1,20F6.1)
       201 FORMAT (1X,6A1,20I6)
       202 FORMAT (1X,6A1,10I6)
       203 FORMAT (1X,6A1,6F6.1)
       204 FORMAT (1X,6A1,6F6.1)
       220 FORMAT (1H1,10X,26HRESOURCES IN SPECIAL AREAS//)
       221 FORMAT (10X,13HREGION NUMBER,I4//)
       222 FORMAT (10X,16HGROUND RESOURCES///)
       223 FORMAT (10X,19HFIXED WING AIRCRAFT///)
       224 FORMAT (10X,11HHELICOPTERS///)
       225 FORMAT (1X,6A1,I7,10I10)
       227 FORMAT (//,10X,28HTOTALS FOR EACH SPECIAL AREA//)
       228 FORMAT (7X,I7,10I10)
       229 FORMAT (//,10X,48HTOTAL FOR SPECIAL AREAS CALLED IN THIS REGION IS
          1,I10///)
       230 FORMAT (//,10X,57HTOTAL AIRCRAFT IN EACH DIVISION IN DIVISION CALL
          1 SEQUENCE//)
       231 FORMAT (7X,8I6,//)
       232 FORMAT(//,10X,31HTOTAL AIRCRAFT IN REGION CALLED,5I5)
       233 FORMAT (//,10X,35HTOTAL AIRCRAFT IN SUBREGIONS CALLED,//)
       234 FORMAT(10X,8F5.0,//)
       259 FORMAT (40I2)
       260 FORMAT (1H1,20X,19HPROVINCE OF ONTARIO)
       263 FORMAT (1X,70A1)
       264 FORMAT (1X,6HITEM  ,70A1)
       270 FORMAT (20X,21HRESOURCE STATUS BOARD//)
       271 FORMAT (21X,16HNUMERICAL VALUES/)
       272 FORMAT (21X,17HPERCENTAGE VALUES/)
       273 FORMAT (21X,16HGROUND RESOURCES//)
       274 FORMAT (20X,19HFIXED WING AIRCRAFT//)
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735*        275 FORMAT (24X,11HHELICOPTERS//)
736*        276 FORMAT (20X,20HDIVISION LEVEL BOARD//)
737*        277 FORMAT (18X,23HSUBREGIONAL LEVEL BOARD//)
738*        278 FORMAT (20X,20HREGIONAL LEVEL BOARD//)
739*        279 FORMAT (1H1,10X)
740*        280 FORMAT (13X,33HSERVICEABLE RESOURCES NOT ON FIRE//)
741*        281 FORMAT (17X,25HRESOURCES IN USE ON FIRES//)
742*        282 FORMAT (9X,40HUNSERVICEABLE RESOURCES DUE TO BREAKDOWN//)
743*        283 FORMAT (11X,37HUNAVAILABLE RESOURCES BEING RETRIEVED//)
744*        284 FORMAT (4X,43HNONMINISTRY RESOURCES - SERVICEABLE AND AVAILABLE//)
745*        285 FORMAT (3X,53HRESOURCES AVAILABLE IN EXCESS OF MINIMUM REQUIREMENT
746*           1S//)
747*        400 FORMAT (80A1)
748*        527 FORMAT (1H1,6X,50A1//)
749*        528 FORMAT (1X,6HITEM  ,45A1//)
750*            RETURN
751*       6002 PRINT 6123
752*       6123 FORMAT(10X,'TRANSMISSION ERROR OUT')
753*            GO TO 6124
754*       6003 PRINT 5125
755*       5125 FORMAT(10X,'DEVICE ERROR OUT')
756*       6124 STOP
757*            END

END OF COMPILATION:        NO  DIAGNOSTICS.
```

Appendix B

SCHEDULE 2

Program Modifications

Schedule 2 Program Modifications

2.1 Introduction

The three level equipment inventory program is complicated. The Forest Fire Research Institute should be called to assist in modifications necessary for initial implementation. Subsequent modification should be made only by a programmer who has studied the program in detail.

The modifications described in this schedule usually effect the master inventory data files as well as interrelated arrays and constants. All arrays and constants should be examined when a modification is to be made to ensure that all required modifications are made.

