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AIR FORCE MANPOWER AND PERSONNEL CENTER RANDOLPH AFB TX  
AGEFORCE - A FORCE STRUCTURE AGEING MODEL: USERS MANUAL.(U)  
DEC 79 J R STRATTON

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Model  
Aggregate  
Force Prediction  
Simulation

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  
This Ageforce Aggregate Model provides a quick response force prediction tool for any force which can be defined in year-groups (up to 30) with associated retention rates. There are two options available to handle accessions to the force. The first is where a user provides accession numbers for each simulation year. The second is where a user provides a desired force level and the simulation year it wants to attain that level; the required accessions each year are then calculated by the model.

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Item 20 continued.

➤ The model simulates losses and accessions for up to 30 years with various displays available. All interaction is on-line with the Air Force Manpower and Personnel Center's computer.

A

Accession For	
NFIS GRAMI	
DDC TAB	
Unannounced	
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or special
A	

**- AGEFORCE -**  
**A FORCE STRUCTURE AGEING MODEL**

**USERS MANUAL**

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**DECEMBER 1979**

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**SYSTEMS SOFTWARE & DEVELOPMENT BRANCH  
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-AGEFORCE-

A FORCE STRUCTURE AGEING MODEL

USERS ' MANUAL

BY

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December 1979

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USERS ' MANUAL  
TABLE OF CONTENTS

SECTION		PAGE
1.	GENERAL	
1.1	Purpose of the Users ' Manual	1
1.2	Project References	1
1.3	Terms and Abbreviations	1
1.4	Security and Privacy	1
2.	SYSTEM SUMMARY	1
2.1	System Application	1
2.2	System Operation	2
2.3	System Configuration	2
2.4	System Organization	2
2.5	Performance	2
2.6	Data Base	3
2.7	General Description of Inputs, Processing, Outputs	3
3.	STAFF FUNCTIONS RELATED TO TECHNICAL OPERATIONS	3
3.1	Initialization	3
3.2	Staff Input Requirements	3
3.2.1	Input Formats	4
3.2.2	Composition Rules	6
ATTACHMENT 1	Sample File Inventory	A1-1
ATTACHMENT 2	Sample Display	A2-1
ATTACHMENT 3	Users ' Flow Chart	A3-1
ATTACHMENT 4	AGER Source Listing	A4-1

## SECTION 1. GENERAL

1.1 Purpose of the User's Manual. The objective of the User's Manual for RP/AGEFORCE is to provide the user's non-ADP personnel with the information necessary to effectively use the system.

1.2 Project References. RP/AGEFORCE is a generalized, on-line ageing model used to "game" the effects of various accessions and losses on a predetermined force. The program was developed at AFMPC for any user with access to the AFMPC computer.

Applicable documents are:

a. "AGEFORCE AGGREGATE MODEL," Capt Roger B. Boener, 2 August 1974.

b. DOD "Automated Data Systems Documentation Standards," Standard 7935.1-3, 13 September 1977.

### 1.3 Terms and Abbreviations

a. AGER - refers to RP/AGEFORCE

b. FORCE - user's group to be aged (i.e., active airmen, active officers, civilians, etc.)

c. FORCE STRUCTURE - Any population that can be classified (structured) by year-group, could be commissioned, enlisted, minority, civilian, etc.

1.4 Security and Privacy. AGER operates in an "UNCLASSIFIED" environment.

## SECTION 2. SYSTEM SUMMARY

2.1 System Application. AGER is a quick-response prediction tool that can be executed from the user's work area over a Burroughs TD-800 terminal.

a. AGER provides some flexibility as the user has two options for inputting beginning force structures and retention rates. The first option is to enter force structures and retention rates for each run; desirable for one-time runs. The second option is to input force and rate data and save it on a computer disk file for subsequent use and reuse. With either option the user can change data by using AGER's update capability.

b. The user can also select either of two operating modes for AGER. The first is the simple ageing mode where retention rates are applied against force levels; accessions, if provided, are added in. The second is the steady-state mode where the goal is to attain a desired force level after a specified number of years. The model calculates the number of accessions needed each year to first attain the steady state force, and then maintain that steady state force throughout the ageing period. In either mode, the resulting report shows the force distribution by year-group after each year of ageing, the losses each year, and the total force level each year.

2.2 System Operation. A user can run AGER anytime computer resources are available. The program is usually available during normal duty hours.

2.3 System Configuration. AGER runs on the BURROUGHS 6700 computer located at AFMPC, Randolph AFB, Texas. The system uses TD-800 terminals at various AFMPC user locations. All interaction is between these two devices.

2.4 System Organization. The system contains only one program, RP/AGEFORCE, which does all the processing.

2.5 Performance.

a. Input - all user inputs are via TD-800 terminal. The system asks for each input needed and states how it is to be entered.

b. Output - output is via TD-800 terminal transmitted directly to the user.

c. Response time - since AGER is on-line, response time is relatively quick.

d. Limitation - limitations are interactively provided by the system when it asks for an input.

e. Error rate - the system has built-in checks for input data errors. If an error exists in the input data, the system asks for the data again.

f. Processing time - due to user interaction throughout the processing cycle, processing time goes unnoticed.

g. Flexibility - AGER takes any force the user wishes to define by thirty or less year-groups whether it be Active Airmen, minority female officers, or navigators.

2.6 Data Base. The files that are referenced, supported, and kept current by AGER follow:

a. User's Force File. This file is referenced by AGER when the user asks for it. The twenty force groups are maintained as integer values with the twenty sets of retention rates maintained as real numbers.

b. Utilization File. This file is referenced and updated every time AGER runs.

2.7 General Description of Inputs, Processing, Outputs.

a. Inputs. All AGER inputs are accomplished via on-line interface with the user. The technique used is a branching method which asks "YES/NO" and specific data questions. The result of the inputs leads to a force with corresponding retention rates and various parameters for operating modes.

b. Processing. All processing is done on-line by the one program, RP/AGEFORCE.

c. Output. The output product the user receives is a TD-800 display showing the aged force by year-group and ageing years. An example is provided as Attachment 2.

### SECTION 3. STAFF FUNCTIONS RELATED TO TECHNICAL OPERATIONS

3.1 INITIALIZATION. To run AGER a user must first follow standard sign-on procedures:

USER: sign-on by entering usercode and password

REMOTE RESPONSE: ENTER FUNCTION

USER: RUN AGE

AGER is now ready to run.

3.2 STAFF INPUT REQUIREMENTS. Before running AGER, a user should gather his force, retention rate and accessions data.

a. Cause of Input - inputs are required when displays from AGER ask for them. The force structures, retention rates and accessions will all be asked for separately.

b. Time of Input - all inputs should be prepared prior to running AGER.

c. Origin of Input - each user is responsible for gathering his own input data. The force must be defined in year-groups, retention rates by year-group, and accessions by the ageing year they will be gained.

d. Medium of Input - all input is via TD-800 series terminals.

3.2.1 Input Formats. AGER is tutorial; displays from the program will lead the user through required tasks. Following is a numerically ordered list of the typical displays AGER presents. In the next section, 3.2.2 Composition Rules, there is a corresponding list of descriptions for the displays and explanations of the inputs needed. Note that there are many ways to get through the program (see Attachment 3); the displays below represent the typical way when a user wants to make a data file and use force and rate groups from that file.

- (1) AGGREGATE MODEL TO AGE SELECTED ELEMENTS OF THE FORCE. ENTER YOUR 7-DIGIT AUTOVON NUMBER (I.E. 487-2233). THIS DATA IS ESSENTIAL FOR FILE MAINTENANCE AND MAY BE USED TO VERIFY UTILIZATION. IF YOU DESIRE TO START OVER AGAIN WHILE WORKING IN AGE FORCE JUST ENTER AN 'END' RESPONSE WHEN A 'YES' OR 'NO' RESPONSE IS REQUESTED. BE CAREFUL THOUGH, IF YOU ENTER AN 'END' AT ANY OTHER TIME THE PROGRAM MAY TERMINATE ABNORMALLY.
- (2) YOU DO NOT HAVE A SAVE FILE FOR FORCE AND RATE DATA. DO YOU WANT TO CREATE A PERMANENT FILE? (ENTER YES OR NO)
- (3) DO YOU WISH TO MAKE CHANGES TO YOUR DATA? (ENTER YES OR NO)
- (4) DO YOU WISH TO CHANGE ANY OF YOUR FORCE GROUPS? (ENTER YES OR NO)
- (5) THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR USE. ENTER THE NUMERIC CODE (1-20) OF THE GROUP YOU WISH TO USE.
- (6) THE CONFIGURATION OF GROUP (1-20) IS PRESENTLY AS FOLLOWS:  
1-10 (VALUES OF FORCE LEVELS IN YR-GROUPS 1-10)  
11-20 (VALUES OF FORCE LEVELS IN YR-GROUPS 11-20)  
21-30 (VALUES OF FORCE LEVELS IN YR-GROUPS 21-30)  
TO CHANGE THE FORCE LEVELS, INPUT YEARGROUP, LEVEL, YEARGROUP, LEVEL, ETC., (EX: 2, 364, 12, 1024, \*)  
TERMINATE INPUT WITH AN ASTERISK.  
YOU CAN CHANGE ANY OR ALL YEAR GROUPS THIS WAY.
- (7) DO YOU WISH TO CHANGE THE RETENTION RATES?  
(ENTER YES OR NO)
- (8) RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE.  
ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO CHANGE.

(9) THE CURRENT RATES ARE:

YRS

- 1-10 (RETENTION RATES FOR YEAR GROUPS 1-10)
- 11-20 (RETENTION RATES FOR YEAR GROUPS 11-20)
- 21-29 (RETENTION RATES FOR YEAR GROUPS 21-29)

TO CHANGE RATES, INPUT YEARGROUP, RATE, YEARGROUP, RATE, ETC.  
(EX: 2, .463, 15, .376, \*).  
TERMINATE INPUT WITH AN ASTERISK.  
YOU CAN ENTER ANY OR ALL RATES THIS WAY.

- (10) HOW MANY YEARS DO YOU WISH TO AGE THE FORCE 1-29?
- (11) HOW MANY YEAR GROUPS DO YOU WISH TO DISPLAY 1-30?
- (12) IF YOU WANT TO ACHIEVE AND MAINTAIN A STEADY-STATE FORCE THEN ENTER THE FORCE LEVEL YOU WANT TO ACHIEVE. OTHERWISE ENTER 0 (ZERO).
- (13) HOW MANY YEARS DO YOU WANT TO TAKE TO FIRST ACHIEVE THE STEADY-STATE FORCE? (1-29)
- (14) IF YOU WOULD LIKE TO SELECT A FORCE GROUP THEN ENTER YES ELSE NO.
- (15) THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR USE. ENTER THE NUMERIC CODE (1-20) OF THE GROUP YOU WISH TO USE.
- (16) DO YOU WISH TO USE THE RETENTION RATES? (ENTER YES OR NO)
- (17) RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE FOR USE. ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO USE.
- (18) DO YOU INTEND TO USE THE SAME RETENTION RATES FOR EVERY SIMULATION YEAR? (ENTER YES OR NO)
- (19) IF YOU WISH TO INPUT ACCESSIONS ENTER YES ELSE ENTER NO.
- (20) ENTER ACCESSIONS FOR EACH OF THE (1-30) SIMULATION YEARS. EX: 100, 300, 500 ETC.
- (21) DO YOU WISH TO INPUT NEW RETENTION RATES FOR SIM YR (1-30) ENTER YES OR NO

(22) IF YOU WISH TO RUN AGAIN ENTER YES ELSE NO

(23) END OF PROGRAM.

