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Aggregate Dynamic Analysis Model (ADAM) for Air Force Enlisted Personnel: Technical Documentation

William T. Mickelson, C. Peter Rydell

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This Note is the second of two volumes describing the Aggregate Dynamic Assessment Model (ADAM), which projects aggregate Air Force enlisted personnel (by category of enlistment, grade, and year of service) 12 years into the future. The Note discusses the theory behind the model, describes the theory's implementation, and presents a complete description of the database. The companion volume, N-3020/1, contains a user's guide for ADAM.

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N-3020/2-AF

Aggregate Dynamic Analysis Model (ADAM) for Air Force Enlisted Personnel: Technical Documentation

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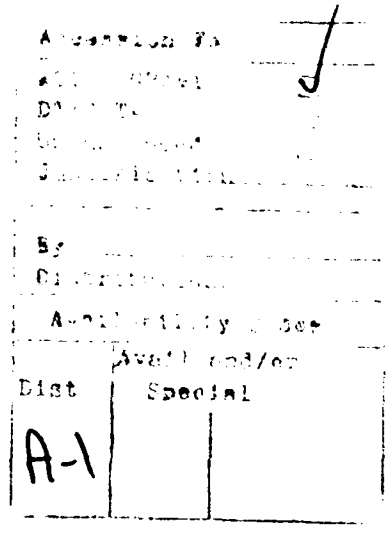

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PREFACE

The work described here is part of the Enlisted Force Management System (EFMS), a joint effort of the Air Force (through the Deputy Chief of Staff for Personnel) and The RAND Corporation. RAND's work falls within the Resource Management Program of Project AIR FORCE. The EFMS is part of a larger body of work in that program concerned with the effective utilization of human resources in the Air Force. For an overview of the entire EFMS, see Grace M. Carter et al., 1983. That report also presents background information on Air Force personnel policy issues.

The EFMS is a decision support system designed to assist managers of the enlisted force in setting and meeting force targets. The system contains computer models that project the force resulting from given management actions, so actions that meet the targets can be found. Some of those models can be used to analyze separate job specialties (disaggregate models) and others to analyze total personnel across all job specialties (aggregate models); some models examine monthly projections (short-term models) and others, annual projections (middle-term models).

The Aggregate Dynamic Analysis Model (ADAM) projects aggregate Air Force enlisted personnel (by category of enlistment, grade, and year of service) 12 years into the future. The projections are conditional upon economic conditions and management actions specified by the model user.

ADAM's comparative advantage with respect to other EFMS models is rapid comparison of many alternative plans using summary measures of performance.

The model is presented in two volumes: The first explains what the model does and how to use it, the second documents the model itself.

Volume 1, *Aggregate Dynamic Analysis Model (ADAM) for Air Force Enlisted Personnel: User's Guide*, N-3020/1-AF, presents the model's user interface (inputs, outputs, and menu screens) and explains how to install and run the model.

Volume 2, *Aggregate Dynamic Analysis Model (ADAM) for Air Force Enlisted Personnel: Technical Documentation*, N-3020/2-AF, describes the theory behind the model, presents action diagrams that document the model's details, and illustrates the model's database.

ADAM is an interactive model written in the "C" computer language. It runs on IBM or IBM-compatible microcomputers with at least 512K of memory. Microcomputer diskettes containing the executable ADAM program and database are available upon request. No additional software is required.

The database supplied with the computer model reflects enlisted personnel inventories and behavior (loss rates, etc.) as of the beginning of fiscal year 1987 (October 1986). The authors assembled the data from the EFMS data files and other published sources for illustrative purposes and for exploratory policy analyses.

The model itself contains default values of management actions and assumptions about background economic conditions. Menu screens in the model show the user how to revise those default inputs to construct alternative plans and scenarios.

ACKNOWLEDGMENTS

The sources of support that made this model possible are Project AIR FORCE, through the Enlisted Force Management Project (EFMP) and the Alternative Work Force Structures Project, and professional development funds from the System Sciences Department. From this joint support the authors were able to develop the model's theory and specifications, and implement both the model's calculations and user interface in the "C" programming language. Thanks for this support go to project leaders Warren Walker and Craig Moore, and to department head Gene Fisher.

Everyone who worked on the joint Air Force/RAND team for the EFMP in a sense contributed to this model, because this model draws on much of the theory and data developed by the project. However, Air Force team members who deserve particular mention include Major Joseph Cafarella who worked on the original spreadsheet prototype for ADAM, and Captain Kevin Lawson, who provided the input data for ADAM. RAND team members who deserve special mention include Grace Carter and Michael Murray, who led the team that performed the econometric analyses underlying the model's behavioral equations.

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GLOSSARY

ADAM	Aggregate Dynamic Analysis Model
ALEC	Aggregate Lifecycle Effectiveness and Cost Model
BAQ	Basic Allowance for Quarters
BMT	Basic Military Training
BTZ	Below the Zone
CATENL	Category of Enlistment
CPI	Consumer Price Index
DOS	Date of Separation
EFMP	Enlisted Force Management Project
EFMS	Enlisted Force Management System
ETS	Expiration of Term of Service
EYOS	End Year of Service
FY	Fiscal Year
MOS	Month of Service
MPA	Military Personnel Account
MTA	Middle-Term Aggregate Model
NPS	Non-Prior Service
PCS	Permanent Change of Station
PS	Prior Service
SAM	Short-Term Aggregate Model
VHA	Variable Housing Allowance
YETS	Years to Expiration of Term of Service
YOS	Years of Service

I. INTRODUCTION

PURPOSE

The Aggregate Dynamic Analysis Model (ADAM) is part of the Air Force's Enlisted Force Management System (EFMS). It is a dynamic policy analysis tool intended for use by Air Force enlisted personnel planners and programmers. ADAM projects aggregate Air Force enlisted personnel (total active duty enlisted force category of enlistment by grade and years of service across all specialties) by fiscal year for 12 years into the future. The projections depend upon user-specified management actions as well as projections of civilian unemployment rates and ratios of military to civilian wages. This model allows enlisted force planners and programmers to analyze the future dynamic implications of alternative management actions and projected economic scenarios on force size, grade composition, and year of service composition in an interactive, fast turnaround, "what-if" setting.

ADAM has been designed for rapid comparison of many alternative plans using summary measures of performance. Using the terminology of policy analysis, this means that ADAM is a *screening* model, which is most useful for quickly screening out unpromising plans, as opposed to an *impact assessment* model, which is most useful for careful examination of the most promising plans.

Because ADAM has a fast runtime, it can be used repeatedly to assist personnel managers in homing in on good plans. ADAM therefore exemplifies one of the basic principles of a good decision support system: to divide the decisionmaking tasks so that the computer does what it does best (testing and refining plans) and people do what they do best (designing and evaluating plans).

Economic Condition Inputs

ADAM's projections are conditional upon user-specified projections of three economic conditions for each fiscal year:

- Civilian unemployment rate
- Ratio of military wages to civilian wages
- Consumer Price Index (CPI)

ADAM uses the EFMS's middle-term aggregate loss models (see Carter, Murray, et al., 1987) to predict airmen reenlistment and loss behavior. According to these models, the higher civilian unemployment and the higher the ratio of military wages to civilian wages, the greater the propensity of enlisted personnel to remain in the enlisted force at the end of each term of enlistment. The CPI is used to adjust projected constant budget dollars into nominal budget dollars.

Management Action Inputs

ADAM accepts user-specified values for the following management actions, for each fiscal year of the projection.

- Accessions
  - — non-prior service, for a four-year term of enlistment
  - — non-prior service, for a six-year term of enlistment
  - — prior service
- Percent of force receiving reenlistment bonuses
  - — by type of bonus
  - — by size of bonus
- Early releases
  - — to Reserves (the "Palace Chase" program)
  - — of next fiscal year's losses ("early outs")
  - — of this fiscal year's losses ("rollups")
- Forced early reenlistments
- Involuntary separations
- Promotions to the top five grades (E-5 through E-9)

Accessions control gains to the enlisted force. Reenlistment bonuses, early releases, and involuntary separations control losses from the force. Promotions control the grade distribution of the force.

Goal Inputs

Goals for the aggregate enlisted force are customarily summarized by end strength (the total number of enlisted personnel in the Air Force at the end of each fiscal year) and

grade strength ceilings (the total number of enlisted personnel in the Air Force in each grade at the end of each fiscal year). A component of ADAM called the computer-aided design module accepts user choices of these goals for each fiscal year and determines the annual accessions and promotions required to achieve these goals.

The model's suggested plan for accessions and promotions is conditional upon the user choices of all other management actions listed above, and, of course, upon the user-specified goals. Iterative use of ADAM's "what-if" and "goal seeking" modes enables users to construct a plan of management actions that achieves the goals and also satisfies judgmental criteria such as "smooth flow" of accessions and promotions.

Inventory and Inventory Change

To enable users to compare alternative management actions, the ADAM model estimates and reports the following consequences of the management actions by fiscal year.

- Enlisted force inventory
  - — by grade
  - — by category of enlistment
  - — by years of service
- Average years of service
  - — of persons entering each grade
  - — of persons in each grade
- Annual retention rates
- Gains (by type of gain)
- Losses (by type of loss)
- Reenlistments (by category of enlistment)
- Costs (by budget category)
  - — in constant dollars
  - — in nominal dollars

MODEL STRUCTURE

The modules that make up ADAM are listed and described below. The relationship among these modules is shown in Fig. 1.

- Module 1: Annual Inventory Projection
- Module 2: Computer-Aided Design of Management Actions
- Module 3: Comparison of Plans

ADAM has been designed so that each module can be used independently or in conjunction with the other modules. The following description of each module describes that module's unique features.

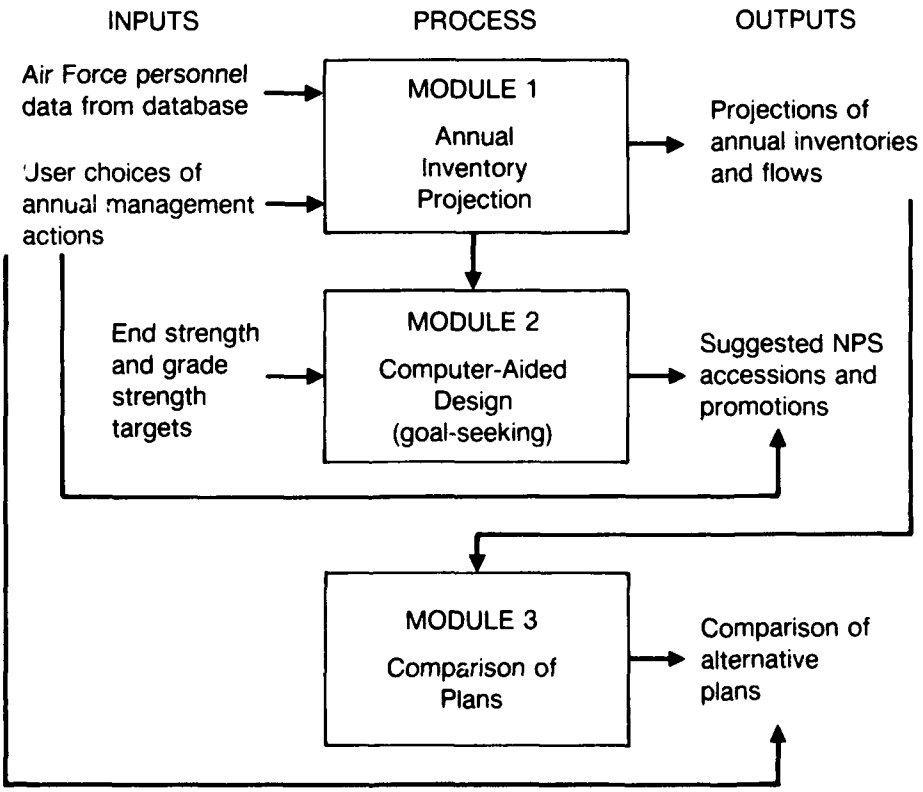

Fig. 1—Modular structure of ADAM

Module 1: Annual Inventory Projection

The Annual Inventory Projection Module contains the machinery that projects Air Force enlisted personnel year by year for 12 years into the future. This module responds to user-chosen management actions and economic conditions and projects the annual inventories, flows, and promotion and retention rates that result from those actions.

Module 2: Computer-Aided Design of Management Actions

This module computes accession and promotion actions, conditional on the user-specified choices of all other management actions and the assumed economic conditions that will enable the inventory to achieve end strength and grade strength targets for 12 fiscal years into the future. Users have the option of sending the results of this module automatically to the management action space of module 1 (see Sec. III).

Module 3: Plan Comparison

After two or more plans have been constructed and their results saved, this module can be run to systematically compare the differences in force structure of the alternative plans. Comparisons can be made by grade, years of service, and total active duty enlisted force. These comparisons guide users when they construct revised management action plans.

OVERVIEW

This Note contains the complete technical documentation of ADAM. A user's guide that describes the user interface (menu, input, and output screens) is provided in the companion volume, Mickelson and Rydell, 1989. Section II outlines the Annual Inventory Projection Module and describes in detail the theory and calculations required to project the aggregate enlisted force inventory into the future. Section III discusses the logic and calculations implemented in the Computer-Aided Design Module, which determines the levels of accessions and promotions to achieve end strength and grade strength goals respectively. Section IV describes the Plan Comparison Module and Sec. V describes the database.

II. ANNUAL INVENTORY PROJECTION MODULE

OVERVIEW

The Annual Inventory Projection Module (module 1) projects the implications of user-specified management actions and background economic conditions on the active duty enlisted force 12 years into the future. The projections carry enough information to describe the enlisted force by CATENL, grade, and YOS. This section discusses the theory surrounding the annual inventory projection module and describes how it works. Appendix B gives a short description of the format of an action diagram, and App. C contains an action diagram of the algorithms and calculations implemented in the model.

Management Actions

ADAM accepts user specified values for the following management actions for each fiscal year of the projection:

- Accessions
  - — non-prior service, for a four-year term of enlistment
  - — non-prior service, for a six-year term of enlistment
  - — prior service
- Percent of force receiving reenlistment bonuses
  - — by type of bonus
  - — by size of bonus
- Early releases
  - — to Reserves (the "Palace Chase" program)
  - — of next fiscal year's losses ("early outs")
  - — of this fiscal year's losses ("rollups")
- Forced early reenlistments
- Involuntary separations[1]

[1]Involuntary separations are defined to be the involuntary loss of airmen who normally would reenlist. They occur at the reenlistment point from first term into second term and at the reenlistment point from second term into the career term. Involuntary separations from the second term reenlistment point are assumed to be given a severance allowance to compensate them for the lost opportunity to receive retirement benefits. Under current

- Promotions to the top five grades (E-5 through E-9)

Accessions control gains to the force. Reenlistment bonuses, early releases, and involuntary separations control losses from the force. Promotions control the grade distribution of the force.

Economic Conditions

ADAM's projections are also conditional upon user-specified values of three economic conditions for each fiscal year:

- Civilian unemployment rate
- Ratio of military wages to civilian wages
- Consumer Price Index (CPI)

ADAM uses the EFMS's middle-term loss models (see Carter and Murray, 1987) to predict airmen reenlistment and loss behavior. According to these models, the higher the civilian unemployment rate and the higher the ratio of military wages to civilian wages, the greater the propensity of enlisted personnel to remain in the enlisted force at the end of each term of enlistment. The CPI is used to adjust projected constant budget dollars into nominal budget dollars.

Inventory Change

To enable users to compare alternative management actions, ADAM estimates and reports the following consequences of the management actions by fiscal year.

- Enlisted force inventory
  - — by grade
  - — by category of enlistment
  - — by years of service
- Average years of service
  - — of persons entering each grade
  - — of persons in each grade

---

policies, there are no involuntary separations. This management action is included in the model in case such a policy is contemplated or implemented in the future.

- Annual retention rates
- Gains (by type of gain)
- Losses (by type of loss)
- Reenlistments (by category of enlistment)
- Costs (by budget category)
  - — in constant dollars
  - — in nominal dollars

The remainder of this section describes how the Annual Inventory Projection Module translates the user-specified values of management action inputs into the resulting outputs.

INVENTORY ACCOUNTING

ADAM describes the inventory of active duty enlisted personnel using three dimensions: Grade, YOS, and Track. Grade is pay grade, and ranges from E-1 through E-9. YOS is the number of full years that an enlisted person has been in the Air Force, counted at the beginning of a fiscal year and truncated to the nearest integer, for example, YOS = 0 at the end of the fiscal year in which a person joined the Air Force, and YOS=1 at the end of the next fiscal year. Track is a number from 1 to 11 that characterizes the relationship between term of enlistment and YOS.

The first-term inventory is divided into two tracks. Track 1 contains personnel who enlist for a first term of four years, and track 2 contains personnel who enlist for a first term of six years. Each track can be defined by the years of service that will be completed upon the expiration of term of service (ETS). That year of service is denoted by EYOS, for end years of service. For track 1, EYOS = 3; for track 2, EYOS = 5.

To describe the second-term inventory in an analogous way requires eight Tracks (numbered from 3 to 10). Each track has a different EYOS, ranging from 6 to 13. Table 1 makes the pattern of the tracks clear.

Tracks 1 through 10 provide complete time-in-term accounting for the first two categories of enlistment. The number of years to ETS, denoted by "YETS", in the first and second terms, can be computed using the formula:

$$YETS = EYOS - YOS + 1,$$

where EYOS are the years of service that will be completed at the start of the fiscal year in which ETS occurs in a given track (see the locations of the letter "E" in Table 1). However, ADAM does not carry time-in-term accounting for categories of enlistment three and higher. Rather, these terms are grouped together in a single track, track 11 (see Table 1).

Table 1

DEFINITION OF INVENTORY TRACKS

	Track										
YOS	1	2	3	4	5	6	7	8	9	10	11
0	x	x									
1	x	x									
2	x	x									
3	E	x	x	x							
4	x	x	x	x	x	x					
5	x	E	x	x	x	x	x				
6		x	E	x	x	x	x	x	x		
7		x	x	E	x	x	x	x	x	x	
8			x	x	E	x	x	x	x	x	x
9				x	x	E	x	x	x	x	x
10					x	x	E	x	x	x	x
11						x	x	E	x	x	x
12							x	x	E	x	x
13								x	x	E	x
14									x	x	x
15										x	x
16											x
17											x
18											x
19											x
20											x
21											x
22											x
23											x
24											x
25											x
26											x
27											x
28											x
29											x

NOTE: x = inventory at start of fiscal year, E = inventory at start of fiscal year in which persons reach their original end of term of service (ETS). Inventory after the ETS year in tracks 1 through 10 are airmen on extensions of their original term of service.

Although the accounting structure explicitly contains only grade, YOS, and track, it implicitly contains years to expiration of term of service (YETS) and CATENL. The EFMP has evolved two definitions of CATENL, which differ in their interpretations of "retirement eligible." ADAM uses the short-term aggregate (SAM) and middle-term aggregate (MTA) definition of CATENL. This definition defines "retirement eligible" as inventory at the start of a fiscal year that is actually eligible for retirement at that time (i.e., YOS >= 20). Therefore, in ADAM, CATENL is uniquely determined from YOS and track.

CATENL = 1 (first term) if track = 1 or 2
= 2 (second term) if track = 3 through 10
= 3 (career terms) if track = 11 and YOS < 20
= 4 (retirement eligible) if track = 11 and YOS >= 20

Table 2 pulls together the above discussion and explicitly shows how the grade dimension interacts with YOS and track. Table 2 also shows the values of the implicit dimensions CATENL and YETS.

Advantages and Disadvantages

ADAM's inventory structure offers three distinct advantages:

- Compactness: a small number of cells (468) and only three explicit dimensions.
- Efficiency: because all tracks have a YOS by grade structure, many equations (program subroutines) apply to more than one track.
- Easy Comprehension: all tracks have a YOS by grade structure, aging moves inventory down, promoting moves inventory to the right, reenlistment moves inventory between tracks.

Partially offsetting these advantages relative to other EFMS models is the following disadvantage:

- Career term behavior is modeled less precisely: ADAM does not know when personnel are in their ETS year or on extension.

Table 2

INVENTORY ACCOUNTING STRUCTURE

CATENL	YETS	YOS	E-1	E-2	E-3	E-4	E-5	E-6
		Track 1: first term, EYOS = 3						
1	4	0						
1	3	1						
1	2	2			[36 cells]			
1	1	3						
1	0	4						
1	–1	5						
		Track 2: first term, EYOS = 5						
1	6	0						
1	5	1						
1	4	2						
1	3	3			[48 cells]			
1	2	4						
1	1	5						
1	0	6						
1	–1	7						

Table 2—continued

CATENL	YETS	YOS	E-4	E-5	E-6	E-7
		Track 3: second term, EYOS = 6				
2	4	3				
2	3	4				
2	2	5		[24 cells]		
2	1	6				
2	0	7				
2	−1	8				
		Track 4: second term, EYOS = 7				
2	4	4				
2	3	5				
2	2	6		[24 cells]		
2	1	7				
2	0	8				
2	−1	9				
		Track 5: second term, EYOS = 8				
2	6	3				
2	5	4				
2	4	5				
2	3	6		[32 cells]		
2	2	7				
2	1	8				
2	0	9				
2	−1	10				
		Track 6: second term, EYOS = 9				
2	6	4				
2	5	5				
2	4	6				
2	3	7		[32 cells]		
2	2	8				
2	1	9				
2	0	10				
2	−1	11				

Table 2—continued

CATENL	YETS	YOS	E-4	E-5	E-6	E-7
		Track 7: second term, EYOS = 10				
2	6	5				
2	5	6				
2	4	7				
2	3	8		[32 cells]		
2	2	9				
2	1	10				
2	0	11				
2	−1	12				
		Track 8: second term, EYOS = 11				
2	6	6				
2	5	7				
2	4	8				
2	3	9		[32 cells]		
2	2	10				
2	1	11				
2	0	12				
2	−1	13				
		Track 9: second term, EYOS = 12				
2	6	7				
2	5	8				
2	4	9				
2	3	10		[32 cells]		
2	2	11				
2	1	12				
2	0	13				
2	1	14				

Table 2—continued

CATENL	YETS	YOS	E-4	E-5	E-6	E-7	E-8	E-9
		Track 10: second term, EYOS = 13						
2	6	8					X	X
2	5	9					X	X
2	4	10					X	X
2	3	11		[32 cells]			X	X
2	2	12					X	X
2	1	13					X	X
2	0	14					X	X
2	1	15					X	X
		Track 11: career terms						
3		6						
3		7						
3		8						
3		9						
3		10						
3		11						
3		12			[84 cells]			
3		13						
3		14						
3		15						
3		16						
3		17						
3		18						
3		19						
4		20						
4		21						
4		22						
4		23						
4		24			[60 cells]			
4		25						
4		26						
4		27						
4		28						
4		29						

NOTES: CATENL = category of enlistment (first, second, career, and retirement-eligible); YETS = years to original end of term of service (ETS); YOS = years of service; EYOS = years of service in the ETS year; E-1 = Airman Basic; E-2 = Airman; E-3 = Airman First Class; E-4 = Sergeant; E-5 = Staff Sergeant; E-6 = Technical Sergeant; E-7 = Master Sergeant; E-8 = Senior Master Sergeant; E-9 = Chief Master Sergeant.

X = cell not used because always has zero inventory.

The disadvantage of not knowing time-in-term in the career terms is not substantial. There are few ETS losses in the career terms, since most persons who get that far in the enlisted force choose to stay until they are retirement eligible. Marginally decreasing the accuracy with which those losses are predicted does not greatly affect the accuracy with which overall losses are predicted but does considerably increase execution speed. Moreover, it is not clear how much time-in-term accounting contributes to the accuracy with which career term ETS losses are predicted. In the career terms, ETS can occur in many years of service categories, so modeling ETS losses only by YOS and grade may well capture almost all predictable behavior.

FLOW ACCOUNTING

Flows in ADAM occur during a fiscal year. For fiscal year projections, one does not need to specify when during the fiscal year the flow occurs. However, it is necessary to decide whether to account for those flows by inventory characteristics as of the start or the end of the fiscal year.

Losses are modeled by start-of-year inventory times a loss rate; therefore, it is convenient to do loss accounting by start-of-year YOS. Accessions are recognized only in constructing the end-of-year inventory, thus it is convenient to do accession accounting by end-of-year YOS. Reenlistments out are like losses, and they are done by start-of-year YOS and track; reenlistments in are like gains, so they are done by end-of-year YOS and track. Finally, promotion calculations are done by end-of-year accounting, after the force has been "aged."

Continuations are flows within a track from one YOS cell to the next higher YOS cell. They correspond to airmen who do not leave the Air Force and do not reenlist (airmen to whom nothing happens during the fiscal year). Continuation flows connect start-of-year and end-of-year accounting. For consistency, continuation outflows are done by start-of-year accounting; and continuation inflows (flows to the next higher YOS cell) are done by end-of-year accounting. To summarize the above:

Start-of-Fiscal-Year Accounting

- Losses from starting inventory
- Reenlistments out

- Flow out to retirement eligibility
- Continuation outflow

End-of-Fiscal-Year Accounting

- Continuation inflow
- Accessions
- Losses from accessions
- Reenlistments in
- Flow into retirement eligibility
- Promotions

POLICY-FREE LOSSES AND REENLISTMENTS

ADAM estimates flows during a year by multiplying the inventory at the start of a year by flow rates. The major deviation from this simple Markovian scheme is the estimation of ETS losses and reenlistments. These flows are estimated by multiplying a policy-free inventory by policy-free flow rates and then adjusting the policy-free flow to the actual flow. "Policy-free" means free of the effects of the early release and forced early reenlistment programs (e.g., rollup, early out, and Palace Chase losses) and early reenlistments. Reenlistment rates are conditional on the inventory of survivors. The purpose of adjusting the inventory for the early release and forced early reenlistment policies is to obtain flow rates that are strictly behavioral (more stable over time), hence more accurately estimated.

During discussions of loss and reenlistment estimation, these adjustments have often caused confusion resulting from not remembering that the early release and forced early reenlistment programs cause two kinds of flows. The most obvious is the extra losses or reenlistments that occur in a fiscal year because of an early release or forced early reenlistment program. For example, if 100 persons are given early outs during FY88, there are 100 additional losses during that year that would not have occurred if the program had not been invoked. The second flow, which tends to be overlooked, is the losses and reenlistments that no longer occur because of these programs. For example, in the case of the 100 early outs during FY88, there will be 100 fewer losses during FY89 than there would have been if those early outs had not occurred in the previous fiscal year.

To make sure that the estimation equations in ADAM properly identify the losses that do not occur because of the early release programs, ADAM gives those losses the name "shifts," which indicates a loss or reenlistment that does not occur when expected because it has been shifted to an earlier time by one of the early release or reenlistment programs.

For example, consider "early out shifts" (EOSHIFT), which are losses that do not occur this fiscal year because they have been shifted to the previous fiscal year by the early out program. In the above example of the 100 early outs during FY88, EOSHIFT = 100 in FY89. A positive number is used to indicate the losses that do not occur.

A second source of confusion is failure to distinguish between counts of early release shifts and the inventory reductions caused by those shifts. "Inventory reductions" refer to the inventory at the start of a fiscal year that no longer exists because some losses or reenlistments have been shifted from after to before the start of the fiscal year.

The rollup program does not generate any inventory reductions because the shifts and losses occur in the same fiscal year. The early out program generates inventory reductions at the start of a fiscal year that equal the shifts during the fiscal year (which are the same as the losses in the previous fiscal year). However, the case of the Palace Chase program is more complicated (airmen are allowed to leave their active duty assignment up to four years before their end of term of service to enter the Reserves). Only Palace Chase shifts occurring after the inventory date and linked to losses before the inventory date get counted as inventory reductions.

The forced early reenlistment program causes inventory reductions and increases because for every reenlistment out that is shifted to an earlier fiscal year (causing an inventory reduction) a reenlistment is also shifted to the earlier fiscal year (causing an inventory increase). The inventory increases are treated as negative inventory reductions internal to the model. Forced early reenlistments that shift reenlistments within a fiscal year do not cause inventory changes at the end or start of fiscal years.

ETS Losses

By definition, "policy-free ETS losses" in a given fiscal year are the nonattrition, nonretirement losses that would occur in that fiscal year if the Palace Chase, early out, and rollup programs had never existed in the past and will not exist in the present and future. Actual ETS losses are the policy free ETS losses minus those that have been shifted by the Palace Chase, early out, and rollup programs.

ETSLOSS = PFETSLOSS – PCSHIFT – EOSHIFT – RUSHIFT

where ETSLOSS = Actual ETS losses that occur during a fiscal year.

PFETSLOSS = "Policy-free" ETS losses (the ETS losses that would have occurred in the fiscal year if there never had been and never will be any early release programs).

PCSHIFT = ETS losses that would have occurred during this fiscal year if they had not been shifted to earlier fiscal years by the Palace Chase program.

EOSHIFT = ETS losses that would have occurred during this fiscal year if they had not been shifted to the previous fiscal year by the early out program.

RUSHIFT = ETS losses during this fiscal year that have been shifted to an earlier month in the fiscal year by the rollup program.

ADAM uses the above equation to estimate ETS losses from policy-free ETS losses. The loss model estimates policy-free ETS losses by first adjusting the inventory to what it would have been if there were no early release programs, and then multiplying that inventory by the loss rate that would exist if there were no early release programs.

PFETSLOSS = PFETSLOSSRATE * (STARTINV + PCINVRED + EOINVRED + FERINVRED)

where PFETSLOSSRATE = Policy-Free ETS loss rate (the ETS loss rate that would have occurred in the fiscal year if there never had been and never will be any early release programs).

STARTINV = Actual start-of-fiscal-year inventory.

PCINVRED = Inventory that does not exist at the start of the fiscal year because of previous fiscal year's Palace Chase programs. This is equal to the sum of all losses shifted from this and future fiscal years to previous fiscal years by previous year's

Palace Chase programs. (The summation must be done carefully to classify the shifted inventory by the YOS as of the start of the current fiscal year.)

EOINVRED = Inventory that does not exist at the start of the fiscal year because of previous fiscal year's early out programs. Equal to the sum of all losses shifted from this fiscal year to the previous fiscal year by the previous year's early out program.

FERINVRED = Inventory "reductions" at the start of the fiscal year due to the forced early reenlistment program (can be positive, as when a first term reenlistment out occurred early, or negative as when a second term reenlistment in occurred early).

Reenlistments

By definition, the "policy-free reenlistments" in a given fiscal year are the reenlistments that would occur if the forced early reenlistment program did not exist. Actual reenlistments equal the policy-free reenlistments plus this year's forced reenlistments from the next year less last year's forced reenlistments from this year.

$$REUPOUT = PFREUPOUT + FEROUT2 - FEROUT2SHIFT$$

where REUPOUT = Actual reenlistments out during a fiscal year

PFREUPOUT = "Policy-free" reenlistments out (the reenlistments that would have occurred in the fiscal year if there were no forced early reenlistment program)

FEROUT2 = Forced early reenlistments in the fiscal year coming from reenlistments that otherwise would have occurred in the next fiscal year.

FEROUT2SHIFT = Reenlistments out that would have occurred in this fiscal year if they had not been shifted to the previous fiscal year by the forced early reenlistment program.

ADAM estimates policy-free reenlistments by first adjusting the inventory to what it would have been if there were no early release or reenlistment programs, then adjusting the inventory to reflect only survivors, and finally multiplying that inventory by the reenlistment rate that would exist if there were no early release programs.

$$PFREUPOUT = PFREUPRATE * (STARTINV + PCINVRED + EOINVRED + FERINVRED - ATTINV - PFETSLOSS)$$

where PFREUPRATE = Policy-free reenlistment rate (the ratio of reenlistments to inventory that has been adjusted to remove the effects of early release programs and policy-free losses).

ATTINV = Attrition from starting inventory.

FORECASTING LOSSES AND REENLISTMENTS

Losses and reenlistments are predicted by multiplying inventories by loss and reenlistment rates for each cell in the inventory accounting structure. The EFMP has found that loss and reenlistment rates vary considerably by those inventory characteristics. For example, loss and reenlistment rates are highest for inventory cells in which enlisted persons reach the end of their obligated term of service.[2] In other words, a major strength of ADAM's method of predicting losses and reenlistments is that it uses inventory groups that have fairly homogeneous behavior.

In addition to controlling for inventory group, ADAM also adjusts loss and reenlistment rates for changes in management policy and economic conditions. These separation rate models are based on the EFMP's basic research on separation rates reported by Carter et al., 1987, who found that ETS loss rates and reenlistment rates vary with the following econometric factors.

- Reenlistment bonuses
- Civilian unemployment rate

[2]The end-of-term-of-service cells in ADAM's accounting structure are the ones with YETS = 1. The YETS dimension is implied by the track and YOS dimensions for the first and second categories of enlistment (see Table 2).

- Ratio of military wages to civilian wages
- Proportion high school graduate
- Proportion Armed Forces Qualification Test group III or lower
- Proportion male
- Proportion married
- Proportion black.