The program deck which initially places the master inventory data files on permanent storage is not described in this report. This deck is a specific program which must be partially rewritten for each organization that implements the inventory program. This data creation program will be supplied as required from the Forest Fire Research Institute,

Minor modifications, such as changes in error messages, have not been described. These can be handled by any competent programmer. Consultative assistance is available from the Forest Fire Research Institute on any aspect of program modification or implementation.

2.11 List of Arrays and Constants:

3. Constants

2.12 Interrelated Constants and Arrays for Major Modifications

2.121 Ground Force Equipment Category Modifications

1. A change in the number of ground force equipment categories will effect the following:

   (a) Commoned Arrays

   TAB,AMIN,PASS,RPASS,AITEM,ALL

   (b) Dimensioned Arrays

   IVRT,IVRTP,IDIB,IDIP,E,IMATR,ISVEC,IGVEC,
   DSHDG,SSHDG,RSHDG,SDHDG

   (c) Constants

   LGF,LCP,LRP,NEQG,IREGNØ,ISRENØ,IDIVNØ

2. A change in the ground force equipment names or types will effect the following:

   (a) Dimensioned Arrays

   IVRT,IVRTP,IDIB,IDIP,E,DSHDG,SSHDG,RSHDG

   (b) Constants

   LCP,LRP,IREGNØ,ISRENØ

3. The changes involved in 1 and 2 above will necessitate changes to the program deck which places the master inventory data files on permanent storage.

2.122 Fixed-Wing Aircraft and Helicopter Category Modifications

1. A change in the number of fixed-wing aircraft and helicopter categories will effect the following:

   (a) Commoned Arrays

   TAB (only if the number of aircraft categories exceeds the number of ground force equipment categories)

   (b) Dimensioned Arrays

   IMATR and SDHDG (only if the number of aircraft categories exceeds the the number of ground force equipment categories), ASHDG, HSHDG,SDHDG

   (c) Constants

   LFW,LHEL,LHE,LAIR,NEQA,IAIRNØ,IHELNØ

2. A change in the fixed-wing aircraft or helicopter names will effect the following:

   (a) Dimensioned Arrays

   E,ASHDG,HSHDG

3. The changes involved in 1 and 2 above will necessitate changes to the program deck which places the master inventory data files on permanent storage.

2.123 District, Subregion, Region and Special Area Modifications

1. A change in the number or names of districts, subregions, regions or special areas will effect the following:

   (a) Commoned Arrays

   TAB,AMIN,AIRHØL,SUBAIR,REGAIR,PASS,RPASS,
   AITEM,ALL

   (b) Dimensioned Arrays

   IRE,ISRE, and IRESR in MAIN;IRE and ISRE in AIRSUM;
   ICØDE,SIØ,RETIT,SRETIT,DIVTIT,REND,SRE,RSEND,
   RUPPR,IMATR,ISVEC,IGVEC,KTØPR,BETIT,ASA,KRAKR

   (c) Constants

   LS,LR,LSA and LDIV in MAIN;LR,LS and LDIV in AIRSUM;
   NSITE,NSITES,NØREG,NØSR,NØDIV,ISANØ

2. The changes involved in 1 above will necessitate changes to the program deck which places the master inventory data files on permanent storage.

2.2 Arrays

2.21 Commoned Arrays

1. TAB(74,50,5) also called ENT(74,50,5) in subroutine INPUT, contains the location, status level and amount of ground force equipment or the location and status level of aircraft, as required by update and report requests.

   (a) To change the number of equipment categories, the first index (74) must be changed to the number of categories desired. Use the largest number of categories (ground forces or aircraft) for the index.

   (b) To change the number of districts (locations) the second index (50) must be changed to the number of districts required.

   (c) To change the number of status levels the third index (5) must be changed to the number of status levels required.

2. AMIN(74,50,1) contains the minimum resources data for ground force equipment by location and amount of equipment.

   (a) See 1(a).

   (b) See 1(b).

   (c) Minimum resources have only one status level therefore the third index (1) must not be changed.

3. AIRHØL(1,50,5) contains the total number of an aircraft type (fixed-wing or helicopter) in each division by status level.

   (a) The first index (1) must not be changed.

   (b) See 1(b).

   (c) See 1(c).