3.2.2 Composition Rules. Following is a description of the AGER displays and explanation of the necessary inputs. The paragraph numbers correspond to those of the actual displays in section 3.2.1 and the symbols in the processing flow chart.

(1) Your seven digit AUTOVON Phone number is used as a title for your force groups and retention rates file which is stored on a computer diskpack, and is also used to tally your utilization.

(2) This message means that there has not been a file created using the AUTOVON phone number entered. If you want to create one enter 'YES'. If you do not want a permanent file enter 'NO'.<sup>1</sup>

(3) If you want to change any of your data enter 'YES'.<sup>1</sup> If you do not want to make changes to your data enter 'NO'.<sup>1</sup>

(4) If you want to make changes to any of your force groups enter 'YES'. If you do not want to change your force group data enter 'NO'.<sup>1</sup> All force groups are initially set equal to zero.

(5) You have twenty force groups available to you in your force file. Each force group contains 30 values, one for each year-group. Enter a number from 1 to 20 corresponding to the force group you want to use.<sup>2</sup>

(6) This display shows what a particular force group looks like with the current force levels in each of the thirty year-groups. To change any of the force levels enter the year-group (1-30), followed by a comma, then the new force level, followed by a comma. You can change from one to all thirty this way. When you are finished entering your changes enter an asterisk. If you do not want to change any levels - maybe you just wanted to look at them - simply enter an asterisk only.

---

<sup>1</sup> Entering an 'END' will terminate that run of AGER.

<sup>2</sup> Suggest you make a chart to keep track of your force groups. See attachment 1 for an example.

(7) If you want to make changes to any of your retention rate groups, enter 'YES'.<sup>1</sup> If you do not want to make changes enter 'NO'.<sup>1</sup> All retention rates are initially set equal to 1.0.

(8) You have twenty retention rate groups available to you within your file. Each rate group contains 29 values, one for each year-group. Only 29 are necessary because no one is retained beyond the 30th year. Enter the numeric code 1 thru 20 of the group you wish to use.<sup>2</sup>

(9) This display shows what your rate group looks like with the current retention rates for each of the twenty-nine year groups. To change any of the rates enter the year group (1-29), followed by a comma, then the new retention rate, followed by a comma. The retention rate itself must contain a decimal point. You can change from one to all twenty-nine this way. When you are finished entering your changes enter an asterisk. If you do not want to change any of the rates simply enter an asterisk only.

(10) Enter the number of years you want to age the force.

(11) Enter the number of year-groups you want to look at.

(12) If you want to reach a certain manning level for your force and stay at that manning level, enter the force level you want to achieve. If you do not want a steady force enter '0'; accessions and losses will then dictate your force level.

(13) Enter the year of ageing you want your steady force to begin in. For instance, if you want to build up to your steady force by the fifth year of ageing enter a '5'.

(14) If you want to use a force group enter 'YES'.<sup>1</sup> If you would prefer to enter new force levels enter 'NO'.<sup>1</sup>

(15) Same as (5).

(16) If you want to use a retention rate group enter 'YES'.<sup>1</sup> If you prefer to enter new retention rates enter 'NO'.<sup>1</sup>

(17) Same as (8).

---

<sup>1</sup> Ibid.

<sup>2</sup> Ibid.

(18) You have the option of using the same retention rates for every year of ageing or you can enter new rates for each year of ageing. If you want to use the same rates for every ageing year enter 'YES'. If you do not enter 'NO'.<sup>1</sup>

(19) If you want to enter accessions to be used in the ageing enter 'YES'. If you do not want to use accessions enter 'NO'.<sup>1</sup>

(20) Enter the accessions you want to use for each of the ageing years. For instance, if you are ageing a force for five years, enter five accession figures followed by an asterisk.

Example: 100, 200, 500, 400, 200, \* (100 corresponds to ageing year 1, 200 to ageing year 2, etc.).

(21) If you want to input new retention rates for the next ageing year enter 'YES'. If you do not enter 'NO'.<sup>1</sup>

(22) If you want to run AGER again enter 'YES'. If you do not want to run again enter 'NO'.

(23) This display indicates AGER is finished running.

---

<sup>1</sup> Ibid.

FORCE GROUP	DESCRIPTION
1	AIRMEN DATA
2	AIRMEN MALE DATA
3	AIRMEN FEMALE DATA
4	BLANK
5	BLANK
6	OFFICER DATA
7	BLANK
8	OFFICER MALE DATA
9	BLANK
10	BLANK
11	OFFICER FEMALE DATA
12	BLANK
13	BLANK
14	BLANK
15	BLANK
16	BLANK
17	BLANK
18	BLANK
19	BLANK
20	BLANK

ATTACHMENT 1

4872233 6 YEAR FORCE STRUCTURE

YEAR GROUP	YEAR					
	1	2	3	4	5	6
15	850	1101	1165	1024	934	855
14	1158	1225	1077	982	899	750
13	1299	1142	1041	953	795	535
12	1293	1179	1079	900	663	679
11	1337	1223	1020	752	770	731
10	1382	1153	850	870	826	623
9	1408	1038	1062	1008	761	628
8	1272	1301	1235	932	769	642
7	1530	1453	1097	905	755	453
6	1779	1343	1108	924	555	37
5	1351	1115	930	558	37	0
4	1126	939	564	37	0	0
3	964	579	38	0	0	0
2	587	39	0	0	0	0
1	41	0	0	0	0	0
LOSS	0	2932	2563	2240	1965	1727
STRN	22502	19570	17007	14767	12802	11075

ENTER OK FOR NEXT PAGE OF REPORT

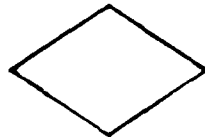
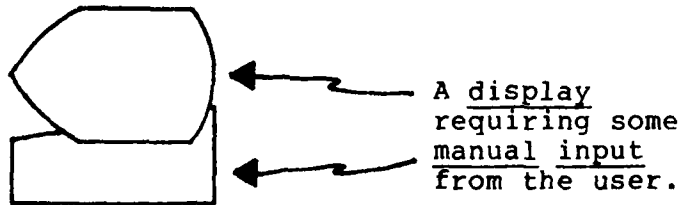
4872233 6 YEAR FORCE STRUCTURE

YEAR GROUP	YEAR					
	1	2	3	4	5	6
30	0	0	0	0	0	0
29	0	0	0	0	0	0
28	51	47	38	38	23	15
27	78	64	63	39	25	13
26	105	103	64	40	21	22
25	172	107	67	36	37	38
24	168	106	57	58	59	47
23	168	90	91	93	75	66
22	229	232	236	190	168	167
21	486	493	398	352	350	347
20	720	581	514	511	507	551
19	754	667	664	659	716	929
18	712	709	703	764	991	1048
17	735	728	792	1027	1086	955
16	747	813	1054	1115	980	894
LOSS	0	2932	2563	2240	1965	1727
STRN	22502	19570	17007	14767	12802	11075

IF YOU WISH TO RUN AGAIN ENTER YES ELSE NO

## USERS FLOW CHART

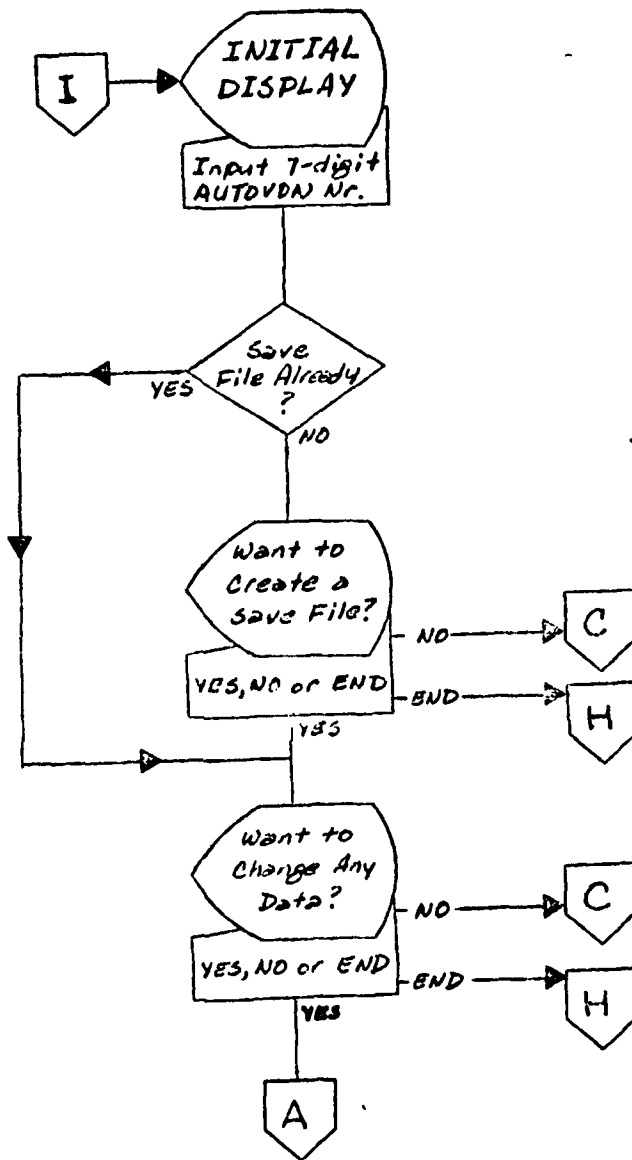
The flow chart on subsequent pages is provided as a "road map" for running AGER. The symbols used are explained below:

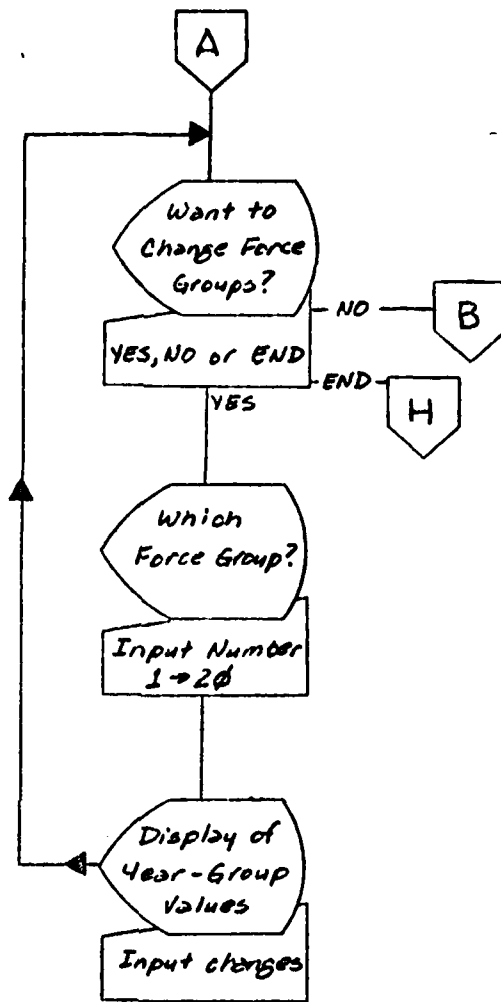


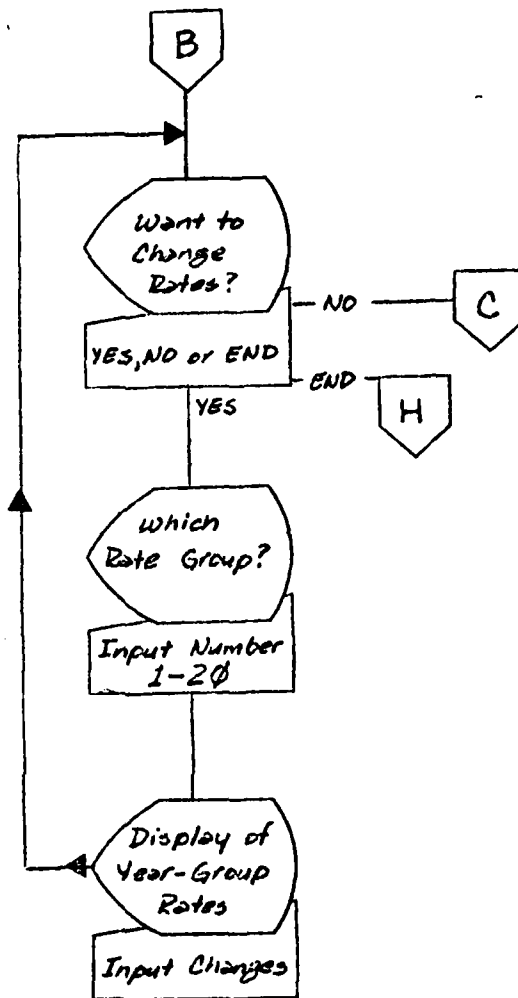
The computer program  
makes a decision  
here. Nothing is  
required from the user.

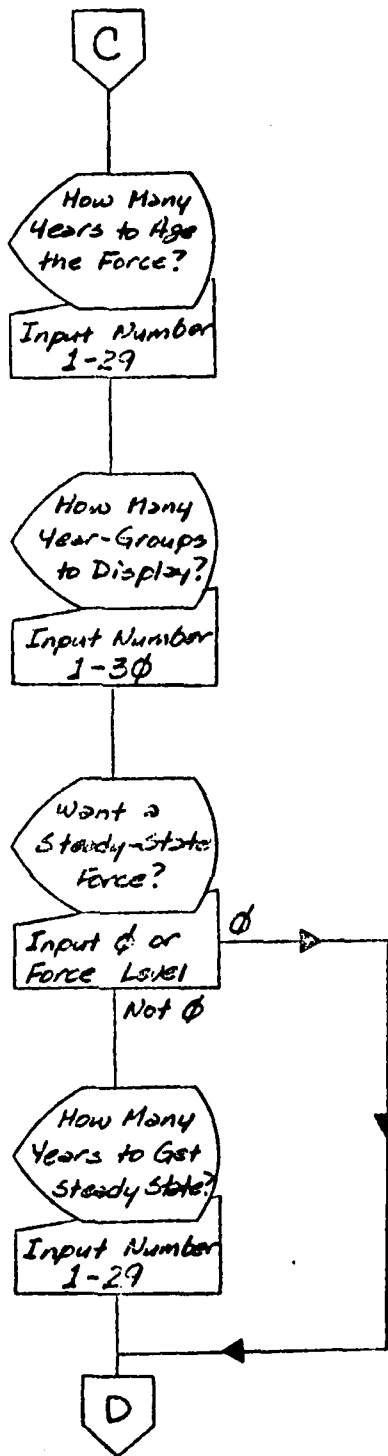


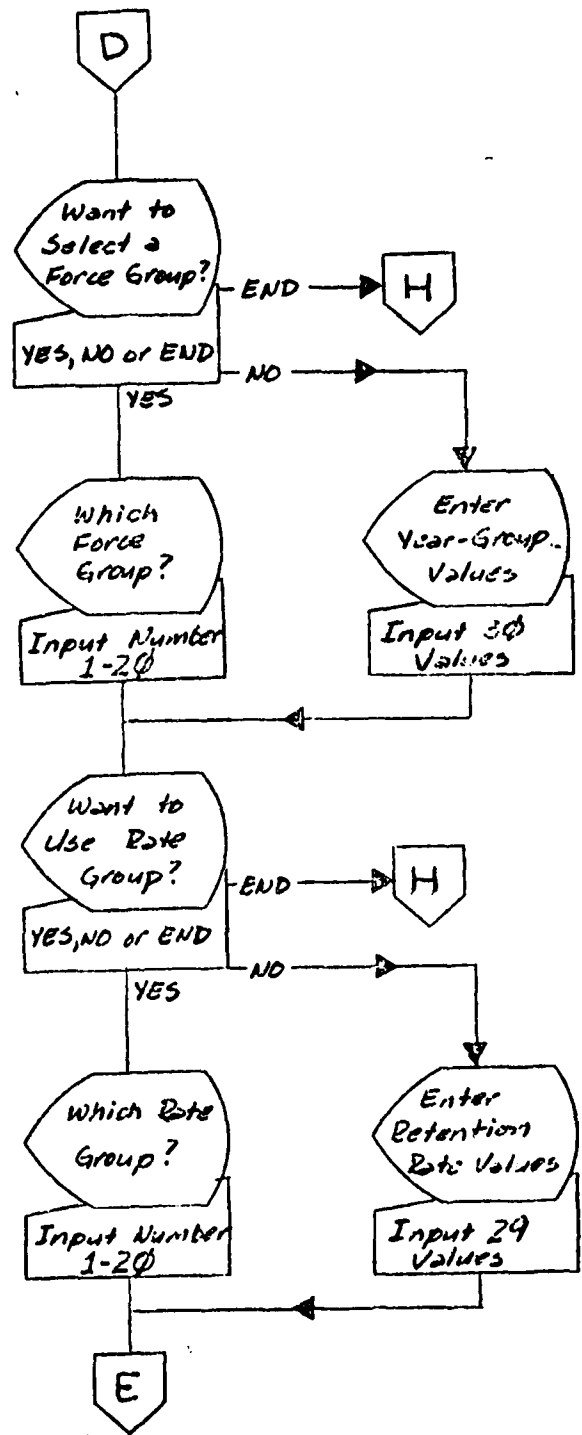
Connector to some  
other page of this  
flow chart.