The formula that implements those findings can be written as follows, where the summation is across the above econometric variables, indexed by "k":

$$R = H + \text{Sum } [C_k * V_k]$$

where R = separation rate (loss rate or reenlistment rate)

H = constant term

C_k = coefficient of econometric variable k

V_k = value of econometric variable k

This formula can be rewritten to express the predictions as deviations from the predictions in a reference situation. To do this, first write the formula for the reference separation rate as a function of the reference values of the econometric variables:

$$R(\text{ref}) = H + \text{Sum } [C_k * V_k(\text{ref})]$$

where R(ref) = separation rate in reference situation

V_k(ref) = value of econometric variable k in reference situation

Then, subtract this equation from the earlier one to get:

$$R - R(\text{ref}) = \text{Sum } [C_k * [\text{Vsubk} - V_k(\text{ref})]]$$

and rewrite the result as:

$$R = R(\text{ref}) + \text{Sum } [\text{Csubk} * [V_k - V_k(\text{ref})]]$$

Only econometric variables that are expected to deviate from the reference situation need be explicitly carried in ADAM. Variables that do not change during the projection years have $[V_k - V_k(\text{ref})] = 0$, so they drop out of the prediction equation (e.g., it is not necessary to carry the proportion of high school graduates in the prediction equations).

The econometric variables that are expected to change significantly over ADAM's projection years are reenlistment bonuses, unemployment rate, and the ratio of military wages to civilian wages. Consequently, only these variables are on ADAM's input screens and only these are carried inside the model.[3] The EFMP has found that when any of these factors increase, loss rates decrease and reenlistment rates increase.

Projection Year Separation Rates

The loss and reenlistment models specified by Carter et al., 1987, are cohort models. For ADAM to use these models these equations must be translated into fiscal year equations. The conversion of cohort-year parameters to fiscal-year parameters is called "blending," because it involves blending the behavior of all the cohorts that intersect a given fiscal year into that fiscal year's behavior.

ADAM is implemented using the following transformation of the middle-term forecasting equation discussed previously, and is applicable to both ETS losses and reenlistments:

$$R = R(ref) * [\frac{1}{k} + Sum [D_k * [V_k - V_k(ref)]]$$

where D_k = blended coefficient for econometric variable k.

R (ref), D_k, and V_k (ref) are all inputs to ADAM from EFMS data. Section V gives a complete description of the ADAM database. As previously mentioned, the values of the econometric variables, V_k, are user-supplied inputs.

To correctly model reenlistments, ADAM requires the probability that a reenlistment out of the first term will be for a new term of four years (rather than a six-year term). This probability is different for airmen in first-term Tracks 1 and 2, and different by bonus multiple. These term of enlistment (TOE) probabilities are also inputs from EFMS data.

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[3]The econometric variables that are not used explicitly to forecast separation rates in these models are used implicitly since they are used in the econometric estimation of the coefficients, C_k to control for all relevant factors. These controls insure that the estimates of the coefficients are unbiased.

Projection Year Flows

ADAM predicts policy-free losses and reenlistments by multiplying the policy-free inventories by the projection year loss and reenlistment rates for each cell in the inventory accounting structure. Recall that reenlistment flows are conditional on the survived inventory (e.g., inventory after losses are removed).

As an example of how this forecasting equation works, assume there are 1000 people in an accounting cell's inventory at the start of the projection year, the reference year loss rate is 0.50, the econometric variable is the natural logarithm of the percent unemployment, and the adjustment parameter, D, is 0.65. Then, if the unemployment rate is 5 percent in the reference situation and 6 percent in the projection year, there are 559 projected losses from the cell during the projection year:

$$F = [1000]\,[0.50]\,[1 + [0.65]\,[\log(6) - \log(5)]\,]$$

$$= [500]\,[\,1 + [0.65]\,[\,1.792 - 1.609]\,]$$

$$= [500]\,[\,1 + [0.65]\,[\,0.183\,]\,]$$

$$= [500]\,[\,1.119\,]$$

$$= 559$$

After the policy-free losses and reenlistments are calculated, the actual losses and reenlistments are determined by adjusting the policy-free flows for the early release and forced early reenlistment programs.

COST ESTIMATION

All management actions in ADAM influence costs indirectly. However, two variables influence costs directly: the projected military to civilian wage ratio, and the projected CPI. The assumption behind ADAM's costing is that, on average, civilian wages increase with CPI. This makes the military to civilian wage ratio an index of real as well as relative military pay rates. Increasing the military to civilian wage ratio will increase the constant dollar cost estimates, and increasing the CPI will increase the nominal dollar cost estimates.

ADAM estimates two types of costs: (1) items in the military personnel account (MPA) budget, and (2) the payments that are not in the MPA budget. All costs are expressed in the dollars of the fiscal year before the first projection year.

MPA Budget Costs

The MPA budget includes the following items:

- Basic pay
- Retired pay accrual (0.5116 times basic pay)
- Basic allowance for quarters (BAQ) and variable housing allowance (VHA)
- Incentive and special pay
- Miscellaneous other pay
- Permanent change of station (PCS) cost

Basic pay and retired pay accrual vary by YOS and pay grade. The remaining items vary by pay grade. In ADAM, basic pay and retirement accrual costing is done by YOS and pay grade (grade). This costing algorithm reflects the cost effect of changing YOS distributions. Table 3 shows basic pay by YOS and grade as taken from the 1987 *Uniformed Services Almanac*. Table 4 shows the cost factors for other pay: BAQ, BHA, incentive and special pay, miscellaneous pay, and PCS.

Costs Not in the MPA Budget

Costs included in ADAM that are not part of the MPA budget are:

- Reenlistment bonus pay
- Initial training pay
- Second-term involuntary separation (severance) pay

Reenlistment bonuses are determined by specialty-specific "bonus multiples." In ADAM, aggregate bonus plans giving the percentage of enlisted personnel offered each bonus multiple are used to specify the bonus plans. Airmen may receive bonuses only if they are in appropriate YOS zones:

Zone A: YOS 2, 3, 4, or 5

Zone B: YOS 6, 7, 8, or 9

Zone C: YOS 10, 11, 12, or 13

The reenlistment bonus equals the bonus multiple times the recipient's monthly basic pay times the number of years for which the person reenlists (either four or six years).

Table 3

BASIC PAY FROM 1987 UNIFORMED SERVICES ALMANAC

	Pay Grade								
YOS	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
0	616	738	767	814	873	995	1156	1656	1974
1	616	738	767	814	873	995	1156	1656	1974
2	616	738	767	814	873	995	1156	1656	1974
3	616	738	842	860	950	1084	1248	1656	1974
4	616	738	842	910	996	1129	1294	1656	1974
5	616	738	875	981	1040	1177	1339	1656	1974
6	616	738	875	981	1040	1177	1339	1656	1974
7	616	738	874	1019	1108	1221	1385	1656	1974
8	616	738	874	1019	1108	1221	1385	1656	1974
9	616	738	874	1019	1153	1265	1429	1656	1974
10	616	738	874	1019	1153	1265	1429	1656	1974
11	616	738	874	1019	1199	1312	1475	1702	1974
12	616	738	874	1019	1199	1312	1475	1703	1974
13	616	738	874	1019	1243	1379	1521	1748	2019
14	616	738	874	1019	1243	1379	1521	1748	2019
15	616	738	874	1019	1265	1423	1589	1793	2064
16	616	738	874	1019	1265	1423	1589	1793	2064
17	616	738	874	1019	1265	1469	1635	1840	2112
18	616	738	874	1019	1265	1469	1635	1840	2112
19	616	738	874	1019	1265	1491	1680	1883	2159
20	616	738	874	1019	1265	1491	1680	1883	2159
21	616	738	874	1019	1265	1491	1702	1929	2201
22	616	738	874	1019	1265	1491	1702	1929	2201
23	616	738	874	1019	1265	1491	1817	2042	2317
24	616	738	874	1019	1265	1491	1817	2042	2317
25	616	738	874	1019	1265	1491	1817	2042	2317
26	616	738	874	1019	1265	1491	2042	2270	2542
27	616	738	874	1019	1265	1491	2042	2270	2542
28	616	738	874	1019	1265	1491	2042	2270	2542
29	616	738	874	1019	1265	1491	2042	2270	2542

Training costs are estimated by multiplying the number of non-prior service accessions by a training cost factor of $5,000. This estimate includes the cost of recruiters, training equipment, and civilian instructors. It does not include the pay of the trainees or their military instructors, as such pay is already included in the pay items.

Each involuntary separation from the second term receives a "severance allowance" of $15,000 to compensate the airman for the lost opportunity to receive

Table 4

OTHER PAY: BAQ, BHA, INCENTIVE AND SPECIAL PAY, MISCELLANEOUS PAY, AND PCS COSTS

	Pay Grade								
YOS	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
All	4834	5389	6211	7187	7876	8745	9747	10405	11524

retirement benefits.[4] Separations from the first term do not receive a severance allowance.

ANNUAL INVENTORY AND FLOW PROJECTION

The Annual Inventory Projection Module is the machinery that projects Air Force enlisted personnel year by year for 12 years into the future. These projections are conditional on user choices of management actions and economic conditions. This module is essentially Markovian and uses the principle of generating a full accounting structure (track by YOS by grade) for each type of personnel flow. Calculations are performed iteratively, one fiscal year at a time. At the conclusion of a fiscal year's calculations, the inventory and flows are aggregated and entered in the output screens for that fiscal year. Thus, only one complete accounting structure for the inventory and each type of personnel flow is required.

This module performs three distinct functions for each of the 12 projection years. The functions are:

- Aging the force
- Promoting the force
- Generating output screens

Figure 2 presents an overview of the Annual Inventory Projection Module. Aging the force consists of determining the number of airmen who, starting at the beginning of a fiscal year, survive into the next fiscal year, and the corresponding YOS distribution.

[4]This is an assumption we have made that can be easily changed (see Sec. V).

During this process, losses, retirements, reenlistments, and continuation flows are determined, the inventory is adjusted for these flows, and the YOS of the survivors is incremented. Promoting the force determines the final grade distribution.

The output screen generator simply aggregates inventory, gains, and losses to the appropriate level of detail for each of the annual inventory projection output screens (see Mickelson and Rydell, 1989, for the output screens).

Aging the Force

"Aging" the force means to take inventory counts by YOS and track at the start of the fiscal year and transform them into inventory counts by YOS and track at the end of the fiscal year. During this transformation, grade is held constant.

Two fundamental identities define the aging process. The first accounting identity splits the starting inventory apart and estimates the part of the inventory that neither leaves nor reenlists (called continuation outflow) as a residual. The inventory and flows

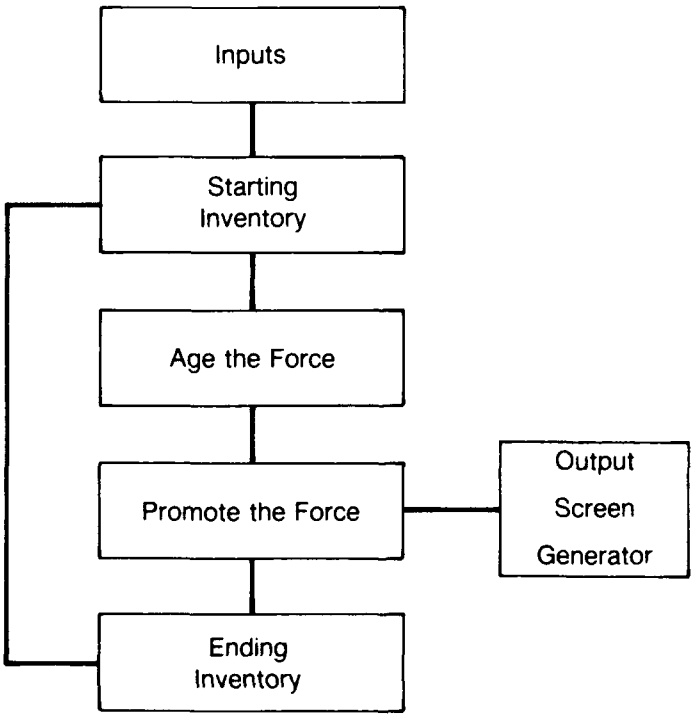

Fig. 2—Overview of Annual Inventory Projection Module

in this first identity are classified by the track, YOS, and grade at the start of the fiscal year.

Starting Inventory = Losses from starting inventory
+ Reenlistments out
+ Flow out to retirement eligibility
+ Continuation outflow (1)

The second accounting identity reassembles the inventory as of the end of the fiscal year. Thus, continuation inflows are the same as continuation outflows with the YOS variable incremented by one. The inventory and flows in this second identity are classified by the track, YOS, and grade at the end of the fiscal year.

Ending Inventory = Continuation inflow
+ Gains
– Losses from gains
+ Reenlistments in
+ Flow into retirement eligibility (2)

Figure 3 presents the details required to age the force. The management actions interact with the enlisted inventory and ultimately affect flows. The inventory evolves over time as losses and reenlistments out are removed from the inventory. The result is the continuation flows. The YOS variable is incremented by one, holding grade constant, and reenlistments are added back in, with the YOS variable incremented by one and track appropriately changed. Finally, gains (NPS and PS accessions) enter the force.

Losses. The ADAM model distinguishes seven types of losses from the enlisted force:

- Attrition
- Palace Chase losses
- Early out losses
- Rollup losses
- ETS losses
- Retirement losses
- Involuntary separation losses

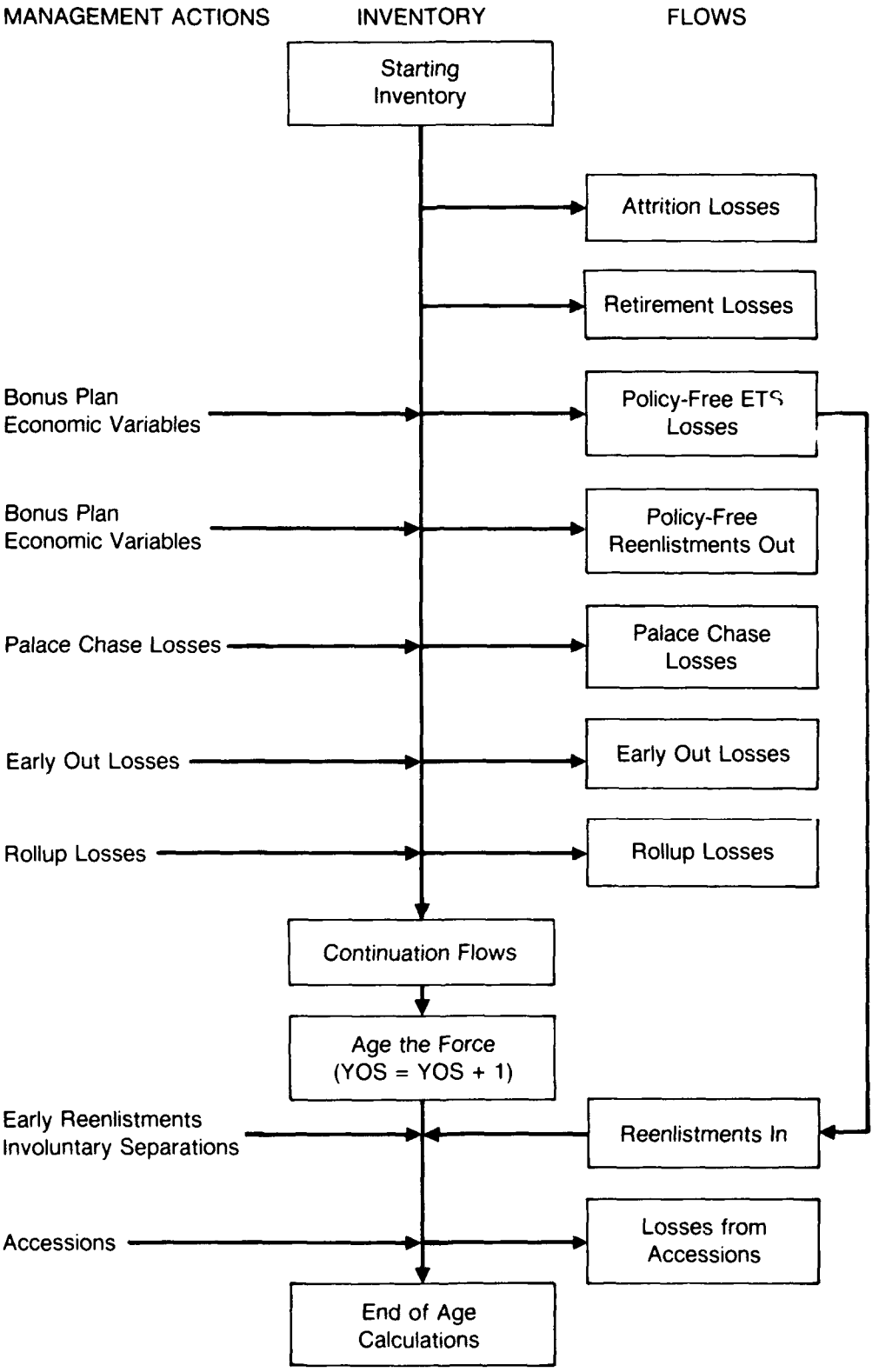

Fig. 3—Actions required to age the force

Attrition losses are involuntary losses (e.g., death).

Palace Chase losses are early releases of personnel (as many as four fiscal years before the fiscal year in which their enlistment period ends) for the purpose of transferring to the Reserves. A historical loss distribution is used to spread the Palace Chase losses to the inventory accounting structure level.

Early out losses are early releases of personnel in the fiscal year before the fiscal year in which their enlistment period ends, for the purpose of reducing end strength in the year in which the early release occurs. A historical loss distribution is used to spread the early out losses to the inventory accounting structure level.

Rollup losses are early releases of personnel in the same fiscal year in which their enlistment period ends, for the purpose of reducing military personnel account costs in that fiscal year. A historical rollup loss distribution is used to spread the rollup losses to the inventory accounting structure level.

Retirement losses are voluntary losses of personnel who have been in the enlisted force for at least 20 years and who are therefore eligible for retirement. Note that personnel who have YOS = 19 at the start of the fiscal year (meaning that they have then been in the enlisted force for more than 19 years and less than 20 years) become eligible for retirement during that fiscal year. Some retirement losses come from the career term category of enlistment. (In particular, almost all of the losses from the YOS = 19 cell of track 11 are retirements.)

ETS losses are voluntary, nonretirement losses at the end of a term of enlistment, including such losses that occur after one or more extensions. ETS losses do not include the involuntary losses due to attrition or losses due the management action in the Palace Chase, early out, or rollup programs, nor do they include involuntary separation losses.

Involuntary separation losses are forced losses during the specified fiscal year of airmen who normally would have reenlisted.

Reenlistments Out. Reenlistments out occur only in cells with YETS = 2, 1, 0, and −1 in tracks 1 through 10, and in cells with YOS 8 or higher in track 11. Inventory with YETS = 2 at the start of a fiscal year will reach the start of their ETS year in cohort time (and therefore be at risk of a reenlistment) somewhere during the fiscal year.

Flows to Retirement Eligibility. To do net change accounting for the career and retirement-eligible categories of enlistment we need to explicitly recognize the flow from YOS = 19 to YOS = 20 in track 11.

Continuations. Continuations are an accounting construct that makes flow accounting complete. They are inventory within a track that do nothing except "age" during fiscal year. That is, they are inventory that neither leaves the enlisted force nor changes category of enlistment during a fiscal year. Continuation inflows equal continuation outflows with YOS increased by one.

Reenlistments In. Reenlistments in equal reenlistments out with YOS increased by 1, and the track (CATENL) changed appropriately. For first-term airmen (tracks 1 and 2) reenlisting into a second-term track (track 3 through 10) the following formula can be used to determine the appropriate second-term track for the reenlistment inflow.

$$\text{New Track} = \text{YOS at time of reenlistment} + \text{second term TOE} - 3$$

This equation is easily derived given the following:

For the second term $\quad EYOS = YETS + YOS - 1$

For the second term $\quad \text{Track}[i] = EYOS - 3,\ i = 3 \text{ to } 10$

Substituting appropriately we find for the second term:

$$\text{Track}[i] = YETS + YOS - 1 - 3$$

When an airman enters the second term, YETS equals the predicted second-term TOE, and YOS equals end of first term YOS plus one. Thus, with appropriate substitution we have the first of the above equations.

Tables 5 and 6 give the mappings from first-term tracks into second-term tracks at the corresponding second-term YOS level for track 1 and track 2 respectively.

For second-term airmen reenlisting into the career term, reenlistments must be summed by YOS and grade over all corresponding tracks (3 to 10). These reenlistments flow into track 11 at the same grade with YOS incremented by one. For career-term airmen reenlisting into the retirement-eligible career term, the reenlistment flow is essentially a continuation flow.

Gains. The ADAM model distinguishes among three types of gains to the enlisted force.

Table 5

REENLISTMENT FLOWS FROM FIRST-TERM TRACK 1 INTO SECOND-TERM TRACKS

YOS at Time of Reenlistment	Second Term			
	with TOE = 4		with TOE = 6	
	Track	YOS	Track	YOS
2	3	3	5	3
3	4	4	6	4
4	5	5	7	5
5	6	6	8	6

Table 6

REENLISTMENT FLOWS FROM FIRST-TERM TRACK 2 INTO SECOND-TERM TRACKS

YOS at Time of Reenlistment	Second Term			
	with TOE = 4		with TOE = 6	
	Track	YOS	Track	YOS
4	5	5	7	5
5	6	6	8	6
6	7	7	9	7
7	8	8	10	8

- Non-prior service accessions for a four-year term of enlistment
- Non-prior service accessions for a six-year term of enlistment
- Prior service accessions

NPS accessions enter the force in YOS = 0 cells in either track 1 or track 2, depending upon the initial term of enlistment. Accessions come into the enlisted force sometime during the fiscal year. At the end of a fiscal year they have been in the enlisted force for less than one year. Consequently they have YOS = 0 in the end-of-year inventory.

PS accessions enter the enlisted force primarily at the start of the second term. The ADAM model assumes these airmen enter the second term at grade E-4 with YOS = 4.

Promoting the Force

The inventory is promoted after the inventory has been aged. Promotion means to take inventory counts by grade and track after the aging calculations and transform them into inventory counts by grade and track at the end of the fiscal year. During this transformation YOS is held constant. Promoting the force moves the inventory counts one column to the right in ADAM's inventory accounting structure.

The fundamental identity is:

Ending Inventory = Starting Inventory – Promotions out + Promotions in

Figure 4 presents the details required to promote the force. The management actions interact with the enlisted inventory to affect the flow, grade distribution, and ending inventory.

Promotions to the top five grades are user-specified values. Historical trial promotion rates are used to spread promotions to the inventory accounting structure level. Promotions out are equal to promotions in at the next higher grade.

Early Attrition and Promotions

One aspect of ADAM is inherently non-Markovian, that of determining the early attrition and promotion of NPS accessions and airmen in their first year of service. By definition, "early attritions" and "early promotions" are attritions and promotions of persons who are either accessions during that fiscal year or who are in the inventory at the start of the fiscal year with either YOS = 0 or YOS = 1. These flows require special consideration because of rapid, automatic promotion through the first three grades. For example, an airman entering the enlisted force at pay grade E-1 with a six-year term of enlistment will be promoted to pay grade E-3 within six months. Appendix A presents a discussion of early attritions and the promotions theory, notation, and calculations used in ADAM.

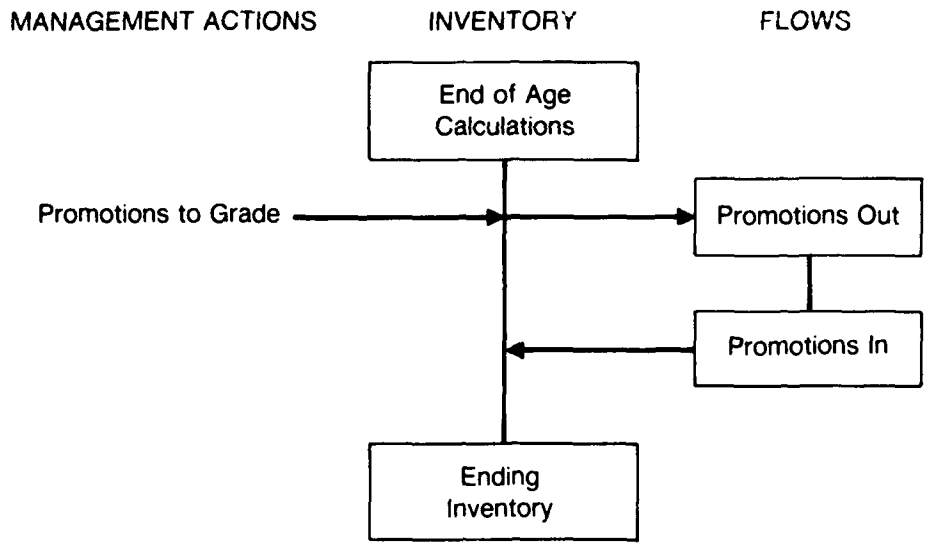

Fig. 4—Actions required to promote the force

III. COMPUTER-AIDED DESIGN OF MANAGEMENT ACTIONS MODULE (GOAL SEEKING)

OVERVIEW

The goals of enlisted force planning are customarily summarized by total inventories at the end of each fiscal year, called end strengths, and by inventories in each of the top five grades at the end of each fiscal year, called grade strength ceilings. The Computer-Aided Design of Management Actions module, or goal seeking module (module 2), determines management actions (NPS accession and promotions flows) that will achieve user-specified levels of end strength and grade strength goals. Appendix D contains an action diagram of the algorithms and calculations implemented in the model.

The goal seeking module is designed to be used in conjunction with the Annual Inventory Projection module (Sec. II) as follows:

- *Step A*: Run Annual Inventory Projection Module with a trial plan for NPS accessions and promotions (and all the other management actions).
- *Step B*: Run the goal seeking module to obtain revised NPS accessions and promotions that will achieve user-specified end strength and grade strength goals.[1]
- *Step C*: Rerun Annual Inventory Projection Module with the new NPS accession and promotion actions to get details on the performance of the revised plan of management actions.

Step B can be run more than once before moving on to Step C if users want to explore tradeoffs among goals for different years. For example, if a sudden decrease in end strength causes an extreme dip in annual accessions, users might want to spread the decrease over two or more years to smooth annual accessions.

Also, the entire three-step procedure can be iterated if users find the implications of the suggested management actions to be unacceptable. For example, if the promotion flows required to achieve grade strength ceilings imply promotion rates that vary too

[1]The results of the goal seeking module can be automatically supplied to the management action space of the Annual Inventory Projection Module. See menu options in Sec. III of Mickelson and Rydell, 1989.

much from year to year, users might want to adjust inventory levels by revising reenlistment bonus policy (in step A) so that the suggested promotions (from step B) lead to promotion rates (in step C) that are more stable over time.

The point is that, just as the name "computer-aided design" implies, this module assists in designing policy, it does not determine it. The Annual Inventory Projection Module and the Computer-Aided Design of Management Actions Module together make testing alternative strategies straightforward and easy. However, users of ADAM must create the strategies to be tested.

Approximations are used in the implementation of the goal seeking calculations. Users will find that when a plan suggested by the goal seeking module is implemented in the Annual Inventory Projection Module the resulting performance does not exactly match the specified goals. If the degree of mismatch is unacceptably large, particularly in the later projection years, then a repeat of steps B and C will be needed to fine tune the plan.

In practice, iteration of the three steps will be needed anyway for another reason. Users presumably will want to revise the accessions and promotions suggested by the goal seeking module to make them satisfy judgmental criteria such as "smoothness." Also, users will change other management actions in the Annual Inventory Projection Module, such as PS accessions and early outs, to compensate for the revisions. The revised plan will rarely achieve the goals exactly on the first iteration.

DETERMINING ACCESSIONS TO ACHIEVE END STRENGTH GOALS

Determining the number of NPS accessions to achieve end strength goals is a relatively straightforward process. This process takes the results of the most recent run of the Annual Inventory Projection Module (which includes a promotion and accession plan) and proceeds through the following five steps:

1. Determine difference between end strength goal and projected inventory for each projection year
2. Estimate survival rates of NPS accessions
3. Calculate number of additional accessions required to survive to the end of each projection year

4. Determine actual additional NPS accessions required at the beginning of each projection year
5. Find total number of NPS accessions needed in each projection year to achieve end strength goals by adding the results of step 4 to the current plan.

It might seem that the additional NPS accessions required to achieve the end strength goal for each projection year can be easily determined by subtracting the total ending inventory from the end strength goal for each year. Unfortunately, that is not true. A considerable number of NPS accessions are lost from attrition shortly after entering the force, which obviously affects the required number of accessions in that year and all subsequent years. Thus, the problem is to estimate the number of NPS accessions that must survive in each of the projection years and then adjust actual NPS accessions accordingly.

Step 1 estimates the additional accessions that would be needed if there were no attrition of these accessions. To adjust for attrition requires the estimation of two types of survival rates (step 2), the proportion of NPS accessions during a fiscal year that are still in the enlisted force at the end of that fiscal year, and the proportion that enter the enlisted force during FY = a (where a ranges over all projection years) who survive to the end of FY = b, for $b \geq a$.

The third step is to calculate the additional accessions that must survive to the end of each projection year. For the first projection year, the required additional *survived accessions* equal the difference between the end strength goal and the projected inventory. For the subsequent projection years, the required additional survived accessions equal this difference minus survivors from all earlier year's additional accessions. The second survival rate described above is used in this calculation.

The fourth step is to determine the additional actual NPS accessions required during each projection year; they equal the required survived accessions at the end of the projection year divided by the rate at which accessions during the projection year survive to the end of that year.

The last step is to calculate the total NPS accessions required to achieve the end strength goals. This is done by adding the additional actual NPS accessions to the trial plan's NPS accessions for each projection year.

DETERMINING PROMOTIONS TO ACHIEVE GRADE STRENGTH GOALS

Determining the number of promotions into the top five grades to achieve grade strength goals is quite easy provided one does grade E-9 for all projection years first, then grade E-8 for all projection years, and so on. As in determining NPS accessions to achieve end strength goals, the algorithm to determine promotions to achieve grade strength goals uses the results of the most recent run of the Annual Inventory Projection Module.

The first step is to calculate the additional inventory required in each grade to achieve the grade strength goals for each projection year. This is easily done by subtracting the total ending inventory by grade from the grade strength ceilings for each projection year.

The additional promotions necessary to achieve the required additions to grade strengths equal the required additions to grade strengths minus survivors of additions to grade strength made in the previous projection year plus additional promotions to the next higher grade in the current projection year. These calculations are done starting with grade E-9 for projection years 1 through 12. The calculations then are done for grade E-8 for projection years 1 through 12, and continue downward through grade E-5.

Finally, the total number of promotions to the top five grades in each projection year is calculated by adding the additional promotions by grade to the trial plan's promotions for each projection year.

IV. COMPARISON OF PLANS MODULE

The Comparison of Plans Module (module 3) systematically compares the force structure results of two alternative plans specified by the user. The purpose of this module is to view the personnel implications, over time, of alternative management actions; to assess the tradeoffs associated with these plans; and to obtain information about why plans have to be revised to make better plans in future years. Appendix E contains the action diagram for this module.

Plans of interest are named and saved for comparison during runs of the Annual Inventory Projection Module. An unambiguous, consistent, and easy to use system for naming alternative plans is the key to making the Comparison of Plans Module work. The suggested naming convention is to label a plan with:

XXXXXXXX.FF

where XXXXXXXX = 8-character name of the plan

FF = fiscal year (last 2 digits) extension

ADAM allows the following force structure comparisons:

- By pay grade
    1. Grade E-1 through E-3 ending inventory
    2. Grade E-4 ending inventory
    3. Grade E-5 ending inventory
    4. Grade E-6 ending inventory
    5. Grade E-7 ending inventory
    6. Grade E-8 ending inventory
    7. Grade E-9 ending inventory
- By YOS range
    8. YOS range 0–4 ending inventory
    9. YOS range 5–7 ending inventory
    10. YOS range 8–11 ending inventory
    11. YOS range 12–15 ending inventory
    12. YOS range 16+ ending inventory
- Total active duty enlisted force

V. DATA DESCRIPTION

OVERVIEW

The data for ADAM are taken from EFMS data and other published sources. ADAM requires six kinds of reference period input data:

- Start-of-year personnel inventory
- Separation rates
- Early release/reenlistment distributions and flows
- Econometric coefficients
- Cost factors
- Miscellaneous data

Fourteen files make up the ADAM database. These files are found on the ADAM DATA diskette (see Mickelson and Rydell, 1989).

The data for ADAM should be updated annually. Users of ADAM should contact the Air Force Military Personnel Center (AFMPC/DPMDW) for the most current ADAM data.

DATA DEFINITION

As described in Sec. II, there are three explicit dimensions carried in the accounting structure of ADAM. The dimensions are track, YOS, and grade. The database was designed to reflect and support this internal accounting structure.

Three kinds of data (start-of-year inventory, flow rates, and early release data) are organized in two dimensional arrays, or matrices. Each matrix is associated with a track, where the matrix rows correspond to YOS, and columns to grade. The remaining data (econometric coefficients, cost factors, and miscellaneous), are organized in a less structured manner that is unique to each kind of data. Appendix F describes the database in detail.

Start-of-year Inventory

The data file BEGINV contains the start-of-year inventory. It consists of 11 matrices, one for each track, listed consecutively (see Table F.1). Each matrix is made up of counts of enlisted personnel who are on active duty status as of the start of the fiscal year. Counts are by track, YOS, and grade.

Separation Flow Rates

Attrition Rates. The data file ATTRRATE contains attrition loss rates. It consists of 11 matrices, one for each track, listed consecutively (see Table F.2). Each matrix is made up of attrition rates from the reference case scenario of the MTA database. The rates are by track, YOS, and grade.