4. SUBAIR(1,5,5) contains the total number of an aircraft type (fixed-wing or helicopter) in each subregion by status level.

   (a) The first index (1) must not be changed.

   (b) To change the number of subregions the second index (the first 5) must be changed to the number of subregions desired.

   (c) See 1(c).

5. REGAIR(1,3,5) contains the total number of an aircraft type (fixed wing or helicopter) in each region by status level.

(a) The first index (1) must not be changed.

(b) To change the number of regions the second index (3) must be changed to the number of regions desired.

(c) See 1(c).

6. PASS(74,5,5) contains subregion table of ground force equipment by subregions and status levels.

(a) See 1(a).

(b) See 4(b).

(c) See 1(c).

7. RPASS(74,3,5) contains region table of ground force equipment by regions and status levels.

(a) See 1(a).

(b) See 5(b).

(c) See 1(c).

8. AITEM(74,3,5) contains region totals of ground force equipment by regions and status level.

(a) See 1(a).

(b) See 5(b).

(c) See 1(c).

9. ALL(74,3) contains region totals of ground force equipment by regions.

(a) See 1(a).

(b) See 5(b).

2.22 Dimensioned Arrays

2.221 Dimensioned Arrays, MAIN Program

1. IRE(3) contains region end points (number of the last division in a region).

   (a) To change the number of region end points, the index (3) must be changed to the number of regions desired.

   (b) To change the value of the end points, the DATA statement, IRE, must be found and the corresponding end points added, deleted, or changed.

2. ISRE(5) contains the subregion end points.

   (a) To change the number of subregion end points the index (5) must be changed to the the number of subregions desired.

   (b) To change the value of the end points the DATA statement, ISRE, must be found and the corresponding end points added, deleted, or changed.

3. IRESR(3) contains region end points for subregions.

   (a) See 1(a).

   (b) To change the value of the end points the DATA statement, IRESR, must be found and the corresponding end points added, deleted, or changed.

4. IVRT(9,2) contains the conversion rule for changing units of measure for ground force equipment when converting from the division level report to the subregion report. If the division or subregion level ground force equipment categories change in any way, the conversion rule illustrated in Appendix A, Schedule 2, and the DATA statement IVRT must be studied in detail.

5. IVRTP(2,2) contains the conversion rule for changing units of measure for ground force equipment, when converting from the subregion level report to the region level report. If the division, subregion or region level ground force equipment categories change in any way, the conversion rule illustrated in Appendix A, Schedule 3, and the DATA statement IVRTP must be studied in detail.

6. IDIB(39,2) contains the compacting rule for aggregating or deleting division level ground force equipment categories to form subregion ground force equipment categories. If division or subregion level ground force equipment categories change in any way, the compacting

the compacting rule illustrated in Appendix A, Schedule 2, and the DATA statement IDIB must be studied in detail.

7. IDIP(27,2) contains the compacting rule for aggregating or deleting subregion level ground force equipment categories, to form region ground force equipment categories. If division, subregion or region level ground force equipment categories change in any way, the compacting rule illustrated in Appendix A, Schedule 2, and the DATA statement IDIP must be studied in detail.

2.222 Dimensioned Arrays, Subprogram AIRSUM

1. IPE(3): See 2.221 number 1.

2. ISRE(5): See 2.221 number 2.

2.223 Dimensioned Arrays, Subprogram CØNTRL

1. ICØDE(65,3) contains the pass number and associated division range numbers which the pass number is allowed to access for divisions, subregions, regions and province.

   (a) To change the number of pass numbers the first index (65) must be changed to the number of pass numbers desired.

   (b) The second index (3) should not be changed.

   (c) To change the contents of ICØDE, new numbers must be selected and placed in the permanent inventory data file. The pass numbers must be matched in the array with the division range numbers.

2.224 Dimensioned Arrays, Subprogram INPUT

1. SIØ(50,3) contains district name codes used in editing update cards.

   (a) To change the number of districts the first index (50) must be changed to the number of districts desired.

   (b) To change the contents of SIØ, new codes must be created and placed in the permanent inventory data file.

2. E(74,6) contains equipment name codes used in editing update cards.

(a) To change the number of equipment name categories the first index (74) must be changed to the number of categories desired.