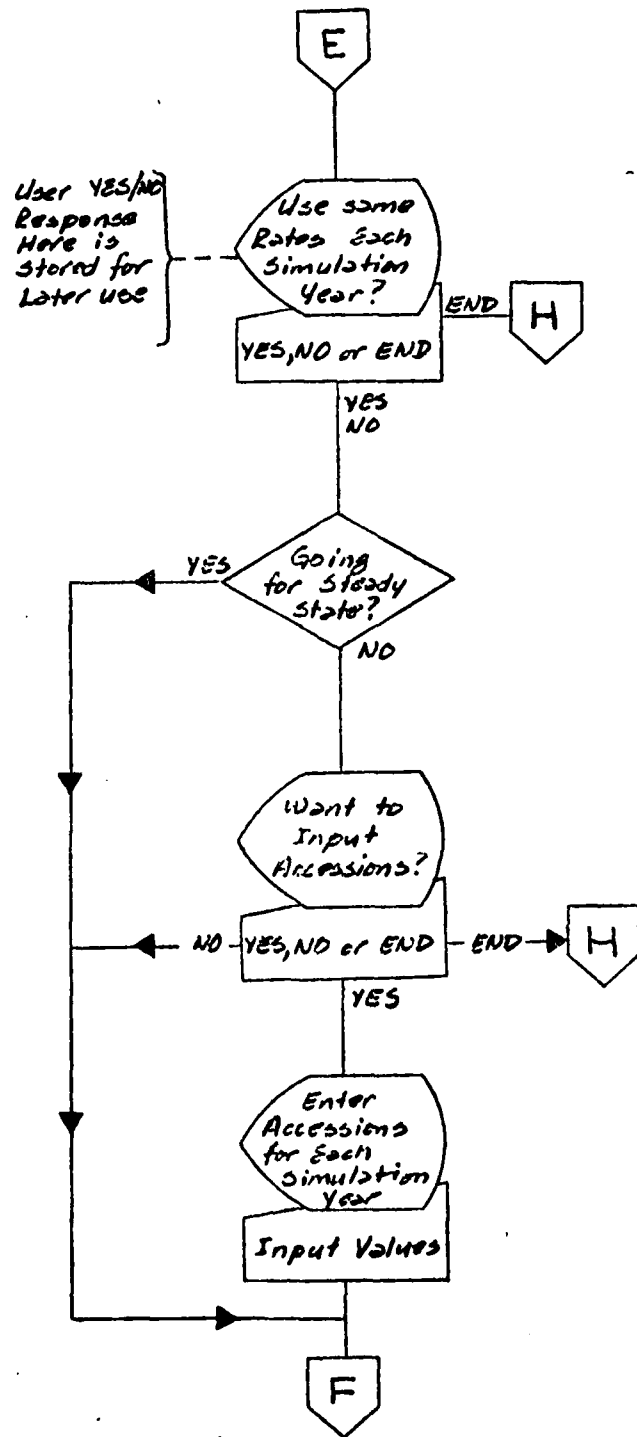


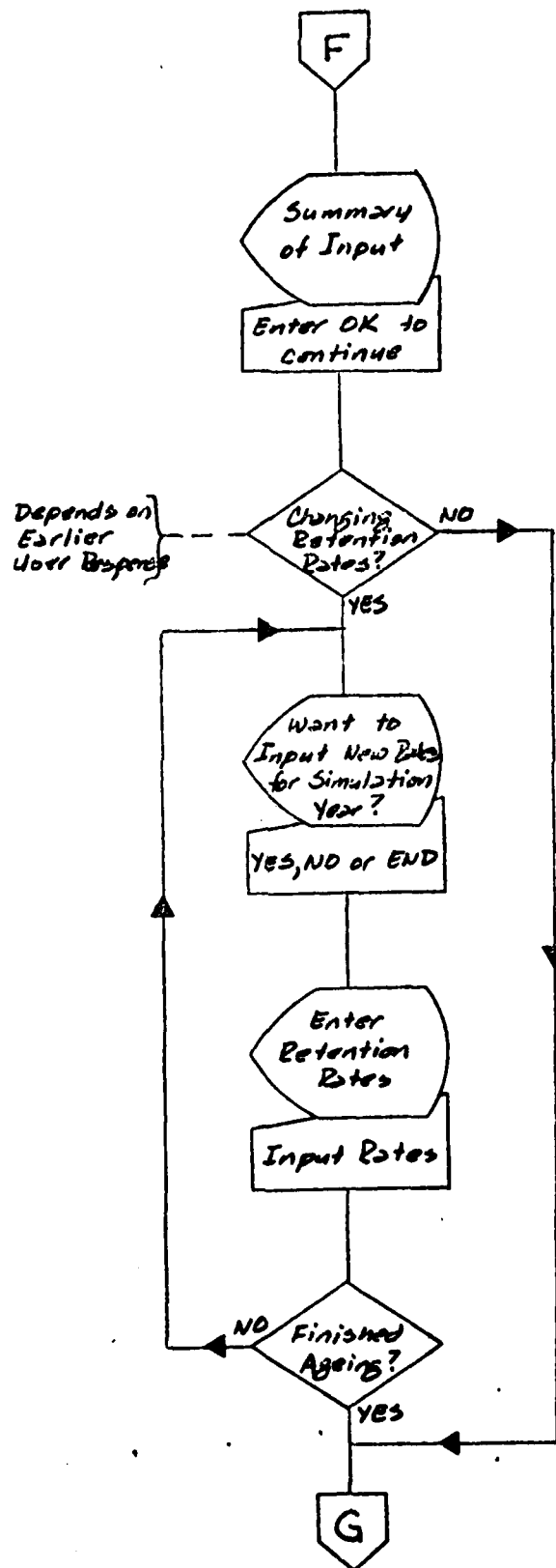


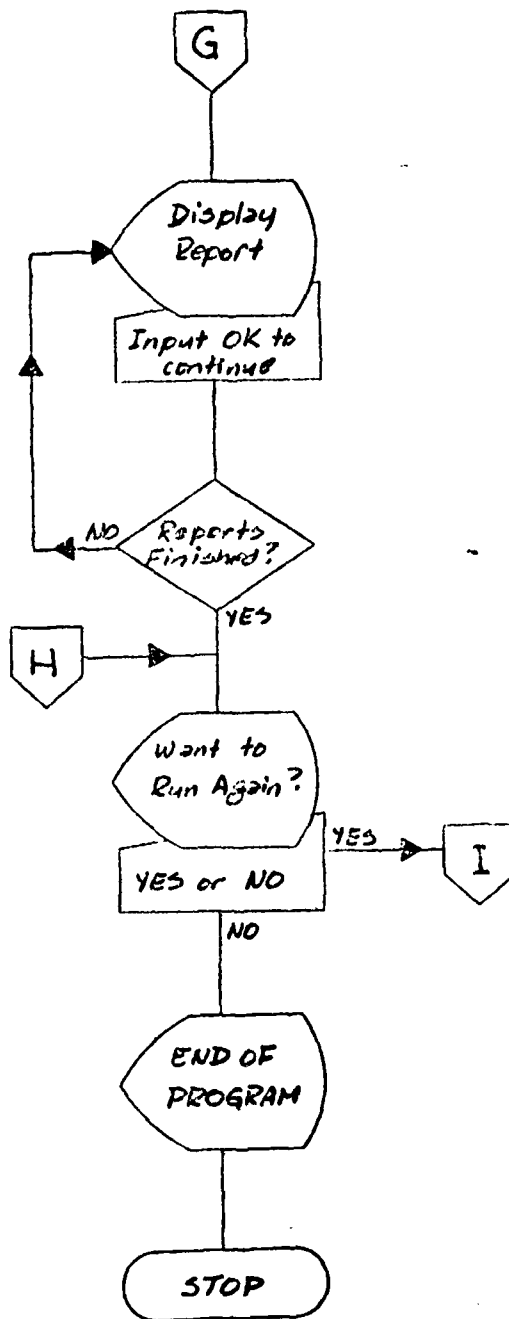












```

100  $ SET LIST ERRLIST                                000001
200  BEGIN % AA                                       000002
300  COMMENT                                           000003
400  *****                                           000004
500  *****                                           000005
600  *****                                           000006
700  PROGRAMMER: A1C JAMES R. STRATTON                000007
800  LOCATION: AFMPC/MPCDDP7                          000008
900  RANDOLPH AFB, TX. 78148                         000009
1000 SPECIAL REMOTE CONTROL CHARACTERS USED IN THIS PROGRAM ARE: 000010
1100 4"OC00" - CLEAR AND HOME                        000011
1200 4"3C00" - HOME (DC4)                           000012
1300 4"13" - MOVES CURSOR UP ONE LINE (DC3)          000013
1400 4"11" - KEEPS REMOTE DEVICE IN RECEIVE MODE (DC1) 000014
1500 4"0D" - CARRIAGE RETURN                         000015
1600 4"25" - LINE FEED                               000016
1700 *****                                           000017
1800 *****                                           000018
1900 INTEGER ARRAY FORCE[0:31,0:31], FORCEHOLD[0:59];  000019
2000 REAL ARRAY RETRATES[0:28], RETENHOLD[0:57];    000020
2100 REAL RHOLD;                                       000021
2200 TRUTHSET FIRSTNUM("123456789"),                000022
2300 RESTNUM("0123456789");                          000023
2400 FILE INPUT(KIND=REMOTE,UNITS=CHARACTERS,MAXRECSIZE=1920,MYUSE=3), 000024
2500 OUTPUT(KIND=REMOTE,UNITS=CHARACTERS,MAXRECSIZE=1920); 000025
2600 FILE FORCEGROUPS(KIND=DISKPACK,                  000026
2700 PACKNAME="GUSDATA.",MAXRECSIZE=30,BLOCKSIZE=450, 000027
2800 UNITS=WORDS,MYUSE=10,AREAS=5,AREASIZE=15);    000028
2900 FILE UTIL(KIND=DISKPACK,PACKNAME="GUSDATA.",MAXRECSIZE=4, 000029
3000 TITLE="AGEDFORCE/DATA/UTILIZATION.",MYUSE=10, 000030
3100 BLOCKSIZE=400,AREAS=1,AREASIZE=1000,UNITS=WORDS); 000031
3200 INTEGER YRSTOAGE,YRSPSDISP,YRSTOSTEADY,STEADYFORCE,ACCSPERYR,TEMP, 000032
3300 11,12,13,14,15,TIM,REC,TAI,TAT1;              000033
3400 EBCDIC ARRAY REPTNAME[0:10],REPLY[0:5],TITLEARRAY[0:25],TITHOLD[0:25], 000034
3500 URAY[0:23];                                       000035
3600 BOOLEAN STEADYSTATE,ACCESSIONSINPUT,CHGRATES,DIDRUN,GOTTITLE,GOTFILE; 000036
3700 LABEL                                             000037
3800 INPUTDATA,INITIALIZATION,STEADYPROC,NOTYET,REENTRY,WINDUP, 000038
3900 FINISHED,OLDRATES,OLDLEVELS,OLDACCS,NEXTPAGE0,NEXTPAGE1,NEXTPAGE2, 000039
4000 AGEYEARS,DISPLAYEARS,STEADYEAR,REUSEFORCE,REUSERATES,REUSEACCS,NEXTPAGE, 000040
4100 ACCESSIONSIN,BIGPICTURE,NEXTPAGE3,RATECHGREQ,CHGCHECK,NEXTPAGE4,THEEND; 000041
4200 LABEL                                             000042
4300 REPLYAGAIN1,TALLYFORCE,REPLYAGAIN2,REPLYAGAIN3,CHANGERATES, 000043
4400 REPLYAGAIN4,REPLYAGAIN5,REPLYAGAIN6,EXT,INPUTLEVELS,INPUTRATES; 000044
4500 DEFINE                                           000045
4600 TA = INTEGER(URAY[17],7)*,                      000046
4700 TAT = INTEGER(URAY[7],10)*;                    000047
4800 $PAGE                                           000048
4900 DIDRUN:=FALSE;                                  000049
5000 IF MYSELF.TASKVALUE EQL 500                    000050
5100 THEN BEGIN                                       000051
5200 WRITE(OUTPUT, <"THIS PROGRAM CAN NOT BE RUN FROM THIS DEVICE">); 000052
5300 GO TO THEEND;                                   000053
5400 END;                                             000054
5500 DIDRUN:=TRUE;                                   000055
5600 WRITE(OUTPUT, <<48"0C0011",48"0D25",48"0D25",48"0D25", 000056
5700 48"0D25",48"0D25"48"0D25",X10,                000057

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5800      "AAA      GGGGG  EEEEE  FFFFF  00000  RRRRR  CCCCC",      000058
5900      "      EEEEE",48"OD25",X9,"AA AA  GG  GG  EE  FF  00",      000059
6000      "      00 RR RR  CC  CC  EE",48"OD25",X8,"AA  AA  GO",X7,      000060
6100      "EEEE  FFFF  00  00  RR  RR  CC  EEEE",48"OD25",      000061
6200      X8,"AAAAAA  GG  GGGG  EE  FF  00  00  RRRR  CC",      000062
6300      X7,"EE",48"OD25",X8,"AA  AA  GG  GG  EE  FF  00",      000063
6400      "      00 RR RR  CC  CC  EE",48"OD25",X8,"AA  AA  GGGGG",      000064
6500      "      EEEEE  FF  00000  RR  RR  CCCCC  EEEEE",      000065
6600      48"OD25",48"OD25", "MODIFICATIONS AS OF: DEC 79">);      000066
6700      WHEN(6);      000067
6800      INPUTDATA;      000068
6900      GOTFILE:=TRUE;      000069
7000      TIM:=TIME(2);      000070
7100      ACCESSIONSINPUT := FALSE;      000071
7200      YRSTOSTEADY := 0;      000072
7300      FOR I1:=0 STEP 1 UNTIL 31      000073
7400          DO FOR I2:=0 STEP 1 UNTIL 31 DO FORCE[I1,I2] := 0;      000074
7500      FOR I1:=0 STEP 1 UNTIL 28 DO RETRATES[I1]=1,0;      000075
7600      WRITE(OUTPUT,<48"OC0011">);      000076
7700      WRITE(OUTPUT,<"AGGREGATE MODEL TO AGE SELECTED ELEMENTS OF THE FORCE",      000077
7800          48"OD25", "ENTER YOUR 7-DIGIT AUTOVON NUMBER (I.E. 4872233).",48"OD25",      000078
7900          "THIS DATA IS ESSENTIAL FOR FILE MAINTENANCE AND MAY BE USED TO",      000080
8000          48"OD25", "VERIFY UTILIZATION.",48"OD25", "IF YOU DESIRE TO START",      000081
8100          " OVER AGAIN WHILE YOU ARE WORKING IN AGEFORCE",48"OD25",      000082
8200          "JUST ENTER AN 'END' RESPONSE WHEN A 'YES' OR 'NO' RESPONSE IS",      000083
8300          " REQUESTED.",48"OD25", "BE CAREFUL THOUGH, IF YOU ENTER 'END'",      000084
8400          " ANY OTHER TIME",48"OD25", "THE PROGRAM MAY TERMINATE ABNORMALLY.",      000085
8500          48"3C0013">);      000086
8600      READ(INPUT[TIMELIMIT 630],<A12>,REPTNAME[0]);      000087
8700      % TIMELIMIT STAYS IN EFFECT FOR ENTIRE PROGRAM      000088
8800      IF NOT REPTNAME[0] IN FIRSTNUM THEN GO TO INPUTDATA;      000089
8900      FOR I1:=1 STEP 1 UNTIL 6 DO      000090
9000          IF NOT REPTNAME[I1] IN RESTNUM THEN GO TO INPUTDATA;      000091
9100      REPLACE TITLEARRAY[0] BY " " FOR 28;      000092
9200      REPLACE TITLEARRAY[0] BY "AGEDFORCE/DATA/A";      000093
9300      FOR I1:=0 STEP 1 UNTIL 10 DO      000094
9400          IF REPTNAME[I1] = " " THEN      000095
9500              REPLACE REPTNAME[I1] BY " ";      000096
9600      REPLACE TITLEARRAY[16] BY REPTNAME[0] FOR I1;      000097
9700      REPLACE FORCEGROUPS.TITLE BY TITLEARRAY[0];      000098
9800      IF NOT FORCEGROUPS.RESIDENT      000099
9900          THEN BEGIN      000100
10000          WRITE(OUTPUT,<48"OC00", "YOU DO NOT HAVE A SAVE FILE FOR FORCE ",      000101
10100              "AND RATE DATA.",48"OD25", "DO YOU WANT TO CREATE A PERMANENT ",      000102
10200              "FILE? (ENTER YES OR NO).",48"3C0013">);      000103
10300          READ (INPUT,<A3>,REPLY[0]);      000104
10400          IF REPLY[0] EQL "END" THEN GO FINISHED;      000105
10500          IF REPLY[0] EQL "NO"      000106
10600              THEN BEGIN      000107
10700              GOTFILE:=FALSE;      000108
10800              FOR I1:=0 STEP 1 UNTIL 99 DO      000109
10900                  BEGIN      000110
11000                  READ(UTIL[I1],4,URAY[0]);      000111