Policy-Free Expiration of Term of Service Rates. The data file ETSRATE contains policy-free ETS loss rates. It consists of 11 matrices, one for each track, listed consecutively (see Table F.3). Each matrix is made up of ETS rates from the reference case scenario of the MTA database. The rates are by track, YOS, and grade.

Trial Promotion Rates. The data file PROMRATE contains trial promotion rates. It consists of 11 matrices, one for each track, listed consecutively (see Table F.4). Each matrix is made up of trial promotion rates from the reference case scenario of the MTA database. The rates are by track, YOS, and grade.

Retirement Rates. The data file RETIRE contains retirement loss rates. It consists of one matrix for Track 11 (see Table F.5). The matrix is made up of retirement rates from the reference case scenario of the MTA database. The rates are by YOS and grade.

Reenlistment Rates. The data file REUPRATE contains policy-free conditional reenlistment rates. The file consists of 11 matrices, one for each track, listed consecutively (see Table F.6). Each matrix is made up of policy-free reenlistment rates from the reference case scenario of the MTA database. The rates are by track, YOS, and grade.

Early Release/Reenlistment Distributions and Flows

Early Out Loss Distribution and Flow. The data file EARLYOUT contains two kinds of information, the historical early out loss distribution and the previous year's actual early out losses. The file consists of 20 matrices. The first ten matrices (by definition there are no early out losses from track 11) contain the early out loss

distribution, one matrix for each track 1 through 10, listed consecutively. The next ten matrices contain the counts of actual early out losses from the previous fiscal year (see Tables F.7 and F.8). The distribution and flows are taken from the MTA database and are dimensioned by track, YOS, and grade.

Palace Chase Loss Distribution and Flows. The data file PALCHASE contains two kinds of information, the historical Palace Chase loss distribution and the three previous year's actual early out losses. The file consists of 40 matrices. The first ten matrices (by definition there are no Palace Chase losses from track 11) contain the Palace Chase loss distribution, one matrix for each track 1 through 10, listed consecutively. The next ten matrices contain the counts of actual Palace Chase losses from the previous fiscal year, one matrix for each track 1 through 10. The third set of matrices contain counts of actual Palace Chase losses from two fiscal years ago. The last ten matrices contain counts of actual Palace Chase losses from three fiscal years ago (see Tables F.9, F.10, F.11, and F.12). The distribution and flows are taken from the MTA database and are dimensioned by track, YOS, and grade.

Rollup Loss Distribution. The data file ROLLUP contains the historical distribution of rollup losses (see Table F.13). The file consists of ten matrices, one for each track 1 through 10 (by definition there are no rollup losses from track 11). The rollup loss distribution is taken from the MTA database and is dimensioned by track, YOS, and pay grade.

Forced Early Reenlistment Distributions and Flows. The data file FER contains three kinds of information:

1. Historical distribution of forced early reenlistments out of personnel who otherwise would have reenlisted later in the same fiscal year,
2. Historical distribution of forced early reenlistments out of personnel who otherwise would have reenlisted in the next fiscal year, and
3. Forced early reenlistment out flows that would have occurred in the first projection year had they not been shifted to an earlier fiscal year.

The file consists of 33 matrices. The first 11 contain the distribution of forced early reenlistments from the same year, one matrix for each track 1 through 11, listed consecutively. The next 11 contain the distribution of forced early reenlistments from

the next fiscal year, one matrix for each track 1 through 11, listed consecutively. The last 11 matrices contain counts of forced early reenlistment out flows shifted from the next year (see Tables F.14, F.15, and F.16). These distributions and flows are taken from the MTA database and are dimensioned by track, YOS, and pay grade.

Econometric Coefficients

Policy-free ETS Loss Coefficients. The data file LOSSCOEF contains the policy-free ETS loss coefficient parameters for the following econometric variables:

- Natural logarithm of civilian unemployment rate
- Natural logarithm of military/civilian wage ratio
- Average zone A bonuses between multiples 0 and 1 (A1)
- Average zone A bonuses greater than multiple 1 (A2+)
- Previous year's zone A bonus multiple
- Average zone B bonus multiple
- Average zone C bonus multiple

The policy-free ETS loss econometric coefficients are taken from the MTA database and are Track and YOS specific. The file consists of 11 matrices (see Table F.17), one for each track, listed consecutively. The rows of the matrices correspond to YOS and the columns correspond to the econometric variables, one column for each of the seven variables listed above.

Policy-free Reenlistment Coefficients. The data file REUPCOEF contains the policy-free reenlistment coefficient parameters for the following econometric variables:

- Natural logarithm of civilian unemployment rate
- Natural logarithm of military/civilian wage ratio
- Average zone A bonuses between multiples 0 and 1
- Average zone A bonuses greater than multiple 1
- Previous year's zone A bonus multiple
- Average zone B bonus multiple
- Average zone C bonus multiple

The policy-free reenlistment econometric coefficients are taken from the MTA database and are track and YOS specific. The file consists of 11 matrices (see Table F.18), one for each track, listed consecutively. The rows of the matrices correspond to YOS and the columns correspond to the econometric variable, one column for each of the seven variables listed above.

Costs

The data file COSTS contains enlisted personnel cost factors. The file consists of a YOS by grade matrix of monthly basic pay (see Table F.19), followed by a line of nine numbers, one for each pay grade, that correspond to all other MPA costs (BAQ, BHA, incentive and special pay, miscellaneous pay, and PCS costs) (see Table F.20). These numbers are taken from the 1987 *Uniformed Services Almanac*.

There are three other numbers in the COSTS file, the multiplier that obtains retirement accrual from basic pay, the training cost per NPS accession, and the severance pay for a second term involuntary separation.

Miscellaneous Data

The data file OTHER contains other miscellaneous information relevant to ADAM (see App. F for data description). The data are:

- The date corresponding to the beginning inventory in the database
- Term of enlistment probabilities by bonus multiple (see Table F.21)
- Early attrition and promotion probabilities (see App. A for variable definitions and Table F.22 for sample data)
- Reference period percent of force receiving bonuses
- Reference period values of the seven econometric variables.

Appendix A

EARLY ATTRITION AND PROMOTION

By definition, early attritions and early promotions are attritions and promotions during a fiscal year of persons who are either accessions during that fiscal year or who are in the inventory at the start of the fiscal year with either YOS = 0 or YOS = 1. These flows require special analysis because of rapid, automatic promotion through the first three grades. This appendix provides a complete analysis of these flows.

PROMOTION PHASE POINTS TO GRADES E-2 THROUGH E-4

For grades E-1 through E-4, promotion is based on fixed phase points. The entry grade for four-year enlistees is E-1. The entry grade for six-year enlistees is E-1 during basic military training (BMT). They are automatically promoted to pay grade E-3 after BMT (one month into their enlistment).

For four-year enlistees, the E-2 phase point is six months, the E-3 phase point is 16 months, and the E-4 phase point is 30 months below the zone and 36 months normally.

For six-year enlistees, the E-4 phase point is 24 months below the zone and 30 months normally.

At the end of the first (partial) calendar month in service (MOS), enlisted personnel are 0 months in service (MOS = 0). At the end of the second calendar month in service enlisted personnel are 1 month in service (MOS = 1). At the end of the 13th calendar month in service enlisted personnel are 12 months in service (MOS =12) and 1 year in service (YOS = 1).

Table A.1 shows how the fixed phase points for promotion to grades E-2 through E-4 line up on the MOS, YOS method of counting time in service.

EARLY ATTRITIONS AND PROMOTIONS

Attritions and promotions from accessions during a fiscal year, and from a starting inventory that has YOS = 0 or YOS = 1, are complex enough to require special analysis.

Table A.1

GRADE E-1 THROUGH E-4 BY MONTHS IN SERVICE

	4-Year Enlistee				6-Year Enlistee			
MOS	E-1	E-2	E-3	E-4	E-1	E-2	E-3	E-4
				YOS = 0				
0	x				x			
1	x						x	
2	x						x	
3	x						x	
4	x						x	
5	x						x	
6		x					x	
7		x					x	
8		x					x	
9		x					x	
10		x					x	
11		x					x	
				YOS = 1				
12		x					x	
13		x					x	
14		x					x	
15		x					x	
16			x				x	
17			x				x	
18			x				x	
19			x				x	
20			x				x	
21			x				x	
22			x				x	
23			x				x	
				YOS = 2				
24			x				x	b
25			x				x	b
26			x				x	b
27			x				x	b
28			x				x	b
29			x				x	b
30			x	b				x
31			x	b				x
32			x	b				x
33			x	b				x
34			x	b				x
35			x	b				x
				YOS = 3				
36				x				x
37				x				x
38				x				x
etc.				x				x

NOTE: x = normal grade, b = grade resulting from a below-the-zone (BTZ) promotion to grade E-4.

Tables A.2 and A.3 show the possible fates of accessions and starting inventories that are a consequence of the automatic promotion rules in Table A.1.

Tables A.4 and A.5 present estimates of the distribution across all possible fates. The estimation was done with eyeball numerical integration and is not intended to be exact. For ADAM, these proportions are taken from the EFMS database for the MTA model.

Tables A.6 and A.7 apply the estimated distributions to accession and inventory counts for FY87 to get estimates of early attrition losses during FY87. Again, these estimates are provided merely for illustrative purposes. ADAM is implemented to estimate these flows for each projection year based upon that year's starting inventory and accession plan.

MODELING EARLY ATTRITION AND PROMOTION

Notation

The first step in modeling early attrition and promotion flows is to define notation for the distributions of each of the sources of those flows. Tables A.8 and A.9 define the required notation. The general form of the variable names is SxDy, where S stands for source, x is the number of the source in order of appearance in these tables, D stands for distribution coefficient, and y is the number for a given destination counting from left to right in the tables. In each case interpretation of SxDy is the proportion of source x that has fate y during the fiscal year

Tables A.4 and A.5 above provide an indication of the values of these distribution coefficients.

Table A.2

INCIDENCE OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 4-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	x	x	x			x	x			
Inventory at Start of Fiscal Year										
YOS=0, E-1	x	x	x				x	x		
YOS=0, E-2			x	x				x		
YOS=1, E-2			x	x				x		
YOS=1, E-3				x	x			x	x	

NOTE: STD = Standard Attrition, or attrition from E-1 not during BMT.

Table A.3

INCIDENCE OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 6-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	x			x		x		x		
Inventory at Start of Fiscal Year										
YOS=0, E-1	x			x				x		
YOS=0, E-3				x				x		
YOS=1, E-3				x	x			x	x	

Table A.4

DISTRIBUTION OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 4-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	.080	.040	.020			.450	.410			1.000
Inventory at Start of Fiscal Year										
YOS=0, E-1	.007	.015	.055				.612	.311		1.000
YOS=0, E-2			.040	.030				.930		1.000
YOS=1, E-2			.006	.080				.914		1.000
YOS=1, E-3				.070	.004			.858	.068	1.000

Table A.5

DISTRIBUTION OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 6-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	.080			.060		.110		.750		1.000
Inventory at Start of Fiscal Year										
YOS=0, E-1	.007			.120				.873		1.000
YOS=0, E-3				.120				.880		1.000
YOS=1, E-3				.045	.055			.190	.710	1.000

Table A.6

FY87 COUNTS OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 4-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	3743	1872	935			21055	19184			46791
Inventory at Start of Fiscal Year										
YOS=0, E-1	154	329	1207				13430	6825		21945
YOS=0, E-2			957	717				22240		23915
YOS=1, E-2			86	1148				13116		14350
YOS=1, E-3				2175	124			26657	2113	31069

Table A.7

FY87 COUNTS OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 6-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	671			503		923		6292		8390
Inventory at Start of Fiscal Year										
YOS=0, E-1	5			77				563		645
YOS=0, E-3				1005				7372		8377
YOS=1, E-3				370	452			1563	5839	8224

Table A.8

NOTATION FOR DISTRIBUTION OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 4-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	S1D0	S1D1	S1D2			S1D3	S1D4			1.000
Inventory at Start of Fiscal Year										
YOS=0, E-1	S2D0	S2D1	S2D2				S2D3	S2D4		1.000
YOS=0, E-2			S3D0	S3D1				S3D2		1.000
YOS=1, E-2			S4D0	S4D1				S4D2		1.000
YOS=1, E-3				S5D0	S5D1			S5D2	S5D3	1.000

Table A.9

NOTATION FOR DISTRIBUTION OF LOSSES AND SURVIVORS FROM ACCESSIONS AND EARLY INVENTORY: 6-YEAR TOE

	Losses During FY by Status at Time of Loss									
	E-1					End of FY Inventory				
Source	BMT	STD	E-2	E-3	E-4	E-1	E-2	E-3	E-4	Total
Accessions During Fiscal Year										
Accessions	S6D0			S6D1		S6D2		S6D3		1.000
Inventory at Start of Fiscal Year										
YOS=0, E-1	S7D0			S7D1				S7D2		1.000
YOS=0, E-3				S8D0				S8D1		1.000
YOS=1, E-3				S9D0	S9D1			S9D2	S9D3	1.000

Appendix B

FORMAT OF ACTION DIAGRAMS

Action diagrams are a means of describing the algorithms and logic structure of a computer program in a straightforward, easy to understand format. There are three components to an action diagram:

- Variable definitions (inputs)
- Calculations
- Results (outputs)

The variable definition section consists of a short description of all variables. The dimension associated with the variable is also included. The variables are grouped by type (e.g., inputs from database, user-specified, internally created for a special purpose). The calculations are listed sequentially, utilizing the same logic as the actual computer program. The variables that are passed to other modules of the program are explicitly defined in the results section.

Several notational conventions are used to simplify the presentation of the calculations. These conventions are:

- [i] indicates track. If [i] is used without the YOS and grade dimensions explicitly given it is assumed the calculations are performed over the appropriate ranges of these dimensions for each track.
- <dimension> is used as an explicit indicator of the dimension(s) on a variable.
- Lower-case t in front of a dimension (e.g., tYOS) means to *sum* over the entire relevant range of that variable.
- Semicolon indicates the end of an expression.
- User-specified inputs (e.g., PCLOSS, PS) that are spread to complete accounting structure detail retain the same name at the aggregate and disaggregate levels.

Appendix C

ACTION DIAGRAM FOR ANNUAL INVENTORY PROJECTIONS (MODULE 1)

This appendix contains the action diagram for the Annual Inventory Projection Module, which is the machinery that projects Air Force active duty enlisted personnel 12 years into the future. All projections are conditional on user-chosen management actions and background economic conditions.

The module is essentially Markovian and uses the principle of generating a full accounting structure, track by YOS by grade, for each type of personnel flow. Calculations are performed iteratively, one fiscal year at a time. At the conclusion of a fiscal year's calculations, the inventory and flows are aggregated and entered in the output screens for the appropriate fiscal year (see Mickelson and Rydell, 1989). Thus, only one complete accounting structure for the inventory and each type of flow is required.

VARIABLE DEFINITION

The variables in module 1 of ADAM are of three types. The first variables are associated with input from the ADAM database (see Mickelson and Rydell, 1989). The second variables are for user-specified inputs. Finally, variables are created internal to the module.

Inputs from ADAM Database

The variable names with short descriptions are given below:

Inventory and Flow Rates

INV [i] <YOS GRADE>	Inventory in track i, i = 1 through 11
ATTRRATE [i] <YOS GRADE>	Attrition rate in track i, i = 1 through 11
PFETSRATE [i] <YOS GRADE>	Policy free fiscal year ETS loss rate in reference case for track i, i = 1 through 11
REUPRATE [i] <YOS GRADE>	Policy free fiscal year reenlistment rate in reference case for track i, i = 1 through 11
TPROMRATE [i] <YOS GRADE>	Trial promotions out of grade for track i, i = 1 to 11

PCRATE [i] <YOS GRADE>	Trial Palace Chase loss rate for track i, i = 1 through 11
EORATE [i] <YOS GRADE>	Trial early out loss rate for track i, i = 1 through 11
RURATE [i] <YOS GRADE>	Trial rollup loss rate for track i, i = 1 through 11
RETIRERATE <YOS GRADE>	Retirement rate in track 11
FERDIST_SAME [i] <YOS GRADE>	Trial forced early reenlistment rates from same fiscal year
FERDIST_NEXT [i] <YOS GRADE>	Trial forced early reenlistment rates from next fiscal year

Average Values of Econometric Variables in Reference Period

LOGREFUNEMPL	Log of percent civilian unemployment during reference period
LOGREFMILCIV	Log of the ratio of military to civilian wages during reference period
REFA1AVG	Average of A1 variable during reference period
REFA2AVG	Average of A2 variable during reference period
REFAPASTAVG [i] <YOS>	Average percent of enlisted persons in second term who were receiving a zone A bonus during the reference period for track i, i = 3 to 10
REFBAVG	Average zone B bonus multiple during the reference period
REFCAVG	Average zone C bonus multiple during the reference period

Information Needed to Calculate APASTAVG During the Projection Years

PINVTOE4 [i]	Proportion of inventory in given cell that has a 4-year term of enlistment in track i, i = 3 to 10
PASTASTACK [y]	Proportion of inventory receiving zone A bonus y years ago, y = 1 to 8.

Distribution Proportions for Early Attrition and Promotion

SxDy	The proportion of source x that is distributed to destination y during a fiscal year (see App. A)

Losses Due to Early Release and Force Early Reenlistment Programs

ONE_PCFLOW [i] <YOS GRADE>	ETS losses that would have occurred during this fiscal year if they had not been shifted one fiscal year earlier by the Palace Chase program.
TWO_PCFLOW [i] <YOS GRADE>	ETS losses that would have occurred during this fiscal year if they had not been shifted two fiscal years earlier by the Palace Chase program.
TRE_PCFLOW [i] <YOS GRADE>	ETS losses that would have occurred during this fiscal year if they had not been shifted three fiscal years earlier by the Palace Chase program.
ONE_EOFLOW [i] <YOS GRADE>	ETS losses that would have occurred during this fiscal year if they had not been shifted one fiscal year earlier by the early release program.
FEROUT2SHIFT [i] <YOS GRADE>	ETS reenlistments out that would have occurred this year if they had not been shifted to the previous fiscal year.

Budget Cost Factors for Annual Projections

MBASIC <GRADE, YOS>	Average monthly basic pay
OTHERMPA <GRADE>	Other MPA costs
RETRATIO	Retirement accrual ratio
TRAINCOST	Training cost per accession
SEPCOST	Severance cost per involuntary separation

Blended Coefficients

LCOEFLOGUNEMPL [i] <YOS>	Econometric coefficients for log unemployment rate for fiscal year loss equations
LCOEFLOGMILCIV [i] <YOS>	Econometric coefficients for log military civilian wage ratio for fiscal year loss equations

LCOEFA1AVG [i] <YOS>	Econometric coefficients for average A1 bonus multiple for fiscal year loss equations
LCOEFA2AVG [i] <YOS>	Econometric coefficients for average A2 bonus multiple for fiscal year loss equations
LCOEFAPASTAVG [i] <YOS>	Econometric coefficients for past zone A bonus multiple for fiscal year loss equations
LCOEFBAVG [i] <YOS>	Econometric coefficients for average zone B bonus multiple for fiscal year loss equations
LCOEFCAVG [i] <YOS>	Econometric coefficients for average zone C bonus multiple for fiscal year loss equations
RCOEFLOGUNEMPL [i] <YOS>	Econometric coefficients for log unemployment rate for fiscal year reenlistment equations
RCOEFLOGMILCIV [i] <YOS>	Econometric coefficients for log military civilian wage ratio for fiscal year reenlistment equations
RCOEFA1AVG [i] <YOS>	Econometric coefficients for average zone A bonuses between multiples 0 and 1 for fiscal year reenlistment equations
RCOEFA2AVG [i] <YOS>	Econometric coefficients for average zone A bonuses greater than multiple 1 for fiscal year reenlistment equations
RCOEFAPASTAVG [i] <YOS>	Econometric coefficients for past zone A bonus multiple for fiscal year reenlistment equations
RCOEFBAVG [i] <YOS>	Econometric coefficients for average zone B bonus multiple for fiscal year reenlistment equations
RCOEFCAVG [i] <YOS>	Econometric coefficients for average zone C bonus multiple for fiscal year reenlistment equations

Term of Enlistment Probabilities

TOEiZ	Probability of 4-year TOE with no bonus from Track i, i = 1, 2
TOEiAH	Probability of a 4-year TOE with zone A bonus multiple = 0.5 from Track i, i = 1, 2
TOEiAm	Probability of a 4-year TOE with zone A bonus multiple, m = 1 – 6, from Track i, i = 1, 2

User-Specified Inputs

The following are user-specified inputs to module 1. These inputs are obtained from the user input screens described in Mickelson and Rydell, 1989.

UNEMPL <FY>	Civilian unemployment rate (%)
MILCIV <FY>	Ratio of military wages to civilian wages
CPI <FY>	Annual change in Consumer Price Index (%)
TOTNPS <FY>	Total non-prior service accessions
PER4TOE <FY>	Percent of NPS accessions with 4-year TOE
PS <FY>	Prior Service accessions
AH <FY>	Percent force receiving zone A bonus multiple 0.5
A1 <FY>	Percent force receiving zone A bonus multiple 1.0
A2 <FY>	Percent force receiving zone A bonus multiple 2.0
A3 <FY>	Percent force receiving zone A bonus multiple 3.0
A4 <FY>	Percent force receiving zone A bonus multiple 4.0
A5 <FY>	Percent force receiving zone A bonus multiple 5.0
A6 <FY>	Percent force receiving zone A bonus multiple 6.0
BH <FY>	Percent force receiving zone B bonus multiple 0.5
B1 <FY>	Percent force receiving zone B bonus multiple 1.0
B2 <FY>	Percent force receiving zone B bonus multiple 2.0
B3 <FY>	Percent force receiving zone B bonus multiple 3.0
B4 <FY>	Percent force receiving zone B bonus multiple 4.0
B5 <FY>	Percent force receiving zone B bonus multiple 5.0
B6 <FY>	Percent force receiving zone B bonus multiple 6.0
CH <FY>	Percent force receiving zone C bonus multiple 0.5
C1 <FY>	Percent force receiving zone C bonus multiple 1.0

C2 <FY>	Percent force receiving zone C bonus multiple 2.0
C3 <FY>	Percent force receiving zone C bonus multiple 3.0
C4 <FY>	Percent force receiving zone C bonus multiple 4.0
C5 <FY>	Percent force receiving zone C bonus multiple 5.0
C6 <FY>	Percent force receiving zone C bonus multiple 6.0
RULOSS <FY CATENL>	Rollup losses by category of enlistment
EOLOSS <FY CATENL>	Early out losses by category of enlistment
PCLOSS <FY>	Total Palace Chase losses
INVOLSEP <FY CATENL>	Involuntary separation losses by category of enlistment
PROMTOx <FY>	Promotions into grade x, (5 <= x <= 9)
FEROUT_SAME <FY CATENL>	Forced early reenlistments from same fiscal year
FEROUT_NEXT <FY CATENL>	Forced early reenlistments from next fiscal year

Internally Created Variables

The following variables are created internal to module 1. Variables without specified dimensions are defined to be scalars.

Inventory and Personnel Flows

BEGINV <YOS GRADE>	Start of fiscal year inventory.
FINALINV <YOS GRADE>	End of fiscal year inventory.
REUPDIST <YOS GRADE	Distribution of reenlistments
ATTRLOSS [i] <YOS GRADE>	Attrition losses out of track i, i = 1 to 11
ETSLOSS [i] <YOS GRADE>	End of term of service losses out of track i, i = 1 to 11
REUPFLOW [i] <YOS GRADE>	Reenlistment flow out of track i, i = 1 to 11
PROMFLOW [i] <YOS GRADE>	Promotion flows out of grade from track i, i = 1 to 11
PROMIN [i] <YOS GRADE>	Promotion flows into grade from track i, i = 1 to 11
RETIRELOSS <YOS GRADE>	Retirement flow out of track 11
PCLOSS [i] <YOS GRADE>	Palace Chase losses in this fiscal year from track i, i = 1 to 10
EOLOSS [i] <YOS GRADE>	Early out losses in this fiscal year from track i, i = 1 to 10
RULOSS [i] <YOS GRADE>	Rollup out losses in this fiscal year from track i,

	i = 1 to 10
INVOLSEP [i] <YOS GRADE>	Involuntary separation losses out of track i, i = 1 to 10
SAMEFEROUT [i] <YOS GRADE>	Forced early reenlistment flows out from same fiscal year
NEXTFEROUT [i] <YOS GRADE>	Forced early reenlistments flows out from next fiscal year
FERINNEXT [i] <YOS GRADE>	Forced early reenlistments flows in from next fiscal year
TOTPROMFLOW <GRADE>	Total number of trial promotion out flows

Econometric Variables for Current Fiscal Year

LOGUNEMPL	Log unemployment rate
LOGMILCIV	Log ratio military wages to civilian wages
A1AVG	Average bonus multiple for zone A bonuses between multiples 0 and 1
A2AVG	Average bonus multiple for zone A bonuses greater than multiple 1
APASTAVG [i] <YOS>	Average past zone A bonus multiple
BAVG	Average zone B bonus multiple
CAVG	Average zone C bonus multiple

Term of Enlistment Probabilities

TOE4RATE [i]	4-year TOE rate from first from track i, i = 1 to 2

Shifts and Inventory Reductions

PCINVRED [i] <YOS GRADE>	Palace Chase inventory reductions in track i, i = 1 through 11
EOINVRED [i] <YOS GRADE>	Early out inventory reductions in track i, i = 1 through 11
FERINVRED [i] <YOS GRADE>	Forced early reenlistment inventory reductions in track i, i = 1 to 11
PCSHIFT [i] <YOS GRADE>	ETS losses that would have occurred during

	this fiscal year if they had not been shifted to earlier fiscal years by the Palace Chase program.
EOSHIFT [i] <YOS GRADE>	ETS losses that would have occurred during this fiscal year if they had not been shifted to the previous fiscal year by the early out program.
FEROUT2SHIFT [i] <YOS GRADE>	ETS reenlistments out that would have occurred had they not been shifted to an earlier fiscal year
FERIN2SHIFT [i] <YOS GRADE>	Forced early reenlistments in shifted to previous fiscal year

Budget Cost Variables

FBASICPAY <FY>	Total basic pay
FRETIREPAY <FY>	Total retirement pay
FOTHERPAY <FY>	Total other MPA costs
FBONUSPAY <FY>	Total bonus pay
FTRAINCOST <FY>	Total training costs
FSEPCOST <FY>	Total severance pay
FTOTALCOST <FY>	Total budget cost

Variables for Output Screens

ENDXCAT <FY CATENL>	Ending inventory by category of enlistment
PER2TERM <FY>	Percent inventory second term and above
ENDXYOS <FY YOS>	Ending inventory by years of service
PER4YOS <FY>	Percent inventory 4 YOS or higher
ENDXGRD <FY GRADE>	Ending inventory by pay grade
PER5GRD <FY>	Percent inventory grade E-5 or higher
YOSENTER <FY GRADE>	Average YOS entering a grade
YOSINGRD <FY GRADE>	Average YOS in a grade
TOTGAINS <FY TYPE>	Total gains by type of gain
TOTLOSS <FY TYPE>	Total losses by type of loss
TOTPFETS <FY TYPE>	Total policy-free ETS losses by type of loss

AETSRET <FY CATENL>	Annual ETS retention rate by CATENL
REENLIST <FY CATENL>	Reenlistments by CATENL
FER_OUTCAT1 <FY TYPE>	First-term forced early reenlistments
FER_OUTCAT2 <FY TYPE>	Second-term forced early reenlistments
FER_OUTCATC <FY TYPE>	Career-term forced early reenlistments

CALCULATIONS

The following calculations are performed sequentially for each of 12 fiscal years. A fiscal year indicator is not explicitly given. However, this dimension is explicitly indicated when pertinent to the calculation.

```
1.  Reset Flow Variables to Zero.
+- DO FOR TRACK i = 1 to 11 ;
|     ATTRLOSS [i] = 0 ;
|     RETIRELOSS [i] = 0 ;
|     ETSLOSS [i] = 0 ;
|     REUPFLOW [i] = 0 ;
|     PCLOSS [i] = 0 ;
|     EOLOSS [i] = 0 ;
|     RULOSS [i] = 0 ;
|     PROMFLOW [i] = 0 ;
|     INVOLSEP [i] = 0 ;
|     FERINSAME [i] = 0 ;
|     FERINNEXT [i] = 0 ;
+- END ;

+- DO FOR YOS AND GRADE ;
|     BEGINV <YOS GRADE> = 0 ;
|     FINALINV <YOS GRADE> = 0 ;
|     REUPDIST <YOS GRADE> = 0
+- END ;
```

```
+- DO FOR YOS AND GRADE ;  i=11
|     BEGINV <YOS GRADE> = SUM (INV [i] <YOS GRADE>) ;
+- END ;                   i=1
```

2. Adjust Econometric Variables and TOE Variables.

```
   /*  For the current fiscal year  */

   LOGUNEMPL = LOG (UNEMPL <FY>) ;
   LOGMILCIV = LOG (MILCIV <FY>) ;
   A1AVG = [0.5*AH <FY> + A1 <FY> + A2 <FY> + A3 <FY> + A4 <FY>
                        + A5 <FY> + A6 <FY>] / 100 ;
   A2AVG = [1*A2 <FY> + 2*A3 <FY> + 3*A4 <FY> + 4*A5 <FY>
                      + 5*A6 <FY>] / 100 ;

   IF (3 <= i <= 10) THEN
      APASTAVG [i] <YOS> = PINVTOE4 [i] * PASTASTACK [FY+YETS-5]
                           + (1 - PINVTOE4 [i]) * PASTASTACK [FY+YETS-7] ;

   BAVG = [0.5*BH <FY> + B1 <FY> + 2*B2 <FY> + 3*B3 <FY> + 4*B4 <FY>
                       + 5*B5 <FY> + 6*B6 <FY>] / 100 ;
   CAVG = [0.5*CH <FY> + C1 <FY> + 2*C2 <FY> + 3*C3 <FY> + 4*C4 <FY>
                       + 5*C5 <FY> + 6*C6 <FY>] / 100 ;

   /*  Update stack of past zone A bonuses, retain these variables for
       the next projection year.  */

   PASTASTACK [8] = PASTASTACK [7] ;
   PASTASTACK [7] = PASTASTACK [6] ;
   PASTASTACK [6] = PASTASTACK [5] ;
   PASTASTACK [5] = PASTASTACK [4] ;
   PASTASTACK [4] = PASTASTACK [3] ;
   PASTASTACK [3] = PASTASTACK [2] ;
   PASTASTACK [2] = PASTASTACK [1] ;
   PASTASTACK [1] = AH + A1 + A2 + A3 + A4 + A5 + A6 ;
```

```
TOE4RATE1 = TOE1Z * (100 - AH <FY> - A1 <FY> - A2 <FY>
                    - A3 <FY> - A4 <FY> - A5 <FY> - A6 <FY>) / 100
          + TOE1AH * (AH <FY> / 100) + TOE1A1 * (AH <FY> / 100)
          + TOE1A2 * (AH <FY> / 100) + TOE1A3 * (AH <FY> / 100)
          + TOE1A4 * (AH <FY> / 100) + TOE1A5 * (AH <FY> / 100)
          + TOE1A6 * (AH <FY> / 100)  ;

TOE4RATE2 = TOE2Z * (100 - AH <FY> - A1 <FY> - A2 <FY>
                    - A3 <FY> - A4 <FY> - A5 <FY> - A6 <FY>) / 100
          + TOE2AH * (AH <FY> / 100) + TOE2A1 * (AH <FY> / 100)
          + TOE2A2 * (AH <FY> / 100) + TOE2A3 * (AH <FY> / 100)
          + TOE2A4 * (AH <FY> / 100) + TOE2A5 * (AH <FY> / 100)
          + TOE2A6 * (AH <FY> / 100)  ;
```