(b) To change the contents of E, new codes must be created and placed in the permanent inventory data file.

2.225 Dimensioned Arrays, Subprogram ØUTPUT

1. RETIT(3,12) contains the region titles.

   (a) To change the number of regions, the first index (3) must be changed to the number of regions desired.

   (b) To add, delete or change region names, the DATA statement RETIT must be altered accordingly.

2. SRETIT(5,6) contains the subregion titles.

   (a) To change the number of subregions, the first index (5) must be changed to the number of subregions desired.

   (b) To add, delete or change subregion names, the DATA statement SRETIT must be altered accordingly.

3. DIVTIT(50,6) contains the district titles.

   (a) To change the number of districts, the first index (50) must be changed to the number of districts desired.

   (b) To add, delete or change district names, a new list of names must be added to the permanent inventory data file.

4. REND(3): See 2.221 number 1.

   (a) See 2.221 number 1(a).

   (b) To change the value of the end points, the DATA statement REND must be found and the corresponding end points added, deleted, or changed.

5. SRE(5): See 2.221 number 2.

   (a) See 2.221 number 2(a).

   (b) To change the value of the end points, the DATA statement SRE must be found and the corresponding end points added, deleted, or changed.

6. RSEND(3): See 2.221 number 3.

   (a) See 2.221 number 1(a).

(b) To change the value of the end points, the DATA statement RSEND must be found and the corresponding end points added, deleted, or changed.

7. RUPPR(3,2) contains directional abbreviations for region names.

   (a) See 1(a).

   (b) To change the abbreviations for the directions, the DATA statement RUPPR must be found and the corresponding abbreviations added, deleted, or changed.

8. IMATR(74,50) contains the body or numerical section of the report for printing purposes.

   (a) See 2.21 number 1(a).

   (b) See 2.21 number 1(b).

9. ISVEC(74,3) contains the region totals of ground force equipment by region and status level for printing purposes.

   (a) See 2.21 number 1(a).

   (b) To change the number of regions, the second index (3) must be changed to the desired number of regions.

10. IGVEC(74,3) contains region totals of ground force equipment by region, for printing purposes.

    (a) See 2.21 number 1(a).

    (b) See 9(b).

11. DSHDG(74,6) contains ground force equipment codes for the division level report side heading.

    (a) See 2.224 number 2(a).

    (b) To change the contents of DSHDG, new codes must be created and placed in the permanent inventory data file.

12. SSHDG(39,6) contains ground force equipment codes for the subregion level report side heading.

    (a) To change the number of equipment codes, the first index (39) must be changed to the number of codes desired.

(b) To change the contents of SSHDG, new codes must be created and placed in the permanent inventory data file.

13. RSHDG(27,6) contains the ground force equipment codes for the region level report side heading.

(a) To change the number of equipment codes, the first index (27) must be changed to the number of codes desired.

(b) To change the contents of RSHDG, new codes must be created and placed in the permanent inventory data file.

14. ASHDG(42,6) contains the fixed-wing aircraft codes for the report side heading.

(a) To change the number of aircraft codes, the first index (42) must be changed to the number of codes desired.

(b) To change the contents of ASHDG, new codes must be created and placed in the permanent inventory data file.

15. HSHDG(20,6) contains the helicopter codes for the report side heading.

(a) To change the number of helicopter codes, the first index (20) must be changed to the number of codes desired.

(b) To change the contents of HSHDG, new codes must be created and placed in the permanent inventory data files.

16. SDHDG(74,6) contains side headings for report printing.

See 2.21 number 1(a).

17. KTØPR(3,6) contains the directional part of region names.

(a) See 1(a).

(b) To change the directional part of the region names, the DATA statement KTOPR must be changed.

18. BETIT(3,6) contains part of the region title.

(a) See 1(a).

(b) To change the contents of BETIT, the DATA statement BETIT must be changed.

19. ASA(25,10) contains special area titles.

(a) To change the number of special areas, the first index (25) must be changed to the number of special areas desired.

(b) To add, delete or change special area titles, a new list of titles must be added to the permanent inventory data file.