11100                  IF URAY[0] = REPTNAME[0] FOR 7      000112
11200                      THEN BEGIN      000113
11300                          REC:=I1;      000114
11400                          GO TO AGEYEARS;      000115
11500                      END;      000116
11600                  END;      000117
11700          END;

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11800	FOR I1:=0 STEP 1 UNTIL 99 DO	000111
11900	BEGIN	000111
12000	READ(UTIL(I1),4,URAY(O));	000120
12100	IF URAY(O) = "0" THEN	000121
12200	BEGIN	000121
12300	REPLACE URAY(O) BY REPTNAME(O) FOR 7;	000121
12400	REC:=I1;	000121
12500	REPLACE URAY(7) BY "0" FOR 17;	000121
12600	WRITE(UTIL(I1),4,URAY(O));	000121
12700	I1:=I00;	000121
12800	LOCK(UTIL);	000121
12900	END;	000121
13000	END;	000130
13100	GO TO AGEYEARS;	000130
13200	END	000130
13300	ELSE BEGIN	000130
13400	FORCEGROUPS.MYUSE := 2;	000130
13500	FOR I1:=0 STEP 1 UNTIL 19 DO	000130
13600	WRITE(FORCEGROUPS(I1),<30T6>,FOR I2 := 0 STEP 1	000130
13700	UNTIL 29 DO (I3:=0);	000130
13800	FOR I1:=20 STEP 1 UNTIL 39 DO	000130
13900	WRITE(FORCEGROUPS(I1),<30F6.4>,FOR I2 := 0 STEP 1	000130
14000	UNTIL 29 DO (I3:=1.0);	000130
14100	LOCK(FORCEGROUPS);	000140
14200	FORCEGROUPS.MYUSE := 3;	000140
14300	FOR I1:=0 STEP 1 UNTIL 99 DO	000140
14400	BEGIN	000140
14500	READ(UTIL(I1),4,URAY(O));	000140
14600	IF URAY(O) = "0"	000140
14700	THEN BEGIN	000140
14800	REPLACE URAY(O) BY REPTNAME(O) FOR 7;	000140
14900	REC:=I1;	000140
15000	REPLACE URAY(7) BY "0" FOR 17;	000150
15100	WRITE(UTIL(I1),4,URAY(O));	000150
15200	I1:=I00;	000150
15300	LOCK(UTIL);	000150
15400	END;	000150
15500	END;	000150
15600	END;	000150
15700	END	000150
15800	ELSE BEGIN	000150
15900	FOR I1:=0 STEP 1 UNTIL 99 DO	000150
16000	BEGIN	000160
16100	READ(UTIL(I1),4,URAY(O));	000160
16200	IF URAY(O) = REPTNAME(O) FOR 7	000160
16300	THEN BEGIN	000160
16400	REC:=I1;	000160
16500	GO TO EXT;	000160
16600	END;	000160
16700	END;	000160
16800	EXT:	000170
16900	WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO MAKE CHANGES TO ",	000170
17000	"YOUR DATA? (ENTER YES OR NO)",	000170
17100	48"3C0013">);	000170
17200	READ(INPUT,<A9>,REPLY(O));	000170
17300	IF REPLY(O) EQL "END" THEN GO FINISHED;	000170
17400	IF REPLY(O) EQL "NO" THEN GO TO AGEYEARS;	000170
17500	END;	000170
17600		000170
17700	REPLYAGAIN2:	000170

17800	WRITE(OUTPUT, <48"OC00", "DO YOU WISH TO CHANGE ANY OF THE FORCE ",	00017
17900	"GROUPS (ENTER YES OR NO)?", 48"3C0013">);	00017
18000	READ(INPUT, <A3>, REPLY[0]);	00018
18100	IF REPLY[0] EQL "END" THEN GO FINISHED;	00018
18200	IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO"	00018
18300	THEN GO TO REPLYAGAIN2;	00018
18400	IF REPLY[0] EQL "NO"	00018
18500	THEN GO TO CHANGERATES;	00018
18600		00018
18700	REPLYAGAIN3:	00018
18800	WRITE(OUTPUT, <48"OC00", "THERE ARE 20 FORCE GROUPS AVAILABLE FOR YOUR",	00018
18900	" USE.", 48"OD25", "ENTER THE NUMERIC CODE(1-20) OF THE GROUP"	00018
19000	, 48"OD25", " YOU WISH TO USE.", 48"3C0013">);	00019
19100	READ(INPUT, /, I1);	00019
19200	IF I1 LSS 1 OR I1 GTR 20	00019
19300	THEN GO TO REPLYAGAIN3;	00019
19400	READ(FORCEGROUPS[I1-1], <3016>, FOR I2:=0 STEP 1 UNTIL 29 DO FORCE[I2,0]);	00019
19500	WRITE(OUTPUT, <48"OC0011", "THE CONFIGURATION OF GROUP ", I2, " IS ",	00019
19600	"PRESENTLY AS FOLLOWS.", 48"OD25", X1, "YR=GP",	00019
19700	48"OD25", X2, "1 - 10", X2, 10(X1,16), 48"OD25", X1, "11 - 20", X2,	00019
19800	10(X1,16), 48"OD25", X1, "21 - 30", X2, 10(X1,16),	00019
19900	48"OD2525", "TO CHANGE THE FORCE LEVELS, INPUT",	00019
20000	" YEARGROUP, LEVEL, YEARGROUP, ", 48"OD25", "LEVEL, ETC., (EX.",	00020
20100	" 2, 364, 12, 1024, *)", 48"OD25", "TERMINATE INPUT WITH AN",	00020
20200	" ASTERISK.", 48"OD25", "YOU CAN CHANGE ANY OR ALL",	00020
20300	" YEAR GROUPS THIS WAY.", 48"3C0013">),	00020
20400	I1, FOR I2:=0 STEP 1 UNTIL 29 DO FORCE[I2,0]);	00020
20500		00020
20600	READ(INPUT, /, FOR I2:=0 STEP 1 UNTIL 59 DO FORCEHOLD[I2]);	00020
20700	FOR I2 := 0 STEP 2 UNTIL 58 DO	00020
20800	IF (I2 := FORCEHOLD[I2]) GTR 0 AND I2 LEQ 99 AND (I2 MOD 1)	00020
20900	EQL 0	00020
21000	THEN FORCE[I2-1,0] := FORCEHOLD[I2+1];	00021
21100		00021
21200		00021
21300	WRITE(FORCEGROUPS[I1-1], <3016>, FOR I2:=0 STEP 1 UNTIL 29	00021
21400	DO FORCE[I2,0]);	00021
21500	LOCK(FORCEGROUPS);	00021
21600	FOR I2:=0 STEP 1 UNTIL 29 DO FORCE[I2,0] := 0;	00021
21700	FOR I2:=0 STEP 1 UNTIL 59 DO FORCEHOLD[I2] := 0;	00021
21800	GO TO REPLYAGAIN2;	00021
21900		00021
22000	CHANGERATES:	00022
22100	WRITE(OUTPUT, <48"OC00", "DO YOU WISH TO CHANGE THE RETENTION ",	00022
22200	"RATES", 48"OD25", "(ENTER YES OR NO) ?", 48"3C0013">);	00022
22300	READ(INPUT, <A3>, REPLY[0]);	00022
22400	IF REPLY[0] EQL "END" THEN GO FINISHED;	00022
22500	IF REPLY[0] EQL "NO"	00022
22600	THEN GO TO AGEYEARS;	00022
22700	IF REPLY[0] NEQ "YES"	00022
22800	THEN GO TO CHANGERATES;	00022
22900		00022
23000	REPLYAGAIN5:	00023
23100	WRITE(OUTPUT, <48"OC00", "RETENTION RATE ",	00023
23200	"GROUPS 1- THRU 20- ARE AVAILABLE.", 48"OD25",	00023
23300	"ENTER THE NUMERIC CODE OF THE GROUP YOU WISH TO CHANGE.",	00023
23400	48"3C0013">);	00023
23500	READ(INPUT, /, I1);	00023
23600	IF I1 LSS 1 OR I1 GTR 20	00023
23700	THEN GO TO REPLYAGAIN5;	00023

23800	READ(FORCEGROUPS[19+11], <29F6.4>, FOR I2:=0 STEP 1 UNTIL 28	000238
23900	DO REATRATES[12]);	000239
24000	WRITE(OUTPUT, <48"0C00", "THE CURRENT RATES ARE:", 48"0D25", X2, "YRS",	000240
24100	48"0D25", " 1 - 10", X2, 10(X1, F5.3), 48"0D25", "11 - 20", X2,	000241
24200	10(X1, F5.3), 48"0D25", "21 - 25", X2, 9(X1, F5.3), 48"0D2525",	000242
24300	"TO CHANGE RATES, INPUT YEARGROUP RATE, YEARGROUP RATE, ETC.", 48"0D25",	000243
24400	"(EXT 2, 453, 15, 376, *),", 48"0D25", "TERMINATE INPUT WITH AN "	000244
24500	"ASTERISK.", 48"0D25", "YOU CAN ENTER ANY OR ALL RATES",	000245
24600	" THIS WAY.", 48"3C0013">, FOR I2:=0 STEP 1 UNTIL 28 DO REATRATES[12]);	000246
24700	READ(INPUT, /, FOR I2:=0 STEP 1 UNTIL 57 DO RETENHOLD[12]);	000247
24800	FOR I2:=0 STEP 2 UNTIL 56 DO	000248
24900	IF (RHOLD := RETENHOLD[12]) GTR 0 AND RHOLD LEQ 30 AND (RHOLD	000249
25000	MOD 1) EQL 0	000250
25100	THEN REATRATES[RHOLD - 1] := RETENHOLD[12+1];	000251
25200		000252
25300		000253
25400	WRITE(FORCEGROUPS[19+11], <29F6.4>, FOR I2:=0 STEP 1 UNTIL 28	000254
25500	DO REATRATES[12]);	000255
25600	FOR I2:=0 STEP 1 UNTIL 28 DO REATRATES[12] := 0;	000256
25700	FOR I2:=0 STEP 1 UNTIL 57 DO RETENHOLD[12] := 0;	000257
25800	LOCK(FORCEGROUPS);	000258
25900	GO TO CHANGERATES;	000259
26000		000260
26100	AGEYEARS:	000261
26200	WRITE(OUTPUT, <48"0C00", "HOW MANY YEARS DO YOU WISH TO AGE THE FORCE",	000262
26300	" - 1-29 ?", 48"3C0013">);	000263
26400	READ(INPUT, /, YRSTOAGE);	000264
26500	IF YRSTOAGE LSS 1 OR YRSTOAGE GTR 29	000265
26600	THEN GO TO AGEYEARS;	000266
26700		000267
26800	DISPPLAYEARS:	000268
26900	WRITE(OUTPUT, <48"0C00", "HOW MANY YEAR GROUPS DO YOU WISH TO DISPLAY",	000269
27000	" - 1-30 ?", 48"3C0013">);	000270
27100	READ(INPUT, /, YRSPSDISP);	000271
27200	IF YRSPSDISP LSS 1 OR YRSPSDISP GTR 30	000272
27300	THEN GO TO DISPPLAYEARS;	000273
27400	WRITE(OUTPUT, <48"0C00", "IF YOU WANT TO ACHIEVE AND MAINTAIN A "	000274
27500	"STEADY-STATE FORCE", 48"0D25", "THEN ENTER THE FORCE LEVEL",	000275
27600	" YOU WANT TO ACHIEVE", 48"0D25", "OTHERWISE ENTER 0(ZERO).",	000276
27700	48"3C0013">);	000277
27800	READ(INPUT, /, STEADYFORCE);	000278