3. Spread This Fiscal Year's Palace Chase, Early Out, Rollup Losses, and Forced Early Reenlistments to Cell Accounting Structure.

```
   /*  Trial losses by cell accounting structure  */
+- DO FOR TRACK i, i = 1 to 11 ;
|     PCLOSS [i] = INV [i] * PCRATE [i] ;
|     EOLOSS [i] = INV [i] * EORATE [i] ;
|     RULOSS [i] = INV [i] * RURATE [i] ;
|     NEXTFEROUT [i] <FY> = INV [i] * FERDIST_NEXT [i] ;
|     SAMEFEROUT [i] <FY> = INV [i] * FERDIST_SAME [i] ;
+- END ;

   /*  Total over CATENL, all terms in Palace Chase case  */
   /*  Scalars for totaling losses are not defined above  */

             i=10
   TPC =  SUM (PCLOSS [i] <tYOS tGRADE>)
             i=1

   TEO1 = EOLOSS [i=1] <tYOS tGRADE> + EOLOSS [i=2] <tYOS tGRADE> ;
             i=10
```

```
   TEO2 = SUM (EOLOSS [i] <tYOS tGRADE>) ;
              i=3

   TEOC = EOLOSS [i=11] <tYOS tGRADE> ;

   TRU1 = RULOSS [i=1] <tYOS tGRADE> + RULOSS [i=2] <tYOS tGRADE> ;

              i=10
   TRU2 = SUM (RULOSS [i] <tYOS tGRADE>) ;
              i=3

   T1FER1 = SAMEFEROUT [i=1] <tYOS tGRADE> + SAMEFEROUT [i=2] <tYOS tGRADE>;

   T1FER2 = NEXTFEROUT [i=1] <tYOS tGRADE> + NEXTFEROUT [i=2] <tYOS tGRADE>;

              i=10
   T2FER1 = SUM (SAMEFEROUT [i] <tYOS tGRADE> ;
              i=3
              i=10
   T2FER2 = SUM (NEXTFEROUT [i] <tYOS tGRADE> ;
              i=3

   TCFER1 = SAMEFEROUT [i=11] <tYOS tGRADE> ;
   TCFER2 = NEXTFEROUT [i=11] <tYOS tGRADE> ;

  /*  spread actual early release losses to cells  */

+- DO FOR TRACK i, i = 1 to 10 ;
|        PCLOSS [i] = (PCLOSS <FY> / TPC) * PCLOSS [i] ;
|
|     IF (CATENL = 1) THEN   /*  NOTE: this is tracks 1 and 2  */
|        EOLOSS [i] = (EOLOSS <FY CATENL> / TEO1) * ECLOSS [i] ;
|
|     IF (CATENL = 2) THEN   /*  NOTE:  this is tracks 3 through 10 */
```

```
|        EOLOSS [i] = (EOLOSS <FY CATENL> / TEO2) * EOLOSS [i] ;
|
|
|     IF (CATENL = 1) THEN   /*  NOTE: this is tracks 1 and 2  */
|        RULOSS [i] = (RULOSS <FY CATENL> / TRU1) * RULOSS [i] ;
|
|     IF (CATENL = 2) THEN   /*  NOTE:  this is tracks 3 through 10 */
|        RULOSS [i] = (RULOSS <FY CATENL> / TRU2) * RULOSS [i] ;
|
|  +- IF (CATENL = 1) THEN DO ;   /*  NOTE: this is tracks 1 and 2  */
|  |     SAMEFEROUT [i] = (FEROUT_SAME <FY CATENL> / T1FER1)
|  |                           * SAMEFEROUT [i] ;
|  |     NEXTFEROUT [i] = (FEROUT_NEXT <FY CATENL> / T1FER2)
|  |                           * NEXTFEROUT [i] ;
|  +- END ;
|
|  +- IF (CATENL = 2) THEN DO ;   /*  NOTE: this is tracks 3 to 10  */
|  |     SAMEFEROUT [i] = (FEROUT_SAME <FY CATENL> / T2FER1)
|  |                           * SAMEFEROUT [i] ;
|  |     NEXTFEROUT [i] = (FEROUT_NEXT <FY CATENL> / T2FER2)
|  |                           * NEXTFEROUT [i] ;
|  +- END ;
|
|  +- IF (CATENL = 3) THEN DO ;   /*  NOTE: this is track 11 */
|  |     SAMEFEROUT [i] = (FEROUT_SAME <FY CATENL> / TCFER1)
|  |                           * SAMEFEROUT [i] ;
|  |     NEXTFEROUT [i] = (FEROUT_NEXT <FY CATENL> / TCFER2)
|  |                           * NEXTFEROUT [i] ;
|  +- END ;
|
+- END ;
```

4. Forced Early Reenlistment Calculations.

```
/*  Track 1  */

/*  NOTE:  YOS is used as an indicator of both YOS and track  */
  +- DO FOR YOS = 2 TO 5 ;
  |     FERINNEXT [YOS+1] <YOS+1> = FERINNEXT [YOS+1] <YOS+1>
  |                     + (TOE4RATE1 * NEXTFEROUT [1] <YOS>)  ;
  |     FERINNEXT [YOS+3] <YOS+1> = FERINNEXT [YOS+1] <YOS+1>
  |                     + ((1 - TOE4RATE1) * NEXTFEROUT [1] <YOS>) ;
  |
  |     FERIN2SHIFT [YOS+1] <YOS+1> = FERIN2SHIFT [YOS+1] <YOS+1>
  |                     + (TOE4RATE1 * FEROUT2SHIFT [1] <YOS>)  ;
  |     FERIN2SHIFT [YOS+3] <YOS+1> = FERIN2SHIFT [YOS+1] <YOS+1>
  |                     + ((1 - TOE4RATE1) * FEROUT2SHIFT [1] <YOS>) ;
  +- END;

/*  Track 2  */

  +- DO FOR YOS = 4 TO 7 ;
  |     FERINNEXT [YOS+1] <YOS+1> = FERINNEXT [YOS+1] <YOS+1>
  |                     + (TOE4RATE2 * NEXTFEROUT [2] <YOS>) ;
  |     FERINNEXT [YOS+3] <YOS+1> = FERINNEXT [YOS+3] <YOS+1>
  |                     + ((1 - TOE4RATE2) * NEXTFEROUT [2] <YOS>) ;
  |
  |     FERIN2SHIFT [YOS+1] <YOS+1> = FERIN2SHIFT [YOS+1] <YOS+1>
  |                     + (TOE4RATE2 * FEROUT2SHIFT [2] <YOS>) ;
  |     FERIN2SHIFT [YOS+3] <YOS+1> = FERIN2SHIFT [YOS+3] <YOS+1>
  |                     + ((1 - TOE4RATE2) * FEROUT2SHIFT [2] <YOS>) ;
  +- END;
/*  Calculate reenlistments from second term into the career term (NRE)  */

 FERINNEXT [11] <YOS=6> = FERINNEXT [11] <YOS=6> + NEXTFEROUT [3] <YOS=5>;
 FERINNEXT [11] <YOS=7> = FERINNEXT [11] <YOS=7> + NEXTFEROUT [3] <YOS=6>
                                 + NEXTFEROUT [4] <YOS=6>  ;
```

```
FERINNEXT [11] <YOS=8> =   FERINNEXT [11] <YOS=8> + NEXTFEROUT [3] <YOS=7>
                  + NEXTFEROUT [4] <YOS=7> + NEXTFEROUT [5] <YOS=7>  ;

FERIN2SHIFT [11] <YOS=6> = FERIN2SHIFT [11] <YOS=6>
                           + FEROUT2SHIFT] [3] <YOS=5>  ;
FERIN2SHIFT [11] <YOS=7> = FERIN2SHIFT [11] <YOS=7>
                 + FEROUT2SHIFT [3] <YOS=6> + FEROUT2SHIFT [4] <YOS=6> ;
FERIN2SHIFT [11] <YOS=8> = FERIN2SHIFT [11] <YOS=8>
                 + FEROUT2SHIFT [3] <YOS=7> + FEROUT2SHIFT [4] <YOS=7>
                 + FEROUT2SHIFT [5] <YOS=7>  ;


+- DO FOR j = 3 TO 6 ;             /*  Set counter  */
|  +- DO FOR YOS = 8 TO 12 ;
|  |     FERINNEXT [11] <YOS+1> =  FERINNEXT [11] <YOS+1>
|  |                    + NEXTFEROUT [j] <YOS> + NEXTFEROUT [j+1] <YOS>
|  |                    + NEXTFEROUT [j+2] <YOS> + NEXTFEROUT [j+3] <YOS> ;
|  |
|  |     FERIN2SHIFT [11] <YOS+1> = FERIN2SHIFT [11] <YOS+1> +
|  |                  + FEROUT2SHIFT [j] <YOS> + FEROUT2SHIFT [j+1] <YOS>
|  |                  + FEROUT2SHIFT [j+2] <YOS> + FEROUT2SHIFT [j+3] <YOS> ;
|  +- END ;
|  j = j + 1 ;
+- END ;

FERINNEXT [11] <YOS=14> = FERINNEXT [11] <YOS=14> + NEXTFEROUT [8] <YOS=13>
               + NEXTFEROUT [9] <YOS=13> + NEXTFEROUT [10] <YOS=13> ;
FERINNEXT [11] <YOS=15> = FERINNEXT [11] <YOS=15> + NEXTFEROUT [9] <YOS=14>
               + NEXTFEROUT [10] <YOS=14>  ;

FERINNEXT [11] <YOS=16> = FERINNEXT [11] <YOS=16> + NEXTFEROUT [10] <YOS=15>;

FERIN2SHIFT [11] <YOS=14> = FERIN2SHIFT [11] <YOS=14>
               + FEROUT2SHIFT [8] <YOS=13> + FEROUT2SHIFT [9] <YOS=13>
```

```
                + FEROUT2SHIFT [10] <YOS=13> ;
FERIN2SHIFT [11] <YOS=15> = FERIN2SHIFT [11] <YOS=15>
                + FEROUT2SHIFT [9] <YOS=14> + FEROUT2SHIFT [10] <YOS=14>  ;
FERIN2SHIFT [11] <YOS=16> = FERIN2SHIFT [11] <YOS=16>
                          + FEROUT2SHIFT [10] <YOS=15>  ;
```

5. Calculate Shifts and Inventory Reductions for Policy Free Calculations.

```
  +- DO FOR TRACK i, i = 1 to 10 ;
  |
  |  PCSHIFT [i] <FY YETS=-1> = PCLOSS [i] <FY YETS=-1> ;
  |  PCSHIFT [i] <FY YETS=0>  = PCLOSS [i] <FY YETS=0>  ;
  |  PCSHIFT [i] <FY YETS=1>  = PCLOSS [i] <FY YETS=1>
  |                           + PCLOSS [i] <FY-1 YETS=2>
  |                           + PCLOSS [i] <FY-2 YETS=3>
  |                           + PCLOSS [i] <FY-3 YETS=4>;
  |
  |  PCINVRED [i] <FY YETS=1> = PCLOSS <FY-1 YETS=2>
  |                           + PCLOSS <FY-2 YETS=3>
  |                           + PCLOSS <FY-3 YETS=4>    ;
  |
  |  PCINVRED [i] <FY YETS=2> = PCLOSS <FY-1 YETS=3>
  |                           + PCLOSS <FY-2 YETS=4>    ;
  |
  |  PCINVRED [i] <FY YETS=3> = PCLOSS <FY-1 YETS=4>    ;
  |
  |
  |  EOSHIFT [i] <FY YETS=-1> = EOLOSS [i] <FY-1 YETS=0>;
  |  EOSHIFT [i] <FY YETS=0>  = EOLOSS [i] <FY-1 YETS=1>;
  |  EOSHIFT [i] <FY YETS=1>  = EOLOSS [i] <FY-1 YETS=2>;
  |
  |  EOINVRED [i] <FY YETS=-1>= EOLOSS [i] <FY-1 YETS=0>;
  |  EOINVRED [i] <FY YETS=0> = EOLOSS [i] <FY-1 YETS=1>;
  |  EOINVRED [i] <FY YETS=1> = EOLOSS [i] <FY-1 YETS=2>;
```

```
|
|  RUSHIFT [i] <FY YETS=-1> = RULOSS [i] <FY YETS=-1>;
|  RUSHIFT [i] <FY YETS=0>  = RULOSS [i] <FY YETS=0> ;
|  RUSHIFT [i] <FY YETS=1>  = RULOSS [i] <FY YETS=1> ;
|
|  FERINVRED [i] <YOS GRADE> = FEROUT2SHIFT [i] <YOS GRADE> -
|                                FERIN2SHIFT [i] <YOS GRADE> ;
+- END ;

   FERINVRED [i=11] <YOS GRADE> = FEROUT2SHIFT [i=11] <YOS GRADE> -
                                  FERIN2SHIFT [i=11] <YOS GRADE> ;
```

6. Calculate Attrition Losses.

```
   /*  EARLY ATTRITIONS  */

   NPS4 = TOTNPS * PER4TOE <FY> / 100 ;
   NPS6 = TOTNPS - NPS4 ;

+- DO FOR TRACK i = 1 ;
|     ATTRLOSS [i] <YOS=0 GRADE=1> =   S1D1*NPS4
|                                      + S2D1*INV [i] <YOS=0 GRADE=1> ;
|
|     ATTRLOSS [i] <YOS=0 GRADE=1> =   S1D2*NPS4
|                                      + S2D2*INV [i] <YOS=0 GRADE=1> ;
|
|     ATTRLOSS [i] <YOS=0 GRADE=2> =   S1D3*NPS4
|                                      + S2D3*INV [i] <YOS=0 GRADE=1>
|                                      + S3D1*INV [i] <YOS=0 GRADE=2> ;
|
|     ATTRLOSS [i] <YOS=0 GRADE=3> = S3D2*INV [i] <YOS=0 GRADE=2> ;
|
|     ATTRLOSS [i] <YOS=1 GRADE=2> = S4D1*INV [i] <YOS=1 GRADE=2> ;
|
|     ATTRLOSS [i] <YOS=1 GRADE=3> =   S4D2*INV [i] <YOS=1 GRADE=2>
```

```
|                                        + S5D1*INV [i] <YOS=1 GRADE=3> ;
|
|     ATTRLOSS [i] <YOS=1 GRADE=4> = S5D2*INV [i] <YOS=1 GRADE=3> ;
|
+- END ;

+- DO FOR TRACK i = 2 ;
|     ATTRLOSS [i] <YOS=0 GRADE=1> =   S6D1*NPS6
|                                        + S7D1*INV [i] <YOS=0 GRADE=1> ;
|
|     ATTRLOSS [i] <YOS=0 GRADE=3> =   S6D2*NPS6
|                                        + S7D2*INV [i] <YOS=0 GRADE=1>
|                                        + S8D1*INV [i] <YOS=0 GRADE=3> ;
|
|     ATTRLOSS [i] <YOS=1 GRADE=3> = S9D1*INV [i] <YOS=1 GRADE=3> ;
|
|     ATTRLOSS [i] <YOS=1 GRADE=4> = S9D2*INV [i] <YOS=1 GRADE=3> ;
|
+- END ;

   /*  NORMAL ATTRITION LOSSESS  */

 +- DO FOR TRACK i, i = 1 to 2   ;
 |     IF (YOS >=2) THEN
 |        ATTRLOSS [i] <YOS GRADE> = ATTRRATE [i] <YOS GRADE>
 |                                      * INV [i] <YOS GRADE> ;
 +- END  ;

 +- DO FOR TRACK i, i = 3 to 11   ;
 |     ATTRLOSS [i] <YOS GRADE> = ATTRRATE [i] <YOS GRADE>
 |                                   * INV [i] <YOS GRADE>  ;
 +- END  ;
```

7. Calculate Retirement Losses.

```
/*  Check for high year of tenure.  */

 +- DO FOR TRACK i, i = 11 ;
 |    IF GRADE = 5 AND YOS >= 19 OR
 |       GRADE = 6 AND YOS >= 22 OR
 |       GRADE = 7 AND YOS >= 25 OR
 |       GRADE = 8 AND YOS >= 27 OR
 |       GRADE = 9 AND YOS >= 29
 |           THEN RETIRELOSS <YOS GRADE>= INV [i] <YOS GRADE> ;
 |
 |    ELSE
 |      RETIRELOSS <YOS GRADE> = RETIRERATE <YOS GRADE>
 |                                  * INV [i] <YOS GRADE>  ;
 |
 +- END ;
```

8. Calculate Policy Free ETS Losses for Each Track

```
  +- DO FOR TRACK i, i = 1 TO 11 OVER ALL YOS AND GRADE VALUES ; | |
  /* Calculate policy free ETS loss flow  */ | |     ETSLOSS [i] = ((INV
  [i] + PCINVRED [i] |                              + EOINVRED [i] +
  FERINVRED [i]) |        * (PFETSLOSSRATE [i]) |        * (1 +
  LCOEFLOGUNEMPL [i] <YOS>*(LOGUNEMPL <FY>-REFLOGUNEMPL) |             +
  LCOEFLOGMILCIV [i] <YOS>*(LOGMILCIV <FY>-REFLOGMILCIV) |             +
  LCOEFA1AVG [i] <YOS> * (A1AVG <FY> - REFA1AVG) |             +
  LCOEFA2AVG [i] <YOS> * (A2AVG <FY> - REFA2AVG) |             +
  LCOEFAPASTAVG [i] <YOS>*(APASTAVG <FY> - REFAPASTAVG) |             +
  LCOEFBAVG [i] <YOS> * (BAVG <FY> - REFBAVG) |             + LCOEFCAVG
  [i] <YOS> * (CAVG <FY> - REFCAVG) ) ) ; | |     /*  account for possible
  negative ETS loss flow  */ | |     ETSLOSS [i] = max (ETSLOSS [i], 0) |
  |     /* account for possible ETSLOSSes larger than the inventory  */ |
  |     ETSLOSS [i] = min (ETSLOSS [i], INV [i]) ; | +- END ;
```

9. Update Inventory for Attrition Losses, Retirements, and Policy Free ETS Losses.

```
+- DO FOR TRACK i, i=1 TO 10 ;
|
|        /*  Attrition losses  */
|     IF (1 <= i <= 2) and (YOS >= 2) THEN
|        INV [i] = max (INV [i] - ATTRLOSS [i], 0) ;
|
|        /*  NOTE:  Early attrition losses from tracks 1 and 2 at  */
|        /*  YOS < 2  do not affect reenlistments.                  */
|
|     IF (i >= 3) THEN
|        INV [i] = max (INV [i] - ATTRLOSS [i], 0) ;
|
|        /*  Retirement losses  */
|     IF (i = 11) THEN
|        INV [i] = max (INV [i] - RETIRELOSS [i], 0) ;
|
|        /*  policy free ETS losses  */
|  +- IF (1 <= i <= 2) AND (YOS >= 2) THEN DO ;
|  |     IF (ETSLOSS [i] > INV [i]) THEN
|  |         ETSLOSS [i] = INV [i] ;
|  |
|  |     INV [i] = INV [I] - ETSLOSS [i] ;
|  +- END ;
|
|  +- IF (i >= 3) THEN DO ;
|  |     IF (ETSLOSS [i] > INV [i]) THEN
|  |        ETSLOSS [i] = INV [i] ;
|  |
|  |     INV [i] = INV [I] - ETSLOSS [i] ;
|  +- END ;
|
+- END ;
```

10. Calculate Policy Free Reenlistments Out of Each Track.

```
+- DO FOR TRACK i, i = 1 to 11 ;
|
|     REUPFLOW [i] = ((INV [i] + PCINVRED [i]
|                              + EOINVRED [i] + FERINVRED [i])
|        * (PFREUPRATE [i])
|        * (1 + RCOEFLOGUNEMPL [i] <YOS>*(LOGUNEMPL <FY>-REFLOGUNEMPL)
|             + RCOEFLOGMILCIV [i] <YOS>*(LOGMILCIV <FY>-REFLOGMILCIV)
|             + RCOEFA1AVG [i] <YOS> * (A1AVG <FY> - REFA1AVG)
|             + RCOEFA2AVG [i] <YOS> * (A2AVG <FY> - REFA2AVG)
|             + RCOEFAPASTAVG [i] <YOS>*(APASTAVG <FY>-REFAPASTAVG)
|             + RCOEFBAVG [i] <YOS> * (BAVG <FY> - REFBAVG)
|             + RCOEFCAVG [i] <YOS> * (CAVG <FY> - REFCAVG) ) ) ;
|
|     /*  Those first term airmen who are on extension that are not lost
|         are assumed to reenlist.  */
|
|  +- IF (i=1 AND YOS = 5) OR (i=2 AND YOS = 7)) THEN DO ;
|  |     REUPFLOW [i] <YOS> = INV [i] <YOS>
|  +- END ;
|
|     /*  Those second term airmen who are on extension that are not lost
|         are assumed to reenlist.  */
|  +- IF ((3 <= i <= 10) AND (YETS = -1) THEN DO ;
|  |     REUPFLOW [i] <YETS> = INV [i] <YETS>
|  +- END ;
|
|     /*  account for possible negative REUP flow */
|     REUPFLOW [i] = max (REUPFLOW [i], 0)
|
|     /* account for possible REUPFLOWS larger than the inventory  */
|     REUPFLOW [i] = min (REUPFLOW [i], INV [i]) ;
+- END ;
```

11. Update Reenlistments Out for Forced Early Reup Policy.

```
+- DO FOR TRACK i, i = 1 TO 11 ;
|   REUPFLOW [i] = REUPFLOW [i] - FEROUT2SHIFT [i] + NEXTFEROUT2 [i] ;
+- END ;
```

12. Adjust Policy Free ETS Losses to Actual ETS Losses by Subtracting Palace Chase, Early Out, and Rollup Shifts.

```
+- DO FOR TRACK i, i = 1 TO 11 ;
|     ETSLOSS [i] = max (ETSLOSS [i] - PCSHIFT [i], 0) ;
|     ETSLOSS [i] = max (ETSLOSS [i] - EOSHIFT [i], 0) ;
|     ETSLOSS [i] = max (ETSLOSS [i] - RUSHIFT [i], 0) ;
+- END ;
```

13. Update Inventory for Early Release Losses.

```
+- DO FOR TRACK i, i = 1 TO 11 ;
|
|  INV [i] = max (INV [i] - PCLOSS [i], 0) ;
|  INV [i] = max (INV [i] - EOLOSS [i], 0) ;
|
+- END ;
```

14. Calculate Continuation Flows.

```
+- DO FOR TRACK i, i=1 TO 11 ;
|     INV [i] = max (INV [i] - REUPFLOW [i], 0) ;
+- END ;
```

15. Age the Force.

```
/*  Age force by adding 1 to YOS variable, changing tracks where
    necessary. */

/* NOTE: incrementing YETS is the same as decrementing YOS  */

+- DO FOR TRACK i=1 ;
|  +- DO FOR YOS = 4 TO 2 ;
```

```
|  |     INV [i] <YOS+1> = INV [i] <YOS>  ;
|  +- END ;
|       INV [i] <YOS=2> = 0 ;
+- END ;

+- DO FOR TRACK i=2 ;
|  +- DO FOR YOS = 6 TO 2 ;
|  |     INV [i] <YOS+1> = INV [i] <YOS>  ;
|  +- END ;
|       INV [i] <YOS=2> = 0 ;
+- END ;

+- DO FOR TRACK i, i=3 TO 4 ;
|    +- IF YETS >= 0 THEN DO ;
|    |     INV [i] <YOS+1> = INV [i] <YOS>  ;
|    +- END ;
|       INV [i] <YETS=4> = 0 ;
+- END ;

+- DO FOR TRACK i, i=5 TO 10 ;
|    +- IF YETS >= 0 THEN DO ;
|    |     INV [i] <YOS+1> = INV [i] <YOS>  ;
|    +- END ;
|       INV [i] <YETS=6> = 0 ;
+- END ;

+- DO FOR TRACK i=11  ;
|  +- DO FOR YOS = 28 TO 6 ; /* decrementing YOS  */
|  |     INV [i] <YOS+1> = INV [i] <YOS>  ;
|  +- END ;
|     INV [i] <YOS=6> = 0 ;
+- END ;
```

16. Calculate Involuntary Separations and Subtract from Reenlistments Out.

```
  TOTAL1 = REUPFLOW [i=1] <tYOS tGRADE> + REUPFLOW[i=2] <tYOS tGRADE> ;

                i=10
  TOTAL2 = SUM (REUPFLOW [i] <tYOS tGRADE> ;
                i=3

+- DO FOR TRACK = 1 TO 10 ;
|    IF (CATENL = 1)
|       INVOLSEP [i] = (INVOLSEP <FY CATENL=1> / TOTAL1) * INVOLSEP [i] ;
|    IF (CATENL = 2)
|       INVOLSEP [i] = (INVOLSEP <FY CATENL=2> / TOTAL2) * INVOLSEP [i] ;
|
|    REUPFLOW [i] = MAX (REUPFLOW [i] - INVOLSEP [i], REUPFLOW [i]) ;
+- END ;
```

17. Add Reenlistments In.

```
/*  Reenlistments from first term into the second term  */

/*  Track 1  */

/*  NOTE:  YOS is used as an indicator of both YOS and track  */
  +- DO FOR YOS = 2 TO 5 ;
  |     INV [YOS+1] <YOS+1> = INV [YOS+1] <YOS+1>
  |                     + (TOE4RATE1 * REUPFLOW [1] <YOS>)  ;
  |     INV [YOS+3] <YOS+1> = INV [YOS+1] <YOS+1>
  |                     + ((1 - TOE4RATE1) * REUPFLOW [1] <YOS>) ;
  +- END;

/*  Track 2  */

  +- DO FOR YOS = 4 TO 7 ;
  |     INV [YOS+1] <YOS+1> = INV [YOS+1] <YOS+1>
```

```
|                      + (TOE4RATE2 * REUPFLOW [2] <YOS>) ;
|     INV [YOS+3] <YOS+1> = INV [YOS+3] <YOS+1>
|                      + ((1 - TOE4RATE2) * REUPFLOW [2] <YOS>) ;
+- END;

/*  Calculate reenlistments from second term into the career term (NRE)  */

     INV [11] <YOS=6> =   INV [11] <YOS=6> + REUPFLOW [3] <YOS=5>  ;
     INV [11] <YOS=7> =   INV [11] <YOS=7> + REUPFLOW [3] <YOS=6>
                        + REUPFLOW [4] <YOS=6>  ;
     INV [11] <YOS=8> =   INV [11] <YOS=8> + REUPFLOW [3] <YOS=7>
                        + REUPFLOW [4] <YOS=7> + REUPFLOW [5] <YOS=7>  ;

+- DO FOR j = 3 TO 6 ;              /*  Set counter  */
|  +- DO FOR YOS = 8 TO 12 ;
|  |     INV [11] <YOS+1> =  INV [11] <YOS+1> + REUPFLOW [j] <YOS>
|  |                       + REUPFLOW [j+1] <YOS> + REUPFLOW [j+2] <YOS>
|  |                       + REUPFLOW [j+3] <YOS> ;
|  +- END ;
+- END ;

    INV [11] <YOS=14> = INV [11] <YOS=14> + REUPFLOW [8] <YOS=13>
                      + REUPFLOW [9] <YOS=13> + REUPFLOW [10] <YOS=13> ;
    INV [11] <YOS=15> = INV [11] <YOS=15> + REUPFLOW [9] <YOS=14>
                      + REUPFLOW [10] <YOS=14>  ;
    INV [11] <YOS=16> = INV [11] <YOS=16> + REUPFLOW [10] <YOS=15>  ;
```

18. Determine Promotions Out of Each Track.

```
/*  Calculate trial promotions out of each grade for each track.  */
  +- DO FOR TRACK i = 1 TO 11 ;
  |
  |     PROMFLOW [i] = INV [i] * TRIALPROMRATE [i] ;
  |
  |  +- IF (1 <= i <= 2) THEN DO ;
```

```
|  |     PROMFLOW [i=1] <YOS=0 GRADE=1> = S1D5 * NPS4 <FY> ;
|  |     PROMFLOW [i=1] <YOS=1 GRADE=1> = (S2D4 + S2D5) *
|  |                                      INV [i=1] <YOS=0 GRADE=1> ;
|  |     PROMFLOW [i=1] <YOS=1 GRADE=2> =
|  |                    (S2D5) * INV [i=1] <YOS=0 GRADE=1>
|  |                  + (S3D3) * INV [i=1] <YOS=0 GRADE=2> ;
|  |     PROMFLOW [i=1] <YOS=2 GRADE=2> =
|  |                    (S4D3) * INV [i=1] <YOS=1 GRADE=2> ;
|  |     PROMFLOW [i=1] <YOS=2 GRADE=3> =
|  |                    (S5D4) * INV [i=1] <YOS=1 GRADE=2> ;
|  |
|  |     PROMFLOW [i=2] <YOS=0 GRADE=1> = (S6D4) * NPS6 <FY> ;
|  |     PROMFLOW [i=2] <YOS=1 GRADE=1> =
|  |                    (S7D3) * INV [i=2] <YOS=0 GRADE=1> ;
|  |     PROMFLOW [i=2] <YOS=2 GRADE=3> =
|  |                    (S9D4) * INV [i=2] <YOS=1 GRADE=3> ;
|  |
|  +- END ;
|
+- END ;


/*  Calculate the total number of trial promotions out of each grade.  */

      IF (YOS >= 2) THEN
          TOTPROMFLOW <GRADE> = PROMFLOW [1] <tYOS GRADE>
                              + PROMFLOW [2] <tYOS GRADE> ;

      TOTPROMFLOW <GRADE> = TOTPROMFLOW <GRADE>
                                i=11
                            +   SUM (PROMFLOW [i] <tYOS GRADE>  ;
                                i=3

/*  Calculate actual promotion outflows by adjusting the detailed trial
```

```
    promotions out to reflect promotion policy.  */

+- DO FOR TRACK i = 1 TO 11 ;
|    IF ((1 <= i <= 2) AND (YOS >= 2)) OR (i >= 3) THEN
|    +- DO FOR x = 5 TO 9 ; /* x Corresponds to pay grade */
|    |   PROMFLOW [i] <x-1> = (PROMTOx <FY GRADE>/TOTPROMFLOW <x-1>)
|    |                              * PROMFLOW [i] <x-1> ;
|    +- END ;
+- END ;
```

19. Calculate Promotion Inflows and Adjust Inventory.

```
+- DO FOR TRACK i = 1 TO 11 ;
|    IF (GRADE > 1) THEN
|      PROMIN [i] <YOS GRADE> = PROMFLOW [i] <YOS GRADE-1> ;
+- END ;

/*  Subtract promotion outflows and add promotion inflows.  */

 +D DO FOR TRACK i = 1 TO 2 ;
 |    IF (CRADE=3) AND (YOS >=3) THEN
 |      INV [i] <YOS GRADE> = INV [i] <YOS GRADE>
 |                           - PROMFLOW [i] <YOS GRADE> ;
 |    IF (YOS >= 3) AND (4 <= GRADE <= 6) THEN
 |      INV [i] <YOS GRADE> = INV [i] <YOS GRADE>
 |                           - PROMFLOW [i] <YOS GRADE>
 |                           + PROMIN [i] <YOS GRADE>  ;
 +- END ;

 +- DO FOR TRACK i = 3 TO 10 ;
 |    IF GRADE = 4 THEN
 |      INV [i] <GRADE=4> = INV [i] <GRADE=4> - PROMFLOW [i] <GRADE=4> ;
 |  +- DO FOR GRADE 5 TO 7 ;
 |  |    INV [i] <GRADE> = INV [i] <GRADE> - PROMFLOW [i] <GRADE>
 |  |                      + PROMIN [i] <GRADE>  ;
```

```
|  +- END ;
+- END ;

+- DO FOR TRACK i = 11 ;
|    IF GRADE = 4 THEN
|       INV [i] <GRADE=4> = INV [i] <GRADE=4> - PROMFLOW [i] <GRADE=4> ;
|  +- DO FOR GRADE 5 TO 9 ;
|  |    INV [i] <GRADE> = INV [i] <GRADE> - PROMFLOW [i] <GRADE>
|  |                      + PROMIN [i] <GRADE-1>  ;
|  +- END ;
+- END ;
```

20. Adjust Inventory for PS Accessions.

```
INV4 <YOS=4 GRADE=4> = INV4 <YOS=4 GRADE=4> + PS <FY> ;
```

21. Determine Ending Inventory for Tracks 1 and 2 with YOS <= 1.

```
INV [i=1] <YOS=0 GRADE=1> = S1D4 * NPS4 ;
INV [i=1] <YOS=0 GRADE=2> = S1D5 * NPS4 ;
INV [i=1] <YOS=1 GRADE=2> = S2D4 * INV [i=1] <YOS=0 GRADE=1> ;
INV [i=1] <YOS=1 GRADE=3> = S2D5 * INV [i=1] <YOS=0 GRADE=1>
                          + S3D3 * INV [i=1] <YOS=0 GRADE=2> ;
INV [i=1] <YOS=2 GRADE=3> = S4D3 * INV [i=1] <YOS=1 GRADE=2>
                          + S5D3 * INV [i=1] <YOS=1 GRADE=3> ;
INV [i=1] <YOS=2 GRADE=4> = S5D4 * INV [i=1] <YOS=1 GRADE=3> ;


INV [i=2] <YOS=0 GRADE=1> = S6D3 * NPS6 ;
INV [i=2] <YOS=0 GRADE=3> = S6D4 * NPS6 ;
INV [i=2] <YOS=1 GRADE=3> = S7D3 * INV [i=2] <YOS=0 GRADE=1>
                          + S8D2 * INV [i=2] <YOS=0 GRADE=3> ;
INV [i=2] <YOS=2 GRADE=3> = S9D3 * INV [i=2] <YOS=1 GRADE=3> ;
INV [i=2] <YOS=2 GRADE=4> = S9D4 * INV [i=2] <YOS=1 GRADE=3> ;
```

22. Final Update of All Variables for Next Fiscal Year's Calculations.

```
+- DO FOR TRACK i = 11 ;
|  TRE_PCFLOW [i] <YOS GRADE> = TWO_PCFLOW [i] <YOS GRADE> ;
|  TWO_PCFLOW [i] <YOS GRADE> = ONE_PCFLOW [i] <YOS GRADE> ;
|  ONE_PCFLOW [i] <YOS GRADE> = PCFLOW [i] <YOS GRADE> ;
|  FEROUT2SHIFT [i] <YOS GRADE> = NEXTFEROUT [i] <YOS GRADE> ;
|  FERIN2SHIFT [i] <YOS GRADE> = FERINNEXT [i] <YOS GRADE> ;
+- END ;
```

$$\text{FINALINV } \langle \text{YOS GRADE} \rangle = \sum_{i=1}^{i=11} (\text{INV } [i] \langle \text{YOS GRADE} \rangle) ;$$

$$\text{REUPDIST } \langle \text{YOS GRADE} \rangle = \sum_{i=1}^{i=11} (\text{REUPFLOW } [i] \langle \text{YOS GRADE} \rangle) ;$$

23. Output Screen Calculations.

The following calculations are performed to enter the resulting force structure in the output screens (see Mickelson and Rydell, 1989).