20. KRAKR(5) contains the total number of aircraft by subregion or region as required by the report being printed.

To change the number of subregion or region totals, the index (5) should be set to the number of subregions in the organization structure.

2.3 Constants

2.31 Constants, MAIN Program

The following constants are set in a DATA statement at the beginning of MAIN.

1. LGF is set to 74. LGF represents the number of ground force equipment categories. If the number of categories is changed, LGF must be changed.

2. LS is set to 5. LS represents the number of subregions. If the number of subregions is changed, LS must be changed.

3. LR is set to 3. LR represents the number of regions. If the number of regions is changed, LR must be changed.

4. LSA is set to 25. LSA represents the number of special areas. If the number of special areas is changed, LSA must be changed.

5. LFW is set to 42. LFW represents the number of fixed-wing aircraft. If the number of aircraft is changed, LFW must be changed.

6. LHEL is set to 62. LHEL represents the total number of aircraft (fixed-wing plus helicopters). If the total number of aircraft is changed, LHEL must be changed.

7. LDIV is set to 50. LDIV represents the number of regular areas (districts). If the number of districts is changed, LDIV must be changed.

8. LHE is set to 63. LHE is the same as 6 above, except one has been added to the total.

9. LAIR is set to 43. LAIR is the same as 5 above, except one has been added to the total.

10. LCP is set to 39. LCP represents the number of ground force categories for a subregion report. If the number of categories is changed, LCP must be changed.

11. LRP is set to 27. LRP represents the number of ground force categories for a region report. If the number of categories is changed, LRP must be changed.

2.32 Constants, Subprogram AIRSUM

The following constants are set in a DATA statement at the beginning of AIRSUM.

1. LR is set to 3. LR represents the number of regions. If the number of regions is changed, LR must be changed.

2. LS is set to 5. LS represents the number of subregions. If the number of subregions is changed, LS must be changed.

3. LDIV is set to 50. LDIV represents the number of regular areas (districts). If the number of districts is changed, LDIV must be changed.

2.33 Constants, Subprogram CØNTRL

If changes in the number of regular areas, special areas, subregions or regions are necessary, contact the Forest Fire Research Institute in order to modify the subprogram CØNTRL.

2.34 Constants, Subprogram INPUT

The following constants are set at the beginning of INPUT between the lines numbered 43 and 53.

1. NSITE is set to 50. NSITE represents the number of regular areas (districts). If the number of districts is changed, NSITE must be changed.

2. NSITES is set to 25. NSITES represents the number of special areas. If the number of special areas is changed, NSITES must be changed.

3. NEQG is set to 74. NEQG represents the number of ground force equipment categories at the division level. If the number of categories is changed, NEQG must be changed.

4. NEQA is set to 62. NEQA represents the number of aircraft (fixed-wing plus helicopters). If the number of aircraft is changed, NEQA must be changed.

2.35 Constants, Subprogram ØUTPUT

The following constants are set in DATA statements at the beginning of ØUTPUT.

1. NØREG is set to 3. NØREG represents the number of regions. If the number of regions is changed, NØREG must be changed.

2. NØSR is set to 5. NØSR represents the number of subregions. If the number of subregions is changed, NØSR must be changed.

3. NØDIV is set to 50. NØDIV represents the number of regular areas (districts). If the number of districts is changed, NØDIV must be changed.

4. IREGNØ is set to 27. IREGNØ represents the number of ground force equipment categories for a region level report. If the number of categories is changed, IREGNØ must be changed.

5. ISRENØ is set to 39. ISRENØ represents the number of ground force equipment categories for a subregion level report. If the number of categories is changed, ISRENØ must be changed.

6. IDIVNØ is set to 74. IDIVNØ represents the number of ground force equipment categories for a division level report. If the number of categories is changed, IDIVNØ must be changed.

7. IAIRNØ is set to 42. IAIRNØ represents the number of fixed wing aircraft. If the number of aircraft is changed, IAIRNØ must be changed.

8. IHELNØ is set to 20. IHELNØ represents the number of helicopters. If the number of helicopters is changed, IHELNØ must be changed.

9. ISANØ is set to 25. ISANØ represents the number of special areas. If the number of special areas is changed, ISANØ must be changed.