27900	IF STEADYFORCE NEQ 0	000279
28000	THEN STEADYSTATE := TRUE	000280
28100	ELSE STEADYSTATE := FALSE;	000281
28200	IF STEADYSTATE	000282
28300	THEN BEGIN % BB	000283
28400	STEADYEAR:	000284
28500	WRITE(OUTPUT, <48"0C00", "HOW MANY YEARS DO YOU WANT TO TAKE "	000285
28600	48"0D25", "TO FIRST ACHIEVE THE STEADY-STATE FORCE? (1-29)",	000286
28700	48"3C0013">);	000287
28800	READ(INPUT, /, YRSTOSTEADY);	000288
28900	IF YRSTOSTEADY LSS 1 OR YRSTOSTEADY GTR 29	000289
29000	THEN GO TO STEADYEAR;	000290
29100	END; % BB	000291
29200		000292
29300	REPLYAGAIN1:	000293
29400	IF NOT GOTFILE THEN GO TO INPUTLEVELS;	000294
29500	WRITE(OUTPUT, <48"0C00", "IF YOU WOULD LIKE TO SELECT A FORCE GR",	000295
29600	" OUP THEN ENTER YES ELSE NO", 48"3C0013">);	000296
29700	READ(INPUT, <A3>, REPLY[0]);	000297

29800	IF REPLY[0] EQL "END" THEN GO FINISHED;	000298
29900	IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO"	000299
30000	THEN GO TO REPLYAGAIN1;	000300
30100	IF REPLY[0] EQL "YES"	000301
30200	THEN BEGIN	000302
30300	WRITE(OUTPUT, <48"0C00", "THERE ARE 20 FORCE GROUPS AVAILABLE FOR",	000303
30400	" YOUR USE.", 48"0D25", "ENTER THE NUMERIC CODE(1-20) OF",	000304
30500	48"0D25", " THE GROUP YOU WISH TO USE.", 48"3C0013">);	000305
30600	READ(INPUT, /, 11);	000306
30700	IF 11 LSS 1 OR 11 GTR 20	000307
30800	THEN GO TO REPLYAGAIN1;	000308
30900	READ(FORCEGROUPS[11-1], <3016>, FOR 12:=0 STEP 1 UNTIL 29	000309
31000	DO FORCE[12, 0];	000310
31100	GO TO TALLYFORCE;	000311
31200	END;	000312
31300	INPUTLEVELS:	000313
31400	WRITE(OUTPUT, <48"0C00", "ENTER 30 YEAR GROUP FORCE LEVELS, ASTERISK",	000314
31500	" WILL TERMINATE INPUT", 48"3C0013">);	000315
31600	READ(INPUT, /, FOR 11:=0 STEP 1 UNTIL 29 DO FORCE[11, 0]);	000316
31700		000317
31800	TALLYFORCE:	000318
31900	FOR 11:= 0 STEP 1 UNTIL 29 DO FORCE[31, 0] := FORCE[31, 0] + FORCE[11, 0];	000319
32000		000320
32100	REPLYAGAIN4:	000321
32200	IF NOT GOTFILE THEN GO TO INPUTRATES;	000322
32300	WRITE(OUTPUT, <48"0C00", "DO YOU WISH TO USE THE RETENTION RA",	000323
32400	"TES (ENTER YES OR NO) ?", 48"3C0013">);	000324
32500	READ(INPUT, <A3>, REPLY[0]);	000325
32600	IF REPLY[0] EQL "END" THEN GO FINISHED;	000326
32700	IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO"	000327
32800	THEN GO TO REPLYAGAIN4;	000328
32900	IF REPLY[0] EQL "YES"	000329
33000	THEN BEGIN	000330
33100		000331
33200	REPLYAGAIN6:	000332
33300	WRITE(OUTPUT, <48"0C00",	000333
33400	"RETENTION RATE GROUPS 1 THRU 20 ARE AVAILABLE FOR USE.",	000334
33500	48"0D25", "ENTER THE NUMERIC CODE",	000335
33600	" OF THE GROUP YOU WISH TO USE.", 48"3C0013">);	000336
33700	READ(INPUT, /, 11);	000337
33800	IF 11 LSS 1 OR 11 GTR 20	000338
33900	THEN GO TO REPLYAGAIN6;	000339
34000	READ(FORCEGROUPS[19+11], <29F6.4>, FOR 12:=0 STEP 1 UNTIL 29	000340
34100	DO REPTRATES[12]);	000341
34200	GO TO OLDRATES;	000342
34300	END;	000343
34400	INPUTRATES:	000344
34500	FOR 12:=0 STEP 1 UNTIL 28 DO REPTRATES[12]=1.0;	000345
34600	WRITE(OUTPUT, <48"0C00", "ENTER 29 RETENTION RATES, AN ASTERISK WILL ",	000346
34700	"TERMINATE INPUT.", 48"0D25", "ENTER WITH DECIMAL POINT. ",	000347
34800	"(EXAMPLE: 120, 1.0, 4567, 994)", 48"3C0013">);	000348
34900	READ(INPUT, /, FOR 11:=0 STEP 1 UNTIL 28 DO REPTRATES[11]);	000349
35000		000350
35100	OLDRATES:	000351
35200	WRITE(OUTPUT, <48"0C00", "DO YOU INTEND TO USE THE SAME RETENTION RATES",	000352
35300	" FOR EVERY SIMULATION YEAR ?", 48"0D25", "ENTER YES OR NO", 48"3C0013">);	000353
35400		000354
35500	RATECHGREQ:	000355
35600	READ(INPUT, <A3>, REPLY[0]);	000356
35700	IF REPLY[0] EQL "END" THEN GO FINISHED;	000357

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35800 IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO" 000358
35900 THEN GO TO RATECHGREQ; 000359
36000 IF REPLY[0] EQL "NO" 000360
36100 THEN CHGRATES := TRUE 000361
36200 ELSE CHGRATES := FALSE; 000362
36300 IF STEADYSTATE 000363
36400 THEN GO TO STEADYPROC; 000364
36500 000365
36600 ACCESSIONSIN: 000366
36700 WRITE(OUTPUT, <48"0C00", "IF YOU WISH TO INPUT ACCESSIONS ENTER YES, ", 000367
36800 " ELSE ENTER NO", 48"3C0013">); 000368
36900 READ(INPUT, <A3>, REPLY[0]); 000369
37000 IF REPLY[0] EQL "END" THEN GO FINISHED; 000370
37100 IF REPLY[0] EQL "YES" 000371
37200 THEN BEGIN % CC 000372
37300 ACCESSIONSINPUT := TRUE; 000373
37400 WRITE(OUTPUT, <48"0C00", "ENTER ACCESSIONS FOR EACH OF THE ", 12, 000374
37500 " SIMULATION YEARS.", 48"0D25", "EX: 100, 300, 500 ETC.", 000375
37600 48"3C0013">, YRSTOAGE); 000376
37700 READ(INPUT, /, FOR I1:=1 STEP 1 UNTIL YRSTOAGE DO FORCE[0, I1]); 000377
37800 END 000378
37900 ELSE IF REPLY[0] NEQ "NO" 000379
38000 THEN GO TO ACCESSIONSIN; 000380
38100 " 000381
38200 OLDACCS: 000382
38300 000383
38400 REENTRY: 000384
38500 WRITE(OUTPUT, <48"0C00", 70("*"), 48"0D25", X33, "SUMMARY OF INPUT", 000385
38600 48"0D25", X3, "NAME OF REPORT: ", A12, 48"0D25", X3, 000386
38700 " YEARS TO AGE THE FORCE: ", 12, 48"0D25", X3, " YEAR GROUPS", 000387
38800 " TO DISPLAY: ", 12, 48"0D25", X3, " STEADY-STATE DESTREQ: ", 000388
38900 48"11", A3, X3, 16>, REPNAME[0], YRSTOAGE, YRGP50ISP, 000389
39000 IF STEADYSTATE THEN "YES" ELSE "NO ", STEADYFORCE); 000390
39100 WRITE(OUTPUT, <X3, "STEADY STATE IN HOW MANY YEARS: ", 12, 48"0D25", X3, 000391
39200 "YR-GP", X25, "YEAR ONE FORCE LEVELS", 48"0D25", X3, "1-10", X2, 000392
39300 10(16, X1), 48"0D25", 000393
39400 X3, "11-20", X1, 10(16, X1), 48"0D25", X3, "21-30", X1, 10(16, X1), 48"0D25", 000394
39500 X4, "YRS", X26, "RETENTION RATES", 48"0D25", X3, "1-10", X2, 000395
39600 10(F5.3, X1), 48"0D25", X2, "11-20", X2, 10(F5.3, X1), 48"0D25", X2, "21-29" 000396
39700 , X2, 9(F5.3, X1), 48"11">, YRSTOSTEADY, FOR I1 := 0 000397
39800 STEP 1 UNTIL 29 DO FORCE[I1, 0], FOR I1:=0 STEP 1 UNTIL 28 DO 000398
39900 RETRATES[I1]); 000399
40000 IF ACCESSIONSINPUT THEN 000400
40100 WRITE(OUTPUT, <X4, "YRS", X26, "ACCESSIONS", 48"0D25", X3, "2-11", X2, 000401
40200 10(16, X1), 48"0D25", X3, "12-21", X1, 10(16, X1), 48"0D25", X3, "22-30", X1, 000402
40300 9(16, X1), 48"11">, FOR I1:=1 STEP 1 UNTIL 29 DO FORCE[0, I1]); 000403
40400 WRITE(OUTPUT, <70("*"), 48"11">); 000404
40500 000405
40600 NEXTPAGE: 000406
40700 WRITE(OUTPUT, <"ENTER OK FOR NEXT PAGE OF REPORT", 48"3C0013">); 000407
40800 READ(INPUT, <A2>, REPLY[0]); 000408
40900 IF REPLY[0] NEQ "OK" 000409
41000 THEN GO TO NEXTPAGE; 000410
41100 FOR I1:=1 STEP 1 UNTIL YRSTOAGE DO 000411
41200 BEGIN % DD 000412
41300 FORCE[31, I1] := FORCE[0, I1]; 000413
41400 FOR I2:=1 STEP 1 UNTIL 29 DO 000414
41500 BEGIN % EE 000415
41600 FORCE[I2, I1] := FORCE[I2-1, I1-1] * RETRATES[I2-1]; 000416
41700 FORCE[31, I1] := FORCE[31, I1] + FORCE[I2, I1]; 000417

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41800      FORCE[30,11] := FORCE[30,11] + FORCE[12-1,11-1] - FORCE[12,11];          00041
41900      END; % OF 12 LOOP                                                    00041
42000      IF STEADYSTATE AND 11 GTR YRSTOSTEADY                                00042
42100      THEN BEGIN % FF                                                       00042
42200          TEMP := FORCE[31,11] - STEADYFORCE;                               00042
42300          IF TEMP LSS 0                                                     00042
42400              THEN BEGIN % GG                                               00042