Output Screen 1: Enlisted Force by CATENL

$$\text{ENDXCAT } \langle \text{FY CATENL=1} \rangle = \text{INV } [i=1] \langle \text{tYOS tGRADE CATENL=1} \rangle + \text{INV } [i=2] \langle \text{tYOS tGRADE CATENL=1} \rangle ;$$

$$\text{ENDXCAT } \langle \text{FY CATENL=2} \rangle = \sum_{i=3}^{i=10} (\text{INV } [i] \langle \text{tYOS tGRADE CATENL=2} \rangle) ;$$

```
/*  NOTE:  total over YOS is restricted to the given ranges  */

IF (6 <= YOS <= 19) THEN
   ENDXCAT <FY CATENL=3> = INV [i=11] <tYOS tGRADE CATENL=3> ;
```

```
IF (20 <= YOS <= 29) THEN
   ENDXCAT <FY CATENL=4> = INV [i=11] <tYOS tGRADE CATENL=4> ;

ENDXCAT <FY TOTAL> = ENDXCAT <FY tCATENL> ;

                  j=4
PER2TERM <FY> = (SUM (ENDXCAT <FY CATENL=j>) / TOTAL1 <FY>) * 100 ;
                  j=2
```

Output Screen 2: Enlisted Force by YOS

```
IF (0 <= YOS <= 3) THEN
                              i=3
      ENDXYOS <FY YOS0_3> = SUM (INV [i] <tYOS tGRADE>) ;
                              i=1
IF (4 <= YOS <= 7) THEN
                               i=11
      ENDXYOS <FY YOS4_7> =  SUM (INV [i] <tYOS tGRADE>) ;
                               i=1

IF (8 <= YOS <= 11) THEN
                               i=11
      ENDXYOS <FY YOS8_11> = SUM (INV [i] <tYOS tGRADE>) ;
                               i=3

IF (12 <= YOS <= 15) THEN
                               i=11
      ENDXYOS <FY YOS12_15> =  SUM (INV [i] <tYOS tGRADE>) ;
                               i=7

IF (16 <= YOS <= 19) THEN
      ENDXYOS <FY YOS16_19> =  INV [i=11] <tYOS tGRADE>) ;

IF (20 <= YOS <= 24) THEN
      ENDXYOS <FY YOS20_24> =  INV [i=11] <tYOS tGRADE>) ;
```

```
  IF (25 <= YOS <= 29) THEN
        ENDXYOS <FY YOS25_29> =  INV [i=11] <tYOS tGRADE>) ;

  ENDXYOS <FY TOTAL> = ENDXYOS <FY tYOS> ;

  PER4YOS = ((ENDXYOS <FY YOS4_7> + ENDXYOS <FY8_11>
            + ENDXYOS <FY YOS12_15> + ENDXYOS <FY YOS 16_19>
            + ENDXYOS <FY YOS20_24> + ENDXYOS <FY YOS 25_29>)
                 / ENDXYOS <FY TOTAL>) * 100 ;
```

Output Screen 3: Enlisted Force by Grade

```
 IF (GRADE <= 3) THEN
   ENDXGRD <FY GRADE=3> = INV [i=1] <tYOS GRADE> + INV [i=2] <tYOS GRADE> ;

+- DO FOR GRADE = 4 TO 9 ;
|                          i=11
|    ENDXGRD <FY GRADE> = SUM (INV [i] <tYOS GRADE> ;
|                          i=1
+- END ;

  ENDXGRD <FY TOTAL> = ENDXGRD <FY tGRADE> ;

 PER5GRD <FY> = ((ENDXGRD <FY t(5<=GRADE<=9)>) / TOTAL <FY>) * 100 ;
```

Output Screen 4: Average YOS Entering Each Grade

```
+- DO FOR GRADE = E1 TO E9 ;
|
|                          i=11   YOS=29
|                          SUM (  SUM (YOS * PROMFLOW [i] <YOS GRADE>) )
|  YOSENTER <FY GRADE> =   i=1    YOS=0
|                          ------------------------------------------------
|
|                          i=11
|                          SUM  (PROMFLOW [i] <tYOS GRADE>)
```

```
|                          i=1
+- END ;
```

Output Screen 5: Average YOS in Each Grade

```
+- DO FOR GRADE = E1 TO E9 ;
|                          i=11    YOS=29
|                          SUM (   SUM (YOS * INV [i] <YOS GRADE>) )
|  YOSINGRD <FY GRADE> =   i=1     YOS=0
|                          ____________________________________________

|                          i=11
|                          SUM   (INV [i] <tYOS GRADE>)
|                          i=1
+- END ;
```

Output Screen 6: Annual ETS Retention Rates

```
/*  Reenlistments as percent of policy-free ETS losses plus
    reenlistments.  */

AETSRET <FY CATENL=1> = ((REUPFLOW [i=1] <tYOS tGRADE>
                          + REUPFLOW [i=2] <tYOS tGRADE>)
                         / (REUPFLOW [i=1] <tYOS tGRADE>
                            + REUPFLOW [i=2] <tYOS tGRADE>
                            + ETSLOSS [i=1] <tYOS tGRADE>
                            + ETSLOSS [i=2] <tYOS tGRADE>
                            + PCSHIFT [i=1] <tYOS tGRADE>
                            + PCSHIFT [i=2] <tYOS tGRADE>
                            + EOSHIFT [i=1] <tYOS tGRADE>
                            + EOSHIFT [i=2] <tYOS tGRADE>
                            + RUSHIFT [i=1] <tYOS tGRADE>
                            + RUSHIFT [i=2] <tYOS tGRADE> )) * 100 ;

                          i=10
AETSRET <FY CATENL=2> = ((SUM (REUPFLOW [i] <tYOS tGRADE>))
```

```
                        i=3
                          i=10
                       / ( SUM (REUPFLOW [i] <tYOS tGRADE>)
                          i=3
                          i=10
                        + SUM (ETSLOSS [i] <tYOS tGRADE>)
                          i=3
                          i=10
                        + SUM (PCSHIFT [i] <tYOS tGRADE>)
                          i=3
                          i=10
                        + SUM (EOSHIFT [i] <tYOS tGRADE>)
                          i=3
                          i=10
                        + SUM (RUSHIFT [i] <tYOS tGRADE>) ) * 100 ;
                          i=3

AETSRET <FY CATENL=3> = ((REUPFLOW [i=11] <tYOS tGRADE>)
                         / (REUPFLOW [i=11] <tYOS tGRADE>
                          + ETSLOSS [i=11] <tYOS tGRADE>
                          + PCSHIFT [i=11] <tYOS tGRADE>
                          + EOSHIFT [i=11] <tYOS tGRADE>
                          + RUSHIFT [i=11] <tYOS tGRADE> )) * 100 ;

                         i=11
AETSRET <FY AVERAGE> = ( SUM (REUPFLOW [i] <tYOS tGRADE>) )
                         i=1
                        i=11
                      / ( SUM (REUPFLOW [i] <tYOS tGRADE>)
                        i=1
                        i=11
                        SUM (ETSLOSS [i] <tYOS tGRADE>)
                        i=1
                        i=11

                        SUM (PCSHIFT [i] <tYOS tGRADE>)
                        i=1
                        i=11
```

```
                    SUM (EOSHIFT [i] <tYOS tGRADE>)
                    i=1
                    i=11
                    SUM (RUSHIFT [i] <tYOS tGRADE>) ) * 100 ;
                    i=1
```

Output Screen 7: Gains by Type

```
TOTGAINS <FY TYPE=1> = TOTNPS <FY> * (PER4TOE<FY> / 100) ;
TOTGAINS <FY TYPE=2> = TOTNPS <FY> - TOTGAINS <FY TYPE=1> ;
TOTGAINS <FY TYPE=3> = TOTNPS <FY> ;
TOTGAINS <FY TYPE=4> = PS <FY> ;
TOTGAINS <FY TOTAL> = TOTGAINS <FY tTYPE> ;
```

Output Screen 8: Total Losses by Type

```
/*  ATTRITION  */
                          i=11
    TOTLOSS <FY TYPE=1> = SUM (ATTRLOSS [i] <tYOS tGRADE>) ;
                          i=1

/* ETS LOSSES */
                          i=11
    TOTLOSS <FY TYPE=2> = SUM (ETSLOSS [i] <tYOS tGRADE>) ;
                          i=1

/* ROLLUP LOSSES */
                          i=11
    TOTLOSS <FY TYPE=3> = SUM (RULOSS [i] <tYOS tGRADE>) ;
                          i=1

/* EARLY OUT */
                          i=11
    TOTLOSS <FY TYPE=4> = SUM (EOLOSS [i] <tYOS tGRADE>) ;
                          i=1
```

```
/* PALACE CHASE */
                          i=11
    TOTLOSS <FY TYPE=5> = SUM (PCLOSS [i] <tYOS tGRADE>) ;
                          i=1

/* INVOLUNTARY SEPARATIONS */
                          i=11
    TOTLOSS <FY TYPE=6> = SUM (INVOLSEP [i] <tYOS tGRADE>) ;
                          i=1

/* RETIREMENTS */
    TOTLOSS <FY TYPE=7> = RETIRELOSS [i=11] <tYOS tGRADE> ;

/* TOTAL LOSSES */
    TOTLOSS <FY TOTAL> =  TOTLOSS <FY tTYPE> ;
```

Output Screen 9: Policy Free ETS Losses

```
/* TOTAL ETS LOSSES */
                          i=11
   TOTPFETS <FY TYPE=1> = SUM (ETSLOSS [i] <tYOS tGRADE>) ;
                          i=1

/* ROLLUP SHIFTS */
                          i=11
   TOTPFETS <FY TYPE=2> = SUM (RUSHIFT [i] <tYOS tGRADE>) ;
                          i=1

/* EARLYOUT SHIFT */
                           i=11
    TOTPFETS <FY TYPE=3> = SUM (EOSHIFT [i] <tYOS tGRADE>) ;
                           i=1

/* PALACE CHASE SHIFT */
                           i=11
```

```
    TOTPFETS <FY TYPE=4> = SUM (PCSHIFT [i] <tYOS tGRADE>) ;
                           i=1

/* POLICY FREE ETS LOSSES */

    TOTPFETS <FY TOTAL> =  TOTPFETS <FY tTYPE>
```

Output Screen 10: Reenlistments Out by CATENL

```
    REENLIST <FY CATENL=1> = REUPFLOW [i=1] <tYOS tGRADE> +
                             REUPFLOW [i=2] <tYOS tGRADE> ;

                           i=10
    REENLIST <FY CATENL=2> = SUM (REUPFLOW [i] <tYOS tGRADE>) ;
                           i=3

  /*  NOTE:  total over YOS is restricted to the given ranges  */

  IF (6 <= YOS <= 19) THEN
    REENLIST <FY CATENL=3> = REUPFLOW [i=11] <tYOS tGRADE> ;

  IF (20 <= YOS <= 29) THEN
    REENLIST <FY CATENL=4> = REUPFLOW [i=11] <tYOS tGRADE> ;

  REENLIST <FY TOTAL> = REENLIST <FY tCATENL> ;
```

Output Screen 11: Forced Early Reenlistments Out by CATENL

```
/* CATENL = 1 */
   FER_OUTCAT1 <FY TYPE=2> = SAMEFEROUT [i=1] <tYOS tGRADE>
                             + SAMEFEROUT [i=2] <tYOS tGRADE> ;
   FER_OUTCAT1 <FY TYPE=3> = FEROUT2SHIFT [i=1] <tYOS tGRADE>
                             + FEROUT2SHIFT [i=2] <tYOS tGRADE> ;
   FER_OUTCAT1 <FY TYPE=5> = SAMEFEROUT [i=1] <tYOS tGRADE>
                             + SAMEFEROUT [i=2] <tYOS tGRADE> ;
   FER_OUTCAT1 <FY TYPE=6> = NEXTFEROUT [i=1] <tYOS tGRADE>
```

```
                                + NEXTFEROUT [i=2] <tYOS tGRADE> ;
   FER_OUTCAT1 <FY TYPE=7> = REUPFLOW [i=1] <tYOS tGRADE>
                                + REUPFLOW [i=2] <tYOS tGRADE> ;
   FER_OUTCAT1 <FY TYPE=1> = FER_OUTCAT1 <FY TYPE=7>
               - FER_OUTCAT1 <FY TYPE=3> - FER_OUTCAT1 <FY TYPE=6> ;

   FER_OUTCAT1 <FY TYPE=4> = FER_OUTCAT1 <FY TYPE=1>
                             - FER_OUTCAT1 <FY TYPE=2> ;

/* CATENL = 2 */
                             i=10
   FER_OUTCAT2 <FY TYPE=2> = SUM (SAMEFEROUT [i] <tYOS tGRADE>) ;
                             i=3
                             i=10
   FER_OUTCAT2 <FY TYPE=3> = SUM (FEROUT2SHIFT [i] <tYOS tGRADE>) ;
                             i=3
                             i=10
   FER_OUTCAT2 <FY TYPE=5> = SUM (SAMEFEROUT [i] <tYOS tGRADE> );
                             i=3
                             i=10
   FER_OUTCAT2 <FY TYPE=6> = SUM (NEXTFEROUT [i] <tYOS tGRADE> );
                             i=3
                             i=10
   FER_OUTCAT2 <FY TYPE=7> = SUM (REUPFLOW [i] <tYOS tGRADE> );
                             i=3

   FER_OUTCAT2 <FY TYPE=1> = FER_OUTCAT2 <FY TYPE=7>
               - FER_OUTCAT2 <FY TYPE=3> - FER_OUTCAT2 <FY TYPE=6> ;

   FER_OUTCAT2 <FY TYPE=4> = FER_OUTCAT2 <FY TYPE=1>
                             - FER_OUTCAT2 <FY TYPE=2> ;

/* CATENL = 3 */
```

```
FER_OUTCATC <FY TYPE=2> = SAMEFEROUT [i=11] <tYOS tGRADE> ;
FER_OUTCATC <FY TYPE=3> = FEROUT2SHIFT [i=11] <tYOS tGRADE>
FER_OUTCATC <FY TYPE=5> = SAMEFEROUT [i=11] <tYOS tGRADE>
FER_OUTCATC <FY TYPE=6> = NEXTFEROUT [i=11] <tYOS tGRADE>
FER_OUTCATC <FY TYPE=7> = REUPFLOW [i=11] <tYOS tGRADE>
FER_OUTCATC <FY TYPE=1> = FER_OUTCATC <FY TYPE=7>
            - FER_OUTCATC <FY TYPE=3> - FER_OUTCATC <FY TYPE=6> ;
FER_OUTCATC <FY TYPE=4> = FER_OUTCATC <FY TYPE=1>
                          - FER_OUTCATC <FY TYPE=2> ;
```

Output Screen 12: Budget Costs in Constant Dollars

```
ADJUST = MILCIV <FY> / REFMILCIV ;
ABON = (A1 <FY> + 2 * A2 <FY> + 3 * A3 <FY> + 4 * A4<FY>
                + 5 * A5 <FY> + 6 * A6 <FY> / 100 ;
BBON = (B1 <FY> + 2 * B2 <FY> + 3 * B3 <FY> + 4 * B4<FY>
                + 5 * B5 <FY> + 6 * B6 <FY> / 100 ;
CBON = (C1 <FY> + 2 * C2 <FY> + 3 * C3 <FY> + 4 * C4<FY>
                + 5 * C5 <FY> + 6 * C6 <FY> / 100 ;

IF (2 <= YOS <= 5)
   REUP4A <YOS GRADE> = TOE4RATE1 * REUPFLOW [i=1]
                      + TOE4RATE2 * REUPFLOW [i=2] ;
IF (4 <= YOS <= 7)
   REUP6A <YOS GRADE> = (1 - TOE4RATE1) * REUPFLOW [i=1]
                      + (1 - TOE4RATE2) * REUPFLOW [i=2] ;
IF (6 <= YOS <= 9)
   REUPB <YOS GRADE> = REUPDIST <YOS GRADE> ;
IF (10 <= YOS <= 13)
   REUPC <YOS GRADE> = REUPDIST <YOS GRADE> ;

MANYEAR <YOS GRADE> = (0.5 * (BEGINV <YOS GRADE> + FINALINV <YOS GRADE>) )

FBASICPAY = Sum over all YOS and grade cells
            (12 * MBASIC <YOS GRADE> * MANYEAR <YOS GRADE>) / 1000000 ;
```

```
FRETIREPAY = RETRATIO * BASICPAY / 1000000 ;

FOTHERPAY = Sum over all YOS and grade cells
            (OTHERMPA <GRADE> * MANYEARS <YOS GRADE> / 1000000 ;

FBONUSPAY = Sum over all YOS and grade cells
      ( (REUPA4 <YOS GRADE> * BASICPAY <YOS GRADE> * ABON * 4)
  + (REUPA6 <YOS GRADE> * BASICPAY <YOS GRADE> * ABON * 6)) / 1000000 ;

FTRAINCOST = NPS * TRAINCOST / 1000000 ;
FSEPCOST = INVOLSEP <FY CATENL=2> * SEPCOST / 1000000 ;
FTOTALCOST = FBASICPAY + FRETIREPAY + FOTHERPAY + FBONUSPAY
              + FTRAINCOST + FSEPCOST ;


/*  END OF FISCAL YEAR LOOP:  RETURN TO STEP 1  */
```

RESULTS

The following outputs generated by module 1 are passed to modules 2 and 3. The output flows to the module 1 output screens were described in step 23 above and are not listed here.

Outputs to Module 2

Module 2 requires the following outputs to perform its calculations. These outputs are conditional on an explicit management action plan and choice of economic climate.

BEGINV <FY YOS> Starting inventory for each projected fiscal year by YOS

BEGINV <FY grade> Starting inventory for each projected fiscal year by grade

TOTALLOSS <FY YOS> Total number of losses during fiscal year from inventory with given YOS at the start of each projected fiscal year.

TOTALLOSS <FY grade> Total number of losses during fiscal year from inventory with given grade at the start of each projected fiscal year

PROMIN <FY grade> Promotions into top five grades.

TOTNPS <FY>Total non-prior service accessions.

PER4TOE <FY> Percent of NPS accessions with 4-year TOE

PS <FY> Total prior service accessions.

ENDINV <FY>Inventory at end of fiscal year.

ENDINV <FY grade> Inventory at end of fiscal year by grade.

Outputs to Module 3

Module 3 requires the following outputs to perform its calculations.

ENDINV <FY grade> Inventory at end of fiscal year by grade.

ENDINV <FY YOS> Inventory at end of fiscal year by YOS.

ENDINV <FY>Inventory at end of fiscal year.

Appendix D

ACTION DIAGRAM FOR THE COMPUTER-AIDED DESIGN OF MANAGEMENT ACTIONS (MODULE 2)

The goals of enlisted force planning are customarily summarized by total inventories and the end of each fiscal year ("end strength") and by inventories in each of the top five grades at the end of each fiscal year ("grade strength"). This module calculates management actions, NPS accessions, and promotion flows that will achieve user-specified levels of those goals. This appendix contains the action diagram that describes these calculations.

VARIABLE DEFINITIONS

Four types of variables are associated with module 2 calculations: input from the ADAM database; those passed from module 1 calculations; those associated with user-specified end strength and grade strength goals; and those created internal to this module.

Inputs from ADAM Database

The proportions of accessions that survive to the end of the fiscal year and the proportions of inventory that have YOS = 0 at the start of the year that survive to the end of the year are required by module 2.

S1D4 = Proportion of NPS accessions during a fiscal year with TOE = 4 that survive to the end of the fiscal year and are in grade E-1 at the end of the fiscal year

S1D5 = Proportion of NPS accessions during a fiscal year with TOE = 4 that survive to the end of the fiscal year and are in grade E-2 at the end of the fiscal year

S2D4 = Proportion of starting inventory with TOE = 4 in grade E-1 and YOS = 0 that survive to the end of the fiscal year and are in grade E-2 at the end of the fiscal year

S2D5 = Proportion of starting inventory with TOE = 4 in grade E-1 and YOS = 0 that survive to the end of the fiscal year and are in grade E-3 at the end of the fiscal year

S3D3 = Proportion of starting inventory with TOE = 4 in grade E-2 and YOS = 0 that survive to the end of the fiscal year and are in grade E-3 at the end of the fiscal year

S6D3 = Proportion of NPS accessions during a fiscal year with TOE = 6 that survive to the end of the fiscal year and are in grade E-1 at the end of the fiscal year

S6D4 = Proportion of NPS accessions during a fiscal year with TOE = 6 that survive to the end of the fiscal year and are in grade E-3 at the end of the fiscal year

S7D3 = Proportion of starting inventory with TOE = 6 in grade E-1 and YOS= 0 that survive to the end of the fiscal year and are in grade E-3 at the end of the fiscal year

S8D2 = Proportion of starting inventory with TOE = 6 in grade E-3 and YOS = 0 that survive to the end of the fiscal year and are in grade E-3 at the end of the fiscal year

Inputs from Module 1

The inputs from module 1 must be for an explicit plan of management actions and economic conditions. Only a few variables from module 1's output are needed in module 2's calculations. However, the conclusions from module 2 are conditional upon the entire module 1 analysis.

For all projection years, for all YOS:

TOTALLOSS <FY, YOS> = total loss during fiscal year from inventory with given YOS at the start of the fiscal year, resulting from plan currently being tested by module 2

BEGINV <FY, YOS> = starting inventory for fiscal year with given YOS at the start of the fiscal year, resulting from plan currently being tested by module 2

NPS <FY> = total NPS accessions in plan currently being tested by module 2

ENDINV <FY> = inventory at end of fiscal year, resulting from plan currently being tested by module 2

For all projection years, for grade = 5 through 9:

TOTALLOSS <FY, GRADE> = total loss during fiscal year from inventory with given grade at the start of the fiscal year, resulting from plan currently being tested by module 2

STARTINV <FY, GRADE> = starting inventory for fiscal year with given grade at the start of the fiscal year, resulting from plan currently being tested by module 2

PROMIN <FY, GRADE> = promotions into grade in plan currently being tested by module 2

ENDINV <FY, GRADE> = inventory at end of fiscal year by grade resulting from plan currently being tested by module 2

User-Specified Input

The goals that module 2 designs management actions to achieve are from the input screen to the module.

GRADECEILING <FY, GRADE> = grade strength goal

ENDSTRENGTH <FY> = end strength goal

Internally Created Variables

SURVIVENEWNPS <FY> = proportion of NPS accessions during a fiscal year that are still in the enlisted force at the end of that fiscal year

Sab = proportion of NPS accessions that enter the enlisted force during FY = a who survive to the end of FY = b, for b > = 9.

CALCULATIONS

This sub-section contains the specifications to calculate NPS accessions and promotion flows into the top five grades to meet end strength and grade strength goals.

Choose Accessions to Achieve End Strength Goals

NPS4 <FY> = PER4TOE <FY> * TOTNPS <FY> ;

NPS6 <FY> = TOTNPS <FY> – NPS4 <FY> ;

Additional End Strength Required to Achieve Goal

E <FY> = ENDSTRENGTH <FY> – ENDINV <FY>

Estimation of Survival Rates

```
     +- DO FOR ALL PROJECTION YEARS, FY = 1 THROUGH 12:
|
|  SURVIVENEWNPS <FY> =
|      [ NPS4 <FY> * (S1D4 +S1D5) + NPS6 <FY> * (S6D3 + S6D4) ]
|      / [ NPS4 <FY> + NPS6 <FY> ]
|
+- END

+- DO FOR a = 1 THROUGH 11
|
|  +- DO FOR  b = a + 1 THROUGH 12
|  |
|  | IF b = a+1 THEN
|  |
|  | SAB =
|  |     [ NPS4 <a> * ((S1D4) * (S2D4 + S2D5) + (S1D5) * (S3D3))
|  |       + NPS6 <a> * ((S6D3) * (S7D3) + (S6D4) * (S8D2)) ]
|  |     / [ NPS4 <a> * (S1D4 + S1D5) + NPS6 <a> * (S6D3 + S6D4) ]
|  |
|  | ELSE IF b > a+1
|  |
|  | SAB =  1 - TOTALLOSS <FY=b, YOS=b-a-1> / STARTINV <FY=b, YOS=b-a-1>
|  |
|- +END
+- END
```

To understand the above formula for Sab in terms of the YOS-specific loss rate, think of accessions that enter the force in FY = a. At the end of FY = a those accessions have YOS = 0, at the end of FY = a + 1 those accessions have YOS = 1, and at the end of FY = a + (b – a) those accessions have YOS = (b – a). Consequently, at the *beginning* of FY = a + (b – a) = b those accessions have YOS = (b – a – 1).

Additional NPS Accessions that Survive to End of Fiscal Year

It is easier to first calculate the additional accessions that must survive to the end of the fiscal year. These survived accessions are then inflated by dividing by the partial year survival rate, SURVIVENEWNPS, to obtain additional accessions during the fiscal year.

Let Ab = additional accessions during FY = b that survive to the end of that fiscal year. For the first projection year, the additional survived accessions equal the additional end strength. For the subsequent projection years, the additional survived accessions equal the additional end strength minus survivors from earlier years' additional accessions.

A1 = E <FY=1>

A2 = E <FY=2>
– (A1)*(S12)

A3 = E <FY=3>
– (A2)*(S23)
– (A1)*(S12)*(S13)

A4 = E <FY=4>
– (A3)*(S34)
– (A2)*(S23)*(S24)
– (A1)*(S12)*(S13)*(S14)

A5 = E <FY=5>
– (A4)*(S45)
– (A3)*(S34)*(S35)
– (A2)*(S23)*(S24)*(S25)
– (A1)*(S12)*(S13)*(S14)*(S15)

A6 = E <FY=6>
- (A5)*(S56)
- (A4)*(S45)*(S46)
- (A3)*(S34)*(S35)*(S36)
- (A2)*(S23)*(S24)*(S25)*(S26)
- (A1)*(S12)*(S13)*(S14)*(S15)*(S16)

A7 = E <FY=7>
- (A6)*(S67)
- (A5)*(S56)*(S57)
- (A4)*(S45)*(S46)*(S47)
- (A3)*(S34)*(S35)*(S36)*(S37)
- (A2)*(S23)*(S24)*(S25)*(S26)*S(27)
- (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)

A8 = E <FY=8>
- (A7)*(S78)
- (A6)*(S67)*(S68)
- (A5)*(S56)*(S57)*(S58)
- (A4)*(S45)*(S46)*(S47)*(S48)
- (A3)*(S34)*(S35)*(S36)*(S37)*(S38)
- (A2)*(S23)*(S24)*(S25)*(S26)*S(27)*(S28)
- (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)*(S18)

A9 = E <FY=9>
- (A8)*(S89)
- (A7)*(S78)*(S79)
- (A6)*(S67)*(S68)*(S69)
- (A5)*(S56)*(S57)*(S58)*(S59)
- (A4)*(S45)*(S46)*(S47)*(S48)*S(49)
- (A3)*(S34)*(S35)*(S36)*(S37)*(S38)*(S39)
- (A2)*(S23)*(S24)*(S25)*(S26)*S(27)*(S28)*(S29)
- (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)*(S18)*(S19)

A10 = E <FY=10>
- (A9)*(S9_10)

– (A8)*(S89)*(S8_10)

– (A7)*(S78)*(S79)*(S7_10)

– (A6)*(S67)*(S68)*(S69)*(S6_10)

– (A5)*(S56)*(S57)*(S58)*(S59)*S(5_10)

– (A4)*(S45)*(S46)*(S47)*(S48)*(S49)*(S4_10)

– (A3)*(S34)*(S35)*(S36)*(S37)*S(38)*(S39)*(S3_10)

– (A2)*(S23)*(S24)*(S25)*(S26)*(S27)*(S28)*(S29)*(S2_10)

– (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)*(S18)*(S19)*(S1_10)

A11

– (A10)*(S10_11)

– (A9)*(S9_10)*(S9_11)

– (A8)*(S89)*(S8_10)*(S8_11)

– (A7)*(S78)*(S79)*(S7_10)*(S7_11)

– (A6)*(S67)*(S68)*(S69)*(S6_10)*S(6_11)

– (A5)*(S56)*(S57)*(S58)*(S59)*(S5_10)*(S5_11)

– (A4)*(S45)*(S46)*(S47)*(S48)*S(49)*(S4_10)*(S4_11)

– (A3)*(S34)*(S35)*(S36)*(S37)*(S38)*(S39)*(S3_10)*(S3_11)

– (A2)*(S23)*(S24)*(S25)*(S26)*(S27)*(S28)*(S29)*(S2_10)*(S2_11)

– (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)*(S18)*(S19)*(S1_10)*(S1_11)

A12 = E <FY=12>

– (A11)*(S11_12)

– (A10)*(S10_11)*(S10_12)

– (A9)*(S9_10)*(S9_11)*(S9_12)

– (A8)*(S89)*(S8_10)*(S8_11)*(S8_12)

– (A7)*(S78)*(S79)*(S7_10)*(S7_11)*S(7_12)

– (A6)*(S67)*(S68)*(S69)*(S6_10)*(S6_11)*(S6_12)

– (A5)*(S56)*(S57)*(S58)*(S59)*S(5_10)*(S5_11)*(S5_12)

– (A4)*(S45)*(S46)*(S47)*(S48)*(S49)*(S4_10)*(S4_11)*(S4_12)

– (A3)*(S34)*(S35)*(S36)*(S37)*(S38)*(S39)*(S3_10)*(S3_11)*(S3_12)

– (A2)*(S23)*(S24)*(S25)*(S26)*(S27)*(S28)*(S29)*(S2_10)*(S2_11)*(S2_12)

– (A1)*(S12)*(S13)*(S14)*(S15)*(S16)*(S17)
(S18)(S19)*(S1_10)*(S1_11)*(S1_12) ;

Additional NPS Accessions During Fiscal Year

The additional NPS accessions required during each fiscal year equal the survived accessions required at the end of the fiscal year divided by the rate at which accessions during the fiscal year survive to the end of the fiscal year.

DO FOR b = 1 THROUGH 12:

ADDNPS <b> = Ab / SURVIVENEWNPS <b>

New Total NPS Accessions

The new plan's total NPS accessions equal the old plan's accessions plus the additional accessions.

DO FOR FY = 1 THROUGH 12:

NEWNPS <FY> = NPS <FY> + ADDNPS <FY>

Choose Promotions to Achieve Grade Strength Goals

The additional promotions necessary to achieve required additions to grade strengths equal the required additions to grade strengths minus survivors of additions to grade strength made in the previous fiscal year plus additional promotions to the next higher grade in the given fiscal year. The calculations are straightforward provided one does grade 9 for fiscal years 1 through 12 first, then grade 8 for fiscal years 1 through 12, and so on.

Additional Grade Strength Required to Achieve Goal

DO FOR GRADE = 5 THROUGH 9:

G <FY, GRADE> = GRADECEILING <FY, GRADE> – ENDINV <FY, GRADE>

Grade 9 Additional Promotions

DO FOR FY = 1:

ADDPROM<1,9> = G<1,9>

DO FOR FY = 2 THROUGH 12:

ADDPROM<FY,9> = G<FY,9>
– G<FY-1,9> * [1 – TOTALLOSS<FY,9> / STARTINV<FY,9>]

Grade 8 Additional Promotions

DO FOR FY = 1:

ADDPROM<1,8> = G<1,8>
+ ADDPROM<1,9>

DO FOR FY = 2 THROUGH 12:

ADDPROM<FY,8> = G<FY,8>
– G<FY-1,8> * [1 – TOTALLOSS<FY,8> / STARTINV<FY,8>]
+ ADDPROM<FY,9>

Grade 7 Additional Promotions

DO FOR FY = 1:

ADDPROM<1,7> = G<1,7>
+ ADDPROM<1,8>

DO FOR FY = 2 THROUGH 12:

ADDPROM<FY,7> = G<FY,7>
– G<FY-1,7> * [1 – TOTALLOSS<FY,7> / STARTINV<FY,7>]
+ ADDPROM<FY,8>

Grade 6 Additional Promotions

DO FOR FY = 1:

ADDPROM<1,6> = G<1,6>
+ ADDPROM<1,7>

DO FOR FY = 2 THROUGH 12 :

ADDPROM<FY,6> = G<FY,6>
– G<FY-1,6> * [1 – TOTALLOSS<FY,6> / STARTINV<FY,6>]
+ ADDPROM<FY,7>

Grade 5 Additional Promotions

DO FOR FY = 1:

ADDPROM<1,5> = G<1,5>
+ ADDPROM<1,6>

DO FOR FY = 2 THROUGH 12:

ADDPROM<FY,5> = G<FY,5>
– G<FY-1,5> * [1 – TOTALLOSS<FY,5> / STARTINV<FY,5>]
+ ADDPROM<FY,6>

New Promotions to Top Five Grades

DO FOR ALL PROJECTION YEARS AND GRADES 5 THROUGH 9:

NEWPROMIN <FY, GRADE> = PROMIN <FY, GRADE> + ADDPROM <FY, GRADE>

RESULTS

The following outputs get placed on module 2 output screens. The results in variables NEWPROMIN and NEWNPS are mapped into the PROMTOx (for 5 <= x <= 9) and TOTNPS variables defined in module 1.

G <FY, GRADE> = additional inventory in given grade required to meet grade strength goal

ADDPROM <FY, GRADE> = additional promotions into given grade required to achieve grade strength goal

NEWPROMIN <FY, GRADE> = promotions into top five grades required to achieve grade strength goals

E <FY> = additional total inventory required to meet end strength goal

ADDNPS <FY> = additional NPS accessions required to achieve end strength goal

NEWNPS <FY> = total NPS accessions required to achieve end strength goals

Appendix E

ACTION DIAGRAM FOR COMPARISON OF PLANS (MODULE 3)

Module 3 of ADAM systematically compares force structure results from previously saved runs of module for the 12 projection years. The purpose of the plan comparison module is to view the longer term personnel implications of alternative management action plans, to assess the tradeoffs associated with these plans, and to obtain information on how to revise these plans to make better plans in future years. This appendix presents the action diagram for this module.