42500                  FORCE[0,11] := FORCE[0,11] - TEMP;                         00042
42600                  FORCE[31,11] := STEADYFORCE;                               00042
42700              END; % GO                                                      00042
42800          IF TEMP GTR 0                                                      00042
42900              THEN BEGIN % HH                                               00042
43000                  IF 13:=FORCE[0,11] - TEMP GEQ 0                          00043
43100                      THEN BEGIN % II                                       00043
43200                          FORCE[31,11] := STEADYFORCE;                       00043
43300                          FORCE[0,11] := FORCE[0,11] - TEMP;                 00043
43400                          END % II                                           00043
43500                      ELSE BEGIN % JJ                                       00043
43600                          FORCE[31,11] := FORCE[31,11] - FORCE[0,11];          00043
43700                          FORCE[0,11] := 0;                                    00043
43800                          END; % JJ                                           00043
43900                      END; % HH                                               00043
44000          END; % FF                                                           00044
44100      "IF 11 NEQ YRSTOAGE AND CHGRATES                                     00044
44200      THEN BEGIN                                                             00044
44300      CHGCHK:                                                                00044
44400          WRITE(OUTPUT,<48"0C00", "DO YOU WISH TO INPUT NEW RETENTION ",    00044
44500              "RATES FOR SIM YR ", 12, 48"0D25", "ENTER YES OR NO",        00044
44600              48"3C0013">, 11+1);                                           00044
44700          READ(INPUT, <A3>, REPLY[0]);                                       00044
44800          IF REPLY[0] EQL "END" THEN GO FINISHED;                            00044
44900          IF REPLY[0] NEQ "YES" AND REPLY[0] NEQ "NO"                        00044
45000              THEN GO TO CHGCHK;                                             00045
45100          IF REPLY[0] EQL "YES"                                             00045
45200              THEN BEGIN                                                     00045
45300                  FOR 15:=0 STEP 1 UNTIL 28 DO REPTRATES[15] := 0;          00045
45400                  WRITE(OUTPUT, <48"0C00", "ENTER 29 RETENTION RATES, ",    00045
45500                      "ASTERISK WILL TERMINATE INPUT.", 48"0D25",           00045
45600                      "ENTER WITH DECIMAL POINT.",                          00045
45700                      " EXAMPLE: .123, 1.0, .456",                          00045
45800                      "7, .994)", 48"3C0013">);                               00045
45900                  READ(INPUT, /, FOR 15:=0 STEP 1 UNTIL 28 DO REPTRATES[15]); 00045
46000                  WRITE(OUTPUT, <48"0C00", X4, "YRS", X17,                   00046
46100                      "RETENTION RATES FOR SIM YR ", 12,                    00046
46200                      48"0D25", X3, "1-10", X2, 10(F5.3, X1),                00046
46300                      48"0D25", X2, "11-20", X2, 10(F5.3, X1),              00046
46400                      48"0D25", X2, "21-29", X2, 9(F5.3, X1), 48"11">,        00046
46500                      11+1, FOR 15:=0 STEP 1 UNTIL 28 DO REPTRATES[15]);      00046
46600      NEXTPAGE4:                                                            00046
46700          WRITE(OUTPUT, <"ENTER OK WHEN READY TO CONTINUE",                 00046
46800              48"3C0013">);                                                   00046
46900          READ(INPUT, <A2>, REPLY[0]);                                       00046
47000          IF REPLY[0] NEQ "OK"                                              00047
47100              THEN GO TO NEXTPAGE4;                                          00047
47200          END;                                                                00047
47300      END;                                                                    00047
47400      END; % DD                                                                00047
47500      GO WINDUP;                                                            00047
47600      STEADYPROC:                                                            00047
47700

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47800 FOR I3:=1 STEP 1 UNTIL 30 DO 00047
47900 FORCE[0,I3] := 0; 00047
48000 TEMP := (STEADYFORCE - FORCE[31,0]) / YRSTOSTEADY; 00048
48100 IF TEMP LSS 0 00048
48200 THEN TEMP := 0; 00048
48300 00048
48400 NOTYET; 00048
48500 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00048
48600 FORCE[0,I3] := FORCE[0,I3] + TEMP; 00048
48700 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00048
48800 BEGIN % KK 00048
48900 FOR I4:=1 STEP 1 UNTIL 29 DO 00049
49000 BEGIN % LL 00049
49100 FORCE[I4,I3] := FORCE[I4-1,I3-1] * RETRATES[I4-1]; 00049
49200 FORCE[31,I3] := FORCE[31,I3] + FORCE[I4,I3]; 00049
49300 END; % LL 00049
49400 FORCE[31,I3] := FORCE[31,I3] + FORCE[0,I3]; 00049
49500 END; % KK 00049
49600 IF FORCE[31,YRSTOSTEADY] GEQ STEADYFORCE 00049
49700 THEN I1 := 99 00049
49800 ELSE BEGIN % KK1 00049
49900 I1:=0; 00049
50000 TEMP := (STEADYFORCE - FORCE[31,YRSTOSTEADY]) / YRSTOSTEADY; 00050
50100 IF TEMP LSS 1 THEN TEMP := 1; 00050
50200 END; % KK1 00050
50300 FOR I3:=1 STEP 1 UNTIL YRSTOSTEADY DO 00050
50400 FOR I4:=1 STEP 1 UNTIL 31 DO 00050
50500 FORCE[I4,I3] := 0; 00050
50600 IF I1 EQL 99 00050
50700 THEN BEGIN % MM 00050
50800 FOR I3:=YRSTOSTEADY + 1 STEP 1 UNTIL YRSTOAGE DO 00050
50900 FORCE[0,I3] := 999999; 00050
51000 GO TO RENTRY; 00051
51100 END; % MM 00051
51200 GO NOTYET; 00051
51300 00051
51400 WINDUP; 00051
51500 WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 00051
51600 REPTNAME[0],YRSTOAGEFT); 00051
51700 WRITE(OUTPUT(SPACE 1),<X1,"YEAR",X25,"YEAR",48"11">); 00051
51800 WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"1",5(X9,12)>,FOR I1:=2 STEP 1 UNTIL 00051
51900 IF YRSTOAGE LEQ 5 THEN YRSTOAGE + 1 ELSE 6 DO I1); 00051
52000 WRITE(OUTPUT,<(X2,I2)>,<(X5,I6)>,<4"11">,>,FOR I1:=IF YRGPDISP LEQ 15 THEN 00052
52100 YRGPDISP-1 ELSE 14 STEP -1 UNTIL 0 DO(I1+1,IF YRSTOAGE LEQ 5 THEN 00052
52200 YRSTOAGE + 1 ELSE 6,FOR I2:=0 STEP 1 UNTIL IF YRSTOAGE LEQ 5 THEN 00052
52300 YRSTOAGE ELSE 5 DO FORCE[I1,I2]); 00052
52400 WRITE(OUTPUT,<48"11",X1,"LOSS",X4,I6,5(X5,I6)>,FOR I2:=0 STEP 1 UNTIL IF 00052
52500 YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[30,I2]); 00052
52600 WRITE(OUTPUT,<48"11",X1,"STRN",X4,I6,5(X5,I6)>,FOR I2:=0 STEP 1 UNTIL IF 00052
52700 YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[31,I2]); 00052
52800 IF YRGPDISP LEQ 15 AND YRSTOAGE LEQ 5 00052
52900 THEN GO TO FINISHED; 00052
53000 IF YRGPDISP GTR 15 00053
53100 THEN BEGIN % NN 00053
53200 NEXTPAGEO; 00053
53300 WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">); 00053
53400 READ(INPUT,<A2>,REPLY[0]); 00053
53500 IF REPLY[0] NEQ "OK" 00053
53600 THEN GO TO NEXTPAGEO; 00053
53700 WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">, 00053