VARIABLE DEFINITIONS

Module 3 requires the following outputs from module 1 for a user-specified reference plan and test plan to perform its calculations.

REFPLAN_ENDINV <FY GRADE>	Total inventory at end of fiscal year by grade for reference plan.
REFPLAN_ENDINV <FY YOS>	Total inventory at end of fiscal year by YOS for reference plan.
REFPLAN_ENDINV <FY>	Total inventory at end of fiscal year for reference plan.
TESTPLAN_ENDINV <FY GRADE>	Total inventory at end of fiscal year by grade for test plan
TESTPLAN_ENDINV <FY YOS>	Total inventory at end of fiscal year by YOS for test plan
TESTPLAN_ENDINV <FY>	Total inventory at end of fiscal year for test plan

CALCULATIONS

Module 3 performs the following calculations.

DIFPLAN_ENDINV <FY GRADE> = TESTPLAN_ENDINV <FY GRADE>
– REFPLAN_ENDINV <FY GRADE> ;

DIFPLAN_ENDINV <FY YOS> = TESTPLAN_ENDINV <FY YOS>
– REFPLAN_ENDINV <FY YOS> ;

DIFPLAN_ENDINV <FY> = TESTPLAN_ENDINV <FY>
– REFPLAN_ENDINV <FY> ;

RESULTS

The following outputs are places on module 3 output screens. No information from this module is passed to the other modules of ADAM.

DIFPLAN_ENDINV <FY GRADE>	Difference in total inventory between test plan and reference plan by fiscal year and grade.
DIFPLAN_ENDINV <FY YOS>	Difference in total inventory between test plan and reference plan by fiscal year and YOS.
DIFPLAN_ENDINV <FY>	Difference in total inventory between test plan and reference plan by fiscal year.

Appendix F

ADAM DATABASE

The tables in this appendix give a complete description of the files that make up the database for ADAM. Fourteen ASCII files make up this database. These files are found on the ADAM DATA diskette (see Mickelson and Rydell, 1989). ADAM requires six kinds of input data:

- Start-of-year personnel inventory
- Flow rates
- Early release/reenlistment distributions and flows
- Econometric coefficients
- Cost factors
- Miscellaneous data

The internal accounting structure of the ADAM program carries three explicit dimensions: track, YOS, and grade. The database was designed to reflect and support this internal accounting structure. Implicit in the database are the variables CATENL and YETS. In the following tables, the row headings (track, YOS, CATENL, YETS), and the column headings (pay grade) are presented for descriptive purposes. However, they are not part of the actual database.

The database described here is for illustrative purposes. Part of it consists of actual data from the EFMS. The remainder is taken from other sources or is estimated. The starting inventory is taken as of the beginning of fiscal year 1987. This is considered the reference year.

START-OF-YEAR INVENTORY

Table F.1 presents the start-of-year inventory, made up of counts of enlisted airmen on active duty status as of the start of fiscal year 1987. The beginning inventory is found in file BEGINV on the ADAM DATA disk (see Mickelson and Rydell, 1989).

FLOW RATES

Tables F.2 through F.6 show the reference period separation flow rates. These rates are taken from the database for the MTA model. The attrition rates are shown in Table F.2. Table F.3 presents policy-free ETS loss rates. Table F.4 presents trial promotion rates. Retirement rates are shown in Table F.5. Finally, Table F.6 presents the policy-free reenlistment rates.

Each type of rate is given its own file on the ADAM DATA disk. The attrition rates are found in the ATTRRATE file, the policy-free ETS loss rates are found in the ETSRATE file, and the trial promotion rates are found in the PROMRATE file. Retirements are in the RETIRE file and the policy-free reenlistment rates are in the PROMRATE file.

EARLY RELEASE/REENLISTMENT DISTRIBUTIONS AND FLOWS

Table F.7 presents the historical distribution of early out losses used to spread the early out losses to the accounting structure level of detail. Table F.8 shows the actual early out losses from fiscal year 1986. The historical loss distribution and the actual losses are found in the EARLYOUT file.

Table F.9 presents the historical distribution of Palace Chase losses used to spread the Palace Chase losses to the accounting structure level of detail. Tables F.10 through F.12 present actual Palace Chase losses from one, two, and three fiscal years before the reference year, respectively. The historical distribution and the actual losses are found in the PALCHASE file.

Table F.13 presents the historical distribution of rollup losses used to spread those losses to the accounting structure level of detail. This historical distribution is found in the ROLLUP file.

Tables F.14 and F.15 present the historical distributions of forced early reenlistments out of personnel who otherwise would have reenlisted later in the same fiscal year or next fiscal year, respectively. These distributions are used to spread forced early reenlistment management actions to the accounting structure level of detail. Table F.16 presents actual forced early reenlistment out flows that would have occurred in the first projection year had they not been shifted one year earlier. The historical distributions and flows are found in the FER file.

ECONOMETRIC COEFFICIENTS

The files LOSSCOEF and REUPCOEF contain the fiscal year ETS loss coefficient parameters and the reenlistment coefficient parameters, respectively. The coefficients are track and YOS specific. Table F.17 shows the loss coefficients, and Table F.18 shows the reenlistment coefficients.

COSTS

The file COSTS contains cost factor data described in the following tables, ordered sequentially. Basic pay by YOS and Grade is shown in Table F.19. Table F.20 shows the cost factors for other pay, which includes BAQ, BHA, incentive and special pay, miscellaneous pay, and PCS. These data are taken from the 1987 *Uniformed Services Almanac*.

There are three additional numbers in the COSTS file, corresponding to:

- Retirement accrual (0.5116)
- Initial training cost per airman ($5,000 / accession)
- Severance pay for second term involuntary separations (we assumed $15,000 per separation)

MISCELLANEOUS DATA

The OTHER file contains the remaining data required by ADAM. There is no particular structure under which these data can be organized. Thus, the data are simply grouped by kind.

The first number in the file indicates the date of the beginning inventory in the file. The next group of data (shown in Table F.21) consists of TOE probabilities by initial TOE and bonus multiple. The next group of data (shown in Table F.22) corresponds to the early attrition and promotion probabilities from source x, with destination y (see App. A for variable definitions).

The early attrition and promotion probabilities are followed by a line of eight numbers that correspond to the proportion of the inventory receiving a zone A bonus from one to eight years b fore the reference year, listed sequentially. These data are currently set at 49.6 percent.

The next block of data corresponds to the proportion of inventory in the second term who were receiving zone A bonuses in the reference period. These data are track (for tracks 3 through 10) and YOS (only YOS values defined for each track) specific. There are eight rows, one row for each track, 3 through 10, and up to eight columns, which depends on the number of YOS associated with that track. These values are currently set at 49.6 percent.

The remaining data correspond to the reference case values of the econometric variables. These variables and their reference period values are:

- Civilian unemployment rate (9.50 percent)
- Ratio of military to civilian wages (0.900)
- Consumer Price Index (350.1)
- Percent of force receiving zone A bonus multiple less than or equal 1 (43.3)
- Percent of force receiving zone A bonus multiple greater than 1 (10.7)
- Percent of force receiving zone B bonus multiple (34.4)
- Percent of force receiving zone C bonus multiple (30.6)

Table F.1

BEGINNING INVENTORY

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	21945	23915	0	0	0	0			
1	1	1	3	0	14350	31069	0	0	0			
1	2	1	2	0	0	38798	7471	0	0			
1	3	1	1	0	0	0	30548	451	9			
1	4	1	0	0	0	0	7057	742	1			
1	5	1	-1	0	0	0	1778	693	0			
2	0	1	6	645	0	8377	0	0	0			
2	1	1	5	0	0	8224	0	0	0			
2	2	1	4	0	0	3146	3301	0	0			
2	3	1	3	0	0	0	4937	207	0			
2	4	1	2	0	0	0	3942	1140	0			
2	5	1	1	0	0	0	1548	1653	2			
2	6	1	0	0	0	0	155	343	8			
2	7	1	-1	0	0	0	10	49	1			
3	3	2	4				3239	120	2	0		
3	4	2	3				2605	490	2	1		
3	5	2	2				1785	1226	5	0		
3	6	2	1				792	1425	22	0		
3	7	2	0				105	261	11	0		
3	8	2	-1				13	60	3	0		
4	4	2	4				8510	1088	6	0		
4	5	2	3				5459	2559	10	1		
4	6	2	2				3020	5693	79	1		
4	7	2	1				1125	5495	214	3		
4	8	2	0				92	829	63	0		
4	9	2	-1				11	133	19	0		
5	3	2	6				3478	93	0	0		
5	4	2	5				2815	494	0	0		
5	5	2	4				3492	2353	12	0		
5	6	2	3				1478	3044	50	0		
5	7	2	2				682	4096	166	1		
5	8	2	1				247	2580	263	2		
5	9	2	0				13	386	62	0		
5	10	2	-1				3	60	17	0		

Table F.1—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				4208	482	0	0		
6	5	2	5				2750	1176	2	0		
6	6	2	4				2139	4093	63	0		
6	7	2	3				807	4361	213	2		
6	8	2	2				343	4170	387	1		
6	9	2	1				96	1776	316	6		
6	10	2	0				6	248	86	3		
6	11	2	-1				0	38	16	1		
7	5	2	6				933	793	4	0		
7	6	2	5				501	930	12	0		
7	7	2	4				374	2070	104	0		
7	8	2	3				147	1892	238	0		
7	9	2	2				48	1140	241	2		
7	10	2	1				18	543	170	3		
7	11	2	0				4	90	60	2		
7	12	2	-1				0	11	9	4		
8	6	2	6				221	513	3	0		
8	7	2	5				86	448	10	0		
8	8	2	4				64	826	83	3		
8	9	2	3				34	1310	299	7		
8	10	2	2				17	827	381	21		
8	11	2	1				8	441	213	9		
8	12	2	0				1	38	29	0		
8	13	2	-1				0	3	1	0		
9	7	2	6				4	25	1	0		
9	8	2	5				2	21	3	0		
9	9	2	4				10	158	33	1		
9	10	2	3				2	221	101	4		
9	11	2	2				2	108	64	8		
9	12	2	1				0	49	36	6		
9	13	2	0				0	4	3	0		
9	14	2	-1				0	1	0	0		

Table F.1—continued

Track	YOS	CATEN L	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				1	5	1	0		
10	9	2	5				1	22	2	1		
10	10	2	4				2	71	28	1		
10	11	2	3				2	87	51	3		
10	12	2	2				0	47	51	1		
10	13	2	1				0	16	15	1		
10	14	2	0				0	3	3	0		
10	15	2	-1				0	0	1	0		
11	6	3	x				269	465	8	0	0	0
11	7	3	x				413	2549	130	2	0	0
11	8	3	x				366	5493	623	10	0	0
11	9	3	x				277	6963	1498	62	0	0
11	10	3	x				211	7685	2776	159	0	0
11	11	3	x				205	7991	4432	344	5	0
11	12	3	x				114	5799	6302	801	6	0
11	13	3	x				83	3470	6573	1284	23	1
11	14	3	x				60	2822	8172	2134	70	2
11	15	3	x				53	1241	5271	2275	108	3
11	16	3	x				62	1252	6523	4532	339	7
11	17	3	x				42	766	5255	5893	725	51
11	18	3	x				37	386	3421	5456	946	95
11	19	3	x				0	292	2328	5749	1451	201
11	20	4	x				0	33	887	3257	960	223
11	21	4	x				0	3	339	2265	1035	296
11	22	4	x				0	2	244	1712	892	418
11	23	4	x				0	0	18	1376	911	595
11	24	4	x				0	0	18	976	917	750
11	25	4	x				0	0	4	689	683	613
11	26	4	x				0	0	0	70	374	407
11	27	4	x				0	0	0	56	228	368
11	28	4	x				0	0	0	4	96	341
11	29	4	x				0	0	0	1	85	576

Table F.2
ATTRITION RATES

Track	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0.0220	0.0905	0.0000	0.0000	0.0000	0.0000			
1	1	1	3	0.0000	0.0060	0.1070	0.0000	0.0000	0.0000			
1	2	1	2	0.0000	0.0000	0.0240	0.0345	0.0000	0.0000			
1	3	1	1	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
1	4	1	0	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
1	5	1	-1	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
2	0	1	6	0.1397	0.0000	0.1292	0.0000	0.0000	0.0000			
2	1	1	5	0.0000	0.0000	0.0450	0.0000	0.0000	0.0000			
2	2	1	4	0.0000	0.0000	0.0604	0.0446	0.0000	0.0000			
2	3	1	3	0.0000	0.0000	0.0000	0.0498	0.0324	0.0000			
2	4	1	2	0.0000	0.0000	0.0000	0.0400	0.0400	0.0000			
2	5	1	1	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
2	6	1	0	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
2	7	1	-1	0.0000	0.0000	0.0000	0.0400	0.0400	0.0400			
3	3	2	4				0.0263	0.0112	0.0000	0.0000		
3	4	2	3				0.0448	0.0219	0.0498	0.0000		
3	5	2	2				0.0300	0.0300	0.0000	0.0000		
3	6	2	1				0.0300	0.0300	0.0300	0.0000		
3	7	2	0				0.0300	0.0300	0.0300	0.0000		
3	8	2	-1				0.0300	0.0300	0.0000	0.0000		
4	4	2	4				0.0308	0.0284	0.1633	0.0000		
4	5	2	3				0.0545	0.0236	0.0000	0.0938		
4	6	2	2				0.0300	0.0300	0.0000	0.0000		
4	7	2	1				0.0300	0.0300	0.0300	0.0000		
4	8	2	0				0.0300	0.0300	0.0300	0.0000		
4	9	2	-1				0.0300	0.0300	0.0300	0.0000		
5	3	2	6				0.0283	0.0721	0.0000	0.0000		
5	4	2	5				0.0433	0.0163	0.0000	0.0000		
5	5	2	4				0.0300	0.0257	0.0000	0.0000		
5	6	2	3				0.0300	0.0300	0.0204	0.0000		
5	7	2	2				0.0300	0.0300	0.0184	0.0000		
5	8	2	1				0.0300	0.0300	0.0300	0.0000		
5	9	2	0				0.0300	0.0300	0.0300	0.0000		
5	10	2	-1				0.0000	0.0300	0.0300	0.0000		

Table F.2—continued

Track	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.0290	0.0139	0.0000	0.0000		
6	5	2	5				0.0432	0.0171	0.0498	0.0000		
6	6	2	4				0.0300	0.0243	0.0000	0.0000		
6	7	2	3				0.0300	0.0300	0.0191	0.0000		
6	8	2	2				0.0300	0.0300	0.0079	0.0000		
6	9	2	1				0.0300	0.0300	0.0300	0.0300		
6	10	2	0				0.0000	0.0300	0.0300	0.0000		
6	11	2	-1				0.0000	0.0300	0.0300	0.0000		
7	5	2	6				0.0326	0.0102	0.0000	0.0000		
7	6	2	5				0.0628	0.0274	0.0000	0.0000		
7	7	2	4				0.0300	0.0279	0.0000	0.0000		
7	8	2	3				0.0300	0.0291	0.0171	0.0000		
7	9	2	2				0.0300	0.0300	0.0300	0.0000		
7	10	2	1				0.0300	0.0300	0.0300	0.0000		
7	11	2	0				0.0000	0.0300	0.0300	0.0300		
7	12	2	-1				0.0000	0.0300	0.0000	0.0000		
8	6	2	6				0.0459	0.0209	0.0000	0.0000		
8	7	2	5				0.0711	0.0150	0.0000	0.0000		
8	8	2	4				0.0300	0.0300	0.0245	0.0000		
8	9	2	3				0.0300	0.0300	0.0102	0.0000		
8	10	2	2				0.0300	0.0300	0.0240	0.0000		
8	11	2	1				0.0300	0.0300	0.0300	0.0000		
8	12	2	0				0.0000	0.0300	0.0300	0.0000		
8	13	2	-1				0.0000	0.0000	0.0000	0.0000		
9	7	2	6				0.0000	0.0000	0.0000	0.0000		
9	8	2	5				0.0000	0.0642	0.0000	0.0000		
9	9	2	4				0.0000	0.0300	0.0000	0.0000		
9	10	2	3				0.0000	0.0122	0.0101	0.0000		
9	11	2	2				0.0000	0.0300	0.0300	0.0000		
9	12	2	1				0.0000	0.0300	0.0300	0.0300		
9	13	2	0				0.0000	0.0000	0.0000	0.0000		
9	14	2	-1				0.0000	0.0300	0.0000	0.0000		

Table F.2—continued

Track	YOS	CAT ENL	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.0000	0.0000	0.0000	0.0000		
10	9	2	5				0.0000	0.0000	0.0000	0.0000		
10	10	2	4				0.0000	0.0189	0.0000	0.0000		
10	11	2	3				0.0300	0.0300	0.0200	0.0000		
10	12	2	2				0.0000	0.0285	0.0000	0.0000		
10	13	2	1				0.0000	0.0300	0.0300	0.0000		
10	14	2	0				0.0000	0.0000	0.0000	0.0000		
10	15	2	-1				0.0000	0.0000	0.0000	0.0000		
11	6	3	x				0.0100	0.0100	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0100	0.0100	0.0100	0.0000	0.0000	0.0000
11	8	3	x				0.0100	0.0100	0.0100	0.0000	0.0000	0.0000
11	9	3	x				0.0100	0.0100	0.0100	0.0100	0.0000	0.0000
11	10	3	x				0.0100	0.0100	0.0100	0.0100	0.0000	0.0000
11	11	3	x				0.0100	0.0100	0.0100	0.0028	0.0000	0.0000
11	12	3	x				0.0100	0.0100	0.0100	0.0100	0.0000	0.0000
11	13	3	x				0.0100	0.0100	0.0100	0.0053	0.0000	0.0000
11	14	3	x				0.0100	0.0100	0.0100	0.0023	0.0100	0.0000
11	15	3	x				0.0100	0.0100	0.0100	0.0026	0.0000	0.0000
11	16	3	x				0.0100	0.0100	0.0081	0.0015	0.0000	0.0000
11	17	3	x				0.0100	0.0100	0.0077	0.0035	0.0015	0.0000
11	18	3	x				0.0100	0.0100	0.0092	0.0039	0.0011	0.0000
11	19	3	x				0.0000	0.0100	0.0100	0.0100	0.0100	0.0100
11	20	4	x				0.0000	0.0100	0.0100	0.0100	0.0100	0.0100
11	21	4	x				0.0000	0.0100	0.0100	0.0100	0.0100	0.0100
11	22	4	x				0.0000	0.0000	0.0100	0.0100	0.0100	0.0100
11	23	4	x				0.0000	0.0000	0.0100	0.0100	0.0100	0.0100
11	24	4	x				0.0000	0.0000	0.0100	0.0100	0.0100	0.0100
11	25	4	x				0.0000	0.0000	0.0100	0.0100	0.0100	0.0100
11	26	4	x				0.0000	0.0000	0.0000	0.0100	0.0100	0.0100
11	27	4	x				0.0000	0.0000	0.0000	0.0100	0.0100	0.0100
11	28	4	x				0.0000	0.0000	0.0000	0.0100	0.0100	0.0100
11	29	4	x				0.0000	0.0000	0.0000	0.0100	0.0100	0.0100

Table F.3

POLICY-FREE ETS RATES

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	2	1	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	3	1	1	0.0000	0.0000	0.0000	0.3754	0.3822	0.4995			
1	4	1	0	0.0000	0.0000	0.0000	0.2751	0.3006	0.9308			
1	5	1	-1	0.0000	0.0000	0.0000	0.4928	0.6162	0.0000			
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	4	1	2	0.0000	0.0000	0.0000	0.0081	0.0000	0.0000			
2	5	1	1	0.0000	0.0000	0.0000	0.4926	0.3928	0.4456			
2	6	1	0	0.0000	0.0000	0.0000	0.3164	0.2433	0.0817			
2	7	1	-1	0.0000	0.0000	0.0000	0.3643	0.2850	0.0000			
3	3	2	4				0.0000	0.0000	0.0000	0.0000		
3	4	2	3				0.0000	0.0000	0.0000	0.0000		
3	5	2	2				0.0165	0.0000	0.0000	0.0000		
3	6	2	1				0.2962	0.2099	0.1715	0.0000		
3	7	2	0				0.2860	0.1826	0.0498	0.0000		
3	8	2	-1				0.3717	0.2597	0.0000	0.0000		
4	4	2	4				0.0000	0.0000	0.0000	0.0000		
4	5	2	3				0.0000	0.0000	0.0000	0.0000		
4	6	2	2				0.0259	0.0000	0.0000	0.0000		
4	7	2	1				0.3748	0.2251	0.0910	0.0000		
4	8	2	0				0.2178	0.1877	0.1237	0.0000		
4	9	2	-1				0.3656	0.1623	0.1124	0.0000		
5	3	2	6				0.0000	0.0000	0.0000	0.0000		
5	4	2	5				0.0000	0.0000	0.0000	0.0000		
5	5	2	4				0.0148	0.0000	0.0000	0.0000		
5	6	2	3				0.0303	0.0000	0.0000	0.0000		
5	7	2	2				0.0497	0.0004	0.0000	0.0000		
5	8	2	1				0.4521	0.2392	0.1021	0.0000		
5	9	2	0				0.1732	0.1596	0.0711	0.0000		
5	10	2	-1				0.0000	0.1837	0.0263	0.0000		

Table F.3—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.0000	0.0000	0.0000	0.0000		
6	5	2	5				0.0000	0.0000	0.0000	0.0000		
6	6	2	4				0.0257	0.0000	0.0000	0.0000		
6	7	2	3				0.0352	0.0014	0.0000	0.0000		
6	8	2	2				0.0872	0.0039	0.0000	0.0000		
6	9	2	1				0.4621	0.2326	0.0807	0.1063		
6	10	2	0				0.0000	0.1529	0.0842	0.0000		
6	11	2	-1				0.0000	0.1852	0.0298	0.0000		
7	5	2	6				0.0000	0.0000	0.0000	0.0000		
7	6	2	5				0.0000	0.0000	0.0000	0.0000		
7	7	2	4				0.0454	0.0000	0.0000	0.0000		
7	8	2	3				0.0862	0.0000	0.0000	0.0000		
7	9	2	2				0.1459	0.0200	0.0098	0.0000		
7	10	2	1				0.3909	0.2222	0.0856	0.0000		
7	11	2	0				0.0000	0.1006	0.0602	0.3694		
7	12	2	-1				0.0000	0.0731	0.0000	0.0000		
8	6	2	6				0.0000	0.0000	0.0000	0.0000		
8	7	2	5				0.0000	0.0000	0.0000	0.0000		
8	8	2	4				0.1417	0.0023	0.0000	0.0000		
8	9	2	3				0.1199	0.0100	0.0000	0.0000		
8	10	2	2				0.0759	0.0002	0.0000	0.0000		
8	11	2	1				0.4047	0.1500	0.0513	0.0000		
8	12	2	0				0.0000	0.0649	0.0632	0.0000		
8	13	2	-1				0.0000	0.0000	0.0000	0.0000		
9	7	2	6				0.0000	0.0000	0.0000	0.0000		
9	8	2	5				0.0000	0.0000	0.0000	0.0000		
9	9	2	4				0.0000	0.0168	0.0000	0.0000		
9	10	2	3				0.0000	0.0000	0.0000	0.0000		
9	11	2	2				0.0000	0.0167	0.0014	0.0000		
9	12	2	1				0.0000	0.0899	0.0219	0.1063		
9	13	2	0				0.0000	0.0000	0.0000	0.0000		
9	14	2	-1				0.0000	0.0575	0.0000	0.0000		

Table F.3—continued

Track	YOS	CATEL	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.0000	0.0000	0.0000	0.0000		
10	9	2	5				0.0000	0.0000	0.0000	0.0000		
10	10	2	4				0.0000	0.0000	0.0000	0.0000		
10	11	2	3				0.4047	0.0008	0.0000	0.0000		
10	12	2	2				0.0000	0.0000	0.0000	0.0000		
10	13	2	1				0.0000	0.1191	0.0337	0.0000		
10	14	2	0				0.0000	0.0000	0.0000	0.0000		
10	15	2	-1				0.0000	0.0000	0.0000	0.0000		
11	6	3	x				0.0038	0.0037	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0062	0.0018	0.0049	0.0000	0.0000	0.0000
11	8	3	x				0.0161	0.0028	0.0003	0.0000	0.0000	0.0000
11	9	3	x				0.0389	0.0064	0.0004	0.0013	0.0000	0.0000
11	10	3	x				0.0462	0.0079	0.0024	0.0048	0.0000	0.0000
11	11	3	x				0.0522	0.0098	0.0019	0.0000	0.0000	0.0000
11	12	3	x				0.0572	0.0083	0.0013	0.0002	0.0000	0.0000
11	13	3	x				0.0822	0.0084	0.0005	0.0000	0.0000	0.0000
11	14	3	x				0.1029	0.0090	0.0005	0.0000	0.0012	0.0000
11	15	3	x				0.0904	0.0084	0.0003	0.0000	0.0000	0.0000
11	16	3	x				0.0807	0.0075	0.0000	0.0000	0.0000	0.0000
11	17	3	x				0.0868	0.0073	0.0000	0.0000	0.0000	0.0000
11	18	3	x				0.0546	0.0081	0.0000	0.0000	0.0000	0.0000
11	19	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	20	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	21	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	22	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	23	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	24	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	25	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	26	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	27	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	28	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	29	4	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table F.4

TRIAL PROMOTION RATES

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0	0	0	0	0	0			
1	1	1	3	0	0	0	0	0	0			
1	2	1	2	0	0	0	0.0000	0.0000	0			
1	3	1	1	0	0	0	0.0145	0.0203	0			
1	4	1	0	0	0	0	0.0952	0.0014	0			
1	5	1	-1	0	0	0	0.2805	0.0000	0			
2	0	1	6	0	0	0	0	0	0			
2	1	1	5	0	0	0	0	0	0			
2	2	1	4	0	0	0	0.0000	0.0000	0			
2	3	1	3	0	0	0	0.0402	0.0000	0			
2	4	1	2	0	0	0	0.2244	0.0000	0			
2	5	1	1	0	0	0	0.5164	0.0013	0			
2	6	1	0	0	0	0	0.6882	0.0237	0			
2	7	1	-1	0	0	0	0.8315	0.0207	0			
3	3	2	4				0.0358	0.0170	0.0000	0		
3	4	2	3				0.1584	0.0042	0.0000	0		
3	5	2	2				0.4073	0.0042	0.0000	0		
3	6	2	1				0.6428	0.0151	0.0000	0		
3	7	2	0				0.7142	0.0419	0.0000	0		
3	8	2	-1				0.8215	0.0497	0.0000	0		
4	4	2	4				0.1134	0.0057	0.0000	0		
4	5	2	3				0.3191	0.0040	0.0914	0		
4	6	2	2				0.6534	0.0137	0.0131	0		
4	7	2	1				0.8300	0.0375	0.0144	0		
4	8	2	0				0.9005	0.0710	0.0000	0		
4	9	2	-1				0.9238	0.1234	0.0000	0		
5	3	2	6				0.0261	0.0000	0.0000	0		
5	4	2	5				0.1494	0.0000	0.0000	0		
5	5	2	4				0.4026	0.0053	0.0000	0		
5	6	2	3				0.6732	0.0161	0.0000	0		
5	7	2	2				0.8572	0.0390	0.0063	0		
5	8	2	1				0.9126	0.0924	0.0079	0		
5	9	2	0				0.9675	0.1390	0.0000	0		
5	10	2	-1				0.9523	0.2180	0.0000	0		

Table F.4—continued

Track	YOS	CAT ENL	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.1028	0.0000	0.0000	0		
6	5	2	5				0.2996	0.0018	0.0000	0		
6	6	2	4				0.6567	0.0152	0.0000	0		
6	7	2	3				0.8439	0.0465	0.0097	0		
6	8	2	2				0.9241	0.0850	0.0027	0		
6	9	2	1				0.9489	0.1509	0.0195	0		
6	10	2	0				0.9764	0.2581	0.0351	0		
6	11	2	-1				1.0000	0.2927	0.0629	0		
7	5	2	6				0.4594	0.0050	0.0000	0		
7	6	2	5				0.6500	0.0132	0.0000	0		
7	7	2	4				0.8468	0.0478	0.0000	0		
7	8	2	3				0.9277	0.1116	0.0000	0		
7	9	2	2				0.9598	0.1744	0.0086	0		
7	10	2	1				0.9680	0.2389	0.0181	0		
7	11	2	0				0.9576	0.4011	0.0335	0		
7	12	2	-1				1.0000	0.4483	0.3091	0		
8	6	2	6				0.6989	0.0060	0.0000	0		
8	7	2	5				0.8396	0.0226	0.0000	0		
8	8	2	4				0.9284	0.0914	0.0364	0		
8	9	2	3				0.9748	0.1859	0.0239	0		
8	10	2	2				0.9799	0.3154	0.0520	0		
8	11	2	1				0.9823	0.3254	0.0423	0		
8	12	2	0				0.9742	0.4358	0.0000	0		
8	13	2	-1				1.0000	0.2487	0.0000	0		
9	7	2	6				0.8630	0.0397	0.0000	0		
9	8	2	5				0.9130	0.1297	0.0000	0		
9	9	2	4				0.9407	0.1739	0.0305	0		
9	10	2	3				0.9911	0.3135	0.0399	0		
9	11	2	2				0.9818	0.3742	0.1149	0		
9	12	2	1				1.0000	0.4252	0.1472	0		
9	13	2	0				1.0000	0.4269	0.0000	0		
9	14	2	-1				1.0000	0.0000	0.0000	0		

Table F.4—continued

Track	YOS	CAT ENL	YETS	Pay Grade						
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.8400	0.1657	0.0000	0		
10	9	2	5				0.9566	0.0864	0.3348	0		
10	10	2	4				0.9727	0.2828	0.0359	0		
10	11	2	3				0.9776	0.3696	0.0580	0		
10	12	2	2				1.0000	0.5196	0.0201	0		
10	13	2	1				1.0000	0.4810	0.0671	0		
10	14	2	0				1.0000	0.4983	0.0000	0		
10	15	2	-1				1.0000	1.0000	0.0000	0		
11	6	3	x				0.6337	0.0175	0.0000	0.0000	0.0000	0
11	7	3	x				0.8605	0.0485	0.0158	0.0000	0.0000	0
11	8	3	x				0.9375	0.1018	0.0165	0.0000	0.0000	0
11	9	3	x				0.9618	0.1771	0.0395	0.0000	0.0000	0
11	10	3	x				0.9733	0.2654	0.0541	0.0000	0.0000	0
11	11	3	x				0.9750	0.3568	0.0720	0.0145	0.0000	0
11	12	3	x				0.9808	0.5208	0.1128	0.0075	0.0000	0
11	13	3	x				0.9767	0.6545	0.1634	0.0178	0.0417	0
11	14	3	x				0.9793	0.7433	0.2071	0.0316	0.0282	0
11	15	3	x				0.9592	0.8094	0.3015	0.0453	0.0273	0
11	16	3	x				0.9530	0.8389	0.4099	0.0697	0.0204	0
11	17	3	x				0.9482	0.8728	0.5286	0.1096	0.0652	0
11	18	3	x				0.9128	0.8987	0.6146	0.1478	0.0913	0
11	19	3	x				1.0000	0.8887	0.7118	0.2015	0.1218	0
11	20	4	x				1.0000	0.9636	0.7860	0.2277	0.1881	0
11	21	4	x				1.0000	0.9908	0.8697	0.3136	0.2226	0
11	22	4	x				1.0000	0.9915	0.8752	0.3425	0.3190	0
11	23	4	x				1.0000	1.0000	0.9873	0.3983	0.3950	0
11	24	4	x				1.0000	1.0000	0.9822	0.4844	0.4501	0
11	25	4	x				1.0000	1.0000	0.9940	0.4978	0.4731	0
11	26	4	x				1.0000	1.0000	1.0000	0.8422	0.5211	0
11	27	4	x				1.0000	1.0000	1.0000	0.8018	0.6173	0
11	28	4	x				1.0000	1.0000	1.0000	0.9582	0.7804	0
11	29	4	x				1.0000	1.0000	1.0000	0.9878	0.8715	0

Table F.5

RETIREMENT RATES

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
11	6	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	8	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	9	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	10	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	11	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	12	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	13	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	14	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	15	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	16	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	17	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	18	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	19	3	x				0.0000	1.0000	0.4435	0.3024	0.1495	0.1002
11	20	4	x				0.0000	1.0000	0.3766	0.2650	0.1462	0.1114
11	21	4	x				0.0000	1.0000	0.3585	0.2567	0.1605	0.1137
11	22	4	x				0.0000	0.0000	0.7278	0.2476	0.1476	0.1032
11	23	4	x				0.0000	0.0000	0.7391	0.2216	0.1292	0.0873
11	24	4	x				0.0000	0.0000	0.8544	0.2014	0.1098	0.0761
11	25	4	x				0.0000	0.0000	0.9696	0.6971	0.2067	0.1647
11	26	4	x				0.0000	0.0000	0.0000	0.7023	0.2841	0.1656
11	27	4	x				0.0000	0.0000	0.0000	0.8564	0.5548	0.1472
11	28	4	x				0.0000	0.0000	0.0000	0.9258	0.4526	0.2080
11	29	4	x				0.0000	0.0000	0.0000	0.9258	0.7996	0.6740

Table F.6

POLICY-FREE REENLISTMENT RATES

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	2	1	2	0.0000	0.0000	0.1138	0.1985	0.0000	0.0000			
1	3	1	1	0.0000	0.0000	0.0000	0.6200	0.6102	0.9685			
1	4	1	0	0.0000	0.0000	0.0000	0.5533	0.5955	0.0000			
1	5	1	-1	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000			
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	4	1	2	0.0000	0.0000	0.0000	0.1791	0.2432	0.0000			
2	5	1	1	0.0000	0.0000	0.0000	0.8559	0.7887	0.0000			
2	6	1	0	0.0000	0.0000	0.0000	0.5225	0.6111	0.5938			
2	7	1	-1	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000			
3	3	2	4				0.0000	0.0000	0.0000	0.0000		
3	4	2	3				0.0000	0.0000	0.0000	0.0000		
3	5	2	2				0.1103	0.1157	0.2181	0.0000		
3	6	2	1				0.6304	0.6328	0.2507	0.0000		
3	7	2	0				0.5915	0.5566	0.5218	0.0000		
3	8	2	-1				1.0000	1.0000	1.0000	1.0000		
4	4	2	4				0.0000	0.0000	0.0000	0.0000		
4	5	2	3				0.0000	0.0000	0.0000	0.0000		
4	6	2	2				0.1356	0.1534	0.1866	0.0000		
4	7	2	1				0.6302	0.6537	0.6524	1.0000		
4	8	2	0				0.5846	0.5919	0.5917	0.0000		
4	9	2	-1				1.0000	1.0000	1.0000	1.0000		
5	3	2	6				0.0000	0.0000	0.0000	0.0000		
5	4	2	5				0.0000	0.0000	0.0000	0.0000		
5	5	2	4				0.0000	0.0000	0.0000	0.0000		
5	6	2	3				0.0000	0.0000	0.0000	0.0000		
5	7	2	2				0.1913	0.1843	0.1704	0.0000		
5	8	2	1				0.6322	0.6802	0.5665	1.0000		
5	9	2	0				0.6347	0.6252	0.6262	0.0000		
5	10	2	-1				1.0000	1.0000	1.0000	1.0000		

Table F.6—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.0000	0.0000	0.0000	0.0000		
6	5	2	5				0.0000	0.0000	0.0000	0.0000		
6	6	2	4				0.0000	0.0000	0.0000	0.0000		
6	7	2	3				0.0000	0.0000	0.0000	0.0000		
6	8	2	2				0.1878	0.2265	0.2661	1.0000		
6	9	2	1				0.7387	0.7235	0.6166	0.6062		
6	10	2	0				0.3790	0.6475	0.6027	0.7224		
6	11	2	-1				1.0000	1.0000	1.0000	1.0000		
7	5	2	6				0.0000	0.0000	0.0000	0.0000		
7	6	2	5				0.0000	0.0000	0.0000	0.0000		
7	7	2	4				0.0000	0.0000	0.0000	0.0000		
7	8	2	3				0.0000	0.0000	0.0000	0.0000		
7	9	2	2				0.2219	0.3921	0.3798	0.5418		
7	10	2	1				0.8841	0.7153	0.6618	0.7224		
7	11	2	0				0.2843	0.7142	0.6003	0.8593		
7	12	2	-1				1.0000	1.0000	1.0000	1.0000		
8	6	2	6				0.0000	0.0000	0.0000	0.0000		
8	7	2	5				0.0000	0.0000	0.0000	0.0000		
8	8	2	4				0.0000	0.0000	0.0000	0.0000		
8	9	2	3				0.0000	0.0000	0.0000	0.0000		
8	10	2	2				0.4343	0.2852	0.3358	0.3251		
8	11	2	1				0.2388	0.7181	0.7234	0.7224		
8	12	2	0				1.0000	0.6758	0.6653	0.0000		
8	13	2	-1				1.0000	1.0000	1.0000	1.0000		
9	7	2	6				0.0000	0.0000	0.0000	0.0000		
9	8	2	5				0.0000	0.0000	0.0000	0.0000		
9	9	2	4				0.0000	0.0000	0.0000	0.0000		
9	10	2	3				0.0000	0.0000	0.0000	0.0000		
9	11	2	2				1.0000	0.3209	0.4228	0.2709		
9	12	2	1				0.0000	0.8610	0.7009	0.6062		
9	13	2	0				0.0000	0.2708	0.7271	0.0000		
9	14	2	-1				1.0000	1.0000	1.0000	1.0000		

Table F.6—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.0000	0.0000	0.0000	0.0000		
10	9	2	5				0.0000	0.0000	0.0000	0.0000		
10	10	2	4				0.0000	0.0000	0.0000	0.0000		
10	11	2	3				0.0000	0.0000	0.0000	0.0000		
10	12	2	2				0.0000	0.4814	0.3116	0.0000		
10	13	2	1				0.0000	0.9017	0.6450	1.0000		
10	14	2	0				0.0000	0.7222	0.7271	0.0000		
10	15	2	-1				1.0000	1.0000	1.0000	1.0000		
11	6	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	8	3	x				0.0345	0.0114	0.0145	0.0000	0.0000	0.0000
11	9	3	x				0.1064	0.0568	0.0522	0.0552	0.0000	0.0000
11	10	3	x				0.1350	0.1274	0.1108	0.1433	0.0000	0.0000
11	11	3	x				0.2562	0.1849	0.1881	0.2141	0.4485	0.0000
11	12	3	x				0.1587	0.1563	0.1592	0.1470	0.3738	0.0000
11	13	3	x				0.0896	0.1619	0.1558	0.1517	0.1463	1.0000
11	14	3	x				0.1901	0.2077	0.2152	0.1889	0.1952	0.0000
11	15	3	x				0.2123	0.2834	0.3413	0.3907	0.3982	0.3732
11	16	3	x				0.0598	0.1731	0.1941	0.1884	0.1468	0.0000
11	17	3	x				0.0593	0.0923	0.1058	0.1040	0.1203	0.1343
11	18	3	x				0.0000	0.0385	0.0986	0.0753	0.0718	0.1072
11	19	3	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	20	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	21	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	22	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	23	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	24	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	25	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	26	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	27	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	28	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	29	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412

Table F.7

EARLY OUT DISTRIBUTION OF LOSSES

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	2	1	2	0.0000	0.0000	0.0363	0.0609	0.0000	0.0000	
1	3	1	1	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	
1	4	1	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	5	1	-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	4	1	2	0.0000	0.0000	0.0000	0.0241	0.0228	0.0000	
2	5	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	6	1	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	7	1	-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
3	3	2	4				0.0000	0.0000	0.0000	0.0000
3	4	2	3				0.0000	0.0000	0.0000	0.0000
3	5	2	2				0.0000	0.0000	0.0000	0.0000
3	6	2	1				0.0000	0.0000	0.0000	0.0000
3	7	2	0				0.0000	0.0000	0.0000	0.0000
3	8	2	-1				0.0000	0.0000	0.0000	0.0000
4	4	2	4				0.0000	0.0000	0.0000	0.0000
4	5	2	3				0.0000	0.0000	0.0000	0.0000
4	6	2	2				0.0099	0.0074	0.0000	0.0000
4	7	2	1				0.0000	0.0000	0.0000	0.0000
4	8	2	0				0.0000	0.0000	0.0000	0.0000
4	9	2	-1				0.0000	0.0000	0.0000	0.0000
5	3	2	6				0.0000	0.0000	0.0000	0.0000
5	4	2	5				0.0000	0.0000	0.0000	0.0000
5	5	2	4				0.0000	0.0000	0.0000	0.0000
5	6	2	3				0.0000	0.0000	0.0000	0.0000
5	7	2	2				0.0117	0.0059	0.0000	0.0000
5	8	2	1				0.0000	0.0000	0.0000	0.0000
5	9	2	0				0.0000	0.0000	0.0000	0.0000
5	10	2	-1				0.0000	0.0000	0.0000	0.0000

Table F.7—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0.0000	0.0000	0.0000	0.0000
6	5	2	5				0.0000	0.0000	0.0000	0.0000
6	6	2	4				0.0000	0.0000	0.0000	0.0000
6	7	2	3				0.0000	0.0000	0.0000	0.0000
6	8	2	2				0.0204	0.0084	0.0000	0.0000
6	9	2	1				0.0000	0.0000	0.0000	0.0000
6	10	2	0				0.0000	0.0000	0.0000	0.0000
6	11	2	-1				0.0000	0.0000	0.0000	0.0000
7	5	2	6				0.0000	0.0000	0.0000	0.0000
7	6	2	5				0.0000	0.0000	0.0000	0.0000
7	7	2	4				0.0000	0.0000	0.0000	0.0000
7	8	2	3				0.0000	0.0000	0.0000	0.0000
7	9	2	2				0.0000	0.0079	0.0000	0.0000
7	10	2	1				0.0000	0.0000	0.0000	0.0000
7	11	2	0				0.0000	0.0000	0.0000	0.0000
7	12	2	-1				0.0000	0.0000	0.0000	0.0000
8	6	2	6				0.0000	0.0000	0.0000	0.0000
8	7	2	5				0.0000	0.0000	0.0000	0.0000
8	8	2	4				0.0000	0.0000	0.0000	0.0000
8	9	2	3				0.0000	0.0000	0.0000	0.0000
8	10	2	2				0.0000	0.0000	0.0000	0.0000
8	11	2	1				0.0000	0.0000	0.0000	0.0000
8	12	2	0				0.0000	0.0000	0.0000	0.0000
8	13	2	-1				0.0000	0.0000	0.0000	0.0000
9	7	2	6				0.0000	0.0000	0.0000	0.0000
9	8	2	5				0.0000	0.0000	0.0000	0.0000
9	9	2	4				0.0000	0.0000	0.0000	0.0000
9	10	2	3				0.0000	0.0000	0.0000	0.0000
9	11	2	2				0.0000	0.0557	0.0000	0.0000
9	12	2	1				0.0000	0.0000	0.0000	0.0000
9	13	2	0				0.0000	0.0000	0.0000	0.0000
9	14	2	-1				0.0000	0.0000	0.0000	0.0000
10	8	2	6				0.0000	0.0000	0.0000	0.0000
10	9	2	5				0.0000	0.0000	0.0000	0.0000
10	10	2	4				0.0000	0.0000	0.0000	0.0000
10	11	2	3				0.0000	0.0000	0.0000	0.0000
10	12	2	2				0.0000	0.0000	0.0000	0.0000
10	13	2	1				0.0000	0.0000	0.0000	0.0000
10	14	2	0				0.0000	0.0000	0.0000	0.0000
10	15	2	-1				0.0000	0.0000	0.0000	0.0000

Table F.8

EARLY OUT LOSSES FROM FISCAL YEAR 1986

Track	YOS	CATEN	YETS	Pay Grade						
				E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0	0	0	0	0	0	
1	1	1	3	0	0	0	0	0	0	
1	2	1	2	0	0	1407	455	0	0	
1	3	1	1	0	0	3	32	0	0	
1	4	1	0	0	0	0	0	0	0	
1	5	1	-1	0	0	0	0	0	0	
2	0	1	6	0	0	0	0	0	0	
2	1	1	5	0	0	0	0	0	0	
2	2	1	4	0	0	0	0	0	0	
2	3	1	3	0	0	0	0	0	0	
2	4	1	2	0	0	0	95	26	0	
2	5	1	1	0	0	0	0	0	0	
2	6	1	0	0	0	0	0	0	0	
2	7	1	-1	0	0	0	0	0	0	
3	3	2	4				0	0	0	0
3	4	2	3				0	0	0	0
3	5	2	2				0	0	0	0
3	6	2	1				0	0	0	0
3	7	2	0				0	0	0	0
3	8	2	-1				0	0	0	0
4	4	2	4				0	0	0	0
4	5	2	3				0	0	0	0
4	6	2	2				30	42	0	0
4	7	2	1				0	0	0	0
4	8	2	0				0	0	0	0
4	9	2	-1				0	0	0	0
5	3	2	6				0	0	0	0
5	4	2	5				0	0	0	0
5	5	2	4				0	0	0	0
5	6	2	3				0	0	0	0
5	7	2	2				8	24	0	0
5	8	2	1				0	0	0	0
5	9	2	0				0	0	0	0
5	10	2	-1				0	0	0	0

Table F.8—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0	0	0	0
6	5	2	5				0	0	0	0
6	6	2	4				0	0	0	0
6	7	2	3				0	0	0	0
6	8	2	2				7	35	0	0
6	9	2	1				0	0	0	0
6	10	2	0				0	0	0	0
6	11	2	-1				0	0	0	0
7	5	2	6				0	0	0	0
7	6	2	5				0	0	0	0
7	7	2	4				0	0	0	0
7	8	2	3				0	0	0	0
7	9	2	2				0	9	0	0
7	10	2	1				0	0	0	0
7	11	2	0				0	0	0	0
7	12	2	-1				0	0	0	0
8	6	2	6				0	0	0	0
8	7	2	5				0	0	0	0
8	8	2	4				0	0	0	0
8	9	2	3				0	0	0	0
8	10	2	2				0	0	0	0
8	11	2	1				0	0	0	0
8	12	2	0				0	0	0	0
8	13	2	-1				0	0	0	0
9	7	2	6				0	0	0	0
9	8	2	5				0	0	0	0
9	9	2	4				0	0	0	0
9	10	2	3				0	0	0	0
9	11	2	2				0	6	0	0
9	12	2	1				0	0	0	0
9	13	2	0				0	0	0	0
9	14	2	-1				0	0	0	0
10	8	2	6				0	0	0	0
10	9	2	5				0	0	0	0
10	10	2	4				0	0	0	0
10	11	2	3				0	0	0	0
10	12	2	2				0	0	0	0
10	13	2	1				0	0	0	0
10	14	2	0				0	0	0	0
10	15	2	-1				0	0	0	0

Table F.9

PALACE CHASE DISTRIBUTION OF LOSSES

Trac k	YOS	CAT EN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	1	1	3	0.0000	0.0000	0.0246	0.0000	0.0000	0.0000	
1	2	1	2	0.0000	0.0000	0.0155	0.0187	0.0000	0.0000	
1	3	1	1	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	
1	4	1	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	5	1	-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	2	1	4	0.0000	0.0000	0.0051	0.0142	0.0000	0.0000	
2	3	1	3	0.0000	0.0000	0.0000	0.0154	0.0097	0.0000	
2	4	1	2	0.0000	0.0000	0.0000	0.0142	0.0167	0.0000	
2	5	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	6	1	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	7	1	-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
3	3	2	4				0.0040	0.0000	0.0000	0.0000
3	4	2	3				0.0088	0.0061	0.0000	0.0000
3	5	2	2				0.0118	0.0139	0.0000	0.0000
3	6	2	1				0.0000	0.0000	0.0000	0.0000
3	7	2	0				0.0000	0.0000	0.0000	0.0000
3	8	2	-1				0.0000	0.0000	0.0000	0.0000
4	4	2	4				0.0054	0.0055	0.0000	0.0000
4	5	2	3				0.0097	0.0109	0.0000	0.0000
4	6	2	2				0.0103	0.0077	0.0000	0.0000
4	7	2	1				0.0000	0.0000	0.0000	0.0000
4	8	2	0				0.0000	0.0000	0.0000	0.0000
4	9	2	-1				0.0000	0.0000	0.0000	0.0000
5	3	2	6				0.0000	0.0000	0.0000	0.0000
5	4	2	5				0.0000	0.0000	0.0000	0.0000
5	5	2	4				0.0052	0.0072	0.0000	0.0000
5	6	2	3				0.0081	0.0069	0.0000	0.0000
5	7	2	2				0.0044	0.0100	0.0000	0.0000
5	8	2	1				0.0000	0.0000	0.0000	0.0000
5	9	2	0				0.0000	0.0000	0.0000	0.0000
5	10	2	-1				0.0000	0.0000	0.0000	0.0000

Table F.9—continued

Track	YOS	CAT	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0.0000	0.0000	0.0000	0.0000
6	5	2	5				0.0000	0.0000	0.0000	0.0000
6	6	2	4				0.0023	0.0049	0.0000	0.0000
6	7	2	3				0.0074	0.0046	0.0000	0.0000
6	8	2	2				0.0029	0.0050	0.0000	0.0000
6	9	2	1				0.0000	0.0000	0.0000	0.0000
6	10	2	0				0.0000	0.0000	0.0000	0.0000
6	11	2	-1				0.0000	0.0000	0.0000	0.0000
7	5	2	6				0.0000	0.0000	0.0000	0.0000
7	6	2	5				0.0000	0.0000	0.0000	0.0000
7	7	2	4				0.0000	0.0034	0.0000	0.0000
7	8	2	3				0.0000	0.0063	0.0000	0.0000
7	9	2	2				0.0000	0.0026	0.0000	0.0000
7	10	2	1				0.0000	0.0000	0.0000	0.0000
7	11	2	0				0.0000	0.0000	0.0000	0.0000
7	12	2	-1				0.0000	0.0000	0.0000	0.0000
8	6	2	6				0.0000	0.0000	0.0000	0.0000
8	7	2	5				0.0000	0.0000	0.0000	0.0000
8	8	2	4				0.0000	0.0061	0.0000	0.0000
8	9	2	3				0.0000	0.0015	0.0000	0.0000
8	10	2	2				0.0000	0.0036	0.0000	0.0000
8	11	2	1				0.0000	0.0000	0.0000	0.0000
8	12	2	0				0.0000	0.0000	0.0000	0.0000
8	13	2	-1				0.0000	0.0000	0.0000	0.0000
9	7	2	6				0.0000	0.0000	0.0000	0.0000
9	8	2	5				0.0000	0.0000	0.0000	0.0000
9	9	2	4				0.0000	0.0000	0.0000	0.0000
9	10	2	3				0.0000	0.0000	0.0000	0.0000
9	11	2	2				0.0000	0.0000	0.0000	0.0000
9	12	2	1				0.0000	0.0000	0.0000	0.0000
9	13	2	0				0.0000	0.0000	0.0000	0.0000
9	14	2	-1				0.0000	0.0000	0.0000	0.0000
10	8	2	6				0.0000	0.0000	0.0000	0.0000
10	9	2	5				0.0000	0.0000	0.0000	0.0000
10	10	2	4				0.0000	0.0000	0.0000	0.0000
10	11	2	3				0.0000	0.0000	0.0000	0.0000
10	12	2	2				0.0000	0.0000	0.0000	0.0000
10	13	2	1				0.0000	0.0000	0.0000	0.0000
10	14	2	0				0.0000	0.0000	0.0000	0.0000
10	15	2	-1				0.0000	0.0000	0.0000	0.0000

Table F.10

PALACE CHASE LOSSES FROM FISCAL YEAR 1986

Trak	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0	0	290	0	0	0	
1	1	1	3	0	0	765	1	0	0	
1	2	1	2	0	0	600	140	0	0	
1	3	1	1	0	0	6	3	0	0	
1	4	1	0	0	0	0	0	0	0	
1	5	1	-1	0	0	0	0	0	0	
2	0	1	6	0	0	0	0	0	0	
2	1	1	5	0	0	0	0	0	0	
2	2	1	4	0	0	16	47	0	0	
2	3	1	3	0	0	1	76	2	0	
2	4	1	2	0	0	0	56	19	0	
2	5	1	1	0	0	0	0	0	0	
2	6	1	0	0	0	0	0	0	0	
2	7	1	-1	0	0	0	0	0	0	
3	3	2	4				13	0	0	0
3	4	2	3				23	3	0	0
3	5	2	2				21	17	0	0
3	6	2	1				0	0	0	0
3	7	2	0				0	0	0	0
3	8	2	-1				0	0	0	0
4	4	2	4				46	6	0	0
4	5	2	3				53	28	0	0
4	6	2	2				31	44	0	0
4	7	2	1				0	0	0	0
4	8	2	0				0	0	0	0
4	9	2	-1				0	0	0	0
5	3	2	6				0	0	0	0
5	4	2	5				0	0	0	0
5	5	2	4				18	17	0	0
5	6	2	3				12	21	0	0
5	7	2	2				3	41	0	0
5	8	2	1				0	0	0	0
5	9	2	0				0	0	0	0
5	10	2	-1				0	0	0	0

Table F.10—continued

Track	YOS	CAT ONL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0	0	0	0
6	5	2	5				0	0	0	0
6	6	2	4				5	20	0	0
6	7	2	3				6	20	0	0
6	8	2	2				1	21	0	0
6	9	2	1				0	0	0	0
6	10	2	0				0	0	0	0
6	11	2	-1				0	0	0	0
7	5	2	6				0	0	0	0
7	6	2	5				0	0	0	0
7	7	2	4				0	7	0	0
7	8	2	3				0	12	0	0
7	9	2	2				0	3	0	0
7	10	2	1				0	0	0	0
7	11	2	0				0	0	0	0
7	12	2	-1				0	0	0	0
8	6	2	6				0	0	0	0
8	7	2	5				0	0	0	0
8	8	2	4				0	5	0	0
8	9	2	3				0	2	0	0
8	10	2	2				0	3	0	0
8	11	2	1				0	0	0	0
8	12	2	0				0	0	0	0
8	13	2	-1				0	0	0	0
9	7	2	6				0	0	0	0
9	8	2	5				0	0	0	0
9	9	2	4				0	0	0	0
9	10	2	3				0	0	0	0
9	11	2	2				0	0	0	0
9	12	2	1				0	0	0	0
9	13	2	0				0	0	0	0
9	14	2	-1				0	0	0	0
10	8	2	6				0	0	0	0
10	9	2	5				0	0	0	0
10	10	2	4				0	0	0	0
10	11	2	3				0	0	0	0
10	12	2	2				0	0	0	0
10	13	2	1				0	0	0	0
10	14	2	0				0	0	0	0
10	15	2	-1				0	0	0	0

Table F.11

PALACE CHASE LOSSES FROM FISCAL YEAR 1985

Track	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0	0	290	0	0	0	
1	1	1	3	0	0	765	1	0	0	
1	2	1	2	0	0	600	140	0	0	
1	3	1	1	0	0	6	3	0	0	
1	4	1	0	0	0	0	0	0	0	
1	5	1	-1	0	0	0	0	0	0	
2	0	1	6	0	0	0	0	0	0	
2	1	1	5	0	0	0	0	0	0	
2	2	1	4	0	0	16	47	0	0	
2	3	1	3	0	0	1	76	2	0	
2	4	1	2	0	0	0	56	19	0	
2	5	1	1	0	0	0	0	0	0	
2	6	1	0	0	0	0	0	0	0	
2	7	1	-1	0	0	0	0	0	0	
3	3	2	4				13	0	0	0
3	4	2	3				23	3	0	0
3	5	2	2				21	17	0	0
3	6	2	1				0	0	0	0
3	7	2	0				0	0	0	0
3	8	2	-1				0	0	0	0
4	4	2	4				46	6	0	0
4	5	2	3				53	28	0	0
4	6	2	2				31	44	0	0
4	7	2	1				0	0	0	0
4	8	2	0				0	0	0	0
4	9	2	-1				0	0	0	0
5	3	2	6				0	0	0	0
5	4	2	5				0	0	0	0
5	5	2	4				18	17	0	0
5	6	2	3				12	21	0	0
5	7	2	2				3	41	0	0
5	8	2	1				0	0	0	0
5	9	2	0				0	0	0	0
5	10	2	-1				0	0	0	0

Table F.11—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0	0	0	0
6	5	2	5				0	[illegible]	0	0
6	6	2	4				5	2[illegible]	0	0
6	7	2	3				6	20	0	0
6	8	2	2				1	21	0	0
6	9	2	1				0	0	0	0
6	10	2	0				0	0	0	0
6	11	2	-1				0	0	0	0
7	5	2	6				0	0	0	0
7	6	2	5				0	0	0	0
7	7	2	4				0	7	0	0
7	8	2	3				0	12	0	0
7	9	2	2				0	3	0	0
7	10	2	1				0	0	0	0
7	11	2	0				0	0	0	0
7	12	2	-1				0	0	0	0
8	6	2	6				0	0	0	0
8	7	2	5				0	0	0	0
8	8	2	4				0	5	0	0
8	9	2	3				0	2	0	0
8	10	2	2				0	3	0	0
8	11	2	1				0	0	0	0
8	12	2	0				0	0	0	0
8	13	2	-1				0	0	0	0
9	7	2	6				0	0	0	0
9	8	2	5				0	0	0	0
9	9	2	4				0	0	0	0
9	10	2	3				0	0	0	0
9	11	2	2				0	0	0	0
9	12	2	1				0	0	0	0
9	13	2	0				0	0	0	0
9	14	2	-1				0	0	0	0
10	8	2	6				0	0	0	0
10	9	2	5				0	[illegible]	0	0
10	10	2	4				0	0	0	0
10	11	2	3				0	0	0	0
10	12	2	2				0	0	0	0
10	13	2	1				0	0	0	0
10	14	2	0				0	0	0	0
10	15	2	-1				0	0	0	0

Table F.12

PALACE CHASE LOSSES FROM FISCAL YEAR 1984

Track	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0	0	290	0	0	0	
1	1	1	3	0	0	765	1	0	0	
1	2	1	2	0	0	600	140	0	0	
1	3	1	1	0	0	6	3	0	0	
1	4	1	0	0	0	0	0	0	0	
1	5	1	-1	0	0	0	0	0	0	
2	0	1	6	0	0	0	0	0	0	
2	1	1	5	0	0	0	0	0	0	
2	2	1	4	0	0	16	47	0	0	
2	3	1	3	0	0	1	76	2	0	
2	4	1	2	0	0	0	56	19	0	
2	5	1	1	0	0	0	0	0	0	
2	6	1	0	0	0	0	0	0	0	
2	7	1	-1	0	0	0	0	0	0	
3	3	2	4				13	0	0	0
3	4	2	3				23	3	0	0
3	5	2	2				21	17	0	0
3	6	2	1				0	0	0	0
3	7	2	0				0	0	0	0
3	8	2	-1				0	0	0	0
4	4	2	4				46	6	0	0
4	5	2	3				53	28	0	0
4	6	2	2				31	44	0	0
4	7	2	1				0	0	0	0
4	8	2	0				0	0	0	0
4	9	2	-1				0	0	0	0
5	3	2	6				0	0	0	0
5	4	2	5				0	0	0	0
5	5	2	4				18	17	0	0
5	6	2	3				12	21	0	0
5	7	2	2				3	41	0	0
5	8	2	1				0	0	0	0
5	9	2	0				0	0	0	0
5	10	2	-1				0	0	0	0

Table F.12—continued

Track	YOS	CAT	ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2		6				0	0	0	0
6	5	2		5				0	0	0	0
6	6	2		4				5	20	0	0
6	7	2		3				6	20	0	0
6	8	2		2				1	21	0	0
6	9	2		1				0	0	0	0
6	10	2		0				0	0	0	0
6	11	2		-1				0	0	0	0
7	5	2		6				0	0	0	0
7	6	2		5				0	0	0	0
7	7	2		4				0	7	0	0
7	8	2		3				0	12	0	0
7	9	2		2				0	3	0	0
7	10	2		1				0	0	0	0
7	11	2		0				0	0	0	0
7	12	2		-1				0	0	0	0
8	6	2		6				0	0	0	0
8	7	2		5				0	0	0	0
8	8	2		4				0	5	0	0
8	9	2		3				0	2	0	0
8	10	2		2				0	3	0	0
8	11	2		1				0	0	0	0
8	12	2		0				0	0	0	0
8	13	2		-1				0	0	0	0
9	7	2		6				0	0	0	0
9	8	2		5				0	0	0	0
9	9	2		4				0	0	0	0
9	10	2		3				0	0	0	0
9	11	2		2				0	0	0	0
9	12	2		1				0	0	0	0
9	13	2		0				0	0	0	0
9	14	2		-1				0	0	0	0
10	8	2		6				0	0	0	0
10	9	2		5				0	0	0	0
10	10	2		4				0	0	0	0
10	11	2		3				0	0	0	0
10	12	2		2				0	0	0	0
10	13	2		1				0	0	0	0
10	14	2		0				0	0	0	0
10	15	2		-1				0	0	0	0

Table F.13

DISTRIBUTION OF ROLLUP LOSSES

Trac k	YOS	CAT EGL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	2	1	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
1	3	1	1	0.0000	0.0000	0.0000	0.1832	0.1937	0.2531	
1	4	1	0	0.0000	0.0000	0.0000	0.1377	0.1523	0.4717	
1	5	1	-1	0.0000	0.0000	0.0000	0.2497	0.3123	0.0000	
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	4	1	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	5	1	1	0.0000	0.0000	0.0000	0.1752	0.1877	0.2258	
2	6	1	0	0.0000	0.0000	0.0000	0.1603	0.1233	0.0414	
2	7	1	-1	0.0000	0.0000	0.0000	0.1846	0.1444	0.0000	
3	3	2	4				0.0000	0.0000	0.0000	0.0000
3	4	2	3				0.0000	0.0000	0.0000	0.0000
3	5	2	2				0.0000	0.0000	0.0000	0.0000
3	6	2	1				0.0576	0.0504	0.0444	0.0000
3	7	2	0				0.0741	0.0473	0.0129	0.0000
3	8	2	-1				0.0963	0.0673	0.0000	0.0000
4	4	2	4				0.0000	0.0000	0.0000	0.0000
4	5	2	3				0.0000	0.0000	0.0000	0.0000
4	6	2	2				0.0000	0.0000	0.0000	0.0000
4	7	2	1				0.0628	0.0531	0.0236	0.0000
4	8	2	0				0.0564	0.0486	0.0321	0.0000
4	9	2	-1				0.0947	0.0420	0.0291	0.0000
5	3	2	6				0.0000	0.0000	0.0000	0.0000
5	4	2	5				0.0000	0.0000	0.0000	0.0000
5	5	2	4				0.0000	0.0000	0.0000	0.0000
5	6	2	3				0.0000	0.0000	0.0000	0.0000
5	7	2	2				0.0000	0.0000	0.0000	0.0000
5	8	2	1				0.0779	0.0522	0.0264	0.0000
5	9	2	0				0.0449	0.0413	0.0184	0.0000
5	10	2	-1				0.0000	0.0476	0.0068	0.0000

Table F.13—continued

Track	YOS	CATEN	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7
6	4	2	6				0.0000	0.0000	0.0000	0.0000
6	5	2	5				0.0000	0.0000	0.0000	0.0000
6	6	2	4				0.0000	0.0000	0.0000	0.0000
6	7	2	3				0.0000	0.0000	0.0000	0.0000
6	8	2	2				0.0000	0.0000	0.0000	0.0000
6	9	2	1				0.0770	0.0474	0.0209	0.0275
6	10	2	0				0.0000	0.0396	0.0218	0.0000
6	11	2	-1				0.0000	0.0480	0.0077	0.0000
7	5	2	6				0.0000	0.0000	0.0000	0.0000
7	6	2	5				0.0000	0.0000	0.0000	0.0000
7	7	2	4				0.0000	0.0000	0.0000	0.0000
7	8	2	3				0.0000	0.0000	0.0000	0.0000
7	9	2	2				0.0000	0.0000	0.0000	0.0000
7	10	2	1				0.0925	0.0437	0.0222	0.0000
7	11	2	0				0.0000	0.0261	0.0156	0.0957
7	12	2	-1				0.0000	0.0189	0.0000	0.0000
8	6	2	6				0.0000	0.0000	0.0000	0.0000
8	7	2	5				0.0000	0.0000	0.0000	0.0000
8	8	2	4				0.0000	0.0000	0.0000	0.0000
8	9	2	3				0.0000	0.0000	0.0000	0.0000
8	10	2	2				0.0197	0.0002	0.0000	0.0000
8	11	2	1				0.1048	0.0300	0.0133	0.0000
8	12	2	0				0.0000	0.0168	0.0164	0.0000
8	13	2	-1				0.0000	0.0000	0.0000	0.0000
9	7	2	6				0.0000	0.0000	0.0000	0.0000
9	8	2	5				0.0000	0.0000	0.0000	0.0000
9	9	2	4				0.0000	0.0000	0.0000	0.0000
9	10	2	3				0.0000	0.0000	0.0000	0.0000
9	11	2	2				0.0000	0.0043	0.0003	0.0000
9	12	2	1				0.0000	0.0233	0.0057	0.0275
9	13	2	0				0.0000	0.0000	0.0000	0.0000
9	14	2	-1				0.0000	0.2739	0.0000	0.0000
10	8	2	6				0.0000	0.0000	0.0000	0.0000
10	9	2	5				0.0000	0.0000	0.0000	0.0000
10	10	2	4				0.0000	0.0000	0.0000	0.0000
10	11	2	3				0.1048	0.0002	0.0000	0.0000
10	12	2	2				0.0000	0.0000	0.0000	0.0000
10	13	2	1				0.0000	0.0308	0.0087	0.0000
10	14	2	0				0.0000	0.0000	0.0000	0.0000
10	15	2	-1				0.0000	0.0000	0.0000	0.0000