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53800	REPTNAME[0],YRSTOAGE+1);	000538
53900	WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">];	000539
54000	WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"1",5(X9,12)>,FOR 11:=2 STEP 1 UNTIL	000540
54100	IF YRSTOAGE LEQ 5 THEN YRSTOAGE + 1 ELSE 6 DO 11);	000541
54200	WRITE(OUTPUT,<(X2,12,*(X5,16),48"11">,FOR 11:=IF YRGPSDISP LEQ 30 THEN	000542
54300	YRGPSDISP-1 ELSE 29 STEP -1 UNTIL 15 DO[11+1,IF YRSTOAGE LEQ 5 THEN	000543
54400	YRSTOAGE + 1 ELSE 6, FOR 12:=0 STEP 1 UNTIL IF YRSTOAGE LEQ 5 THEN	000544
54500	YRSTOAGE ELSE 5 DO FORCE[11,12]);	000545
54600	WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=0 STEP 1 UNTIL IF	000546
54700	YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[30,12]);	000547
54800	WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=0 STEP 1 UNTIL IF	000548
54900	YRSTOAGE + 1 LEQ 6 THEN YRSTOAGE ELSE 5 DO FORCE[31,12]);	000549
55000	END; % NN	000550
55100	IF YRSTOAGE LEQ 5	000551
55200	THEN GO TO FINISHED;	000552
55300		000553
55400	NEXTPAGE1:	000554
55500	WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">);	000555
55600	READ(INPUT,<A2>,REPLY[0]);	000556
55700	IF REPLY[0] NEQ "OK"	000557
55800	THEN GO TO NEXTPAGE1;	000558
55900	IF YRSTOAGE GEQ 12	000559
56000	THEN GO TO BIGPICTURE;	000560
56100	WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">,	000561
56200	REPTNAME[0],YRSTOAGE+1);	000562
56300	WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">);	000563
56400	WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"7",5(X9,12)>,FOR 11:=8 STEP 1 UNTIL	000564
56500	IF YRSTOAGE LEQ 11 THEN YRSTOAGE + 1 ELSE 12 DO 11);	000565
56600	WRITE(OUTPUT,<(X2,12,*(X5,16),48"11">,FOR 11:=IF YRGPSDISP LEQ 15 THEN	000566
56700	YRGPSDISP-1 ELSE 14 STEP -1 UNTIL 0 DO[11+1,IF YRSTOAGE LEQ 11 THEN	000567
56800	YRSTOAGE-5 ELSE 6, FOR 12:=6 STEP 1 UNTIL IF YRSTOAGE LEQ 11 THEN	000568
56900	YRSTOAGE ELSE 11 DO FORCE[11,12]);	000569
57000	WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL	000570
57100	IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[30,12]);	000571
57200	WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL	000572
57300	IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[31,12]);	000573
57400	IF YRGPSDISP LEQ 15	000574
57500	THEN GO TO FINISHED;	000575
57600		000576
57700	NEXTPAGE3:	000577
57800	WRITE(OUTPUT,<"ENTER OK FOR NEXT PAGE OF REPORT",48"3C0013">);	000578
57900	READ(INPUT,<A2>,REPLY[0]);	000579
58000	IF REPLY[0] NEQ "OK"	000580
58100	THEN GO TO NEXTPAGE3;	000581
58200	WRITE(OUTPUT,<48"0C00",X19,A12,X5,12," YEAR FORCE STRUCTURE",48"11">,	000582
58300	REPTNAME[0],YRSTOAGE+1);	000583
58400	WRITE(OUTPUT[SPACE 11,<X1,"YEAR",X25,"YEAR",48"11">);	000584
58500	WRITE(OUTPUT,<48"11",X1,"GROUP",X6,"7",5(X9,12)>,FOR 11:=8 STEP 1 UNTIL	000585
58600	IF YRSTOAGE LEQ 11 THEN YRSTOAGE + 1 ELSE 12 DO 11);	000586
58700	WRITE(OUTPUT,<(X2,12,*(X5,16),48"11">,FOR 11:=IF YRGPSDISP LEQ 30 THEN	000587
58800	YRGPSDISP-1 ELSE 29 STEP -1 UNTIL 15 DO[11+1,IF YRSTOAGE LEQ 11 THEN	000588
58900	YRSTOAGE-5 ELSE 6, FOR 12:=6 STEP 1 UNTIL IF YRSTOAGE LEQ 11 THEN	000589
59000	YRSTOAGE ELSE 11 DO FORCE[11,12]);	000590
59100	WRITE(OUTPUT,<48"11",X1,"LOSS",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL	000591
59200	IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[30,12]);	000592
59300	WRITE(OUTPUT,<48"11",X1,"STRN",X4,16,5(X5,16)>,FOR 12:=6 STEP 1 UNTIL	000593
59400	IF YRSTOAGE LEQ 11 THEN YRSTOAGE ELSE 11 DO FORCE[31,12]);	000594
59500	GO TO FINISHED;	000595
59600		000596
59700	BIGPICTURE:	000597

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59800 WRITE(OUTPUT, <48"0C00", X19, A12, X5, 12, " YEAR FORCE STRUCTURE", 48"11">, 00059
59900 REPTNAME[0], YRSTOAGE+1); 00059
60000 WRITE(OUTPUT, SPACE 11, <X1, "YEAR", X25, "YEAR", 48"11">); 00060
60100 WRITE(OUTPUT, <48"11", X1, "GROUP", X4, "10", 4(X9, 12)>, FOR 11:=15 STEP 5 00060
60200 UNTIL YRSTOAGE + 1 DO 11, IF YRSTOAGE+1 NEQ 11-5 THEN 00060
60300 YRSTOAGE+1.); 00060
60400 FOR 11:=IF YRGPDISP LEQ 15 THEN YRGPDISP-1 ELSE 14 STEP -1 UNTIL 0 DO 00060
60500 WRITE(OUTPUT, <48"11", X2, 12, X4, 16, 5(X5, 16)>, 11+1, FOR 12:=9 STEP 5 UNTIL 00060
60600 YRSTOAGE DO FORCE[11, 12], IF YRSTOAGE NEQ 12-5 THEN 00060
60700 FORCE[11, YRSTOAGE]); 00060
60800 WRITE(OUTPUT, <48"11", X1, "LOSS", X3, 16, 5(X5, 16)>, FOR 12:=9 STEP 5 UNTIL 00060
60900 YRSTOAGE DO FORCE[30, 12], IF YRSTOAGE NEQ 12-5 THEN 00060
61000 FORCE[30, YRSTOAGE]); 00061
61100 WRITE(OUTPUT, <48"11", X1, "STRN", X3, 16, 5(X5, 16)>, FOR 12:=9 STEP 5 UNTIL 00061
61200 YRSTOAGE DO FORCE[31, 12], IF YRSTOAGE NEQ 12-5 THEN 00061
61300 FORCE[31, YRSTOAGE]); 00061
61400 IF YRGPDISP LEQ 15 00061
61500 THEN GO TO FINISHED; 00061
61600 00061
61700 NEXTPAGE2: 00051
61800 WRITE(OUTPUT, <"ENTER OK FOR NEXT PAGE OF REPORT", 48"3C0013">); 00061
61900 READ(INPUT, <A2>, REPLY[0]); 00061
62000 IF REPLY[0] NEQ "OK" 00062
62100 THEN GO TO NEXTPAGE2; 00062
62200 WRITE(OUTPUT, <48"0C00", X19, A12, X5, 12, " YEAR FORCE STRUCTURE", 48"11">, 00062
62300 REPTNAME[0], YRSTOAGE+1); 00062
62400 WRITE(OUTPUT, SPACE 11, <X1, "YEAR", X25, "YEAR", 48"11">); 00062
62500 WRITE(OUTPUT, <48"11", X1, "GROUP", X4, "10", 4(X9, 12)>, FOR 11:=15 STEP 5 00062
62600 UNTIL YRSTOAGE + 1 DO 11, IF YRSTOAGE + 1 NEQ 11-5 THEN 00062
62700 YRSTOAGE+1.); 00062
62800 FOR 11:=IF YRGPDISP LEQ 30 THEN YRGPDISP-1 ELSE 29 STEP -1 UNTIL 15 DO 00062
62900 WRITE(OUTPUT, <48"11", X2, 12, X4, 16, 5(X5, 16)>, 11+1, FOR 12:=9 STEP 5 UNTIL 00062
63000 YRSTOAGE DO FORCE[11, 12], IF YRSTOAGE NEQ 12-5 THEN 00063
63100 FORCE[11, YRSTOAGE]); 00063
63200 WRITE(OUTPUT, <48"11", X1, "LOSS", X3, 16, 5(X5, 16)>, FOR 12:=9 STEP 5 UNTIL 00063
63300 YRSTOAGE DO FORCE[30, 12], IF YRSTOAGE NEQ 12-5 THEN 00063
63400 FORCE[30, YRSTOAGE]); 00063
63500 WRITE(OUTPUT, <48"11", X1, "STRN", X3, 16, 5(X5, 16)>, FOR 12:=9 STEP 5 UNTIL 00063
63600 YRSTOAGE DO FORCE[31, 12], IF YRSTOAGE NEQ 12-5 THEN 00063
63700 FORCE[31, YRSTOAGE]); 00063
63800 00063
63900 FINISHED: 00063
64000 WRITE(OUTPUT, <"IF YOU WSH TO RUN AGATN ENTER YES ELSE NO", 48"3C0013">); 00064
64100 48"3C0013">); 00064
64200 READ(INPUT, <A3>, REPLY[0]); 00064
64300 IF REPLY[0] EQL "END" THEN GO FINISHED; 00064
64400 IF REPLY[0] EQL "YES" 00064
64500 THEN BEGIN 00064
64600 IF DIDRUN 00064
64700 THEN BEGIN 00064
64800 TIM:=TIME(2)-TIM; 00064
64900 TAT:=TA+1; 00064
65000 TATI:=TAT+TIM; 00065
65100 REPLACE URAY[7] BY TATI FOR 10 DIGITS; 00065
65200 REPLACE URAY[17] BY TATI FOR 7 DIGITS; 00065
65300 WRITE(UTIL[REC], 4, URAY[0]); 00065
65400 LOCK(UTIL); 00065
65500 LOCK(FORCEGROUPS); 00065
65600 END; 00065
65700 GO TO INPUTDATA; 00065

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65800	END;	000653
65900	IF REPLY(01) NEQ "NO"	000659
66000	THEN BEGIN	000660
66100	WRITE(OUTPUT, <48"0C0011">);	000661
66200	GO TO FINISHED;	000662
66300	END;	000663
66400		000664
66500	THEEND:	000665
66600	IF DIDRUN	000665
66700	THEN BEGIN	000667
66800	TIM:=TIME(2)-TIM;	000668
66900	TAT1:=TAT+TIM;	000669
67000	TAT1:=TAT+1;	000670
67100	REPLACE URAY(7) BY TAT1 FOR 10 DIGITS;	000671
67200	REPLACE URAY(17) BY TAT FOR 7 DIGITS;	000672
67300	WRITE(UTIL(REC), 4, URAY(01));	000673
67400	LOCK(UTIL);	000674
67500	END;	000674
67600	WRITE(OUTPUT, <48"0C00", X10, "***** END OF PROGRAM *****", 48"3C0013">);	000675
67700	END. % AA	000677