Table F.14

FORCED EARLY REENLISTMENT OUT DISTRIBUTION: SAME FISCAL YEAR

Track	YOS	CAT ENL	YET	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	2	1	2	0.0000	0.0000	0.1138	0.1985	0.0000	0.0000			
1	3	1	1	0.0000	0.0000	0.0000	0.6200	0.6102	0.9685			
1	4	1	0	0.0000	0.0000	0.0000	0.5533	0.5955	0.0000			
1	5	1	-1	0.0000	0.0000	0.0000	0.5000	0.5000	0.5000			
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	4	1	2	0.0000	0.0000	0.0000	0.1791	0.2432	0.0000			
2	5	1	1	0.0000	0.0000	0.0000	0.8559	0.7887	0.0000			
2	6	1	0	0.0000	0.0000	0.0000	0.5225	0.6111	0.5938			
2	7	1	-1	0.0000	0.0000	0.0000	0.5000	0.5000	0.5000			
3	3	2	4				0.0000	0.0000	0.0000	0.0000		
3	4	2	3				0.0000	0.0000	0.0000	0.0000		
3	5	2	2				0.1103	0.1157	0.2181	0.0000		
3	6	2	1				0.6304	0.6328	0.2507	0.0000		
3	7	2	0				0.5915	0.5566	0.5218	0.0000		
3	8	2	-1				0.5000	0.5000	0.5000	0.5000		
4	4	2	4				0.0000	0.0000	0.0000	0.0000		
4	5	2	3				0.0000	0.0000	0.0000	0.0000		
4	6	2	2				0.1356	0.1534	0.1866	0.0000		
4	7	2	1				0.6302	0.6537	0.6524	0.5000		
4	8	2	0				0.5846	0.5919	0.5917	0.0000		
4	9	2	-1				0.5000	0.5000	0.5000	0.5000		
5	3	2	6				0.0000	0.0000	0.0000	0.0000		
5	4	2	5				0.0000	0.0000	0.0000	0.0000		
5	5	2	4				0.0000	0.0000	0.0000	0.0000		
5	6	2	3				0.0000	0.0000	0.0000	0.0000		
5	7	2	2				0.1913	0.1843	0.1704	0.0000		
5	8	2	1				0.6322	0.6802	0.5665	0.5000		
5	9	2	0				0.6347	0.6252	0.6262	0.0000		
5	10	2	-1				0.5000	0.5000	0.5000	0.5000		

Table F.14—continued

Track	YOS	CATEN L	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.0000	0.0000	0.0000	0.0000		
6	5	2	5				0.0000	0.0000	0.0000	0.0000		
6	6	2	4				0.0000	0.0000	0.0000	0.0000		
6	7	2	3				0.0000	0.0000	0.0000	0.0000		
6	8	2	2				0.1878	0.2265	0.2661	0.5000		
6	9	2	1				0.7387	0.7235	0.6166	0.6062		
6	10	2	0				0.3790	0.6475	0.6027	0.7224		
6	11	2	-1				0.5000	0.5000	0.5000	0.5000		
7	5	2	6				0.0000	0.0000	0.0000	0.0000		
7	6	2	5				0.0000	0.0000	0.0000	0.0000		
7	7	2	4				0.0000	0.0000	0.0000	0.0000		
7	8	2	3				0.0000	0.0000	0.0000	0.0000		
7	9	2	2				0.2219	0.3921	0.3798	0.5418		
7	10	2	1				0.8841	0.7153	0.6618	0.7224		
7	11	2	0				0.2843	0.7142	0.6003	0.8593		
7	12	2	-1				0.5000	0.5000	0.5000	0.5000		
8	6	2	6				0.0000	0.0000	0.0000	0.0000		
8	7	2	5				0.0000	0.0000	0.0000	0.0000		
8	8	2	4				0.0000	0.0000	0.0000	0.0000		
8	9	2	3				0.0000	0.0000	0.0000	0.0000		
8	10	2	2				0.4343	0.2852	0.3358	0.3251		
8	11	2	1				0.2388	0.7181	0.7234	0.7224		
8	12	2	0				0.5000	0.6758	0.6653	0.0000		
8	13	2	-1				0.5000	0.5000	0.5000	0.5000		
9	7	2	6				0.0000	0.0000	0.0000	0.0000		
9	8	2	5				0.0000	0.0000	0.0000	0.0000		
9	9	2	4				0.0000	0.0000	0.0000	0.0000		
9	10	2	3				0.0000	0.0000	0.0000	0.0000		
9	11	2	2				0.5000	0.3209	0.4228	0.2709		
9	12	2	1				0.0000	0.8610	0.7009	0.6062		
9	13	2	0				0.0000	0.2708	0.7271	0.0000		
9	14	2	-1				0.5000	0.5000	0.5000	0.5000		

Table F.14—continued

Track	YOS	CATEN L	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.0000	0.0000	0.0000	0.0000		
10	9	2	5				0.0000	0.0000	0.0000	0.0000		
10	10	2	4				0.0000	0.0000	0.0000	0.0000		
10	11	2	3				0.0000	0.0000	0.0000	0.0000		
10	12	2	2				0.0000	0.4814	0.3116	0.0000		
10	13	2	1				0.0000	0.9017	0.6450	0.5000		
10	14	2	0				0.0000	0.7222	0.7271	0.0000		
10	15	2	-1				0.5000	0.5000	0.5000	0.5000		
11	6	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	8	3	x				0.0345	0.0114	0.0145	0.0000	0.0000	0.0000
11	9	3	x				0.1064	0.0568	0.0522	0.0552	0.0000	0.0000
11	10	3	x				0.1350	0.1274	0.1108	0.1433	0.0000	0.0000
11	11	3	x				0.2562	0.1849	0.1881	0.2141	0.4485	0.0000
11	12	3	x				0.1587	0.1563	0.1592	0.1470	0.3738	0.0000
11	13	3	x				0.0896	0.1619	0.1558	0.1517	0.1463	0.5000
11	14	3	x				0.1901	0.2077	0.2152	0.1889	0.1952	0.0000
11	15	3	x				0.2123	0.2834	0.3413	0.3907	0.3982	0.3732
11	16	3	x				0.0598	0.1731	0.1941	0.1884	0.1468	0.0000
11	17	3	x				0.0593	0.0923	0.1058	0.1040	0.1203	0.1343
11	18	3	x				0.0000	0.0385	0.0986	0.0753	0.0718	0.1072
11	19	3	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	20	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	21	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	22	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	23	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	24	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	25	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	26	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	27	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	28	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	29	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412

Table F.15

FORCED EARLY REENLISTMENT OUT DISTRIBUTION: NEXT FISCAL YEAR

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	1	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
1	2	1	2	0.0000	0.0000	0.1138	0.1985	0.0000	0.0000			
1	3	1	1	0.0000	0.0000	0.0000	0.6200	0.6102	0.9685			
1	4	1	0	0.0000	0.0000	0.0000	0.5533	0.5955	0.0000			
1	5	1	-1	0.0000	0.0000	0.0000	0.5000	0.5000	0.5000			
2	0	1	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	1	1	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	2	1	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	3	1	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	4	1	2	0.0000	0.0000	0.0000	0.1791	0.2432	0.0000			
2	5	1	1	0.0000	0.0000	0.0000	0.8559	0.7887	0.0000			
2	6	1	0	0.0000	0.0000	0.0000	0.5225	0.6111	0.5938			
2	7	1	-1	0.0000	0.0000	0.0000	0.5000	0.5000	0.5000			
3	3	2	4				0.0000	0.0000	0.0000	0.0000		
3	4	2	3				0.0000	0.0000	0.0000	0.0000		
3	5	2	2				0.1103	0.1157	0.2181	0.0000		
3	6	2	1				0.6304	0.6328	0.2507	0.0000		
3	7	2	0				0.5915	0.5566	0.5218	0.0000		
3	8	2	-1				0.5000	0.5000	0.5000	0.5000		
4	4	2	4				0.0000	0.0000	0.0000	0.0000		
4	5	2	3				0.0000	0.0000	0.0000	0.0000		
4	6	2	2				0.1356	0.1534	0.1866	0.0000		
4	7	2	1				0.6302	0.6537	0.6524	0.5000		
4	8	2	0				0.5846	0.5919	0.5917	0.0000		
4	9	2	-1				0.5000	0.5000	0.5000	0.5000		
5	3	2	6				0.0000	0.0000	0.0000	0.0000		
5	4	2	5				0.0000	0.0000	0.0000	0.0000		
5	5	2	4				0.0000	0.0000	0.0000	0.0000		
5	6	2	3				0.0000	0.0000	0.0000	0.0000		
5	7	2	2				0.1913	0.1843	0.1704	0.0000		
5	8	2	1				0.6322	0.6802	0.5665	0.5000		
5	9	2	0				0.6347	0.6252	0.6262	0.0000		
5	10	2	-1				0.5000	0.5000	0.5000	0.5000		

Table F.15—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0.0000	0.0000	0.0000	0.0000		
6	5	2	5				0.0000	0.0000	0.0000	0.0000		
6	6	2	4				0.0000	0.0000	0.0000	0.0000		
6	7	2	3				0.0000	0.0000	0.0000	0.0000		
6	8	2	2				0.1878	0.2265	0.2661	0.5000		
6	9	2	1				0.7387	0.7235	0.6166	0.6062		
6	10	2	0				0.3790	0.6475	0.6027	0.7224		
6	11	2	-1				0.5000	0.5000	0.5000	0.5000		
7	5	2	6				0.0000	0.0000	0.0000	0.0000		
7	6	2	5				0.0000	0.0000	0.0000	0.0000		
7	7	2	4				0.0000	0.0000	0.0000	0.0000		
7	8	2	3				0.0000	0.0000	0.0000	0.0000		
7	9	2	2				0.2219	0.3921	0.3798	0.5418		
7	10	2	1				0.8841	0.7153	0.6618	0.7224		
7	11	2	0				0.2843	0.7142	0.6003	0.8593		
7	12	2	-1				0.5000	0.5000	0.5000	0.5000		
8	6	2	6				0.0000	0.0000	0.0000	0.0000		
8	7	2	5				0.0000	0.0000	0.0000	0.0000		
8	8	2	4				0.0000	0.0000	0.0000	0.0000		
8	9	2	3				0.0000	0.0000	0.0000	0.0000		
8	10	2	2				0.4343	0.2852	0.3358	0.3251		
8	11	2	1				0.2388	0.7181	0.7234	0.7224		
8	12	2	0				0.5000	0.6758	0.6653	0.0000		
8	13	2	-1				0.5000	0.5000	0.5000	0.5000		
9	7	2	6				0.0000	0.0000	0.0000	0.0000		
9	8	2	5				0.0000	0.0000	0.0000	0.0000		
9	9	2	4				0.0000	0.0000	0.0000	0.0000		
9	10	2	3				0.0000	0.0000	0.0000	0.0000		
9	11	2	2				0.5000	0.3209	0.4228	0.2709		
9	12	2	1				0.0000	0.8610	0.7009	0.6062		
9	13	2	0				0.0000	0.2708	0.7271	0.0000		
9	14	2	-1				0.5000	0.5000	0.5000	0.5000		

Table F.15—continued

Track	YOS	CAT ENL	YETS	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0.0000	0.0000	0.0000	0.0000		
10	9	2	5				0.0000	0.0000	0.0000	0.0000		
10	10	2	4				0.0000	0.0000	0.0000	0.0000		
10	11	2	3				0.0000	0.0000	0.0000	0.0000		
10	12	2	2				0.0000	0.4814	0.3116	0.0000		
10	13	2	1				0.0000	0.9017	0.6450	0.5000		
10	14	2	0				0.0000	0.7222	0.7271	0.0000		
10	15	2	-1				0.5000	0.5000	0.5000	0.5000		
11	6	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	7	3	x				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	8	3	x				0.0345	0.0114	0.0145	0.0000	0.0000	0.0000
11	9	3	x				0.1064	0.0568	0.0522	0.0552	0.0000	0.0000
11	10	3	x				0.1350	0.1274	0.1108	0.1433	0.0000	0.0000
11	11	3	x				0.2562	0.1849	0.1881	0.2141	0.4485	0.0000
11	12	3	x				0.1587	0.1563	0.1592	0.1470	0.3738	0.0000
11	13	3	x				0.0896	0.1619	0.1558	0.1517	0.1463	0.5000
11	14	3	x				0.1901	0.2077	0.2152	0.1889	0.1952	0.0000
11	15	3	x				0.2123	0.2834	0.3413	0.3907	0.3982	0.3732
11	16	3	x				0.0598	0.1731	0.1941	0.1884	0.1468	0.0000
11	17	3	x				0.0593	0.0923	0.1058	0.1040	0.1203	0.1343
11	18	3	x				0.0000	0.0385	0.0986	0.0753	0.0718	0.1072
11	19	3	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	20	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	21	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	22	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	23	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	24	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	25	4	x				0.0000	0.0000	0.2412	0.2412	0.2412	0.2412
11	26	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	27	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	28	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412
11	29	4	x				0.0000	0.0000	0.0000	0.2412	0.2412	0.2412

Table F.16

FORCED EARLY REENLISTMENT FLOWS OUT SHIFTED FROM NEXT FISCAL YEAR

Track	YOS	CAT ENL	YET	Pay Grade								
				E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
1	0	1	4	0	0	0	0	0	0			
1	1	1	3	0	0	0	0	0	0			
1	2	1	2	0	0	0	0	0	0			
1	3	1	1	0	0	100	100	0	0			
1	4	1	0	0	0	200	100	0	0			
1	5	1	-1	0	0	0	0	0	0			
2	0	1	6	0	0	0	0	0	0			
2	1	1	5	0	0	0	0	0	0			
2	2	1	4	0	0	0	0	0	0			
2	3	1	3	0	0	0	0	0	0			
2	4	1	2	0	0	0	0	0	0			
2	5	1	1	0	0	100	300	0	0			
2	6	1	0	0	0	0	100	0	0			
2	7	1	-1	0	0	0	0	0	0			
3	3	2	4				0	0	0	0		
3	4	2	3				0	0	0	0		
3	5	2	2				0	0	0	0		
3	6	2	1				0	0	0	0		
3	7	2	0				0	0	0	0		
3	8	2	-1				0	0	0	0		
4	4	2	4				0	0	0	0		
4	5	2	3				0	0	0	0		
4	6	2	2				0	0	0	0		
4	7	2	1				0	0	50	0		
4	8	2	0				0	0	20	0		
4	9	2	-1				0	0	0	0		
5	3	2	6				0	0	0	0		
5	4	2	5				0	0	0	0		
5	5	2	4				0	0	0	0		
5	6	2	3				0	0	0	0		
5	7	2	2				0	0	0	0		
5	8	2	1				0	0	0	0		
5	9	2	0				0	0	0	0		
5	10	2	-1				0	0	0	0		

Table F.16—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
6	4	2	6				0	0	0	0		
6	5	2	5				0	0	0	0		
6	6	2	4				0	0	0	0		
6	7	2	3				0	0	0	0		
6	8	2	2				0	0	0	0		
6	9	2	1				0	30	0	0		
6	10	2	0				0	20	0	0		
6	11	2	-1				0	0	0	0		
7	5	2	6				0	0	0	0		
7	6	2	5				0	0	0	0		
7	7	2	4				0	0	0	0		
7	8	2	3				0	0	0	0		
7	9	2	2				0	0	0	0		
7	10	2	1				0	0	0	0		
7	11	2	0				0	0	0	0		
7	12	2	-1				0	0	0	0		
8	6	2	6				0	0	0	0		
8	7	2	5				0	0	0	0		
8	8	2	4				0	0	0	0		
8	9	2	3				0	0	0	0		
8	10	2	2				0	0	0	0		
8	11	2	1				0	0	0	0		
8	12	2	0				0	0	0	0		
8	13	2	-1				0	0	0	0		
9	7	2	6				0	0	0	0		
9	8	2	5				0	0	0	0		
9	9	2	4				0	0	0	0		
9	10	2	3				0	0	0	0		
9	11	2	2				0	0	0	0		
9	12	2	1				0	0	0	0		
9	13	2	0				0	0	0	0		
9	14	2	-1				0	0	0	0		

Table F.16—continued

Track	YOS	CAT ENL	YETS	Pay Grade E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
10	8	2	6				0	0	0	0		
10	9	2	5				0	0	0	0		
10	10	2	4				0	0	0	0		
10	11	2	3				0	0	0	0		
10	12	2	2				0	0	0	0		
10	13	2	1				0	0	0	0		
10	14	2	0				0	0	0	0		
10	15	2	-1				0	0	0	0		
11	6	3	x				0	0	0	0	0	0
11	7	3	x				0	0	0	0	0	0
11	8	3	x				0	0	0	0	0	0
11	9	3	x				0	0	0	0	0	0
11	10	3	x				0	0	0	0	0	0
11	11	3	x				0	0	0	0	0	0
11	12	3	x				0	0	0	0	0	0
11	13	3	x				0	0	0	0	0	0
11	14	3	x				0	0	30	0	0	0
11	15	3	x				0	0	0	0	0	0
11	16	3	x				0	0	20	0	0	0
11	17	3	x				0	0	0	0	0	0
11	18	3	x				0	0	0	0	0	0
11	19	3	x				0	0	0	0	0	0
11	20	4	x				0	0	0	0	0	0
11	21	4	x				0	0	0	0	0	0
11	22	4	x				0	0	0	0	0	0
11	23	4	x				0	0	0	0	0	0
11	24	4	x				0	0	0	0	0	0
11	25	4	x				0	0	0	0	0	0
11	26	4	x				0	0	0	0	0	0
11	27	4	x				0	0	0	0	0	0
11	28	4	x				0	0	0	0	0	0
11	29	4	x				0	0	0	0	0	0

Table F.17

ETS LOSS COEFFICIENTS

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
1	0	0.000	0.000	0.000	0.000	x	x	x
1	1	0.000	0.000	0.000	0.000	x	x	x
1	2	-0.942	-1.140	-0.089	-0.034	x	x	x
1	3	-0.908	-0.992	-0.079	-0.030	x	x	x
1	4	-0.719	0.222	0.000	0.000	x	x	x
1	5	-0.992	0.307	0.000	0.000	x	x	x
2	0	0.000	0.000	0.000	0.000	x	x	x
2	1	0.000	0.000	0.000	0.000	x	x	x
2	2	0.000	0.000	0.000	0.000	x	x	x
2	3	0.000	0.000	0.000	0.000	x	x	x
2	4	0.000	-1.140	-0.089	-0.034	x	x	x
2	5	0.000	-0.992	-0.079	-0.030	x	x	x
2	6	0.000	0.222	0.000	0.000	x	x	x
2	7	0.000	0.307	0.000	0.000	x	x	x
3	3	0.000	0.000	0.000	0.000	0.000	0.000	x
3	4	0.000	0.000	0.000	0.000	0.000	0.000	x
3	5	-1.386	-0.334	-0.110	-0.110	0.097	0.000	x
3	6	-1.329	-0.437	0.000	0.000	0.086	-0.097	x
3	7	-1.080	-1.512	0.000	0.000	0.000	0.000	x
3	8	-1.772	-2.350	0.000	0.000	0.000	0.000	x
4	4	0.000	0.000	x	x	0.000	0.000	x
4	5	0.000	0.000	x	x	0.000	0.000	x
4	6	-1.386	-0.334	x	x	0.097	-0.110	x
4	7	-1.329	-0.437	x	x	0.086	-0.097	x
4	8	-1.080	-1.512	x	x	0.000	0.000	x
4	9	-1.772	-2.350	x	x	0.000	0.000	x
5	3	0.000	0.000	x	x	0.000	0.000	x
5	4	0.000	0.000	x	x	0.000	0.000	x
5	5	0.000	0.000	x	x	0.000	0.000	x
5	6	0.000	0.000	x	x	0.000	0.000	x
5	7	-1.386	-0.334	x	x	0.097	-0.110	x
5	8	-1.329	-0.437	x	x	0.086	-0.097	x
5	9	-1.080	-1.512	x	x	0.000	0.000	x
5	10	-1.772	-2.350	x	x	0.000	0.000	x

Table F.17—continued

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
6	4	0.000	0.000	x	x	0.000	0.000	x
6	5	0.000	0.000	x	x	0.000	0.000	x
6	6	0.000	0.000	x	x	0.000	0.000	x
6	7	0.000	0.000	x	x	0.000	0.000	x
6	8	-1.386	-0.334	x	x	0.097	-0.110	x
6	9	-1.329	-0.437	x	x	0.086	-0.097	x
6	10	-1.080	-1.512	x	x	0.000	0.000	x
6	11	-1.772	-2.350	x	x	0.000	0.000	x
7	5	0.000	0.000	x	x	0.000	0.000	0.000
7	6	0.000	0.000	x	x	0.000	0.000	0.000
7	7	0.000	0.000	x	x	0.000	0.000	0.000
7	8	0.000	0.000	x	x	0.000	0.000	0.000
7	9	-1.386	-0.334	x	x	0.097	-0.110	0.000
7	10	-1.329	-0.437	x	x	0.086	0.000	-0.097
7	11	-1.080	-1.512	x	x	0.000	0.000	0.000
7	12	-1.772	-2.350	x	x	0.000	0.000	0.000
8	6	0.000	0.000	x	x	0.000	x	0.000
8	7	0.000	0.000	x	x	0.000	x	0.000
8	8	0.000	0.000	x	x	0.000	x	0.000
8	9	0.000	0.000	x	x	0.000	x	0.000
8	10	-1.386	-0.334	x	x	0.097	x	-0.110
8	11	-1.329	-0.437	x	x	0.086	x	-0.097
8	12	-1.080	-1.512	x	x	0.000	x	0.000
8	13	-1.772	-2.350	x	x	0.000	x	0.000
9	7	0.000	0.000	x	x	0.000	x	0.000
9	8	0.000	0.000	x	x	0.000	x	0.000
9	9	0.000	0.000	x	x	0.000	x	0.000
9	10	0.000	0.000	x	x	0.000	x	0.000
9	11	-1.386	-0.334	x	x	0.097	x	-0.110
9	12	-1.329	-0.437	x	x	0.086	x	-0.097
9	13	-1.080	-1.512	x	x	0.000	x	0.000
9	14	-1.772	-2.350	x	x	0.000	x	0.000

Table F.17—continued

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
10	8	0.000	0.000	x	x	0.000	x	0.000
10	9	0.000	0.000	x	x	0.000	x	0.000
10	10	0.000	0.000	x	x	0.000	x	0.000
10	11	0.000	0.000	x	x	0.000	x	0.000
10	12	-1.386	-0.334	x	x	0.097	x	-0.110
10	13	-1.329	-0.437	x	x	0.086	x	-0.097
10	14	-1.080	-1.512	x	x	0.000	x	0.000
10	15	-1.772	-2.350	x	x	0.000	x	0.000
11	6	0.000	0.000	x	x	x	0.000	0.000
11	7	0.000	0.000	x	x	x	0.000	0.000
11	8	15.882	-50.862	x	x	x	-2.749	0.000
11	9	-4.982	-15.954	x	x	x	-0.862	0.000
11	10	-2.668	-8.544	x	x	x	0.000	-0.462
11	11	-1.542	-4.939	x	x	x	0.000	-0.267
11	12	-1.457	-4.667	x	x	x	0.000	-0.252
11	13	-1.233	-3.949	x	x	x	0.000	-0.213
11	14	-0.911	-2.919	x	x	x	0.000	0.000
11	15	-0.775	-2.482	x	x	x	0.000	0.000
11	16	-0.741	-2.373	x	x	x	0.000	0.000
11	17	-0.618	-1.980	x	x	x	0.000	0.000
11	18	-0.444	-1.421	x	x	x	0.000	0.000
11	19	-0.408	0.000	x	x	x	0.000	0.000
11	20	-0.516	0.000	x	x	x	0.000	0.000
11	21	-0.587	0.000	x	x	x	0.000	0.000
11	22	-0.569	0.000	x	x	x	0.000	0.000
11	23	-0.804	0.000	x	x	x	0.000	0.000
11	24	-0.973	0.000	x	x	x	0.000	0.000
11	25	-0.370	0.000	x	x	x	0.000	0.000
11	26	-0.516	0.000	x	x	x	0.000	0.000
11	27	-0.385	0.000	x	x	x	0.000	0.000
11	28	-0.504	0.000	x	x	x	0.000	0.000
11	29	-0.135	0.000	x	x	x	0.000	0.000

(x = econometric parameter is not valid for that Track and is not included in the database)

Table F.18

REENLISTMENT COEFFICIENTS

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
1	0	0.000	0.000	0.000	0.000	x	x	x
1	1	0.000	0.000	0.000	0.000	x	x	x
1	2	0.000	0.000	0.081	0.081	x	x	x
1	3	0.000	0.000	0.072	0.072	x	x	x
1	4	0.000	0.000	0.000	0.000	x	x	x
1	5	0.000	0.000	0.000	0.000	x	x	x
2	0	0.000	0.000	0.000	0.000	x	x	x
2	1	0.000	0.000	0.000	0.000	x	x	x
2	2	0.000	0.000	0.000	0.000	x	x	x
2	3	0.000	0.000	0.000	0.000	x	x	x
2	4	0.000	0.000	0.081	0.081	x	x	x
2	5	0.000	0.000	0.072	0.072	x	x	x
2	6	0.000	0.000	0.000	0.000	x	x	x
2	7	0.000	0.000	0.000	0.000	x	x	x
3	3	0.000	0.000	0.000	0.000	0.000	0.000	x
3	4	0.000	0.000	0.000	0.000	0.000	0.000	x
3	5	0.654	1.348	0.302	0.302	0.000	0.000	x
3	6	0.581	1.199	0.000	0.000	0.000	0.269	x
3	7	0.000	0.000	0.000	0.000	0.000	0.000	x
3	8	0.000	0.000	0.000	0.000	0.000	0.000	x
4	4	0.000	0.000	x	x	0.000	0.000	x
4	5	0.000	0.000	x	x	0.000	0.000	x
4	6	0.654	1.348	x	x	0.000	0.302	x
4	7	0.581	1.199	x	x	0.000	0.269	x
4	8	0.000	0.000	x	x	0.000	0.000	x
4	9	0.000	0.000	x	x	0.000	0.000	x
5	3	0.000	0.000	x	x	0.000	0.000	x
5	4	0.000	0.000	x	x	0.000	0.000	x
5	5	0.000	0.000	x	x	0.000	0.000	x
5	6	0.000	0.000	x	x	0.000	0.000	x
5	7	0.654	1.348	x	x	0.000	0.302	x
5	8	0.581	1.199	x	x	0.000	0.269	x
5	9	0.000	0.000	x	x	0.000	0.000	x
5	10	0.000	0.000	x	x	0.000	0.000	x

Table F.18—continued

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
6	4	0.000	0.000	x	x	0.000	0.000	x
6	5	0.000	0.000	x	x	0.000	0.000	x
6	6	0.000	0.000	x	x	0.000	0.000	x
6	7	0.000	0.000	x	x	0.000	0.000	x
6	8	0.654	1.348	x	x	0.000	0.302	x
6	9	0.581	1.199	x	x	0.000	0.269	x
6	10	0.000	0.000	x	x	0.000	0.000	x
6	11	0.000	0.000	x	x	0.000	0.000	x
7	5	0.000	0.000	x	x	0.000	0.000	0.000
7	6	0.000	0.000	x	x	0.000	0.000	0.000
7	7	0.000	0.000	x	x	0.000	0.000	0.000
7	8	0.000	0.000	x	x	0.000	0.000	0.000
7	9	0.654	1.348	x	x	0.000	0.302	0.000
7	10	0.581	1.199	x	x	0.000	0.000	0.269
7	11	0.000	0.000	x	x	0.000	0.000	0.000
7	12	0.000	0.000	x	x	0.000	0.000	0.000
8	6	0.000	0.000	x	x	0.000	x	0.000
8	7	0.000	0.000	x	x	0.000	x	0.000
8	8	0.000	0.000	x	x	0.000	x	0.000
8	9	0.000	0.000	x	x	0.000	x	0.000
8	10	0.654	1.348	x	x	0.000	x	0.302
8	11	0.581	1.199	x	x	0.000	x	0.269
8	12	0.000	0.000	x	x	0.000	x	0.000
8	13	0.000	0.000	x	x	0.000	x	0.000
9	7	0.000	0.000	x	x	0.000	x	0.000
9	8	0.000	0.000	x	x	0.000	x	0.000
9	9	0.000	0.000	x	x	0.000	x	0.000
9	10	0.000	0.000	x	x	0.000	x	0.000
9	11	0.654	1.348	x	x	0.000	x	0.302
9	12	0.581	1.199	x	x	0.000	x	0.269
9	13	0.000	0.000	x	x	0.000	x	0.000
9	14	0.000	0.000	x	x	0.000	x	0.000

Table F.18—continued

Track	YOS	Log Unempl	Log Wage Ratio	A1	A2+	Past A	B	C
10	8	0.000	0.000	x	x	0.000	x	0.000
10	9	0.000	0.000	x	x	0.000	x	0.000
10	10	0.000	0.000	x	x	0.000	x	0.000
10	11	0.000	0.000	x	x	0.000	x	0.000
10	12	0.654	1.348	x	x	0.000	x	0.302
10	13	0.581	1.199	x	x	0.000	x	0.269
10	14	0.000	0.000	x	x	0.000	x	0.000
10	15	0.000	0.000	x	x	0.000	x	0.000
11	6	0.000	0.000	x	x	x	0.000	0.000
11	7	0.000	0.000	x	x	x	0.000	0.000
11	8	0.000	0.000	x	x	x	0.000	0.000
11	9	0.000	0.000	x	x	x	0.000	0.000
11	10	0.000	0.000	x	x	x	0.000	0.000
11	11	0.000	0.000	x	x	x	0.000	0.000
11	12	0.000	0.000	x	x	x	0.000	0.000
11	13	0.000	0.000	x	x	x	0.000	0.000
11	14	0.000	0.000	x	x	x	0.000	0.000
11	15	0.000	0.000	x	x	x	0.000	0.000
11	16	0.000	0.000	x	x	x	0.000	0.000
11	17	0.000	0.000	x	x	x	0.000	0.000
11	18	0.000	0.000	x	x	x	0.000	0.000
11	19	0.000	0.000	x	x	x	0.000	0.000
11	20	0.000	0.000	x	x	x	0.000	0.000
11	21	0.000	0.000	x	x	x	0.000	0.000
11	22	0.000	0.000	x	x	x	0.000	0.000
11	23	0.000	0.000	x	x	x	0.000	0.000
11	24	0.000	0.000	x	x	x	0.000	0.000
11	25	0.000	0.000	x	x	x	0.000	0.000
11	26	0.000	0.000	x	x	x	0.000	0.000
11	27	0.000	0.000	x	x	x	0.000	0.000
11	28	0.000	0.000	x	x	x	0.000	0.000
11	29	0.000	0.000	x	x	x	0.000	0.000

(x = econometric parameter is not valid for that Track and is not included in the database)

Table F.19

YOS BY GRADE COST FACTORS

	Pay Grade								
YOS	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
0	616	738	767	814	873	995	1156	1656	1974
1	616	738	767	814	873	995	1156	1656	1974
2	616	738	767	814	873	995	1156	1656	1974
3	616	738	842	860	950	1084	1248	1656	1974
4	616	738	842	910	996	1129	1294	1656	1974
5	616	738	875	981	1040	1177	1339	1656	1974
6	616	738	875	981	1040	1177	1339	1656	1974
7	616	738	874	1019	1108	1221	1385	1656	1974
8	616	738	874	1019	1108	1221	1385	1656	1974
9	616	738	874	1019	1153	1265	1429	1656	1974
10	616	738	874	1019	1153	1265	1429	1656	1974
11	616	738	874	1019	1199	1312	1475	1702	1974
12	616	738	874	1019	1199	1312	1475	1703	1974
13	616	738	874	1019	1243	1379	1521	1748	2019
14	616	738	874	1019	1243	1379	1521	1748	2019
15	616	738	874	1019	1265	1423	1589	1793	2064
16	616	738	874	1019	1265	1423	1589	1793	2064
17	616	738	874	1019	1265	1469	1635	1840	2112
18	616	738	874	1019	1265	1469	1635	1840	2112
19	616	738	874	1019	1265	1491	1680	1883	2159
20	616	738	874	1019	1265	1491	1680	1883	2159
21	616	738	874	1019	1265	1491	1702	1929	2201
22	616	738	874	1019	1265	1491	1702	1929	2201
23	616	738	874	1019	1265	1491	1817	2042	2317
24	616	738	874	1019	1265	1491	1817	2042	2317
25	616	738	874	1019	1265	1491	1817	2042	2317
26	616	738	874	1019	1265	1491	2042	2270	2542
27	616	738	874	1019	1265	1491	2042	2270	2542
28	616	738	874	1019	1265	1491	2042	2270	2542
29	616	738	874	1019	1265	1491	2042	2270	2542

Table F.20

OTHER MPA COST FACTORS BY PAY GRADE

Pay Grade								
E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
4834	5389	6211	7187	7876	8745	9747	10405	11524

Table F.21

TERM OF ENLISTMENT PROBABILITIES

Initial TOE	Bonus Multiple							
	0	0.5	1	2	3	4	5	6
4-year	0.905	0.428	0.390	0.314	0.239	0.243	0.243	0.243
6-year	0.819	0.332	0.295	0.219	0.143	0.147	0.147	0.147

Table F.22

EARLY ATTRITION AND PROMOTION PROBABILITIES (SxDY)

Source	Destination				
	1	2	3	4	5
1	0.080	0.040	0.020	0.450	0.410
2	0.007	0.015	0.055	0.612	0.311
3	0.040	0.030	0.930		
4	0.006	0.080	0.914		
5	0.070	0.004	0.858	0.068	
6	0.080	0.060	0.110	0.750	
7	0.007	0.120	0.873		
8	0.120	0.880			
9	0.045	0.055	0.190	0.710	

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